Gatwick Airport Northern Runway Project

Environmental Statement
Appendix 5.3.1: Buildability Report – Part A – Clean Version

Book 5

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1 Executive Summary

1.1.1 The Gatwick Northern Runway Project (NRP) will enable increased passenger numbers and aircraft operations. The Project proposes alterations to the existing northern runway and enhances the taxiway systems and parking stands to accommodate increased aircraft movements. Other elements of the Project would enable the increased airfield capacity to be accessed by passengers through additional processing capability and improved airport access. It also offers flood compensation, habitat creation and provision of recreational routes and public open spaces.

1.1.2 This Buildability Report has been prepared to present an indicative construction methodology for the successful execution of the NRP. The proposed approach for the construction of the Surface Access Works is described in the **ES Appendix 5.3.1 Buildability Report Part B** [APP-080, APP-081]

1.1.3 The document outlines an indicative sequence of logistics, construction and supporting activities, with the flexibility to adjust and optimise as the Project progresses. Initial steps will include setting up temporary construction compounds and executing utility diversion works. As the Project progresses, the construction will continue with creating flood compensation areas, repositioning the northern runway, and reconfiguring taxiways and existing facilities. The latter stages of the Project will be the construction of a new pier, car parking and commercial facilities.

1.1.4 This Report also describes the logistics approach for the NRP. This approach includes the elements of centralised communication, collaboration, clear governance, and integration with airport operations and highway authorities, aiming to reduce the construction's environmental and community impacts. Where appropriate, the measures are secured through the control documents, particularly in **ES Appendix 5.3.2: Code of Construction Practice** [REP7-022].

1.1.5 Temporary construction compounds located at strategic points within the Airport and its surrounding areas will support the construction of the NRP. These compounds will provide areas for offices, staff welfare, car parking, batch plants, storage, waste disposal and material reprocessing. They are planned to reduce disruptions, optimise construction efficiency, and limit environmental and community impact. They will range from contractor hubs to satellite compounds and welfare facilities. GAL will apply rigorous safety measures to protect workers, airport users, residents and the environment.

1.1.6 The subsequent sections of this Report describe each work package planned for the construction of the NRP. These sections include details about each package, such as locations, the anticipated construction methodologies and equipment for construction.

1.1.7 Overall, this Buildability Report has been provided to serve as a comprehensive guide to the anticipated construction of NRP, outlining the steps and strategies to ensure its successful completion.

2 Introduction

2.1.1 This Buildability Report supports the application for development consent for the Gatwick Airport Northern Runway Project (NRP or the 'Project'). The Report describes the proposed approach for the construction of the Project based on the design set out in the application for development consent for the Project. The proposed method for constructing the Surface Access Works is described in a separate report, "Buildability Report (Part B) Surface Access Works".

2.1.2 This Report describes the scope, methodology and sequence of the logistics, construction and enabling works that are likely to be required for the permanent works needed to enable the capacity of the Airport to bring the northern runway into routine use. It identifies all the work packages likely to be required to complete the Project (except for the surface access work packages, which are specified in the Buildability Report (Part B)) and, for each, sets out the most likely sequence of construction activities required together with the types of equipment needed.

2.1.3 In addition, this Report describes the support logistics, construction operations, enabling and temporary works likely to be required for the construction of the permanent works of the Project. Such activities include surveys, contractor compounds, demolition, temporary installations, the construction of permanent works and the removal of waste generated. The construction methods detailed in this Report are based on the preliminary design stage. They will be refined during the detailed design stage and after the appointment of a main contractor.

2.1.4 This Report has been prepared to provide information regarding an indicative method of building the Northern Runway Project, and it is not intended to define any specific way. It provides an overview of the possible approach and outlines the steps in executing the construction.

3 Overview of the Project

3.1.1 The Project includes developing infrastructure and facilities to allow increased airport passenger numbers and aircraft operations. This section summarises the Project Description in **ES Chapter 5: Project Description** [REP6-013].

3.1.2 The Project includes alterations to the existing northern runway and corresponding modifications to the taxiway system and parking stands to accommodate increased aircraft movements. Other elements of the Project would enable the increased airfield capacity to be accessed by passengers through additional processing capability and improved airport access.

3.1.3 The Project includes the following key components:

- Amendments to the existing northern runway, including repositioning its centreline 12 metres further north to enable dual runway operations.
- Reconfiguration of taxiways.
- Pier and stand alterations (including a proposed new pier).
- Reconfiguration of other airfield facilities.
- Extensions to the existing airport terminals (north and south).
- Provision of additional hotel and office space.
- Provision of reconfigured car parking, including new car parks.
- Surface access (including highway) works.
- Demolition and relocation of Central Area Recycling Enclosure (CARE) facility.
- Provision of water treatment facilities.
- Provision of an On-airport Wastewater Treatment Works (On-airport WWTW) – *if it forms part of the final consented Project.*
- Reconfiguration of existing utilities, including surface water, foul drainage, and power infrastructure.
- Landscape/ecological planting and environmental mitigation.

3.2. Alterations to the Existing Northern Runway

3.2.1 The existing northern runway will be adjusted to reposition the centreline 12 metres further north to ensure a separation distance of 210 metres between it and the main runway. This distance is required to meet European Aviation Safety Agency standards for closely spaced parallel runways. The altered northern runway would retain a width of approximately 45 metres, with 7.5-metre-wide shoulders.

3.2.2 The redundant 12-metre strip south of the altered northern runway would be removed and returned to grass. The 33-metre-wide section of the retained existing runway and the new 12-metre strip to the north would be resurfaced and provided with new markings to form the altered northern runway. There would be no change to the overall length of the runway.

3.3. Reconfiguration of Taxiways

3.3.1 A number of existing taxiways would require amendment and realignment to accommodate the altered northern runway, provide sufficient room for the safe manoeuvre of aircraft associated with both runways and accommodate increased aircraft numbers. Redundant areas of hard-standing would be removed and returned to grass.

3.4. Aircraft Holding Area

3.4.1 Reconfiguration of an existing apron area to the north of Taxiway Juliet is proposed.

3.5. Pier and Stand Amendments

3.5.1 As part of the Project, a new Pier 7 is proposed to the northwest of Pier 6, adjacent to the existing cargo facility. In addition to the new Pier 7, the Project would include additional stands for increased flexibility in handling different aircraft types.

3.6. Reconfiguration of Existing Airport Facilities

3.6.1 Several existing facilities would require reconfiguration or relocation, and additional facilities would be needed to accommodate the proposed changes to the Airport. These works would comprise constructing new facilities and demolishing existing facilities.

3.7. Extensions to North and South Terminals

3.7.1 Extensions to the existing North and South Terminals would be required to accommodate passenger growth.

3.8. Hotel and Commercial Facilities

3.8.1 An increase in passenger and aircraft operations will require additional office and hotel provisions to meet the needs of airport companies and passengers.

3.9. Car Parking

3.9.1 New car parking would be required on-site to meet additional demand generated by the proposed increase in passengers due to the Project and to replace existing parking spaces lost due to development associated with the Project.

3.10. Surface Access Works

3.10.1 In order to accommodate the proposed increase in passenger numbers accessing the Airport, improvements are required to the highways that serve both the South Terminal and North Terminal roundabouts to add capacity.

3.10.2 The details of the construction methodology, traffic management and programme of the existing roads/junctions during these improvements are detailed in **ES Appendix 5.3.1 Buildability Report Part B** [APP-080, APP-081].

3.11. Water Management

3.11.1 The existing airport drains to local watercourses via attenuation ponds. In order to accommodate the alterations to the northern runway, to allow for the areas of new development and to meet current planning requirements (including an allowance for climate change), a revision to the existing surface water drainage strategy is required.

3.12. Landscape, Ecological Planting and Environmental Mitigation Areas

3.12.1 These works include the provision of replacement open space and footpaths, including the provision of a new area at Horley and an extension to the River Mole footpath; a new footpath from Riverside Garden Park to new open space at Car Park B and associated publicly accessible land; and creation of new high-value habitats including woodland, tree, scrub, shrub, wetland/pond and grassland.

3.13. Environmental Mitigation Areas

3.13.1 Areas identified for proposed environmental mitigation are included within the Project.

3.14. On-airport Wastewater Treatment Works

3.14.1 The installation of an On-airport Wastewater Treatment Works ('WWTW') may be required as alternative solution for treatment of wastewater from the Airport, as compared to wastewater flows entering Thames Water Utilities Limited's local wastewater treatment network and being treated at local sewage treatment works. It is being proposed as part of the Project to mitigate against ongoing uncertainty regarding capacity constraints in the local wastewater treatment network, which will not be resolved prior to the end of the Examination. The on-airport WWTW would be located within the existing Self Park North car park and would treat all flows from the airport, including all additional flows generated by the Project as well as airport flows more generally.

4 Indicative Sequencing of Construction Works

4.1.1 The timing of construction works is dependent on securing development consent. The key milestone of the indicative construction programme of the Project is given in the following section. The duration for the main airfield construction works would be approximately five years. The northern runway would not be available for several months during construction.

4.2. Key Milestones

4.2.1 The completion of the Project work scope is linked to the completion of multiple work packages. Further details of the indicative construction sequence for the construction works are set out in **ES Chapter 5: Project Description** [REP6-013]. Table 1 summarises the anticipated main dates of the construction period of the Project.

Table 1: Indicative Sequencing of Construction Works

Indicative Sequencing and Date Shown	Component of the Project
2023-2029	Pre-construction activities (including surveys for any unexploded ordnance and any necessary pre-construction surveys)
2024-2029	Early works, including the establishment of compounds, fencing, early clearance and diversion works and re-provision of essential replacement services.
2024-2029	Reconfiguration of existing maintenance airfield facilities (Phase 1) Alterations to the existing northern runway Airfield works to support the use of the realigned northern runway
2024-2033	Extensions to North and South Terminals
2024-2032	Hotel and commercial facilities
2024-2035	Car parking
2024-2029	Flood compensation areas
2026-2028	On-airport WWTW *(if it forms part of the final consented Project)*
2028-2032	Surface access works include: South Terminal roundabout improvements (2029-2031) North Terminal roundabout improvements (2029-2031) Works to Longbridge roundabout (2028-2031) Completion of Surface access works 2032
2029-2034	Ongoing reconfiguration of existing maintenance airfield facilities (to final state) Further improvements to airfield facilities
2030-2034	Pier 7

Indicative Sequencing and Date Shown	Component of the Project
2035	Reinstatement of final land use at temporary construction compound locations
2038	Completion of all works for the Project

4.3. Construction Activities and Activity Sequence

4.3.1 The Project will carry out pre-construction surveys and detailed design in the first year following the DCO granting permission for the construction.

4.3.2 Early works will include establishing compounds, fencing, early site clearance, diversion works, and re-provision of essential replacement services.

4.3.3 In subsequent phases, flood compensation areas will be constructed to facilitate repositioning the northern runway and reconfiguring taxiways to accommodate increased aircraft movements. The extension of the North and South Terminals and reconfiguration of other airport facilities will be undertaken to increase airport capacity. The On-airport WWTW (if it forms part of the final consented Project) is proposed to accommodate the additional wastewater flows generated by the Project and airport flows more generally. Surface access works will be necessary to facilitate airport access, including upgrades to the South Terminal, North Terminal, and Longbridge roundabouts.

4.3.4 Existing airfield facilities will be progressively reconfigured to their final state, and additional airfield facilities will be built to accommodate passengers, hotel and commercial facilities, and car parking. A new Pier will be constructed to increase airport capacity.

4.3.5 Finally, landscaping and reinstatement of final land uses at temporary construction compound locations will be carried out.

4.3.6 The construction activities will be carried out in a timely and efficient way to minimise disruption to airport operations, road users and the public.

5 Construction Materials Management

5.1.1 The Northern Runway Project will require detailed planning and effective management of various construction materials to optimise the utilisation of resources, enhance project efficiency and promote sustainability.

5.1.2 An outline Material Management Plan (**ES Appendix 5.3.2: CoCP Annex 5 – Construction Resources and Waste Management Plan** [REP7-028] has been prepared to outline the strategies and principles that will be followed for handling and managing construction materials throughout the construction period. This encompasses the careful handling and utilisation of materials, including cohesive and granular materials that will be produced during earthwork operations and non-earthworks construction materials such as concrete, asphalt, structural steel and other building materials.

5.1.3 The section below summarises the Outline Construction Materials Management Plan for the Northern Runway Project.

5.2. Management of Earthworks Materials

5.2.1 The fundamental intent of the management of earthwork materials is to maximise material reuse, reduce truck movements as far as possible in handling materials, and reduce the amount of material that must be taken off-site for disposal. The fundamental principles of material reuse are set out below.

- Maximise reuse of materials
  - Plan for including the excavated material in the construction of new elements, including the on-site crushing of materials obtained from the demolition of structures and pavement.
  - Plan for the additional testing of the materials to validate the reuse assumptions.
- Minimise handling of materials
  - Keep material on-site, wherever possible, as close to the excavation and deposit sites as feasible.
  - Make use of stockpiles on site to store the material until it is needed
- Minimise the amount of material sent off-site for disposal or beneficial reuse
  - Stockpile material on site to supply the right kind of material for use in the construction of new elements
  - Where possible, provide remediation on-site to remove contaminants before the beneficial reuse of the material

5.2.2 The key materials considered in the earthworks strategy are:

- Granular materials

5.2.3 These are materials typically obtained from importing granular deposits such as gravels, cobbles, crushed concrete, and bricks or from the crushing of demolition arisings from the removal of runways, taxiways, roads or other hard paved surfaces within the airport footprint.

- Cohesive materials

5.2.4 These are typically materials obtained from stripping existing topsoil and excavating undisturbed ground. These earthwork operations will likely provide clays and similar cohesive materials.

5.2.5 The Project aims to identify and utilise reusable[1] material generated from on-site demolition and excavation as much as possible. However, the extent of reusing materials is constrained due to limitations such as inadequate storage areas and the prolonged duration of the programme. As a result, a portion of the materials generated during demolition and excavation will be exported off-site. This approach allows for efficient materials management, ensuring they can be used in future projects or repurposed in other locations. Recycling these materials will not only reduce construction waste but reduce environmental impact and conserve natural resources. The Project team will implement effective stockpiling strategies and explore sustainable disposal options for excess material to reduce waste and comply with relevant environmental regulations and guidelines. The details are given in **ES Appendix 5.3.2: CoCP Annex 5 – Construction Resources and Waste Management Plan** [REP7-028].

5.2.6 Recycled concrete can be a viable, cost-effective alternative to conventional aggregate and can be reused or sold. Similarly, non-contaminated cohesive material also has a market, as there is a demand for an inert material to cap off existing landfill sites. Where stockpiles are created, stockpile pollution control will be given due consideration. Measures will embrace dust mitigation either by water suppression, using recycled or captured water where possible, covering, or allowing vegetation to grow and be managed where appropriate. Measures will also be taken to prevent contaminated runoff from entering drains or watercourses following sound environmental practices. These measures are defined in the **ES Appendix 5.3.2 Code of Construction Practice** [REP7-022] and **ES Appendix 5.3.2: CoCP Annex 5 – Construction Resources and Waste Management Plan** [REP7-028].

Management of Non-Earthworks Materials

5.2.7 Non-earthworks materials refer to construction materials not derived from the Project's earthworks activities. The non-earthworks materials as described in **ES Appendix 5.3.2: CoCP Annex 5 – Construction Resources and Waste Management Plan** [REP7-028], include the following elements:

- Concrete – The concrete plants will be located at various worksite areas. Concrete constituents are cement and aggregates. Cement substitutes, typically Pulverised Fly Ash

[1] The assumption in the current calculation is that 90% of demolished material and 80% of excavated material will be suitable for reuse on-site, with the remaining being of an unacceptable nature or a waste material that will need to be exported off-site for responsible disposal.

(PFA) or Ground Granulated Blast-furnace Slag (GGBS), may be used to replace Ordinary Portland Cement (OPC) or Sulphate Resisting Cement (SRC). Similarly, recycled aggregates can be incorporated into concrete mix designs, within controlled limits.

- Asphalt – The asphalt plants will similarly be positioned at the various worksite areas. The materials required for these plants consist of bitumen and aggregates. There is also an opportunity to use recycled materials for this.
- Granular materials – These will be sourced from external quarries or suitably treated and improved demolition arisings.
- Structural steel – Ideally, structural steel will be delivered "just in time" directly to the worksite. If this is not feasible, the steel will be stored in the relevant bulk material storage area until needed for the works.
- Reinforcing steel (rebar) – Rebar is traditionally delivered pre-bent in bulk loads to the site. These components will be assembled into cages in situ or adjacent to the works. There is an opportunity to create a rebar fabrication facility within a contractor compound. This would take the straight unworked bar, cut and bend it to shape, and then re-assemble it into cages for transportation to the adjacent sites to enable a more modular approach.
- Pipe and Cable – Unless transported to the works 'just in time', the pipe will be delivered to the relevant bulk material storage compound for later distribution to the place of installation. In view of the high value of the materials, the cable compound will require enhanced security. Where appropriate, the pipe (and the cable) can be incorporated into factory-assembled modules in line with the principles of Design for Manufacture and Assembly (DFMA).
- See **ES Appendix 5.3.2: Code of Construction Practice** [REP7-022]and **ES Appendix 5.3.2: CoCP Annex 5 – Construction Resources and Waste Management Plan** [REP7-028] for further detail.

5.3. Permits and Licenses

5.3.1 Permits and licenses obtained from Local and National Authorities will include all environmental and traffic permissions, approvals, permits, licences and authorisations required from a consent-granting body to undertake and complete the works. Further details of the consents and licences are provided in the **List of Other Consents and Licences** [REP3-062].

5.4. Contractor Mobilisation

5.4.1 The delivery stage of the work will comprise works which fall into one or more of the following types, as shown in Figure 1:

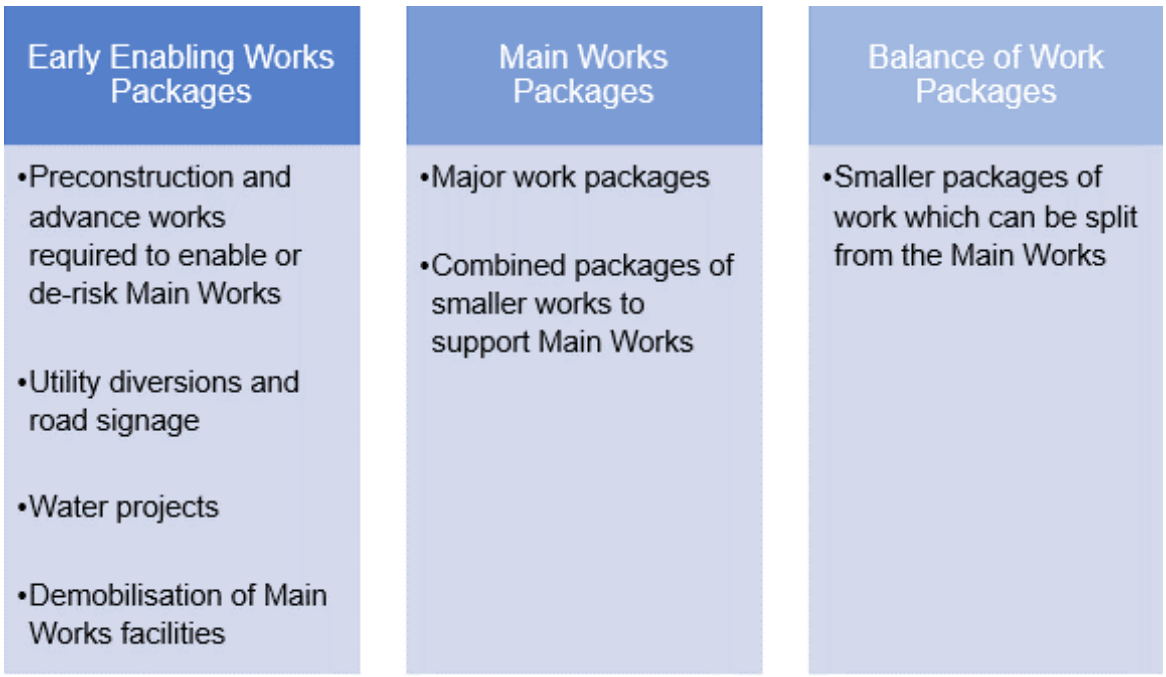

Figure 1: High-level work package split

5.4.2 The fundamental principles of this model are:

- One or more stages of work are anticipated; therefore, there will be more than one mobilisation stage.
  - The Early Enabling Works Packages will likely comprise multiple smaller contractors operating from various parts of the campus.
  - This, in turn, will lead to smaller mobilisations of larger entities operating from fewer locations on the campus to perform the main works.
  - Finally, after the peak of main works construction, larger entities will be reduced, and the final smaller packages of work will be completed using smaller contractors operating from a wider base of operations.
- Completing the Main Works Packages will likely use multiple major contracting entities (Tier 1 Contractors) managing the work, with a long supply chain of sub-tier relationships (Tiers 2 and below contracting entities and their supply chain partners).

- Contractual restrictions for logistics and performance will be applied to all in the supply chain to avoid violation of rules through lack of visibility of the restrictions.
- During construction, a package may transition between Tier 1 and Tier 2 contractors.

5.4.3 Anticipated activities required before the mobilisation of main works contractor(s) to create the infrastructure needed are likely to include the pre-construction surveys and early enabling works. These activities can be summarised but not limited to activities below:

Pre-Construction surveys

- Archaeological and heritage surveys
- Unexploded Ordnance (UXO) surveys
- Structures and property condition surveys (at identified locations where the construction works might affect the existing structures)
- Noise baseline monitoring and monitoring during the works
- Dust baseline monitoring and monitoring during the works
- Ecological surveys and mitigation actions
- Intrusive and non-intrusive surveys

Enabling Works

- Obtaining relevant permits and licenses
- Communications and community engagement.
- Vegetation/tree clearance
- Enabling works, including access points and temporary fencing
- Erection of temporary construction facilities and buildings.
- Installation of construction signage.
- Access and right-of-way modifications (as required).
- Utility diversions and modifications.
- Creation of working platforms and hard-standing areas.
- Relocation of existing facilities to free up space for construction.

5.5. Demolition Works

5.5.1 The first elements of building demolition will include the disconnection of any services or utilities, followed by a soft strip[2] of the building's internal fixtures and fittings and any remaining furnishings, appliances and contents, other than the building structure itself. These items will be recycled where possible. If it is not possible to recycle them, they will be disposed of responsibly and legally.

5.5.2 Demolition of the existing buildings will be done by mechanical methods, using a specialist demolition company. The expected method is to break apart and dismantle the existing buildings systematically. This type of demolition uses long-reach hydraulic arm excavators equipped with specialised attachments that can break concrete and steel, effectively "chewing" the structure apart.

5.5.3 Demolition of the existing pavement surfaces and hard-standing areas will be done by percussive hammer breakers on hydraulic arm excavators (see Figure 2). The large pieces of broken-out materials will be collected and transported to the Car Park Y crusher and screening facility for further processing and reuse on-site.

Figure 2: Typical concrete pavement demolition operation using percussive hammer breakers

5.5.4 Water will be used to dampen down the demolished areas to minimise the dust created by the demolition activity. This water will be collected from the paved areas and treated sufficiently for release into the drainage system, or where this is not possible, it will be removed from the site by tanker to a suitable treatment facility.

[2]. The soft strip means the removal of all fixtures, fittings, plaster and often internal walls, floors and ceilings as required. This strip leaves the building stripped down to brickwork and ready for re-wiring, plumbing and plastering.

5.5.5 The material will initially be segregated on-site (e.g. metals and bricks) and then processed at recycling centres. In the case of the bricks and concrete materials derived from the demolition, the crushing and processing of these materials into reusable aggregate and fill material is planned to be carried out at an installation at the Car Park Y Reprocessing Compound. See example of crushing of the materials on-site in Figure 3.

Figure 3: Example of site-based crusher arrangement (Old Oak Common Crossrail Depot)

6 Construction Logistics

6.1.1 The Construction logistics services will be delivered safely and efficiently through an integrated Construction Logistics Team consisting of members from GAL, the lead contractor, contractors, and GAL Operations. By implementing a customised logistics approach, this team will ensure efficient resource utilisation and increased productivity. The integrated logistics approach will involve close collaboration among all stakeholders, integration with airport operations and a strong emphasis on sustainable practices, resulting in a safer and more effective construction process. This approach will address the unique needs and challenges of the NRP construction while prioritising the safety and well-being of the local community, environment, and airport operations.

6.1.2 Key aspects of the customised logistics approach include:

1. A centralised point of contact: A unified communication channel to manage all construction logistics, ensuring direct information flow among the GAL construction and operations team, lead contractors, contractors, and stakeholders.

2. Coordination and collaboration: The customised NRP logistics approach will encourage active cooperation between all stakeholders, promoting a shared understanding of the Project's goals and requirements.

3. Governance and leadership: Strong project management with clearly defined roles and responsibilities for each team member, ensuring accountability and effective decision-making.

4. Integration with airport operations: The approach will ensure that construction tasks are planned and executed to reduce disruptions to airport operations and maintain a high level of safety and service for passengers and staff.

5. Environmental and community considerations: The approach will address the potential impact on local communities and the environment, promoting sustainable practices and reducing adverse effects.

6.1.3 Inadequate logistics could negatively impact safety and quality, cause delays, and contribute to health and environmental risks on-site and in local communities. The established system, guided by the Construction Logistics Team, will aim to reduce transport movements, reduce waste, and mitigate health, safety, and environmental impacts.

6.1.4 The Construction Logistic Team will work together to avoid compromising the operation of the Airport. All construction tasks will integrate efficiently, not only with each other but also with the Airport's operations and the surrounding communities through one point of contact.

6.1.5 Figure 4 shows the construction logistic groups consist of people, material and site support logistics.

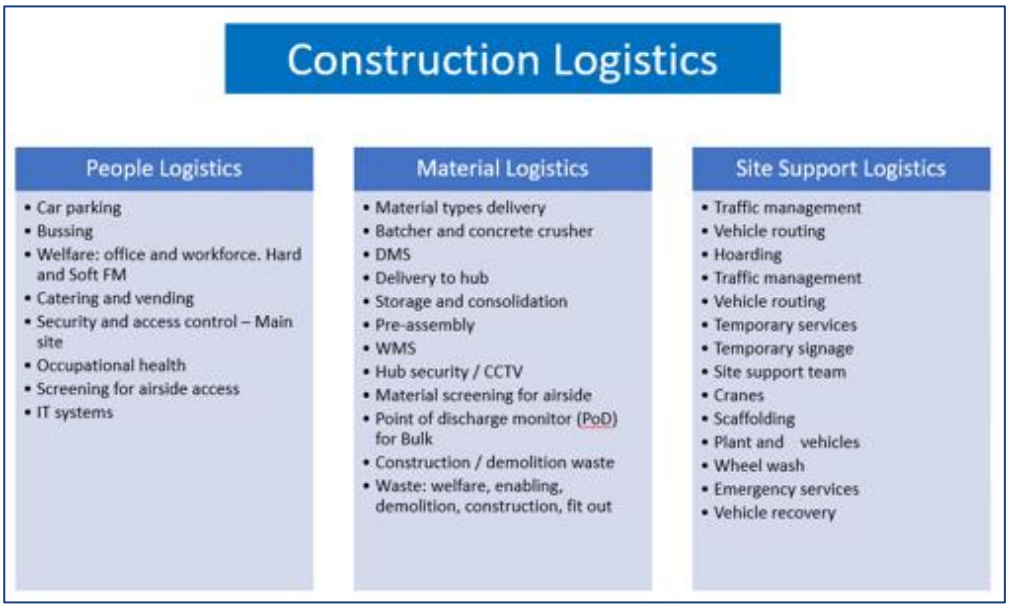

Figure 4: Construction Related Logistic Services

6.2. Workforce Numbers

6.2.1 The construction activities will be carefully scheduled and sequenced to deliver the Project effectively with reduced disruption to the operational Airport, surrounding homes and businesses, road users and the local environment.

6.2.2 Throughout the construction of the NRP, the workforce is projected to peak at approximately 1,350 people. The workforce will experience several peaks at various stages of the construction period. The significant projects contributing to these numbers include flood alleviation works, river mole reconfiguration, northern runway repositioning, reconfiguration of taxiways, North and South Terminal Internationals Departure Lounges (IDL), Pier 7, Charlie box, hotel constructions and Surface Access Improvements.

6.3. Material Logistics

6.3.1 The alterations to the existing northern runway, corresponding enhancements to the taxiway system, parking stands, and associated works require movement and placement of materials. These materials can be categorised into three types.

- Imported materials
- Exported materials
- Internally sourced material

6.3.2 Imported materials would be aggregates for concrete and asphalt plants or components for structures.

6.3.3 Exported materials would be those generated by demolition activities that are waste, materials unable to be recycled for reuse on-site, or acceptable quality but surplus to the works.

6.3.4 Internal sourced materials would primarily be recycled/processed materials taken to stockpile, batching plant, and directly used as fill.

Delivery and Storage of Materials

6.3.5 An integrated Delivery Management System (DMS) tool will be used to ensure that the correct flow of materials is maintained at all stages of the supply chain.

6.3.6 Where possible, the construction traffic will be directed to and from M23 Junction 9 using Airport Way and A23 London Road to minimise the impact on the local community.

Aggregates

6.3.7 Aggregates will be used for concrete, asphalt paving and fill. Transportation is expected to be mainly by 8-wheel 20t load tippers. Aggregates for batching plants will be stored in stockpiles located on concrete or asphalt surfaces.

Cement

6.3.8 Cement in bulk is transported in articulated tankers. Load sizes are typically 28-30 tonnes. The cement transported to worksites will be stored in silos.

Bitumen

6.3.9 Bitumen is delivered to the plant in articulated road tankers. Bitumen has to be transported at high temperatures to overcome its natural viscosity; consequently, tankers will be insulated and heated to enable the bitumen to be discharged. At the site, the bitumen can be either discharged into a storage tank or the trailer is detached from the tractor unit and directly connected to the asphalt batching plant, taking on the function of a storage tank.

Precast Concrete Units

6.3.10 Precast Concrete units would be constructed off-site and delivered by articulated road wagons to the required work areas. These would be delivered to the work areas on a just-in-time basis.

Reinforcement Steel

6.3.11 Reinforcement steel elements would be delivered to the work areas by articulated road wagons. These would be delivered to the work areas on a just-in-time basis.

Abnormal Loads

6.3.12 Abnormal loads will include the structural, mechanical and electrical elements required for the new pier and stand alterations, airfield facilities, hotels and office spaces and surface access improvements. These would be manufactured off-site and delivered to the site on a just-in-time basis.

6.3.13 Abnormal loads will be delivered outside of normal working hours to ensure minimum disruption to road users and third parties who may have ongoing operations during the day, as set out in **ES Appendix 5.3.2: Code of Construction Practice** [REP7-022]. Abnormal loads will be delivered from M23 Junction 9 using Airport Way and A23 London Road. The traffic management teams, in the form of escorts and rolling blocks, would control load movements along this route. This would be undertaken off-peak where possible and coordinated with the highway authorities and Gatwick Operations Team.

Drainage Materials

6.3.14 All precast manhole and drainage components would be delivered to the site on a just-in-time basis on articulated road wagons. Pipes required on the Project are likely to be either precast concrete or twin-wall plastic pipe.

6.4. Outline Construction Traffic Management Plan (OCTMP)

6.4.1 An outline Construction Traffic Management Plan for Materials (OCTMP), **see ES Appendix 5.3.2 CoCP Annex 3 – Outline Construction Traffic Management Plan** [REP7-026] has been prepared for the Project. The overall objective of this plan is to ensure that freight vehicles required for the transportation of materials for the Project are managed to:

- Reduce emission levels as far as reasonably practicable.
- Limit noise impacts as far as reasonably possible.
- Manage safety risks related to construction for residents, uses of the Airport, and other traffic users.
- Manage congestion due to increased vehicles over and above business as usual traffic and minimise impacts to the local community such as wear and tear of the road network and dust from construction traffic. This needs to be undertaken while ensuring that the Airport remains operational and mitigates congestion on the local roads.

6.4.2 Further details are provided in the ES Chapter 5: **ES Appendix 5.3.2 CoCP Annex 3 – Outline Construction Traffic Management Plan** [REP7-026].

6.5. Outline Construction Workforce Travel Plan (OCWTP)

6.5.1 An outline Construction Workforce Travel Plan (OCWTP), **ES Appendix 5.3.2: CoCP Annex 2 – Outline Construction Workforce Travel Plan** [REP7-024], has been prepared to promote sustainable travel, reduce single occupancy car use, reduce congestion on the highway network external to the Airport and reduce the demand for temporary car parking during the construction stages of the Project. It covers journeys to and from work sites made by the construction workforce and aims to align community-wide benefits, reducing impact in the local area.

6.5.2 In terms of consideration for the local community, the aims are as follows.

- Reduce congestion on key routes/junctions, especially during traditional morning and evening peak travel times.
- Prevent unwanted on-street parking in residential neighborhoods.
- Maintain safety for residents by reducing the increase in traffic levels on local routes.
- Reduce noise impacts throughout the duration of the Project
- Reduce impacts on local air quality.

6.5.3 Further details of the plan are provided in **ES Appendix 5.3.2: CoCP Annex 2 – Outline Construction Workforce Travel Plan** [REP7-024].

6.6. Airside site security safety

6.6.1 Maintaining the highest level of security during construction operations, particularly airside, is crucial. GAL is required to ensure that all construction material deliveries meet the required security screening standards set by the Department for Transport (DfT). This will include the construction of new access gates (CAG) operated by GAL security personnel. All security infrastructure and systems will be deployed in the Maintenance Area 1 (MA1) and Airside Satellite compound.

6.6.2 This will not be an immediate requirement for the Project. In the early stages of construction, the following actions will be taken to ensure the smooth running of construction vehicles entering the airside:

- Develop scope for expanding SAG to 2 lanes (preferred due to availability of laydown space and no CSS requirements).
- Plan to maximise construction traffic/deliveries during quieter operating periods to the existing gates and supplement the GAL security staffing levels at these times.
- Utilisation of Landside Designated Worksites.

7 Temporary Construction Compounds

7.1.1 Temporary construction compounds are crucial for the efficient management of labour and materials.

7.1.2 These construction compounds provide essential facilities such as restrooms, drinking water and eating areas for the workers' well-being and safety. They are also used for training, safety briefings and team meetings for effective communication among workers. The compounds allow spaces for storage, material handling, tools and equipment to ensure well-organised and efficient site management. The facilities include designated areas for waste management and disposal to reduce the impact of the Project on the surrounding environment.

7.1.3 The enabling, phasing and mobilisation of the construction compounds are aligned and dependent on the indicative timeline for the Northern Runway Project.

7.1.4 In planning the temporary compounds land use strategy, the following objectives have been followed:

- Reduce disruption to local communities and the local environment as much as practicably possible.
- Reduce construction impact on airport operations.
- Select the most appropriate activities at compound locations.
- Build facilities only once to avoid relocation during construction.
- Reduce internal movement of people and materials between construction sites.

7.1.5 In setting up all the compounds, the measures, as described in the **ES Appendix 5.3.2: Code of Construction Practice** [REP7-022], will be followed to provide environmental best practices in respect of:

- Treatment of wastewater if there is no connection to foul sewer
- Works or maintenance near water
- Vehicle washing and cleaning
- Dealing with spills
- Measures to mitigate noise, dust, and air pollution

7.1.6 Seven temporary construction compounds are anticipated to support the construction of the Project.

- MA1 Main Contractor compound
- Airside Satellite Compound
- Car Park Z (Staging and Laydown)

- Car Park Y (Material Reprocessing and Laydown Area)
- South Terminal Roundabout Compound
- Longbridge Roundabout Site Welfare
- Car Park B Site Welfare

7.1.7 The locations of those site compounds are shown in Figure 5.

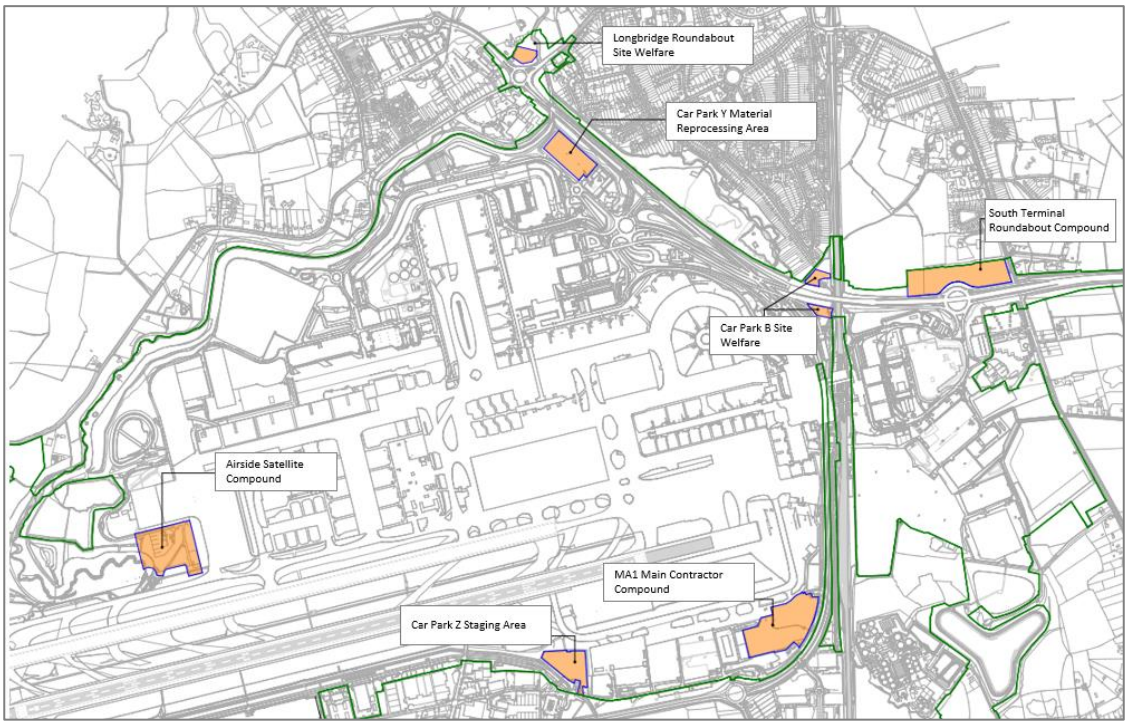

Figure 5: Anticipated locations of temporary construction compounds

7.2. NRP Temporary Compounds Indicative Timelines

7.2.1 The utilisation of temporary construction compounds will be necessary from 2024 to 2035, spanning the entire duration of the construction period associated with the NRP. The anticipated timelines of these compounds are given in Figure 6.

7.2.2 The construction compounds for the alteration to the existing runway and corresponding enhancements to the taxiway system and parking stands will be required between 2024 and 2035. The construction compounds needed for the surface access improvements are expected to be required between 2027 and 2032. The other elements of the NRP project that would enable the increased airfield capacity, such as the extension of the airport terminals, additional hotels and office spaces, car parks, flood compensation and habitat creation, will be constructed throughout the overall NRP programme and are expected to be completed by 2038.

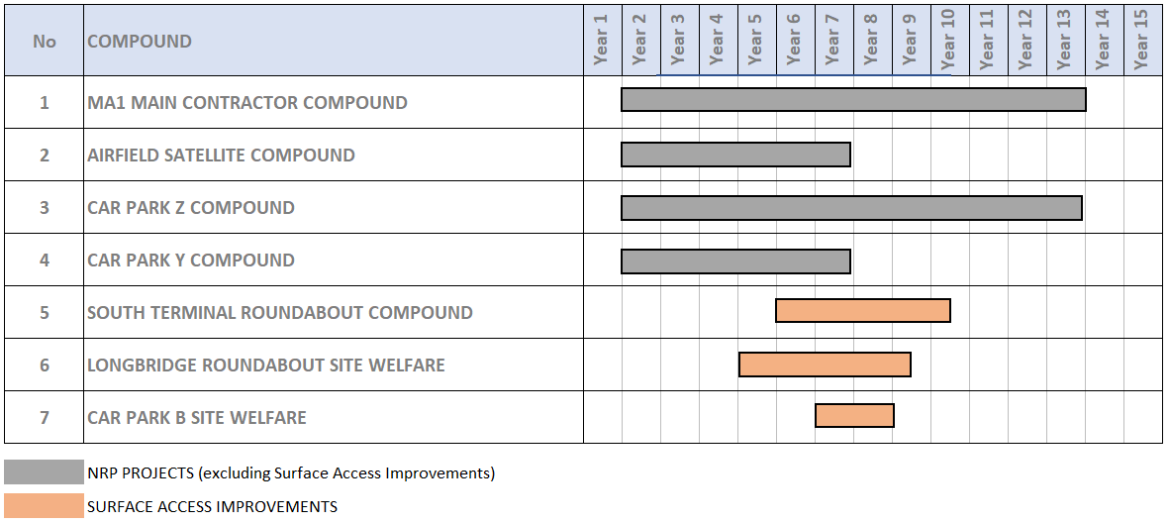

Figure 6: Temporary Construction Compounds indicative timelines

7.3. Main Contractor Compound (MA1)

7.3.1 The MA1 Contractor Compound will be used by most of the construction workforce and the NRP project and construction management team throughout the NRP construction programme.

7.3.2 The MA1 compound is in the south-eastern corner of the airfield, on GAL owned land. It covers approximately 4ha. This facility is anticipated to be needed from the start of the works until the completion of the NRP projects. The location of the compound is shown in Figure 7.

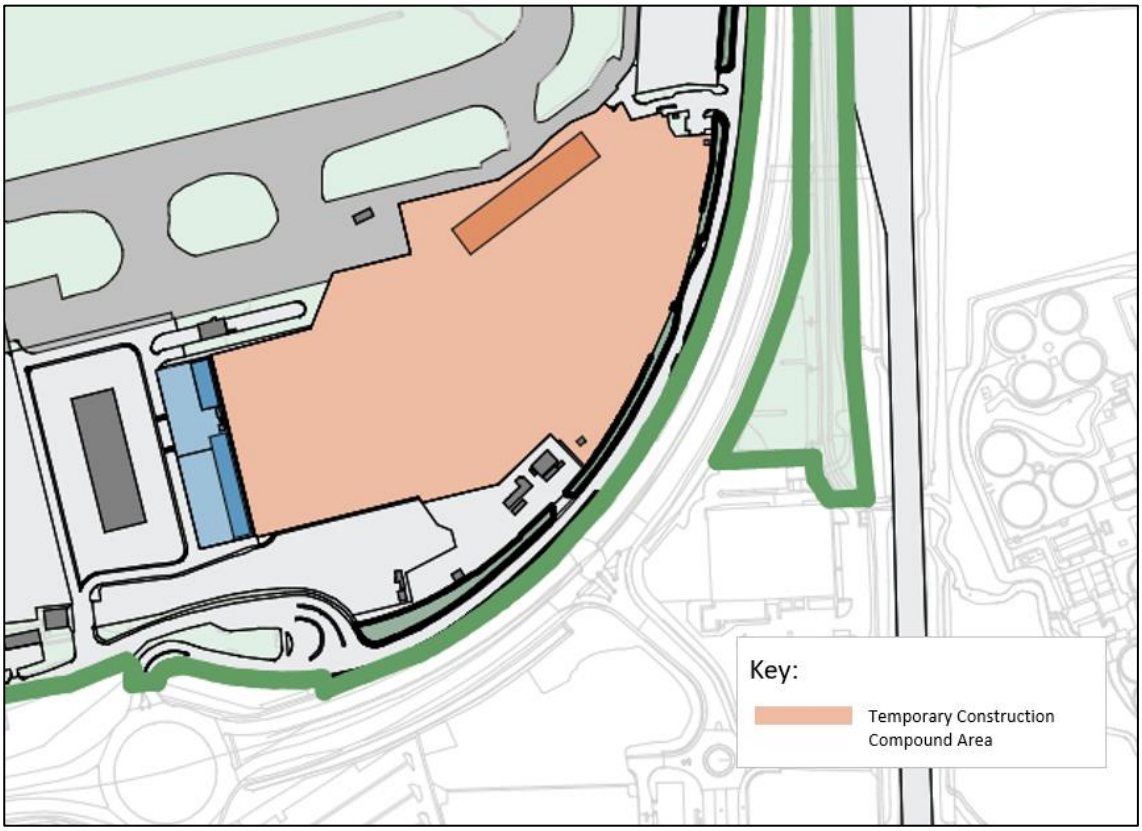

Figure 7: Site Context Plan - MA1 - Main Contractor Compound

7.3.3 The principal components of the MA1 compound comprise the following elements:

- Securely fenced area with access-controlled entrances and exits.
- Limited areas for material laydown and inspection.
- Provision for the contractor, project manager and supply chain vehicles. Restricted in number on 3 per 2 ratios (three people will use two cars to come to the site) as there are car-pooling and public transport use options.
- Contractor bus terminal.
- Airside processing facility for people, vehicles, and materials.
- Office and meeting room space for the contractor, project manager and supply chain personnel.

- Welfare provisions include restrooms, drying rooms, changing and locker rooms, toilet and shower facilities, prayer rooms, canteen and other welfare facilities.
- Two batching plants for concrete and asphalt with associated bulk material storage and handling bays. The tallest elements within the compounds are expected to be parts of the batching plants. They are expected to be no taller than 25m above ground level.

7.4. Airfield Satellite Compound

7.4.1 The Airfield Satellite Compound is located west of Taxiway Uniform and south of Hangar 11. The construction workforce and site supervision will use this compound for the projects at the airside of the Airport. Facilities include welfare facilities, batching plants, material storage areas, contractor security screening areas, staff bus stops and warehouses.

7.4.2 The satellite compound is approximately 3.5 ha and is located east of the airfield outlined in Figure 8 on GAL-owned land. This facility is anticipated to be needed from the start of work until the projects at the airfield side are completed.

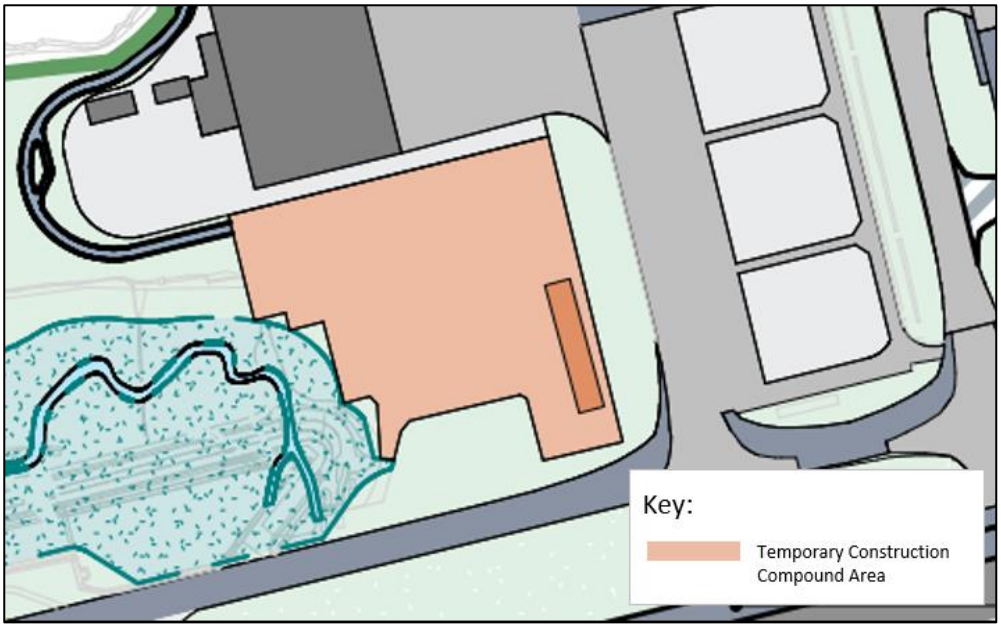

Figure 8: Site Context Plan - Airfield Satellite Compound

7.4.3 The principal components of the Airfield Satellite compound comprise the following elements:

- Secure fenced area with access-controlled entrances and exits.
- Limited areas for material laydown and inspection.
- Contractor bus terminal.
- Airside access gate.
- Office and meeting room space.

- Welfare provisions.
- Two batching plants for concrete and asphalt with associated bulk material storage and handling bays. The tallest elements within the compounds will be the parts of the batching plants. They are expected to be no taller than 25m above ground level.

7.5. Car Park Z (Staging and Laydown Area)

7.5.1 The Car Park Z Staging and Laydown compound is located at the southeast corner of the airfield on GAL-owned land and is approximately 1.5 hectares. The compound will be designated as a staging area, shown shaded orange in Figure 9. The compound will be used for the following construction requirements:

- Staging area for the workforce, vehicles and plant for the core and taxiway works. Vehicles and plants will be lined up for the workforce to go through briefings and rehearsals before entering the airside. Once the phasing of work has been completed for the night's work, vehicles and plants will return to the staging area and be prepared and parked up for the following night's activities.
- Stockpiling of small quantities of spoil/muck away.

7.5.2 This facility is anticipated to be needed from the start of work until the projects at the airside are completed.

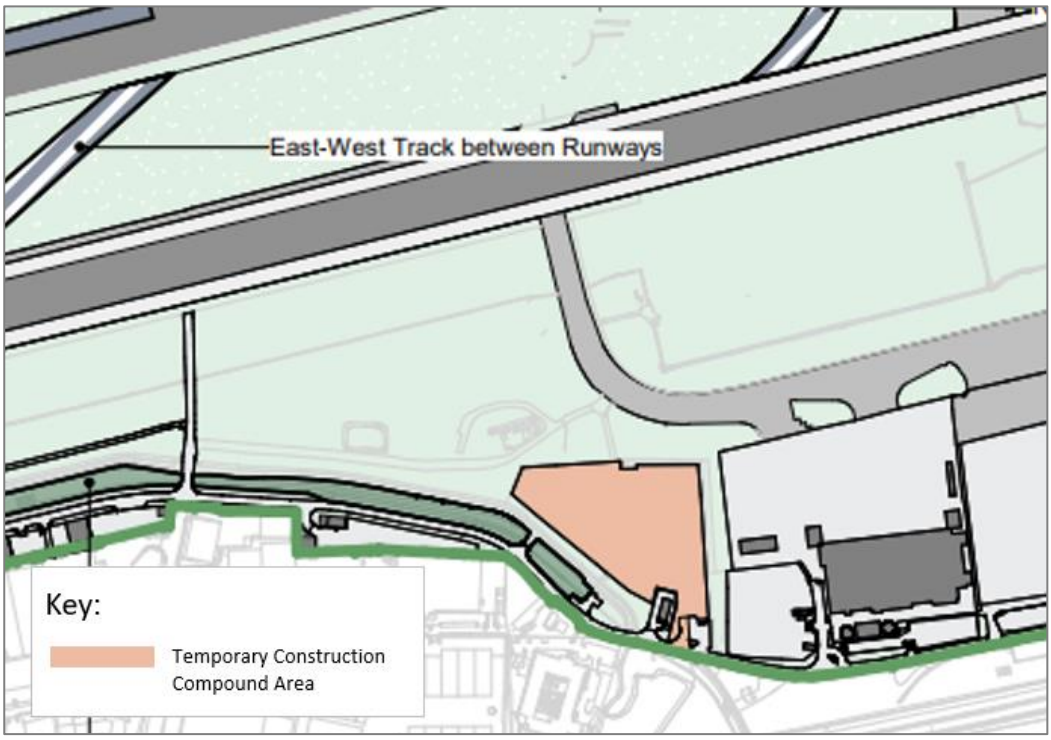

Figure 9: Site Context Plan - Car Park Z Airside Staging Area

7.6. Car Park Y - Material Reprocessing and Lay Down Area

7.6.1 The Car Park Y compound is located off the Northgate Roundabout to the north of the Airport below and is GAL owned. This facility is approximately 1.8ha and is anticipated to be needed until the Surface Access works are completed (see Figure 10). The compound will be used as a reprocessing area for the hard-excavated material from airside. The hard material excavated from the airside works will be taken from the work site by site haulage and deposited in a stockpile in the reprocessing area at Car Park Y.

7.6.2 Excavated concrete will be crushed and reused. A temporary mobile crushing unit will be set up on the site alongside the laydown area for the reprocessed materials. The location will also be used as a welfare area during the construction of North Terminal Roundabout Junction.

Figure 10: Site Context Plan - Car Park Y Reprocessing Area

7.6.3 The principal components of the Car Park Y reprocessing compound comprise the following elements.

- Material processing plant area.
- Material storage and laydown areas.
- Wheel Wash areas for HGVs.
- Pick up point for workforce vans and small parking area for operatives.

7.6.4 The temporary stockpile at the Car Park Y reprocessing compound will cover an area of approximately one hectare (10,000 m2) with a stockpile capacity of approximately 30,000 m3 of crushed material. The material will be deposited in the storage area and then transported to airside work areas or elsewhere to be reused.

7.7. South Terminal Roundabout Compound

7.7.1 The South Terminal Roundabout compound is located off the South Terminal Roundabout (STR) on Airport Way, outlined in Figure 11. This facility covers approximately 3 hectares and is anticipated to be needed from the start of the Surface Access works until the completion.

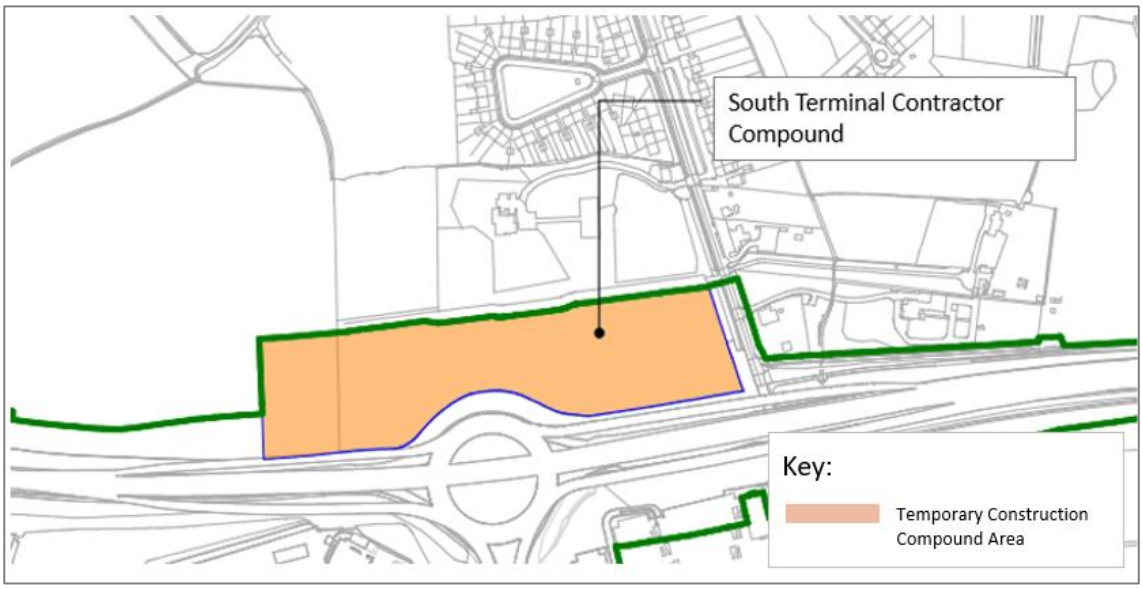

Figure 11: Site Context Plan - South Terminal Roundabout Contractor Compound

7.7.2 The principal components of the South Terminal roundabout compound comprise the following elements:

- Secure fenced area with access-controlled entrance and exit of the South Terminal Roundabout.
- Limited areas for material laydown.
- Provision for contractor, project manager and supply chain vehicles.
- Office and meeting room space.
- Welfare provisions such as restrooms, drying rooms, changing and locker rooms, toilet and shower facilities, prayer rooms, canteen and other welfare facilities.
- A batching plant with associated bulk material storage and handling bays. The tallest elements within the compounds are expected to be component parts of the batching plants. The equipment is expected to be no taller than 25m above ground level.

7.8. Longbridge Roundabout Site Welfare Facility

7.8.1 The Longbridge Roundabout site welfare facility is anticipated to be a small compound supporting the construction works at the Longbridge Roundabout, as shown in Figure 12. The required area for the facility is approximately 0.3ha.

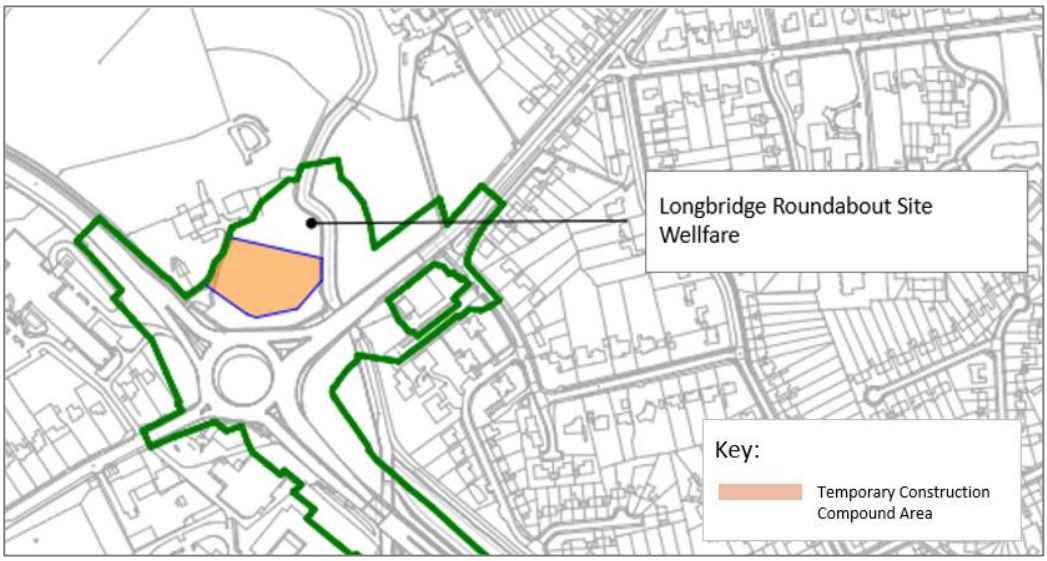

Figure 12: Site Context Plan - Longbridge Roundabout site welfare

7.8.2 The compound will have a minimum of services in line with the CDM 2015 regulations, namely:

- site containers.
- short-term material laydown area; and
- pick-up point for workforce vans.

7.9. Car Park B Compound – Airport Way Rail Bridge Widening

7.9.1 This site welfare facility would be located on Car Park B during the widening works of the Airport Way bridge over the London Brighton Railway, as shown in Figure 13. The required area for the facility is approximately 0.47ha.

7.9.2 The southern part of the compound has been designated for establishing welfare facilities, while the northern section will serve as a laydown area for materials and equipment. A two-lane asphalt road connects the two sites on either side of the bridge.

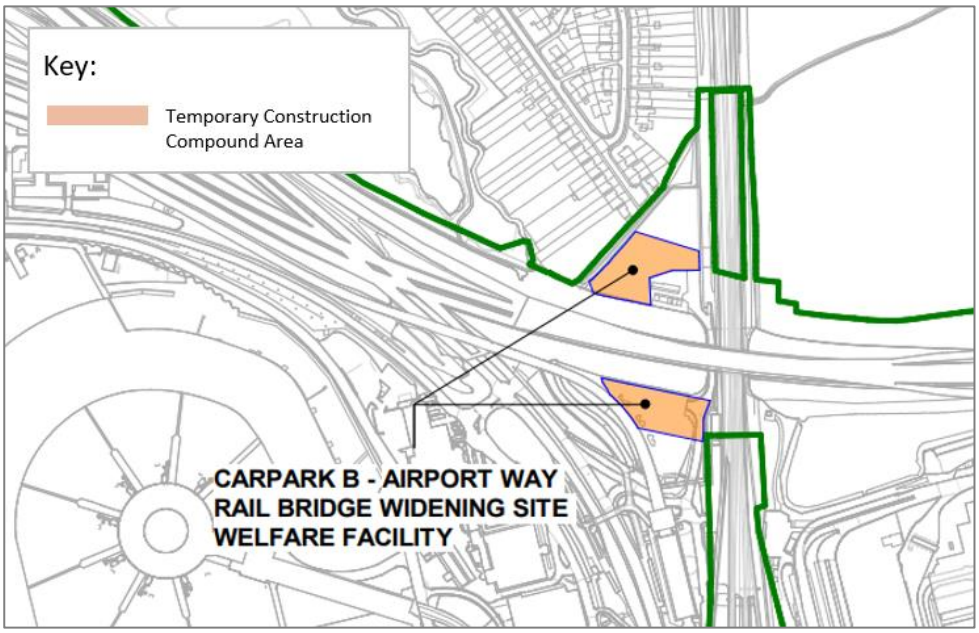

Figure 13: Site Context Plan - Car Park B Site Welfare Facility

7.9.3 The compound will have a minimum of services in line with CDM 2015 regulations, namely:

- site containers.
- short-term material laydown area
- pick-up point for workforce vans.

7.10. Compound Safety

7.10.1 Safety within the compounds is vitally important, and it is essential to separate vulnerable road users, such as cyclists and pedestrians, from vehicular traffic within the compound. This requires careful planning and implementing a one-way road system and physical barriers, which will require more space than compressed layouts.

7.10.2 The general work required to set up a compound includes the following elements:

- Installation of secure fencing around the site.
- Clearance of the site of existing items for the proposed use as a contractor compound.
- Installation of temporary utilities such as water, drainage, power, data, and lighting.
- Marking out roadways and safe walking routes, and parking areas.
- Installation of temporary welfare and office facility (where required).
- Installation of batching plants and bulk material handling (where required).
- Installation of bus terminus and airside processing facility (where required).

8 Construction Activities

8.1.1 This chapter will provide an overview of the Project's construction activities and the indicative methodology for their buildability. A detailed description of the Project is provided in **ES Chapter 5: Project Description** [REP6-013], and the controls on construction are within the draft Development Consent Order (DCO).

8.2. Alterations to the Existing Northern Runway

8.2.1 The existing northern runway would be adjusted to reposition the centreline 12 metres further north to ensure a separation distance of 210 metres between it and the main runway. The altered northern runway would retain a width of approximately 45 metres, with 7.5-metre-wide shoulders.

Northern Runway alterations, resurfacing and new Exit Taxiways

8.2.2 The works involved in the alterations to the existing Northern Runway include widening the runway, constructing new runway exits from the Northern to Juliet taxiway and from the main to the Northern runway, and resurfacing the Northern Runway. These alteration and resurfacing works are indicated in Figure 14.

8.2.3 The Northern Runway works will be undertaken either in a single 24/7 shut down or will be split into perpetration works (the northern shoulder expansion) being undertaken during runway closures at night, with the resurfacing and southern shoulder demolition works being undertaken in a shorter 24/7 shutdown. The taxiway works will be undertaken during runway closures at night in a staged manner.

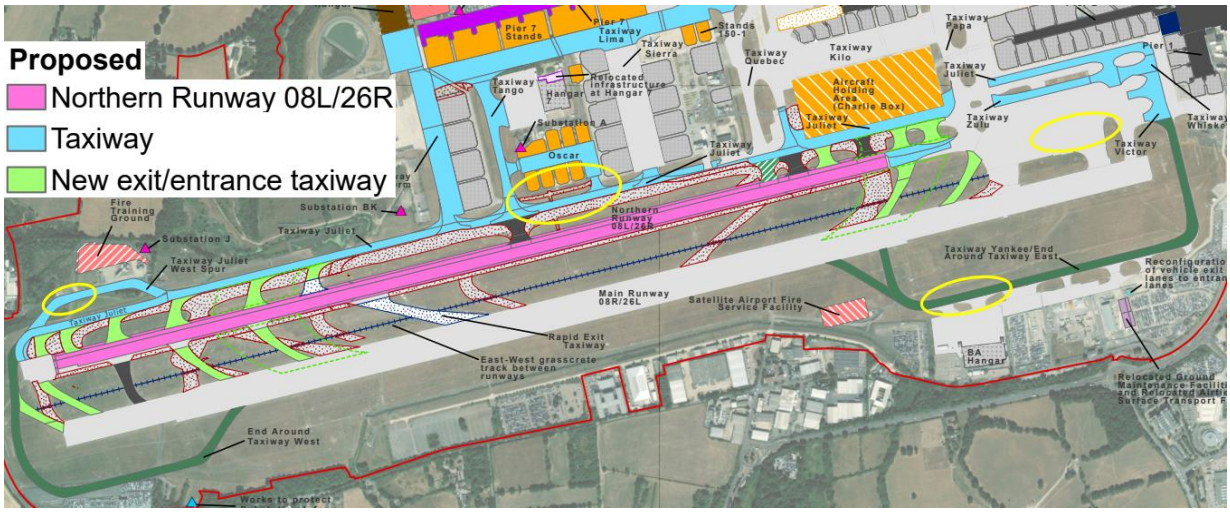

Figure 14: Overview Location of Northern Runway

8.2.4 The typical construction activities anticipated for this work include the following elements.

8.2.5 On the northern shoulder of the runway:

- Diversion and relocation of existing buried utilities such as power supplies, airfield ground lighting, communication systems, drainage and other buried assets.
- Clear and soft strip the area to be excavated.

- Excavate to formation Layer.
- Place granular base material.
- Installation of Pavement Quality Concrete (PQC) and drainage.

8.2.6 If these works are undertaken on a night shift, they would be undertaken in small sections/areas during night shift runway closures, with any excavation made good at the end of the shift such that the runway can safely be returned into service.

8.2.7 On the Northern Runway

- Relocation/installation of airfield ground lighting system to new runway centre line and on exit/entrance taxiways.
- Resurfacing of the runway, including the new northern shoulder.
- Installation of signage and line markings.
- On the southern shoulder (either as Shutdown works 24/7 or on night works).
- Saw cut and then demolish the southern section of the taxiway (breakout and removal of existing pavement).
- Remove and recycle the excavated Pavement Quality Concrete (PQC) and asphalt.
- Placement and compaction of engineered fill in excavated pavement area.
- Installation of delethalisation[3] strip.
- Placement of topsoil over the remaining excavated area.
- Grading and landscaping of the southern shoulder.
- If these works are undertaken on a night shift, they would be undertaken in small sections/areas during night shift runway closures, with any excavation made good at the end of the shift such that the runway can safely be returned into service.

8.2.8 The typical equipment expected for the above work includes:

- All-terrain tipper trucks
- Bulldozers
- Graders
- Combination loader backhoes

[3] Delethalisation is the below-ground ramping to the buried vertical face of construction designed to reduce the risk of damage to aircraft running on cleared and graded areas of the strip.

- Road milling machine
- Insulated asphalt delivery trucks
- Tipper dump trucks (non-all-terrain)
- Asphalt paving machines
- Concrete saw cutter
- Asphalt grooving machine
- Tracked and rubber-tyred hydraulic arm excavators with bucket attachments and with hydraulic breaking hammer attachments
- Flatbed delivery trucks

8.2.9 The contractor is expected to work from within the permanent works footprint and the airfield areas and to use the Airfield Satellite and MA1 Contractor compounds.

8.3. Reconfiguration of Taxiways

8.3.1 A number of existing taxiways would require modification and realignment to accommodate the altered northern runway, provide sufficient room for the safe manoeuvre of aircraft associated with both runways and accommodate increased aircraft numbers. Redundant areas of hard-standing would be removed and grassed. The work packages involved in the reconfiguration of the taxiways are summarised below:

- Taxiway Juliet West (Uniform to Western End)
- Taxiway Juliet West - Spur
- Taxiway Juliet East (Code E – Uniform to Quebec)
- End Around Taxiway East (Yankee)
- End around Taxiway west
- Tango cut through
- Lima extension
- Taxiway Whiskey-Victor-Zulu

8.3.2 The following subsections describe the work required at each taxiway location in more detail.

Taxiway Juliet West centreline relocation, Taxiway Juliet Spur and End Around Taxiway West

8.3.3 As a result of the widening and the upgrade of the existing Northern Runway into dual operations, the existing Taxiway Juliet is required to be relocated to the north (see Figure 15). In addition, a

new aircraft holding spur will be added to Taxiway Juliet. In order to achieve this, the existing Taxiway Juliet is required to be demolished and a new replacement taxiway constructed.

Figure 15: Taxiway Juliet West overview location

8.3.4 The typical construction activities for this work include the following elements:

Existing Taxiway Juliet West

- Diversion and relocation of existing buried utilities such as drainage, power supplies and communication systems assets.
- Demolition of existing taxiway (breakout and removal of existing pavement).
- Removing and recycling the excavated Pavement Quality Concrete (PQC) and asphalt.
- Placement and compaction of engineered fill in excavated pavement area.
- Placement of topsoil over the fill and grass the area.

Re-located/New Taxiway Juliet, the Juliet Spur and End Around Taxiway West

- Clear and grub out the area.
- Excavate to formation Layer.
- Place granular base material.
- Installation of new concrete paved surfaces, drainage and airfield ground lighting to the north of the existing taxiway surface.

8.3.5 The anticipated equipment used for the above works include:

- All-terrain tipper trucks

- Bulldozers
- Graders
- Combination loader backhoes
- Concrete mixer trucks
- Piling rig (steel sheet piles)
- Concrete pump
- Water pumps
- Tipper dump trucks (non-all-terrain)
- Concrete paving machines
- Concrete saw cutter
- Tracked and rubber tyred hydraulic arm excavators with bucket attachments and with hydraulic breaking hammer attachments
- Tractors and trailers

8.3.6 The contractor is expected to work from the Airside Satellite compound, with the support operations located in the Main Contractor Compound MA1.

Taxiway Juliet East Code E - Uniform to Quebec

8.3.7 The introduction of the existing Northern Runway into dual operations with the existing main runway requires the relocation of the centreline of the existing Taxiway Juliet to the north to provide aircraft separation and support additional runway capacity and operational flexibility (see Figure 16).

8.3.8 For the stands, there will be no demolition of the pavement; however, on completion of the new pavement works, the redundant areas of existing pavement will be demolished and soft landscaped.

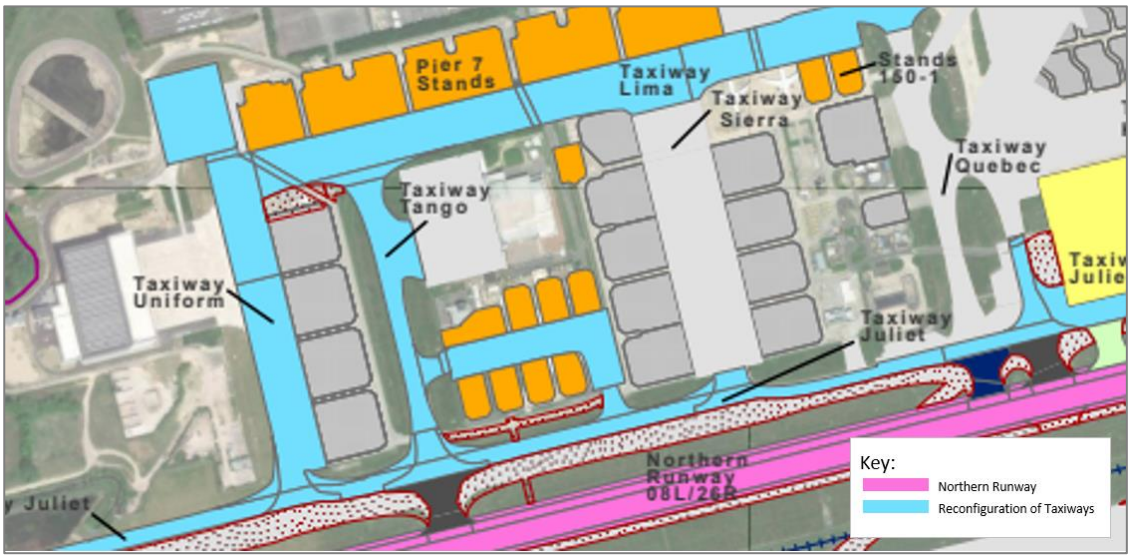

Figure 16: Taxiway Juliet East overview location

8.3.9 The typical construction activities for the Juliet East Taxiway relocation include the following elements.

- Diversion and relocation of existing buried utilities on both the northern and southern sides of the taxiway, such as drainage, power supplies and communication systems assets.

Northern Side of the Taxiway (excluding Pump Station 3)

- Clear and grub out the area to be excavated.
- Excavate to formation layer.
- Place granular base material.
- Installation of new concrete paved surfaces, drainage, and airfield ground lighting to the north of the existing taxiway surface.
- Installation of new Airfield Ground Lighting (AGL) on the new centreline of the taxiway.

Southern side of the taxiway

- Saw cut and then demolish the southern section of the taxiway (breakout and removal of existing pavement).
- Remove and recycle the excavated PQC and asphalt.
- Placement and compaction of engineered fill in excavated pavement area.
- Placement of topsoil over the fill and grass the area.

8.3.10 The typical construction methods for relocating Pump Station 3 include the following elements.

- Break out of the existing surface.

- Placement and compaction of piling platform for temporary sheet piles.
- Piling for temporary excavation support.
- Installation of groundwater over-pumping for dry excavation (with discharge into the surface water system for downstream treatment).
- Excavation to formation layer.
- Placement and compaction of the blinding concrete layer.
- Installation of formwork for cast in situ concrete pump station.
- Placement and compaction of concrete pump station structure.
- Installation of new buried power supplies and control comms cables routes.
- Installation of new buried pipes to form a connection to the existing water system, including valve chambers.
- New interconnection of existing pump stations with new buried pipe connections.
- Installation of the weatherproof enclosure above ground for pump station controls.
- Reinstatement of the area to make it safe.

8.3.11 The typical construction activities for the stand works include the following elements:

- Removal of the stand markings (sandblasting).
- New stand marking for the reconfigured Code E stand.
- Removal and relocation of the stand signage.
- Removal and relocation of ground infrastructure (such as fixed ground power and SEGS).
- Removal and relocation of the AGL.

8.3.12 The anticipated equipment used for this work includes:

- All-terrain tipper trucks
- Bulldozers
- Combination loader backhoes
- Concrete mixer trucks
- Piling rig (steel sheet piles)
- Water pumps

- Tipper dump trucks (non-all terrain)
- Concrete paving machines
- Concrete saw cutter
- Tracked and rubber tyred hydraulic arm excavators with bucket attachments and with hydraulic breaking hammer attachments
- Tractors and trailers

8.3.13 The contractor is expected to work from a local welfare unit adjacent to the works for the construction activities, with the support operations located in the Airfield Satellite Compound.

Juliet East, Code C - Sierra to Romeo

8.3.14 The introduction of the existing Northern Runway into dual operations with the existing main runway requires the relocation of the centreline of the existing Taxiway Juliet to the north to provide aircraft separation and support additional runway capacity and operational flexibility. On completion of the new pavement, the redundant areas of existing pavement will be demolished and soft landscaped. The location of Juliet East, Code C - Sierra to Romeo is shown in Figure 17.

Figure 17: Overview location of Taxiway Juliet East, Code C Sierra to Taxiway Romeo

8.3.15 The typical construction activities for the Taxiway work include the following elements:

- Diversion and relocation of existing buried utilities on both the northern and southern sides of the taxiway, such as drainage, power supplies and communication systems assets.

Northern Side of the Taxiway

- Clear and grub out the area to be excavated.

- Excavate to formation Layer.
- Place granular base material.
- Installation of new concrete paved surfaces, drainage and airfield ground lighting to the north of the existing taxiway surface.
- Install new AGL on the new centreline of the taxiway.

Southern side of the taxiway

- Saw cut and then demolish the southern section of the taxiway (breakout and removal of existing pavement).
- Remove and recycle the excavated PQC and asphalt.
- Placement and compaction of engineered fill in excavated pavement area.
- Placement of topsoil over the fill and grass the area.

8.3.16 The anticipated equipment used for this work includes:

- All-terrain tipper trucks
- Bulldozers
- Combination loader backhoes
- Concrete mixer trucks
- Tipper dump trucks (non-all terrain)
- Concrete paving machines
- Concrete saw cutter
- Tracked and rubber tyred hydraulic arm excavators with bucket attachments and with hydraulic breaking hammer attachments
- Tractors and trailers

8.3.17 The contractor is expected to work from a local welfare unit adjacent to the works for the construction activities, with the support operations located in the Airfield Satellite Compound.

End around Taxiways

New end-around taxiways will be constructed to allow large aircraft to exit and cross beyond the end of the runways under the direction of air traffic control. These proposed end-around taxiways would compromise end around taxiway west and end around taxiway east (Yankee). See Figure 18 and Figure 19 for the indicative locations.

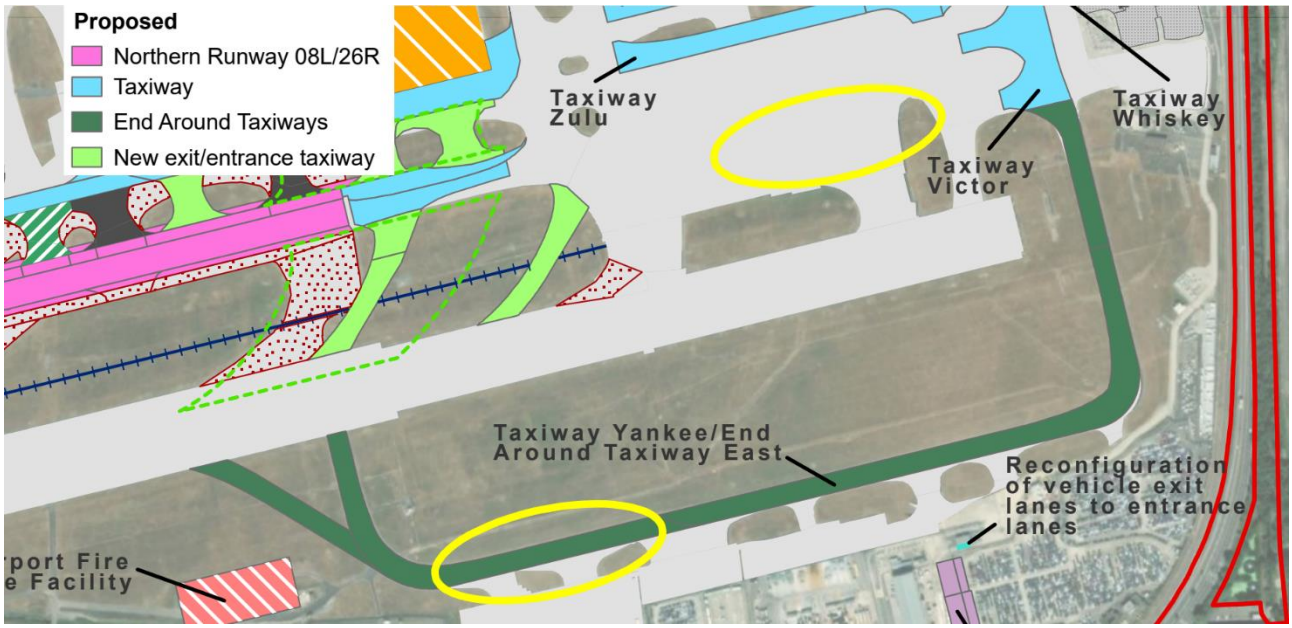

Figure 18: Location for End Around Taxiway East (Yankee)

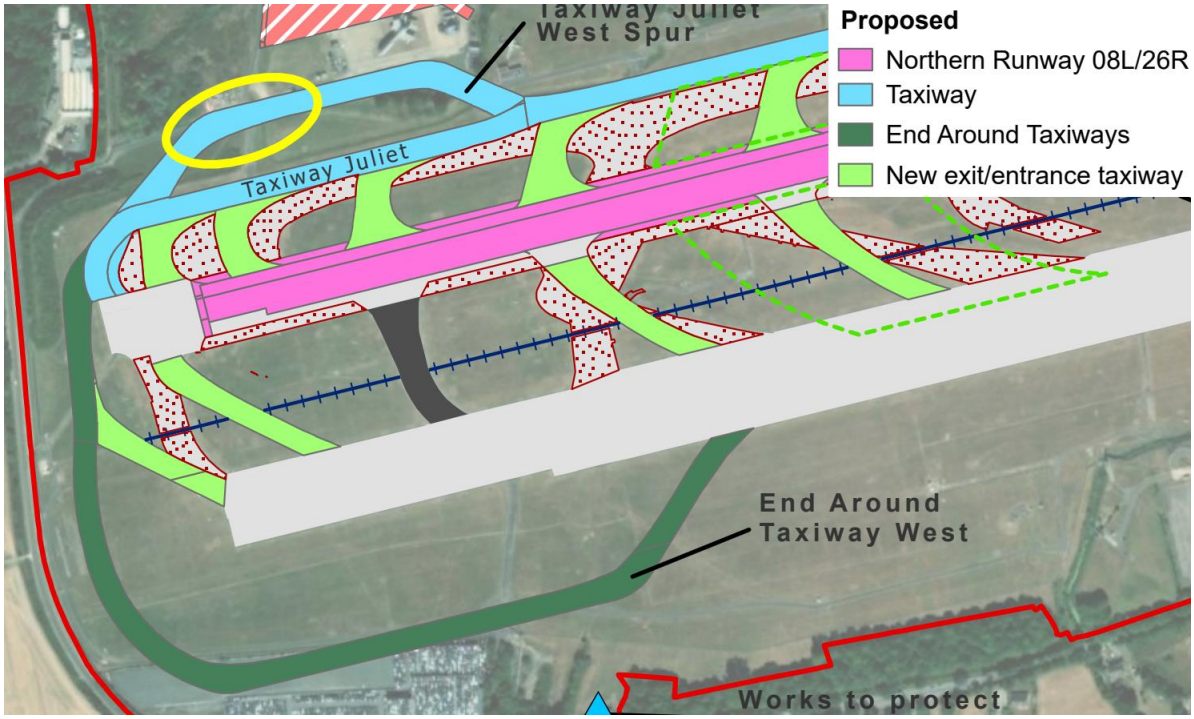

Figure 19: Detail location for End Around Taxiway West

8.3.18 The typical construction activities for this work include:

- Diversion and relocation of buried utilities such as drainage, power supplies and communication systems assets.

- Clear and grade existing earthworks, remove and stockpile soil material for potential reuse.
- Excavate existing soil material and stockpile for potential reuse.
- Soil remediation, if required, prior to reuse on-site or removal from the site if contaminated beyond reuse.
- Breakout of existing pavement and reuse material where applicable.
- Installation of new concrete paved surfaces, drainage, and signage.
- Demolition and removal of existing redundant concrete paved surfaces and drainage.
- Installation of new AGL system.
- Installation of signage and marking.

8.3.19 The anticipated equipment used for this work includes:

- All-terrain tipper trucks
- Bulldozers
- Graders
- Combination loader backhoes
- Concrete mixer trucks
- Tipper dump trucks (non-all terrain)
- Concrete paving machines
- Concrete saw cutter
- Tracked and rubber tyred hydraulic arm excavators with bucket attachments and with hydraulic breaking hammer attachments
- Tractors and trailers

8.3.20 The contractor is expected to work from a local welfare unit adjacent to the works for the construction activities, with the support operations located in the MA1 Compound.

Taxiway Lima western extension, Taxiway Tango Extension

8.3.21 The extension of Taxiway Lima and Tango is required to provide access to the proposed new aircraft stands and proposed Pier 7 in the northwest corner of the airfield and an alternative routing path to the North Runway (see Figure 20).

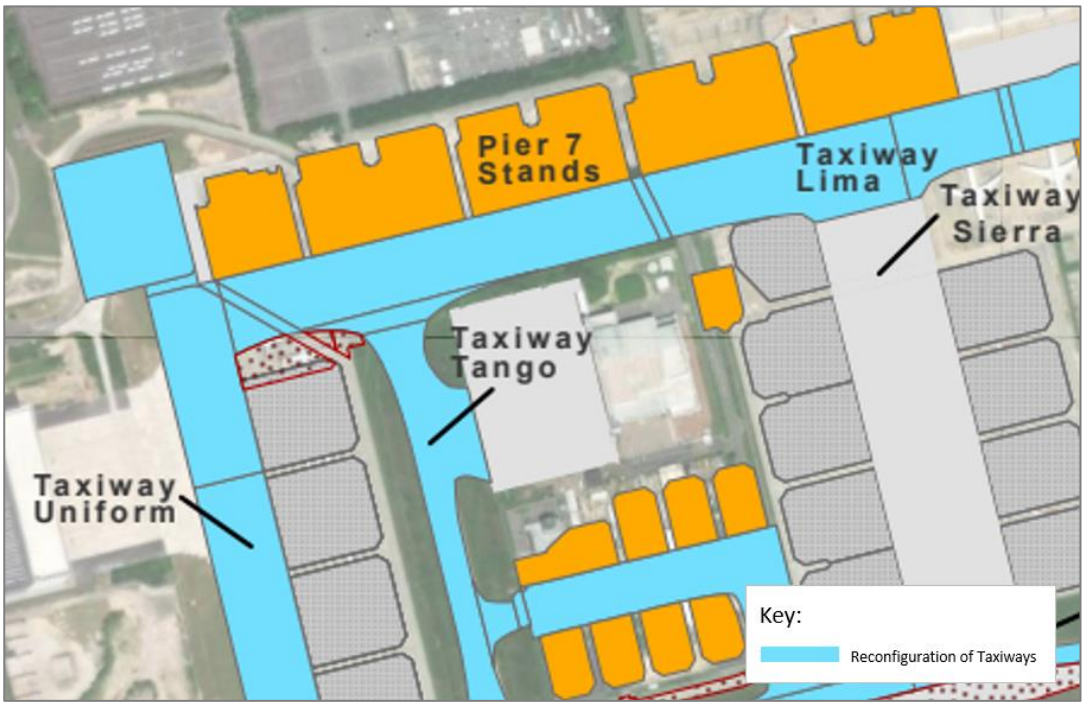

Figure 20: Overview location of Taxiway Lima extension

8.3.22 The anticipated construction activities for the completion of the taxiway construction works include the following:

- Diversion and relocation of existing buried utilities such as power, communications, drainage and other assets.
- Clearing and grading the areas to receive new pavement, including removal of existing soil to stockpile for future reuse.
- Breaking out of hard surfaces such as roads, taxiways and any existing hard standing or foundations.
- Installation of new buried utilities and service routes.
- Earthworks for the formation layers on which the new pavement will be constructed.
- Installation of the new pavement and aircraft stand areas in pavement-quality concrete.
- Installation of drainage.
- Installation of signage and line markings.

8.3.23 The typical equipment expected for the works include:

- All-terrain tipper trucks
- Bulldozers

- Graders
- Combination loader backhoes
- Concrete mixer trucks
- Tipper dump trucks (non-all-terrain)
- Concrete paving machines
- Concrete saw cutter
- Tracked and rubber tyred hydraulic arm excavators with bucket attachments and with hydraulic breaking hammer attachments
- Mobile crane
- Flatbed delivery trucks
- Forklift

8.3.24 The contractor is expected to work from within the permanent work footprint and the airfield areas, use the Airfield Satellite Compound and use Larkins Road to access this site.

Taxiway Whiskey-Victor-Zulu

8.3.25 Taxiway Whiskey, Victor, and Zulu reconfiguration (see Figure 21) require the construction of new pavement, including associated Airfield Ground Lighting, signage and drainage.

Figure 21: Overview location of Taxiways Whiskey, Victor, and Zulu

8.3.26 The construction activities for this element of the works are expected to be standard Pavement Quality concrete construction techniques, including the following.

- Removal of existing structures and features.
- Utility disconnections from elements to be demolished.
- Structural alterations to the existing structure to redistribute loading.
- Soft strip existing, including any identified hazardous materials identified by prior surveys.
- Controlled mechanised demolition of existing steel structures and concrete foundations and removal of waste.
- Reinstatement of land surface to make it safe prior to subsequent works.
- Installation of new pavement.
- Mechanised breaking out and removal of existing top layers down to formation level.
- Mechanised placement and compaction of granular base layers.
- Installation of concrete foundations for airfield flood lighting.
- Installation of buried duct connections for the AGL system.
- Mechanised installation of new drainage and connection to the existing surface drainage system.

- Mechanised installation of new PQC to reconfigure taxiways with the slip-form paver.
- Installation of Airfield Ground Lighting system lights.
- Airfield ground markings and signage installation.

8.3.27 The typical equipment expected for the demolition of existing and creation of new aircraft stands includes:

- Flatbed trucks with hydraulic lifting arms
- Road sweepers
- Hydraulic arm excavators with specialised demolition attachments
- Tipper trucks (non-all terrain)
- Hydraulic arm excavator with a bucket attachment
- Water tanker truck
- Combination loader backhoe excavator
- Large steel wheel roller compactor
- Bulldozer and Grader
- Medium front-end loader
- Concrete mixer truck
- Concrete slip form paving machine
- Line painting equipment

8.3.28 The contractor is expected to work from the Airside Satellite compound with support from the MA1 Compound.

8.4. Aircraft Holding Area

8.4.1 Reconfiguration of an existing apron area to the north of Taxiway Juliet is proposed. This would include reconfiguring the existing stands (known as the 130s/140s stands), removing the Airside Operations Building and pumping station 17 and relocating de-icer storage tanks and substations BP and BR. This new configuration is known as the Charlie Box and would provide aircraft stands and operational aircraft hold points, allowing aircraft to be held just before accessing the northern runway to optimise runway occupancy efficiency and remove aircraft from busy taxiways. The Charlie Box would include new taxiways across the existing apron area, as described below.

Charlie Box

8.4.2 Charlie Box is located northeast of the existing Northern Runway, as shown in Figure 22.

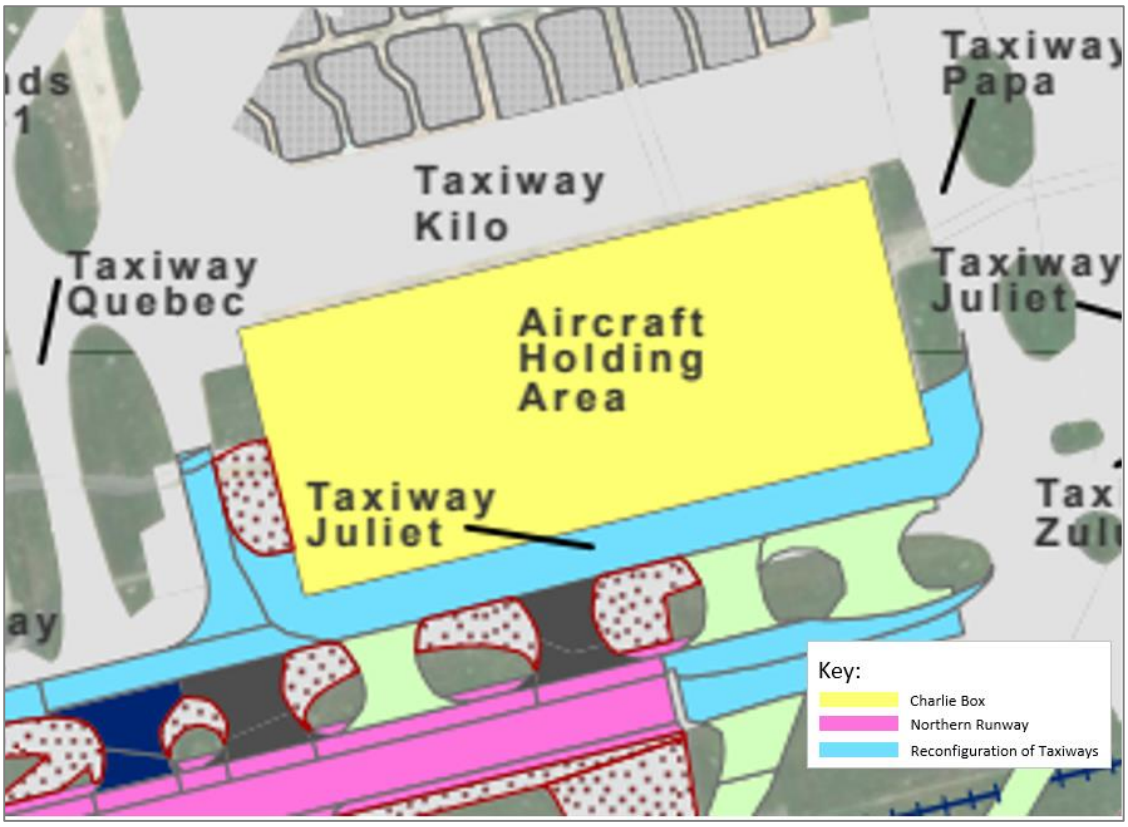

Figure 22: Overview location of the Aircraft Holding Area (Charlie Box)

8.4.3 The construction activities for pavement demolition, earthworks, pavement construction and airfield ground lighting include the following elements.

Removal of existing structures and features:

- Utility disconnections from elements to be demolished.
- Removal and relocation of substations (see section 8.15.1 for BR and BP).
- Removal of nine number de-icing media tanks for relocation at the Tower stands
- Soft strip existing area, including any hazardous materials identified by prior surveys.
- Controlled mechanised demolition of existing buildings and concrete pavement and removal of waste.

Installation of new pavement

- Mechanised breaking out and removal of existing top layers down to formation level.

- Mechanised excavation and then removal of the underground de-icing interceptor tanks and pipework.
- Removal of other underground services (pipes and ducts).
- Mechanised placement and compaction of granular base layers.
- Installation of new ducts for Airfield Ground Lighting, apron lighting, Fixed Electrical Ground Power and Head of Stand equipment.
- Installation of piped services such as fuel main and water supply.
- Installation of concrete foundations for airfield flood lighting.
- Mechanised installation of new drainage and connection to the existing surface drainage system.
- Mechanised installation of new PQC to taxiway turnout and new apron with the slip-form paver.
- Installation of Airfield Ground Lighting system, Fixed Electrical Ground Power and Head of Stand equipment and fuel main, including testing and commissioning.
- Airfield ground paint markings and signage installation.
- Erection of hinged pole mounted high mast lighting with crane and truck.

Decommissioning of Pumping Station 17

- Removal of pumps and control equipment.
- Break out concrete in situ.
- Seal and backfill the ends of the inlet and outlet pipelines with concrete.
- Backfill the chamber.

8.4.4 The typical equipment expected for the demolition of existing and creation of new aircraft stands includes:

- Flatbed trucks with hydraulic lifting arms
- Road sweepers
- Long-reach hydraulic arm excavators with specialised demolition attachments
- Tipper trucks (non-all terrain)
- Hydraulic arm excavator with a bucket attachment
- Water tanker truck
- Combination loader backhoe excavator

- Large steel wheel roller compactor
- Bulldozer
- Grader
- Medium front-end loader
- Concrete mixer truck
- Concrete slip form paving machine
- Line painting equipment
- Mobile crane
- Mobile elevated working platform

8.4.5 The contractor is expected to work from within the permanent work footprint and the airfield areas and to use the MA1 Compound.

Relocation of De-Icing Media Tanks

8.4.6 The construction works associated with the relocation of the de-icing media tanks are as follows.

- Remove any above-ground structures.
- Mechanised breaking out and removal of existing top layers down to formation level.
- Removal of other underground services (pipes and ducts).
- Excavation of duct route between the bund area and the Tower.
- Installation of lighting cable duct network around the bund.
- Installation of power and comms ducts between the bund area and Tower.
- Mechanised placement and compaction of granular base layers.
- Cast in situ the bund base and walls.
- Seal the bund.
- Placement and fixing of the de-icing media tanks.
- Piping of the de-icing tanks.
- Installation of the de-icing control panel in the Tower (comms/control room).
- Cabling of the de-icing instrumentation and controls back to the Tower.
- Cabling and commissioning of area lighting for the tanks/bund.

- Commissioning of the de-icing control system.

8.4.7 The typical equipment expected for these works include:

- Hydraulic arm excavator with a bucket attachment
- demolition attachments
- Tipper trucks (non-all terrain)
- Combination loader backhoe excavator
- Concrete mixer truck
- Concrete pump
- Mobile crane

8.4.8 The contractor is expected to work from within the permanent works footprint and the airfield areas and use the MA1 Compound to access the site.

8.5. Pier and Stand Amendments

8.5.1 Gatwick Airport operates six piers (Piers 1, 2 and 3 at the South Terminal and Piers 4, 5 and 6 at the North Terminal).

8.5.2 As part of the Project, a new Pier 7 is proposed to the northwest of Pier 6, adjacent to the existing cargo facility. The following subsections provide further detail of the required works at each location. The following work packages are included in the pier and stand amendments works.

Aircraft stands reconfiguration

8.5.3 Various areas on the airfield are required to be reconfigured to provide the additional capacity to move and hold aircraft while other aircraft are being loaded or unloaded of passengers, luggage and freight. The locations of the main stands are shown in Figure 23.

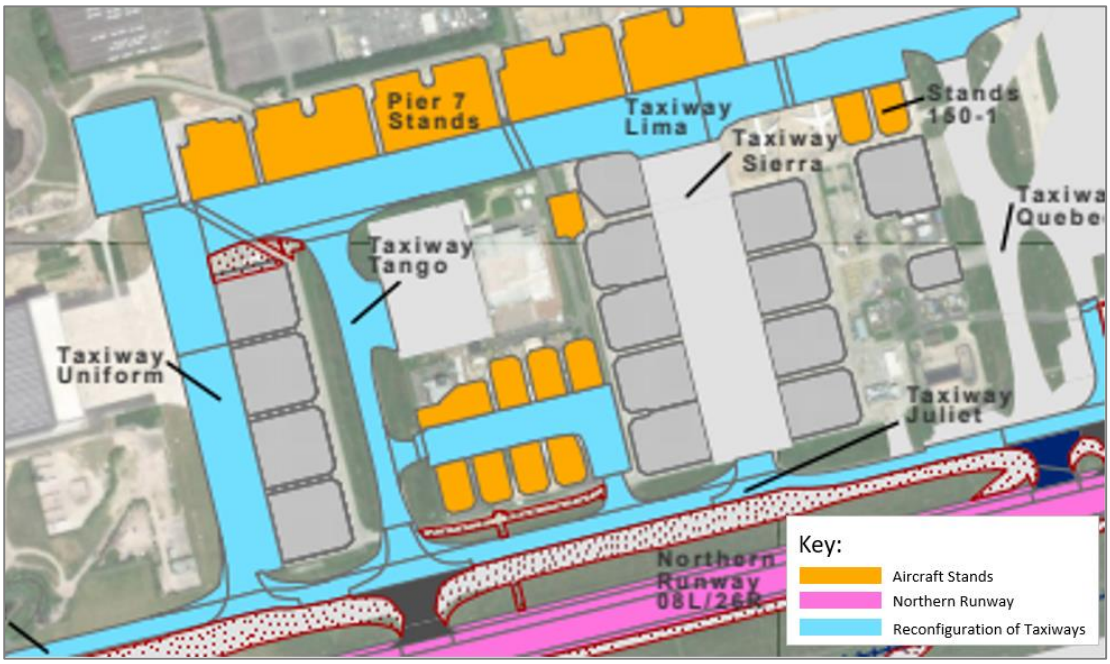

Figure 23: Aircraft stands

8.5.4 The reconfiguration and re-provision work to the aircraft stands ranges from changing the layout of existing stands surface markings and operational equipment to the complete removal and replacement of the existing surfaces and creating new pavement quality concrete for newly created stands.

8.5.5 In cases where the stands are being reconfigured, the work includes the removal of the existing line markings, either by grit or water blasting them from the surface or by overpainting them. The new lines are applied by standard line painting methods, including spray and thermoplastic applications.

8.5.6 In the case of the existing Oscar area, which is to be redeveloped into stands, many existing buildings and buried services in the area need to be demolished, re-provided elsewhere, or diverted. These also include drone detection equipment.

8.5.7 Installation of new buried services and foundations for the lighting will precede and may overlap with the installation of the new paved areas for the aircraft stands. These buried services will be installed typically in trenches and backfilled with suitable fill material. Junctions, inspection chambers and other access features will be constructed in brick, precast concrete segmental rings or pre-formed plastic chambers.

8.5.8 The new pavements will be founded on compacted granular fill material. Where possible, this fill material will be supplied from the Car Park Y crusher sourced from broken-out existing pavements. Imported fill material is not expected to make up much of these foundation layers.

8.5.9 The placement of the concrete pavements for the aircraft will be done by mechanised slip-form methods as shown in Figure 24. The equipment expected to be used in this work includes concrete paving machines, supplied with fresh concrete by tipper trucks or concrete mixer trucks.

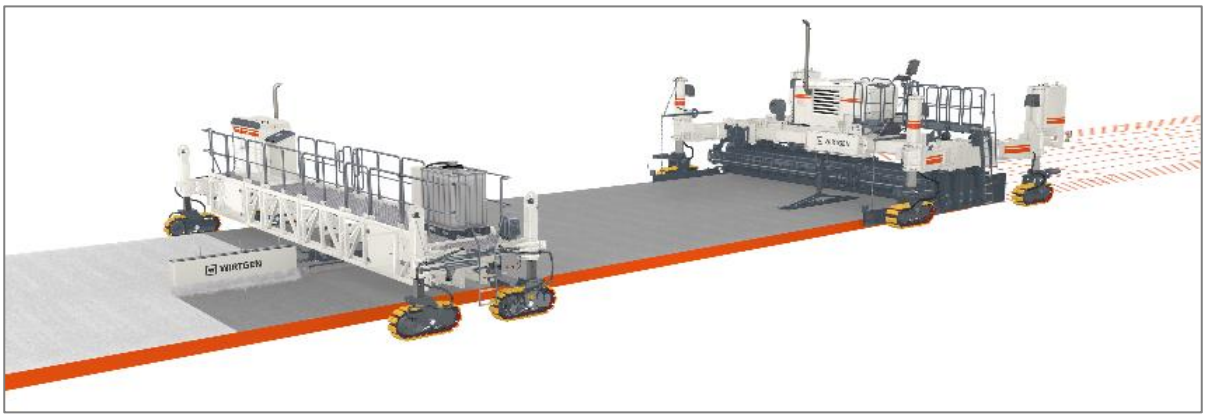

Figure 24: Typical slip-form concrete paving machine operation (from Wirtgen)

8.5.10 Once the new paved areas are completed, the line marking, head of stand equipment and airfield floodlighting will be installed. The airfield ground lighting will require a mobile crane to install the high masts on which the lights are mounted.

8.5.11 The typical equipment expected for reconfiguration of existing stands includes:

- Flatbed trucks with hydraulic lifting arms
- Grit or water-blasting equipment
- Line painting equipment
- Road sweepers

8.5.12 The typical equipment expected for the demolition of existing and creation of new aircraft stands includes:

- Flatbed trucks with hydraulic lifting arms
- Road sweepers
- Long-reach hydraulic arm excavators with specialised demolition attachments
- Tipper trucks (non-all terrain)
- Hydraulic arm excavator with a bucket attachment
- Water tanker truck
- Combination loader backhoe excavator
- Large steel wheel roller compactor
- Bulldozer
- Grader

- Medium front-end loader
- Concrete mixer truck
- Concrete slip form paving machine (see Figure 38)
- Line painting equipment
- Mobile crane
- Mobile elevated working platform

8.5.13 The contractor is expected to use the following areas for welfare and access routes:

- For Oscar stands (new)
  - Satellite Compound
  - Small temporary site offices within the Oscar site boundary
  - Access via Larkins Road
- Lima Stands (new)
  - Main welfare office at the MA1 Compound
  - Small temporary site offices within the Lima stands site boundary
  - Access via Perimeter Road South
- 150s and 40s stands (reconfigured)
  - Satellite Compound
  - Small temporary site offices within the 150s stands site boundary
  - Small temporary site offices within the 40s stands site boundary
  - Access via Larkins Road

New Pier 7 Apron and Stands

8.5.14 The new Pier 7 stands will be constructed north of Taxiway Lima and will be either used as remote stands before the construction of Pier 7 or as contact stands after Pier 7 has been constructed. The location of Taxiway Lima extensions and associated aircraft stands are shown in Figure 25.

Figure 25: Pier 7 Stands

8.5.15 The anticipated construction activities for the completion of this work includes:

- Removal of existing structures and features.
- Utility disconnections from elements to be demolished.
- Soft strip existing, including any identified hazardous materials identified by prior surveys.
- Controlled mechanised demolition of existing buildings and concrete pavement and removal of waste.
- Installation of new pavement.
- Mechanised breaking out and removal of existing top layers down to formation level.
- Mechanised placement and compaction of granular base layers.
- Installation of new ducts for AGL, apron lighting, Fixed Electrical Ground Power, and Head of Stand equipment.
- Installation of piped services such as fuel main and water supply.
- Installation of concrete foundations for airfield flood lighting.
- Mechanised installation of new drainage and connection to the existing surface drainage system.
- Mechanised installation of new PQC to taxiway turnout and new apron with the slip-form paver.
- Installation of AGL, Fixed Electrical Ground Power and Head of Stand equipment and fuel main, including testing and commissioning.
- Airfield ground markings and signage installation.
- Erection of pole-mounted airfield ground flood lighting with crane and truck.

8.5.16 The typical equipment expected for the demolition of existing and creation of new aircraft stands includes:

- Flatbed trucks with hydraulic lifting arms
- Road sweepers
- Long-reach hydraulic arm excavators with specialised demolition attachments
- Tipper trucks (non-all-terrain)
- Hydraulic arm excavator with a bucket attachment
- Water tanker truck
- Combination loader backhoe excavator
- Large steel wheel roller compactor
- Bulldozer
- Grader
- Medium front-end loader
- Concrete mixer truck
- Concrete slip form paving machine
- Line painting equipment
- Mobile crane
- Mobile elevated working platform

8.5.17 The contractor is expected to work from within the permanent work footprint and the airfield areas, use the Airfield Satellite Compound, and use Larkins Road to access this site.

New Pier 7

8.5.18 The new pier will be sited in the northeast section of the airfield adjacent to the existing cargo facilities and to the north of the existing Hangar 7, as shown in Figure 26.

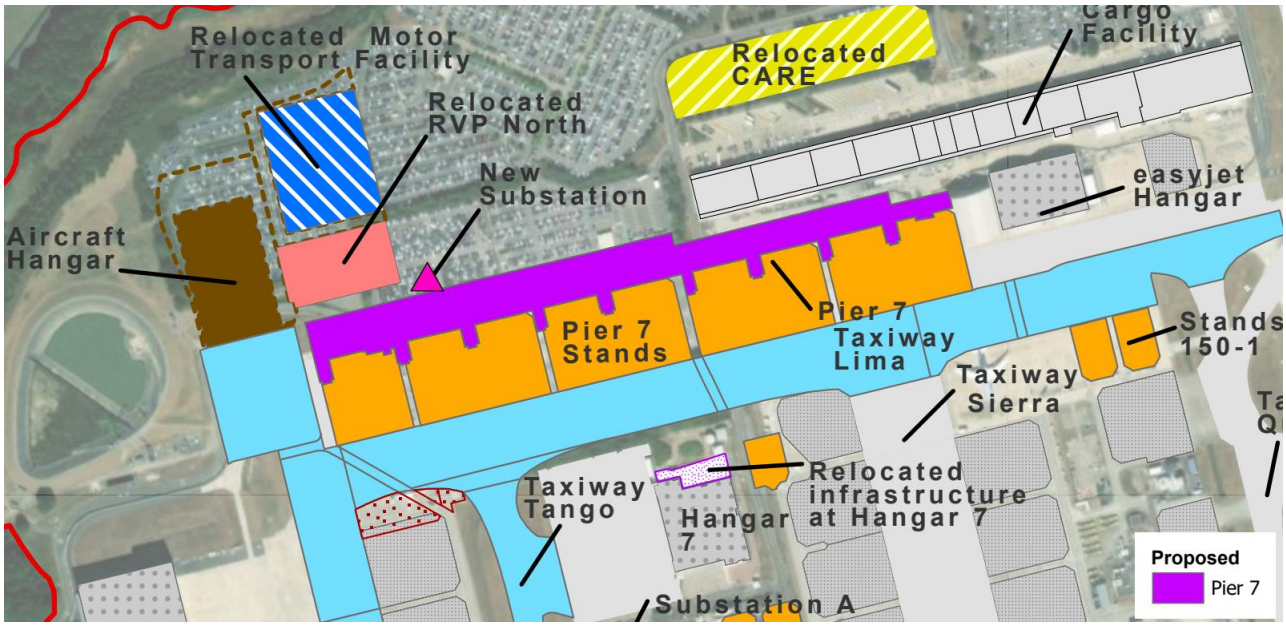

Figure 26: New Pier 7 location plan

8.5.19 The typical construction activities anticipated for this work includes:

- Diversion and relocation of existing buried utilities such as power supplies, airfield ground lighting, communication systems, drainage, and other buried assets.
- Clearing and grading the areas to receive new building facility, including removal of existing materials to stockpile for future reuse.
- Installation of piled and/or pad foundations as suitable for the ground conditions.
- Breaking out of the existing paved surface.
- Installation of new buried utilities and service routes.
- Earthworks for the formation layers on which the building will be constructed.
- Installation of structural and secondary steelwork in a typical portal frame arrangement.
- Installation of the concrete ground slab and concrete upper floors, including any mezzanine levels, staircases, and lift shafts.
- Installation of roofing, cladding and glazing systems.
- Installation of interior building services such as HVAC, fire detection and alarm systems, lighting, power, water and waste collection systems and connection to existing mains.

- Installation of lifts, escalators, and travellators.
- Installation of passenger boarding bridges.
- Installation head of stand equipment and utilities.
- Internal building fit-out, including hard and soft furnishings.
- Testing and commissioning, including building occupancy trials and certification.

8.5.20 The typical equipment expected for this work includes:

- Flatbed trucks with and without hydraulic lifting arms
- Road sweepers
- Tipper trucks (non-all-terrain)
- Hydraulic arm excavator with a bucket attachment
- Combination loader backhoe excavator
- Large steel wheel roller compactor
- Piling rig
- Bulldozer
- Medium front-end loader
- Concrete mixer truck
- Tower crane
- Mobile crane
- Mobile elevated working platform
- Concrete pump

8.5.21 The contractor is expected to work from the Airfield Satellite Compound and from within the footprint of the new pier facility.

New Stand

8.5.22 In order to provide additional stands, it is proposed to construct a new fully serviced Code C stand in the area known as Towergate. The scope includes demolishing existing infrastructure and tie-in with Taxiway Lima Extension.

8.5.23 The construction activities associated with these works include:

- Removal of existing structures and features.

- Utility disconnections from elements to be demolished.
- Soft strip existing area, including any hazardous materials identified by prior surveys.
- Controlled mechanised demolition of existing buildings and concrete pavement and removal of waste.
- Mechanised breaking out and removal of existing top layers down to formation level.
- Mechanised placement and compaction of granular base layers.
- Installation of new ducts for AGL, apron lighting, Fixed Electrical Ground Power and Head of Stand equipment.
- Installation of piped services such as fuel main and water supply.
- Installation of concrete foundations for airfield flood lighting.
- Mechanised installation of new drainage and connection to the existing surface drainage system.
- Mechanised installation of new PQC to taxiway turnout and new apron with the slip-form paver.
- Installation of AGL system, Fixed Electrical Ground Power and Head of Stand equipment and fuel main, including testing and commissioning.
- Airfield ground markings and signage installation.
- Erection of pole-mounted airfield ground flood lighting with crane and truck.
- Cable pulling, terminations and testing of the light system.

8.5.24 The typical equipment associated with this type of work includes:

- Loader backhoe excavator combination
- All-terrain articulated tipper truck
- All-terrain dumper
- Flatbed delivery truck with the articulated lifting arm
- Tipper dump truck (non-all terrain)
- Large hydraulic arm excavator
- Medium-tracked hydraulic arm excavator
- Medium front-end loader
- Concrete paving machine

- Small steel wheel roller compactor
- Large steel wheel roller compactor
- Concrete mixer truck
- Pneumatic tyred roller (PTR)

8.5.25 The contractor is expected to use welfare units within the footprint of the works with support from the Airfield Satellite Compound.

8.6. Reconfiguration of Existing Airport Facilities

8.6.1 A number of existing facilities would require reconfiguration or relocation, and additional facilities would be necessary to accommodate the proposed changes to the Airport. This reconfiguration would comprise the construction of new facilities and demolition of existing facilities, including:

- Central Airfield Maintenance and Recycling Facilities
- Motor Transport Facilities
- Ground Maintenance Facilities
- Airfield Surface Transport Facilities
- Emergency Air Traffic Control Tower and Rendezvous Point North
- Relocation of Fire Training Facility
- Hangars
- Northwest Noise Bund and Noise Wall Reconfiguration
- Amendments to Perimeter Security Access

Demolish existing facilities

8.6.2 To construct the additional aircraft stands in the location known as Oscar, most of the existing facilities need to be relocated to other areas within the operational footprint. The facilities requiring relocation are given below (Figure 27)

- Ground maintenance facility
- Airfield Surface Transport facility
- Motor Transport facility
- Central Area Recycling Enclosure (CARE) facility
- Former TCR (Snow base) Building

- Emergency Air Traffic Control Tower
- Pumping stations

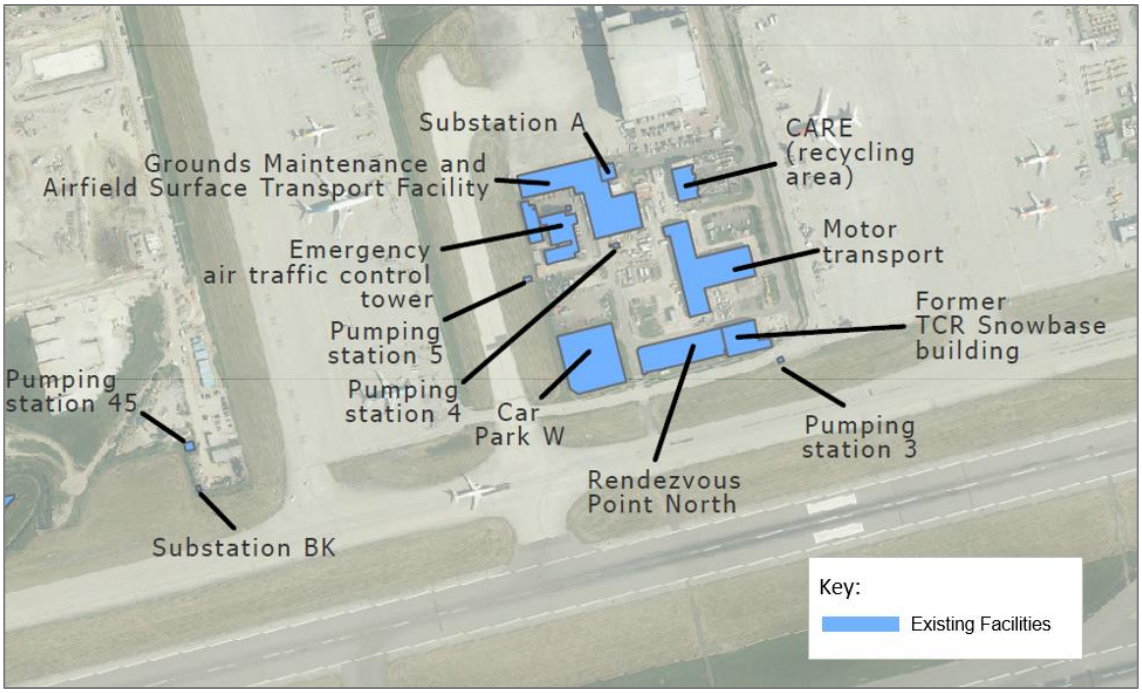

Figure 27: Location of existing facilities

8.6.3 The construction activities for demolition include:

- Pre-demolition audit for hazardous materials.
- Removal of any hazardous materials identified in the pre-demolition audit.
- Diversion and relocation of any existing utilities contained within the footprint of the structure or fixed to the structure.
- Soft strip of the part to be demolished, including recycling, where possible of soft strip materials.
- Controlled demolition of the structure within its footprint.
- Removal of demolition arisings for offsite recycling.
- Reinstatement and making safe the demolished footprint for subsequent works.

8.6.4 The typical equipment associated with the demolition includes:

- Loader backhoe excavator combination
- All-terrain dumper
- Flatbed delivery truck with articulated lifting arm

- Tipper dump truck (non-all-terrain)
- Water tanker truck
- Large long-reach hydraulic arm excavator with demolition attachment
- Medium-tracked hydraulic arm excavator
- Medium frontend loader
- Telescopic boom lift working platform
- Scissor lift working platform

8.6.5 The contractor is expected to work from a welfare unit within the footprint of the demolition with support from the Airfield Satellite Compound and access to the site from Larkins Road.

Central Area Recycling Enclosure (CARE) Facilities

8.6.6 The proposed replacement CARE facility would be located northwest of Pier 7 (shown in orange in Figure 28 below). The main building would be up to 15 metres in height.

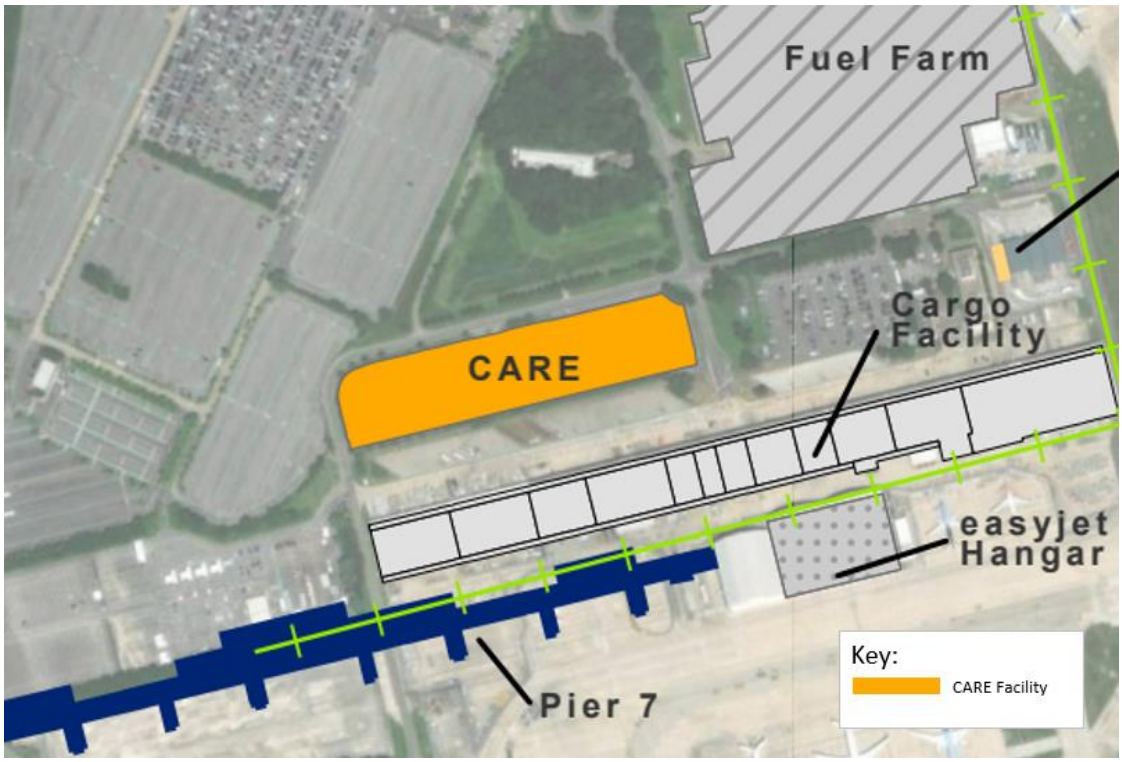

Figure 28: Proposed location of Central Area Recycling Enclosure (CARE)

8.6.7 Construction activities associated with the relocation of the Central Area Recycling Enclosure include:

- Diversion and relocation of existing utilities within the footprint of the new building.

- Mechanised breaking out and removal of existing pavement for building foundations.
- Mechanised excavation for incinerator and flue foundation.
- Placement of concrete pad foundations from mixer chute.
- Installation of new electric, comms, water & sewer utilities.
- Installation of sheet piles for waste collection skip bay, mechanised excavation of skip bay with dewatering and local skid mounted treatment facility prior to release to surface water drain.
- Installation of the new concrete ground slab.
- Installation of steel/portal frame structure with crane and elevated working platforms.
- Installation of cladding, roofing and glazing.
- Internal fit-out includes lighting, fire systems, electrical, and plumbing.
- Installation of hard and soft furnishings.
- Testing and commissioning.

8.6.8 The typical equipment expected for this work includes:

- Flatbed trucks with and without hydraulic lifting arms
- Road sweepers
- Tipper trucks (non-all-terrain)
- Hydraulic arm excavator with bucket attachment
- Combination loader backhoe excavator
- Large steel wheel roller compactor
- Piling rig
- Bulldozer
- Medium frontend loader
- Concrete mixer truck
- Mobile crane
- Mobile elevated working platform
- Concrete pump

8.6.9 The contractor is expected to work from a welfare unit adjacent to the new locations, with support from the Airfield Satellite Compound for relocating facilities to the north and from the MA1 compound for relocating facilities to the south.

Motor Transport Facility

8.6.10 The proposed replacement motor transport facility, shown in Figure 29, would include a parts store, ramps, pits, tyre store, test area, workshop, heavy goods vehicle (HGV) refuelling area, vehicle wash area, offices, and staff welfare.

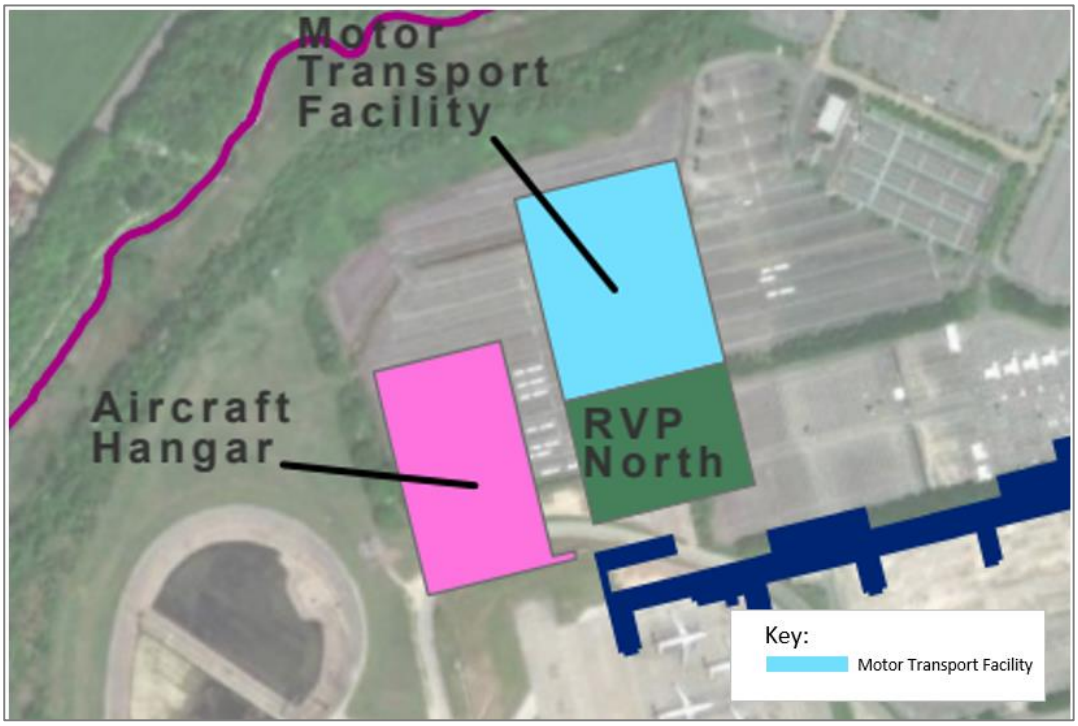

Figure 29: Proposed Location of Motor Transport Facility

8.6.11 Construction activities associated with the Motor Transport facility include:

- Mechanised breaking out and removal of existing pavement for new catchment ground slab and sump.
- Installation of single-storey splash screen with steel columns.
- Mechanised excavation for underground tanks.
- Excavation of trenches for installation of new electric, water & drainage utilities, backfill, compaction and reinstatement of paved surface locally

8.6.12 Typical construction equipment used for this work is expected to be:

- Loader backhoe excavator combination
- All-terrain dumper

- Flatbed delivery truck with articulated lifting arm
- Tipper dump truck (non-all terrain)
- Medium rubber tyred hydraulic arm excavator
- Small steel wheel roller compactor
- Concrete mixer truck
- Rubber-tyred mobile crane
- Telescopic boom lift working platform
- Scissor lift working platform

8.6.13 The contractor is expected to work from a welfare unit adjacent to the new locations, with support from the Airfield Satellite Compound for relocating facilities to the north and from the MA1 compound for relocating facilities to the south.

Grounds Maintenance Facilities

8.6.14 New grounds maintenance facilities will be in an area of hardstanding in the south-eastern part of the Airport shown in blue in Figure 30 below and would include an open vehicle storage shed, closed tool shed, hazardous substances unit and a portacabin-style office/welfare area.

8.6.15 The construction activities for this work are anticipated to be light-duty construction of portal frame sheds and prefabricated buildings for welfare and will include:

- Diversion and relocation of existing utilities within the footprint of the new building.
- Mechanised breaking out and removal of existing pavement for building foundations.
- Placement of concrete pad foundations from mixer chute.
- Installation of new electric, comms, water & sewer utilities.
- Installation of new concrete ground slab for vehicle shed.
- Installation of steel / aluminium portal frame vehicle shed structure with crane and elevated working platforms.
- Installation of cladding, roofing, and glazing.
- Installation of lighting system in vehicle shed.
- Installation of temporary prefabricated office and welfare building(s) using cranes and trucks.

8.6.16 Typical construction equipment used for this work is expected to be:

- Loader backhoe excavator combination

- All-terrain dumper
- Flatbed delivery truck with articulated lifting arm
- Tipper dump truck (non-all terrain)
- Medium rubber tyred hydraulic arm excavator
- Small steel wheel roller compactor
- Concrete mixer truck
- Rubber-tyred mobile crane
- Telescopic boom lift working platform
- Scissor lift working platform

8.6.17 The contractor is expected to work from a welfare unit adjacent to the new locations, with support from the MA1 compound for relocating facilities to the south.

Airfield Surface Transport Facility

8.6.18 A new surface transport facility (shown in Figure 30 below) would be in an area of hardstanding in the south-eastern part of the airfield, adjacent to the relocated grounds maintenance facilities.

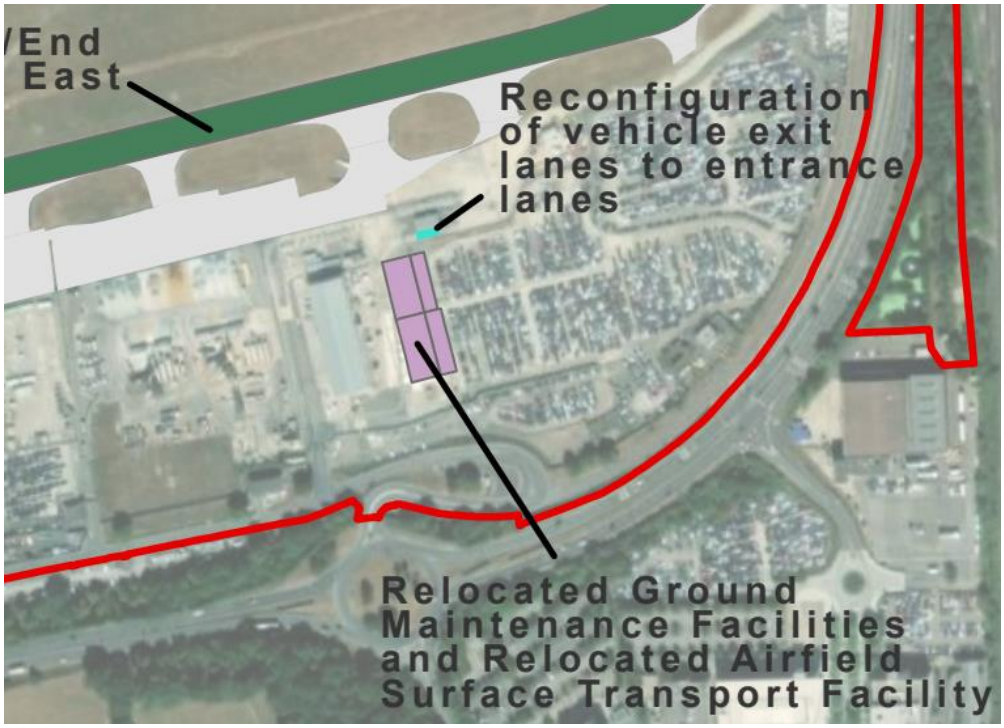

Figure 30: Location of Airfield Surface Transport Facility

8.6.19 Construction activities associated with the Airfield Surface Transport Facility include:

- Diversion and relocation of existing utilities within the footprint of the new building.
- Mechanised breaking out and removal of existing pavement for building foundations.
- Placement of concrete pad foundations from mixer chute.
- Installation of new electric, comms, water & sewer utilities.
- Installation of new concrete ground slab for vehicle shed.
- Installation of steel / aluminium portal frame vehicle shed structure with crane and elevated working platforms.
- Install cladding, roofing, and glazing.
- Install lighting system in vehicle shed.
- Install temporary prefabricated office and welfare building(s) using cranes and trucks.

8.6.20 Typical construction equipment used for this work is expected to be:

- Loader backhoe excavator combination
- All-terrain dumper
- Flatbed delivery truck with articulated lifting arm
- Tipper dump truck (non-all terrain)
- Medium rubber tyred hydraulic arm excavator
- Small steel wheel roller compactor
- Concrete mixer truck
- Rubber-tyred mobile crane
- Telescopic boom lift working platform
- Scissor lift working platform

8.6.21 The contractor is expected to work from a welfare unit adjacent to the new locations, with support from the MA1 compound for relocating facilities to the south.

Emergency Air Traffic Control Tower and Rendezvous Point North

8.6.22 The emergency or standby control tower is located south of the existing hangar 7 and to the west of the surface transport and grounds maintenance facility. This tower would initially retain its current function but be converted from a landside to an airside operation with a new bus stop and walking route for staff access. In the longer term, it would be demolished to make way for an additional stand. The location is shown in Figure 31.

8.6.23 The existing Rendezvous Point (RVP) North would be relocated to re-provide a suitable emergency rendezvous area, to the north of the central airport area, for off-airport emergency services. The location is shown in dark green in Figure 32.

8.6.24 The construction activities for this work are anticipated to be light-duty construction of prefabricated buildings, bus shelters and walkways.

Figure 31: Current Location of the Emergency Control Tower

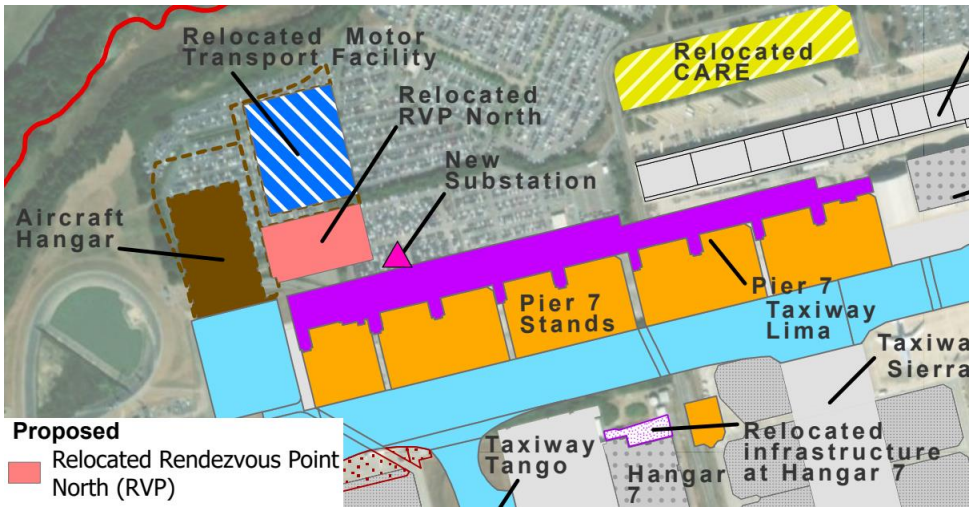

Figure 32: Proposed Location of Rendezvous Point North

8.6.25 The construction methods expected to be used in these works include:

- Ground preparation for bus stop location, including new drainage and kerb line and mechanised installation of asphalt paving to the bus bay.
- Installation of a new bus shelter.
- Install new asphalt paved walkways with illuminated wayfinding signage and pavement markings.

- Realignment of airside/landside boundary fence.

8.6.26 Typical construction equipment used for this work is expected to be:

- Loader backhoe excavator combination
- All-terrain dumper
- Flatbed delivery truck with articulated lifting arm
- Tipper dump truck (non-all terrain)
- Medium rubber tyred hydraulic arm excavator
- Small steel wheel roller compactor
- Concrete mixer truck
- Rubber-tyred mobile crane

8.6.27 The contractor is expected to work from a welfare unit adjacent to the existing Emergency Control Tower, with support from the Airfield Satellite Compound.

Relocation of Fire Training Facility

8.6.28 The realignment of Taxiway Juliet West at the western end of the airfield requires the relocation of the existing Fire Training Facility. The Fire Training Facility is proposed to be relocated to an area immediately to the east of its current location, as shown in Figure 33.

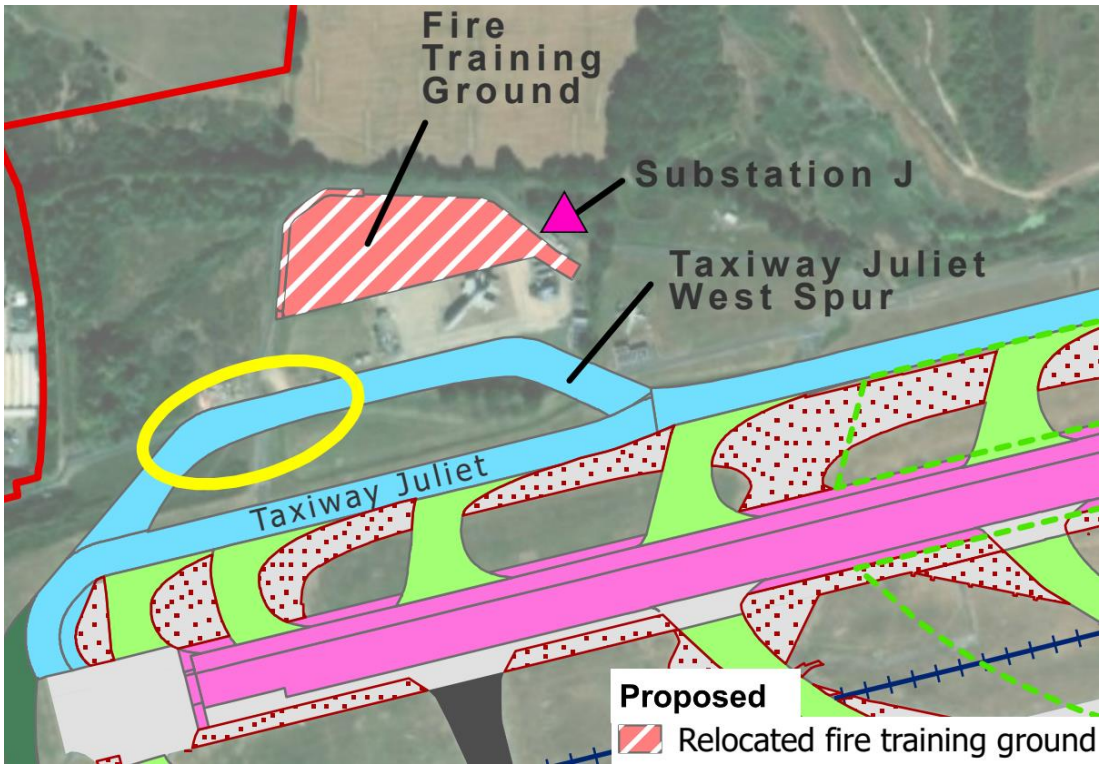

Figure 33: Relocation of Fire Training Facility

8.6.29 The construction activities for this work are anticipated to be standard earthworks methods involving the following elements:

- Mechanised excavation and hauling of existing earthworks materials.
- Identification and removal offsite to an approved facility of any contaminated ground material.
- Mechanised demolition of existing concrete and asphalt paved areas.
- Stockpiling of excavated and demolished material for potential reuse on other elements of the work.
- Mechanised hauling, placement, and compaction of granular fill material.
- Installation of new utilities such as water, power, drainage, and lighting.
- Placing of concrete pavement for new Fire Training facility and relocation of existing training rigs.

8.6.30 Typical construction equipment used for this work is expected to be:

- Tracked and rubber-tyred hydraulic arm excavators with bucket attachments
- Tracked or rubber tyred hydraulic arm excavators with demolition hammer attachments
- All-terrain water tanker trucks
- Bulldozer

- Combination loader backhoe
- Steel tyred compaction roller
- All-terrain tipper truck
- Concrete paving machine
- Concrete mixer truck
- Mobile crane (either crawler type or rubber-tyre type)
- Flatbed delivery truck
- Water tankers
- Water pumps

8.6.31 The contractor is expected to work from the Airfield Satellite Compound.

Hangar 7 ancillary facilities relocation

8.6.32 To enable the construction of the extension of Taxiway Lima to the connection point with the existing Taxiway Uniform, relocation of the Hangar 7 ancillary facilities and the conversion of Hangar 7 from an airside operation to a landside operation is required. The location of Hangar 7 is shown in Figure 34.

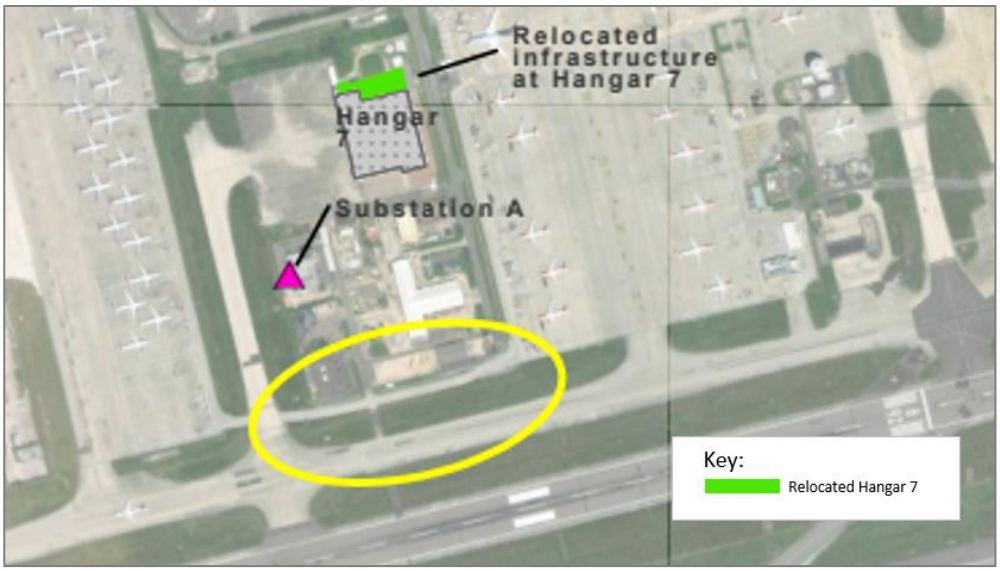

Figure 34: Relocation of Hangar 7

8.6.33 The construction activities for this work are anticipated to be light-duty construction of prefabricated buildings, bus shelters and walkways.

8.6.34 Conversion of the Hangar 7 to airside operation includes the following activities.

- Ground preparation for bus stop location, including new drainage and kerb line and mechanised

installation of asphalt paving to the bus bay.

- Installation of a new bus shelter.
- Install new asphalt paved walkways with illuminated wayfinding signage and pavement markings.
- Realignment of airside/landside boundary fence.

8.6.35 Relocation of the Northeast facilities associated with the Hangar 7 includes:

- Provision of new buildings.
- Diversion and relocation of existing utilities within the footprint of the new building.
- Mechanised breaking out and removal of existing pavement for building foundations.
- Placement of concrete pad foundations from mixer chute.
- Installation of new electric, comms, water & sewer utilities.
- Installation of the new concrete ground slab.
- Installation of steel/portal frame structure with crane and elevated working platforms.
- Installation of cladding, roofing and glazing.
- Internal fit-out includes lighting, fire systems, electrical, and plumbing.
- Installation of hard and soft furnishings.
- Demolish existing buildings.
- Disconnect from all utilities.
- Soft strip building internals, including any hazardous materials identified by prior surveys.
- Controlled mechanised demolition of existing facilities and removal of waste.
- Break out and remove foundations and underground tanks.
- Make safe the ground for subsequent work.

8.6.36 Typical construction equipment used for this work is expected to be:

- Loader backhoe excavator combination
- All-terrain dumper
- Flatbed delivery truck with articulated lifting arm

- Tipper dump truck (non-all terrain)
- Medium rubber tyred hydraulic arm excavator
- Small steel wheel roller compactor
- Concrete mixer truck
- Rubber-tyred mobile crane
- Telescopic boom lift working platform
- Scissor lift working platform

8.6.37 The contractor is expected to work from a welfare unit adjacent to Hangar 7, with support from the Airfield Satellite Compound.

New Aircraft Hangar

8.6.38 It is proposed that the hangar complex will include a hangar sized to accommodate a single Code E aircraft along a hanger apron area and a taxiway extension for aircraft to taxi to the Hanger from Taxiway Uniform. The facility will also include landside parking and office space. The location for the new hangar is shown in pink colour in Figure 35.

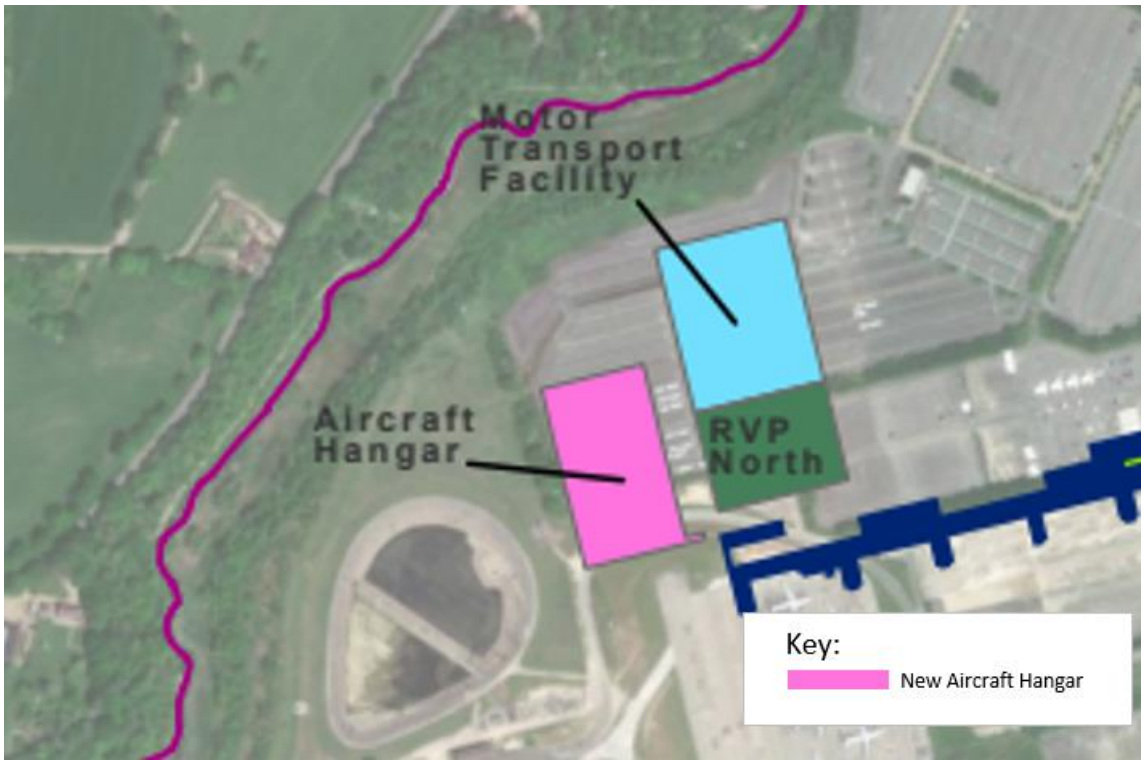

Figure 35: Layout and Location of the Proposed New Hangar

8.6.39 The construction works for the hangar area will have three elements:

- Diversion of Larkins Road.

- Construction of taxiway tie-in (bell mouths), the hanger taxiway and apron.
- Construction of the Hanger and associated offices and car parks.

8.6.40 The anticipated construction activities for the completion of the pavements (taxiway, bell mouths and apron) include:

- Diversion and relocation of existing buried utilities such as power, communications, drainage, and other assets.
- Clearing and grading the areas to receive new pavement, including removal of existing soil to stockpile for future reuse.
- Breaking out of existing hard surfaces such as roads and car park areas.
- Significant amounts of material are expected to be crushed on the South Terminals compound from this breaking out and removal works. Reuse of this material will be maximised.
- Installation of new buried utilities and services routes.
- Earthworks for the formation layers on which the new pavement will be constructed.
- Installation of the new pavement and aircraft stand areas in pavement quality concrete.
- Installation of area lighting, signage, and line markings.

8.6.41 The typical equipment expected for the pavement works includes:

- All-terrain tipper trucks
- Bulldozers
- Graders
- Combination loader backhoes
- Concrete mixer trucks
- Tipper dump trucks (non-all-terrain)
- Concrete paving machines
- Concrete saw cutter
- Tracked and rubber tyred hydraulic arm excavators with bucket attachments and with hydraulic breaking hammer attachments
- Large steel wheel roller compactor
- Concrete mixer truck

- Concrete slip from paving machine
- Mobile crane
- Flatbed delivery trucks
- Forklift
- Road sweepers
- Water tanker truck
- Line painting equipment

8.6.42 The typical construction activities anticipated for the Hangar, offices and car park includes:

- Diversion and relocation of existing buried utilities such as power supplies, lighting, communication systems, drainage, and other buried assets.
- Clearing and grading the areas to receive the new building facility, including removal of existing materials to stockpile for future reuse.
- Installation of piled and/or pad foundations as suitable for the ground conditions.
- Breaking out of the existing paved surface.
- Installation of new buried utilities and services routes.
- Earthworks for the formation layers on which the building will be constructed.
- Installation of structural and secondary steelwork in a typical portal frame arrangement.
- Installation of hangar door frames.
- Installation of the concrete ground slab and any internal floors, including any mezzanine levels, staircases, and lift shafts.
- Installation of roofing, cladding and glazing systems.
- Installation of hangar doors.
- Installation of interior building services such as HVAC, fire detection and alarm systems, lighting, power, water and waste collection systems and connection to existing mains.
- Testing and commissioning, including building occupancy trials and certification.

8.6.43 The typical equipment expected for this work includes:

- Flatbed trucks with and without hydraulic lifting arms
- Road sweepers

- Tipper trucks (non-all-terrain)
- Hydraulic arm excavator with bucket attachment
- Combination loader backhoe excavator
- Large steel wheel roller compactor
- Piling rig
- Bulldozer
- Medium frontend loader
- Concrete mixer truck
- Mobile crane
- Mobile elevated working platform
- Concrete pump

8.6.44 For the Hangar works, the contractor is expected to work from the Airfield Satellite Compound and from within the footprint of the new hanger facility.

Northwest Noise Bund and wall reconfiguration

8.6.45 As part of the environmental mitigation proposed for the Project, a precast concrete noise mitigation bund and wall will be constructed on the north-western side of the runway, as shown in Figure 36.

Figure 36: West runway end noise mitigation bund and wall location

8.6.46 The construction activities anticipated in this work include:

- Manufacture precast concrete panels offsite and deliver to stockpile at Airfield Satellite

Compound.

- Clear the existing bund in the areas where it clashes with the new noise wall.
- Excavation for foundations.
- Preparation of temporary crane pads for crane stability.
- Placement of concrete foundations.
- Installation of drains under the wall connecting to the existing drainage network.
- Installation of precast concrete panels to form the wall.
- Removal of the crane pads.
- Build up the bund on the northwestern side of the wall with recycled excavated material.
- Place topsoil on the bund and landscape the area.

8.6.47 The anticipated equipment used for this work includes:

- Flatbed delivery truck
- Hydraulic arm excavator with bucket
- All-terrain tipper truck
- Concrete mixer truck
- Roller compactor
- Mobile crane (either crawler or rubber tyred type)

8.6.48 The contractor is expected to work from a local welfare unit adjacent to the work area for the construction activities, with the support operations located in the Airfield Satellite Compound and to use Larkins Road for access to this site.

Rescue Fire Fighting Services provision south of Main Runway

8.6.49 In order to provide sufficient response access to all areas of the airfield, a full-service fire station is proposed to the south of the Main Runway.

8.6.50 The construction activities for this work are anticipated to be standard earthworks methods involving the following elements.

- Clearing & grubbing of existing soft landscaped area.
- Break out where required of the existing perimeter track.
- Diversion and relocation of existing utilities.

- Excavation, placing and reinstatement of new buried water, sewer, power, street lighting & communications utilities.
- Mechanised excavation down to the formation layer for the building and access road.
- Placement and compaction of granular fill material.
- Installation of foundations for new buildings (pad foundations for single-storey buildings are assumed).
- Installation of the concrete ground slab.
- Installation of brick-built single-storey (high headroom) building with welfare, vehicle storage and replenishment bay, and control room.
- Installation of vehicle bay doors and exterior windows.
- Internal fit-out, including building services and soft and hard furnishings.
- Testing and commissioning.
- Asphalting of the new road section connecting to Hangar 6.
- Installation of street lighting and signage.

8.6.51 Typical construction equipment used for this work is expected to be:

- Loader backhoe excavator combination
- All-terrain dumper
- Flatbed delivery truck with articulated lifting arm
- Tipper dump truck (non-all-terrain)
- Medium rubber tyred hydraulic arm excavator
- Small steel wheel roller compactor
- Concrete mixer truck
- Telescopic boom lift working platform
- Asphalt paving machine
- Large Steel Wheel Roller Compactor

8.6.52 The contractor is expected to work from MA1 Compound for this work with access via Perimeter Road South.

Perimeter Security Access

8.6.53 The security access gates and staff search facilities are proposed to be expanded to cater for increased growth in access requirements to the airside areas and for the use of the Gatwick Airport Northern Runway project contractors. This expansion is anticipated to be within the existing footprint and will provide additional processing capacity for personnel and materials to the airside areas.

8.6.54 The Northern Access Gate is located off Timberham Farm Road on the north side of the airfield; the Southern Access Gate is located off Perimeter Road South, as shown in Figure 37.

Figure 37: Locations of North and South Access Gates

8.6.55 The construction activities expected for these works include light-duty canopy erection, communication systems reconfigurations and barriers/fencing, including:

- CCTV reconfigurations with the erection of new CCTV poles and new buried cable routes.
- Installation of new or reconfigured lifting arm barrier/gate with new buried cable routes.
- Break out for new canopy foundations.
- Installation of concrete pad foundations.
- Installation of steel structure and cladding for canopy.
- Relocation of road signposts.
- Removal and replacement of opposite-direction road marking paint.

8.6.56 The typical equipment associated with this type of work includes:

- Loader backhoe excavator combination
- All-terrain dumper
- Flatbed delivery truck with articulated lifting arm
- Tipper dump truck (non-all-terrain)
- Medium rubber tyred hydraulic arm excavator
- Small steel wheel roller compactor
- Concrete mixer truck

8.6.57 The contractor is expected to use welfare units local to the work area with support from both the Airfield Satellite and MA1 Compounds.

8.7. Internal access routes

8.7.1 As part of the NRP, various works to the internal access routes are required. This includes works to the existing Airside Roads and those summarised below:

- Relocate Larkins Road, see section 8.7.3 below
- Construction of an East-West track between the runways, see section 8.7.7 below

8.7.2 The following subsections describe in more detail the work required at each location.

Larkins Road relocation

8.7.3 The provision of a new Pier 7 and associated aircraft stands, and the extension of Taxiway Lima overlap with part of Larkins Road as it passes through the northern parking areas of the Airport. The relocation of Larkins Road will be undertaken in two stages, with the first stage being implemented to support the construction of the Taxiway Lima extension, and the permanent diversion of the road will be undertaken after the completion of Pier 7 and will involve rerouting the road to the North of Pier 7 and through the existing car parks as shown in Figure 38.

Figure 38: The relocation of Larkins Road

8.7.4 The construction activities used in this work are typical of minor road construction. The work will be sequenced to construct the realignment of the section which passes through the car parks first.

8.7.5 The types of construction equipment anticipated for this work include the following types of vehicles.

- Rubber-tyred and tracked hydraulic backhoe excavators or combination loader backhoes.
- Bulk material tipper trucks.
- Asphalt paving machine.
- Road milling machine.
- Large steel wheel roller compactor.
- Concrete mixer trucks.
- Flatbed delivery trucks with articulated lifting arms.
- Pneumatic tyred roller (PTR).

8.7.6 The contractor is expected to work from within the works area and the Airfield Satellite Compound. The access routes for this area will be via Larkins Road and Perimeter Road North for all plants, materials and workforce.

East-West track between runways

8.7.7 A route will be constructed between the Northern Runway and Main Runway. This is known as the East-West track, the location of which is shown in Figure 39.

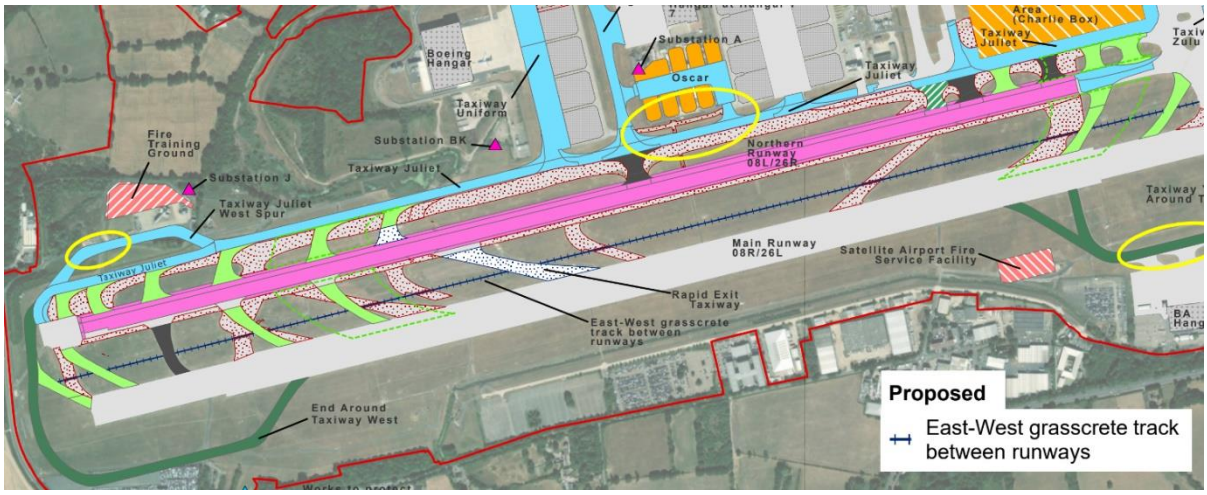

Figure 39: East-West Track location

8.7.8 The typical construction activities for this work include:

- Diversion and relocation of existing buried utilities such as drainage, power supplies and communication systems assets.
- Clear and grade existing earthworks, remove and stockpile soil material for potential reuse.
- Excavate existing soil material and stockpile for potential reuse.
- Installation of new grass creates
- Excavation and installation of underground power and control cabling/conduit to support new vehicle holding positions.
- Installation of signage associated with the holding positions (WIG WAGS).

8.7.9 The construction equipment anticipated to be required for these works includes the following types of vehicles.

- Combination loader backhoes
- Tipper dump trucks (non-all-terrain)
- Flatbed delivery trucks with hydraulic lifting arms
- Steel tyred compaction rollers

8.7.10 The contractor is expected to work from within the permanent works footprint and the airfield areas and use the MA1 Compound and use Perimeter Road South for access to this site.

8.8. Extensions to North and South Terminals

8.8.1 Extensions to the existing North and South Terminals are required to accommodate passenger growth. In addition, a number of internal changes are proposed within the terminals to allow for

changes in technology and innovative approaches to passenger experience and baggage handling, together with changes to the terminal forecourts.

8.8.2 The work packages involved in the extensions to the North and South Terminals are given below. The following subsections describe in more detail the work required at each location.

- North Terminal IDL Extensions
- Autonomous Vehicle Maintenance Building
- North Terminal Borders
- North Terminal MUPS
- North Terminal Check-in
- North Terminal Reclaim
- North Terminal Security (Central Search)
- South Terminal IDL extensions
- South Terminal MUPS
- South Terminal Reclaim
- South Terminal Borders
- Additional South Terminal Coaching Gates
- North Terminal Forecourt
- South Terminal Forecourt

North Terminal International Departure Lounge Extensions

8.8.3 To enable growth in passenger throughput and processing capacity, extensions of the North Terminal International Departure Lounge (IDL)are required. It is proposed that the existing IDL will be extended to both the north and the south. (See Figure 40)

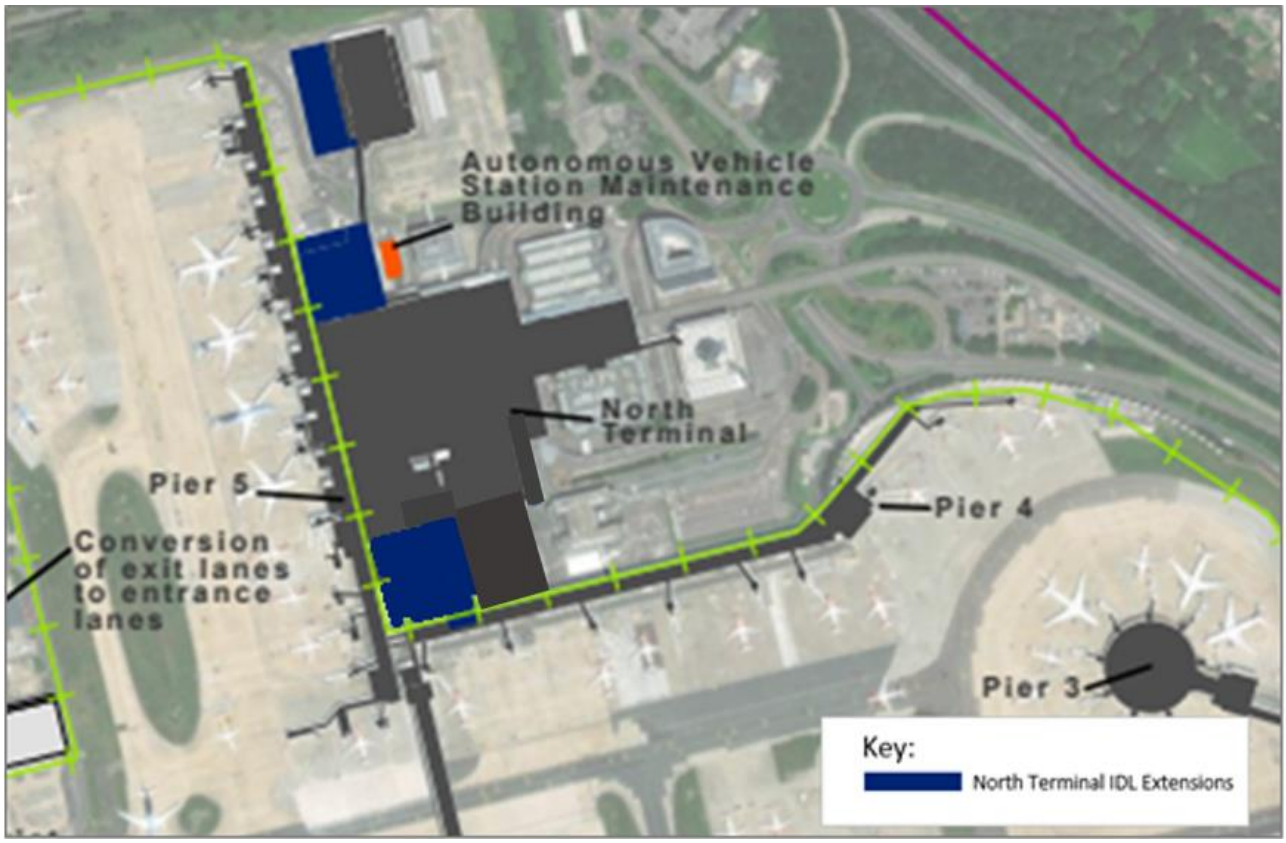

Figure 40: Location of the North Terminal IDL extensions

8.8.4 The construction activities required for this element of the work are:

- Controlled mechanised demolition of existing concrete and steel frame CIP lounge and circulation buildings including concrete foundations and removal of waste.
- Site clearance of existing footprint of all obstacles.
- Diversion and relocation of existing utilities.
- Mechanised break out of some existing paved surfaces for new foundations and new buried utilities.
- Installation of new piled foundations.
- Erection of internal hoardings in existing IDL.
- Removal of existing building façade and services.
- Truck transport and crane erection of new structural steel portal frame structure.
- Installation of new suspended concrete floor and roof slabs.
- Installation of new building façade and glazing.
- Installation of new building services, internal fit-out, and hard and soft furnishings.

- Remedial works to existing buildings including internal fit-out, and hard and soft furnishings.

8.8.5 The typical equipment expected for the IDL extension includes:

- Flatbed trucks with hydraulic lifting arms.
- Road sweepers.
- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment.
- Hydraulic arm excavators with specialised demolition attachments
- Combination loader backhoe excavator.
- Large steel wheel roller compactor.
- Concrete mixer truck and pump.
- Mobile crane.
- Tower crane.
- Mobile elevated working platform.
- Piling rig.

8.8.6 The contractor is expected to work from a welfare unit on the site of the new IDL expansion, with access through the Airfield Satellite Compound or the Northern Access Gate. The contractor is expected to access this site through the Airfield Satellite Compound.

Autonomous Vehicle Maintenance Building

8.8.7 In order to support and maintain the new autonomous vehicle fleet, a new maintenance facility is proposed. The location of the proposed Autonomous Vehicle Maintenance Building is shown in orange in Figure 41

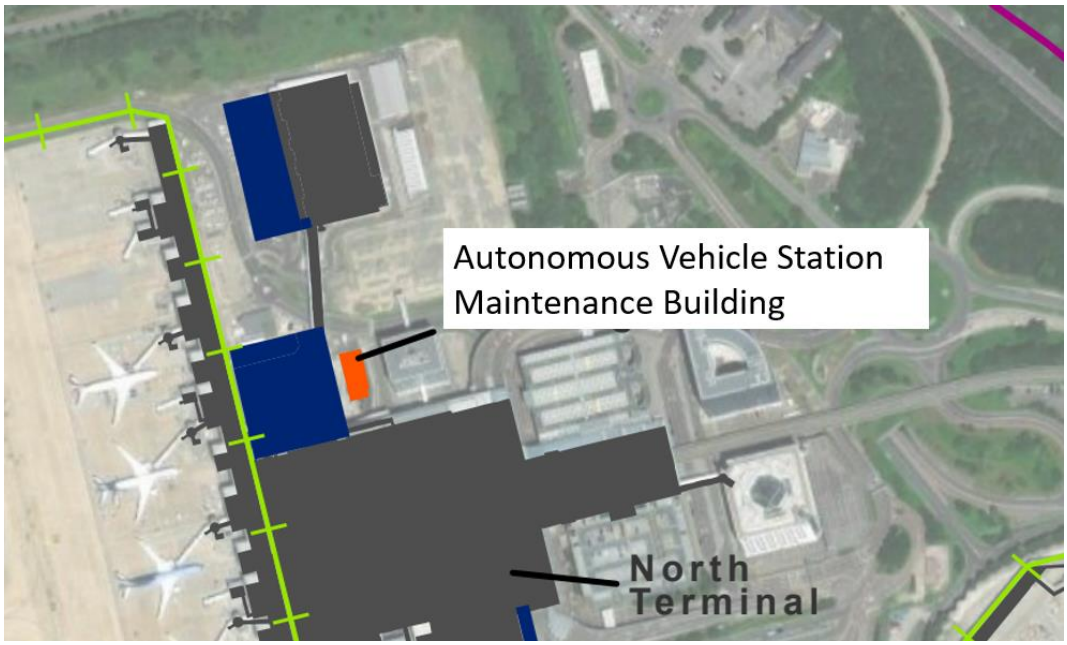

Figure 41: Autonomous Vehicle Station Maintenance Building

8.8.8 The construction activities for these works will include:

- Site clearance of existing footprint of all obstacles.
- Diversion and relocation of existing utilities.
- Mechanised break out of existing paved surfaces for new foundations and new buried utilities.
- Installation of new piled foundations.
- Installation of ground/floor slab.
- Truck transport and crane erection of new structural steel portal frame structure.
- Installation of new building cladding and glazing.
- Installation of new building services.
- Installation of the vehicle maintenance equipment.
- Installation of the electrical HVAC and lighting.
- Provision of signage and wayfinding as required.

8.8.9 The typical construction equipment expected to be required for the construction of the Autonomous Vehicle Maintenance Building includes:

- Flatbed trucks with hydraulic lifting arms.
- Road sweepers.

- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Large steel wheel roller compactor.
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- Mobile elevated working platform.

8.8.10 The contractor is expected to work from a temporary welfare unit on the site of the new Transfer Baggage Facility (TBF) Annex and will access the work area from the airside via the Airfield Satellite Compound or the Northern Access Gate (depending on the ultimate timing of the works).

Autonomous Vehicle Station North Terminal

8.8.11 The current coaching gate 45 (A-L) will be reconfigured to accommodate the new North Terminal Autonomous Vehicle Station shown in Figure 42 for the proposed new autonomous vehicles serving Pier 7.

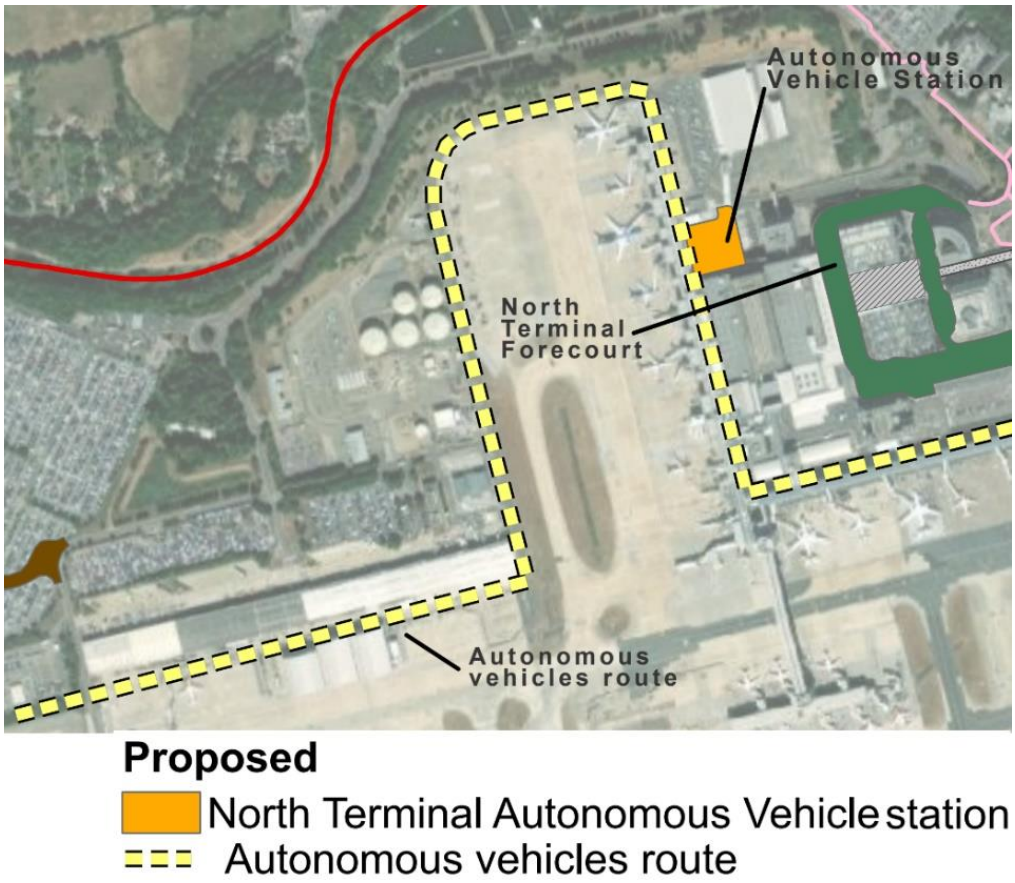

Figure 42: Location of the North Terminal Autonomous Vehicle (AV) Station

8.8.12 The construction methods for this element of the work include:

- Demolition
- Site clearance of existing footprint of all obstacles
- Mechanised break out of some existing paved surfaces
- Diversion and relocation of existing utilities
- Installation of new piled foundations (if required)
- Excavation to formation level
- Installation and compaction of granular base material
- Installation of underground new building utilities (power, data, clean and dirty water drainage)
- Casting of ground/base slab
- Erection of internal hoardings in the coaching gate

- Removal of existing building façade and services
- Truck transport and crane erection of new structural steel portal frame structure
- Installation of new suspended concrete floor slabs
- Installation of new building façade and glazing
- Installation of new building services, internal fit-out, hard and soft furnishings

8.8.13 The typical equipment expected for these works includes:

- Flatbed trucks with hydraulic lifting arms
- Piling rig
- Road sweepers
- Tipper trucks (non-all-terrain)
- Hydraulic arm excavator with bucket attachment
- Combination loader backhoe excavator
- Large steel wheel roller compactor
- Concrete mixer truck
- Concrete pump
- Mobile crane
- Mobile elevated working platform

8.8.14 The contractor is expected to work from a welfare unit within the works area. The contractor is expected to access this site through the Satellite Compound or the Northern Service gate.

North Terminal Borders

8.8.15 The reconfiguration / extension of the existing Border Zone will be achieved by constructing new offices in the void area beneath the existing ILD structure and then expanding the border zone north into the existing office space (released by the construction of the new office space).

8.8.16 The construction activities for this element of the works are expected to be as follows:

- Construction of new offices beneath the ILD, including connections to the existing electrical and HVAC systems in the area.
- Modification of the existing circulation to support the new offices.

- Relocation of all office equipment from the existing offices to the new offices.
- Installation of hoarding around the existing offices.
- Demolition and removal of the existing offices.
- Construct new reconfigured offices, including new flooring, ceilings, lighting and connections to the existing HVAC system.
- Installation of new inspection desks.

8.8.17 The typical equipment expected for the works includes:

- Flatbed delivery truck with articulated lifting arm.
- Scissor working platform working platform.
- Jack Hammer and diesel-powered air compressor.
- Trolley jack and skids.

8.8.18 The contractor is expected to work from a welfare unit located within or immediately adjacent to the construction areas, with support from the South Terminal Compound. The contractor is expected to access this site through the main terminal.

North Terminal MUPS

8.8.19 To enable growth in passenger throughput and processing capacity, additional Make Up Positions for baggage (MUPS) are required. In order to accommodate the new MUPS stations (70 in number), a new Transfer Baggage Facility (TBF) Annex will be built to the west of the existing TBF annexe.

8.8.20 The construction activities for these works will include:

- Site clearance of existing footprint of all obstacles.
- Diversion and relocation of existing utilities.
- Mechanised break out of some existing paved surfaces for new foundations and new buried utilities.
- Installation of new piled foundations.
- Truck transport and crane erection of new structural steel portal frame structure.
- Installation of new suspended concrete floor slabs.
- Installation of new building façade and glazing.
- Installation of new building services.

- Installation of the new MUPS and associated conveyors, screening and sorting equipment.
- Installation of the electrical and instrumentation systems for the new MUPS and feed lines.
- Modification/upgrade to the baggage handling system.
- Provision of signage and wayfinding as required.
- Modification of exterior road layout to connect into the new TBF Annex.

8.8.21 The typical equipment expected for the works includes:

- Flatbed trucks with hydraulic lifting arms.
- Road sweepers.
- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment
- Combination loader backhoe excavator.
- Large steel wheel roller compactor.
- Piling rig.
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- Mobile elevated working platform.

8.8.22 The contractor is expected to work from a temporary welfare unit on the site of the new TBF Annex and will access the work area from the airside via the Airfield Satellite Compound or the Northern Access Gate (dependent on the ultimate timing of the works).

North Terminal Check-In

8.8.23 The reconfiguration of the existing North Terminal check-in zone will be undertaken in two stages: Stage 1 comprises the addition of high-capacity bag drops and common-use self-service check-ins; followed by Stage 2 which comprises the construction of two check-in and baggage collection banks.

8.8.24 For the Stage 1 works, the construction activities for this element of the works are expected to be as follows.

- Installation of hoarding around the existing bag drop units (Zone C).
- Removal of the existing bag drop units at Zone C and associated services.

- Installation of new services to support the new high-capacity bag drops and CUSS units.
- Installation of 14 new high-capacity bag drops.
- Install new fully functional CUSS units, including scales, in Zone C.
- Removal of the hoarding from Zone C and hoarding off Zone D.
- Removal of the existing bag drop units at Zone D and associated services.
- Installation of new services to support the new high-capacity bag drops and CUSS units.
- Installation of new high-capacity bag drops.
- Install new fully functional CUSS units, including scales, in Zone D.
- Removal of the hoarding from Zone D.
- Installation of new signage.

8.8.25 The typical equipment expected for the works includes:

- Flatbed delivery truck with articulated lifting arm.
- Scissor lift working platform.
- Jack Hammer and diesel-powered air compressor.
- Trolley jack and skids.

8.8.26 The contractor is expected to work from a welfare unit located within or immediately adjacent to the check-in zone, with support from the South Terminal Compound. The contractor is expected to access this site through the main terminal.

8.8.27 For the Stage 2 works, the construction methods for this element of the works are expected to be as follows.

- Site clearance of existing footprint of all obstacles.
- Diversion and relocation of existing utilities.
- Closure and diversion of the road under the works.
- Mechanised break out of some existing paved surfaces for new foundations and new buried utilities.
- Installation of new piled foundations.
- Erection of internal hoardings in the existing check-in zone and around the shuttle area.
- Removal of existing building façade and services.

- Truck transport and crane erection of new structural steel portal frame structure.
- Installation of new suspended concrete floor slabs.
- Installation of baggage tunnel external to the building.
- Installation of new building façade and glazing.
- Installation of new building services, internal fit out.
- Installation of baggage check-in / collection points.
- Installation of new baggage conveying system.

8.8.28 The typical equipment expected for the works include:

- Flatbed trucks with hydraulic lifting arms.
- Road sweepers.
- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Large steel wheel roller compactor.
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- Mobile elevated working platform.
- Piling rig.

8.8.29 The contractor is expected to work from a welfare unit located within or immediately adjacent to the check-in zone, with support from the South Terminal Compound. The contractor is expected to access this site through the main terminal.

North Terminal Reclaim

8.8.30 The required increase in the capacity of the North Terminal reclaim facilities will be achieved by:

- Adding a new increased size domestic reclaim belt to take the place of the existing domestic belt (Belt 11).
- Converting the existing domestic reclaim belt (Belt 11) from a domestic belt to an international belt and increasing its size.

- Increasing the size of one of the international reclaim belts (Belt 10).

8.8.31 The location and the layout of the reconfigured North Terminal Reclaim Facility are shown in Figure 43.

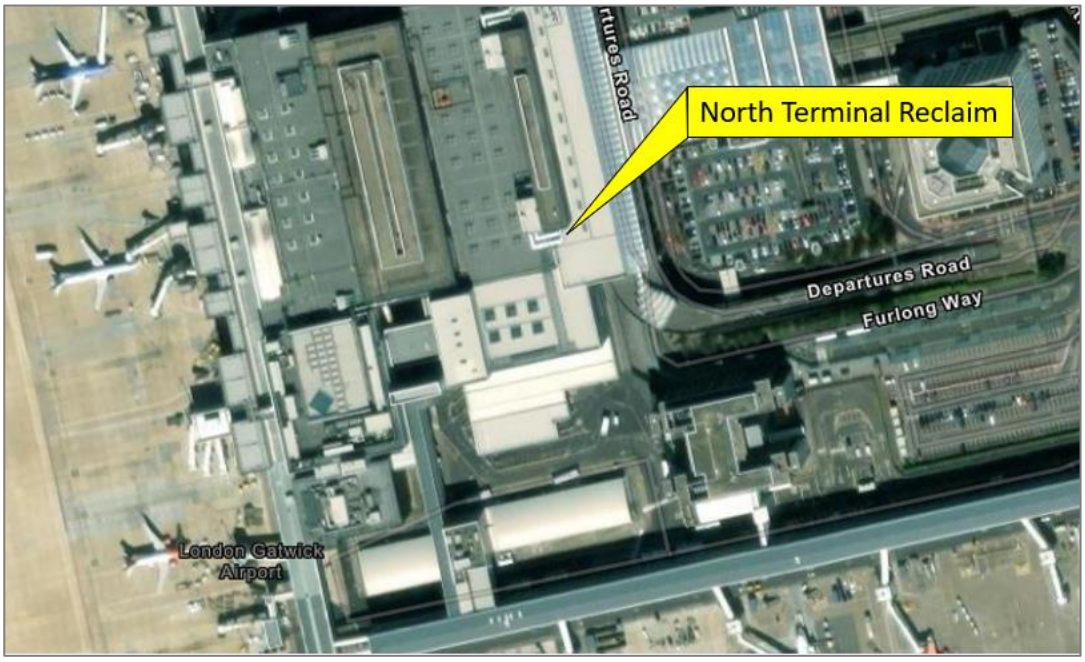

Figure 43: Location of North Terminal Reclaim

8.8.32 The construction activities for this element of the works are expected to be as follows.

- Site clearance of the footprint in the domestic transfer extension.
- Diversion and relocation of existing utilities.
- Mechanised break out of some existing paved surfaces for new foundations and new buried utilities.
- Installation of new piled foundations.
- Election of hoarding on the south side of reclaim 11.
- Removal of existing building façade and services.
- Truck transport and crane erection of new structural steel portal frame structure.
- Installation of new suspended concrete floor slabs.
- Installation of new building façade and glazing.
- Installation of new building services.
- Installation of new reclaim conveyer and unloading station.

- Installation of hoarding at level 10 sterile corridor and extension of the corridor.
- Installation of new vertical circulation elements (stairs, lifts, and escalators) between level 10 and level 00 to connect to the new domestic baggage reclaim zone.
- Installation of partition wall between the new domestic reclaim conveyer and reclaim belt 11.
- Installation of new signage.
- Removal of the temporary hoarding on the south side of reclaim 11.
- Hoard off reclaim belt 10.
- Remove the wall between belts 10 and 11 and extend the hoarding around reclaim belt 11 as required.
- Extend belts 10 and 11, adding additional services to support the extended belts.
- Repair and make good the flooring around the extended belts.
- Installation of new signage.
- Removal of the hoarding.

8.8.33 The typical equipment expected for the works includes:

- Flatbed trucks with hydraulic lifting arms.
- Road sweepers.
- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Large steel wheel roller compactor.
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- Forklift truck.
- Mobile elevated working platform.

8.8.34 The contractor is expected to work from a temporary welfare unit on the site of the reclaim works and will access the work area from the airside via the Airfield Satellite Compound.

North Terminal Security Central Search

8.8.35 The creation of the North Terminal Security Central Search Facility will be achieved through the reconfiguration of the existing North Terminal check-in/security.

8.8.36 The construction activities for this element of the works are expected to be as follows.

- Installation of hoarding around the existing Zone E Check-in area.
- Removal of the existing Zone E check-in desks and associated equipment.
- Removal of the services associated with the Zone C check-in facilities.
- Demolition of existing partition walls and installation of the new partition walls.
- Repair/renovation of the flooring and ceiling, and make any changes required to the lighting for the reconfigured area.
- Installation of new signage.
- Removal of the hoarding from Zone E.

8.8.37 The typical equipment expected for the expansion includes:

- Flatbed delivery truck with articulated lifting arm.
- Scissor working platform working platform.
- Jack Hammer and diesel-powered air compressor.
- Trolley jack and skids.

8.8.38 The contractor is expected to work from a welfare unit located within or immediately adjacent to the check-in zone, with support from the South Terminal Compound. The contractor is expected to access this site through the main terminal.

South Terminal International Departure Lounge Extension

8.8.39 To enable growth in passenger throughput and processing capacity, an extension of the South Terminal International Departure Lounge (IDL) is required (Figure 44). This will include the expansion of the existing IDL levels and the construction of a new level and roof structure.

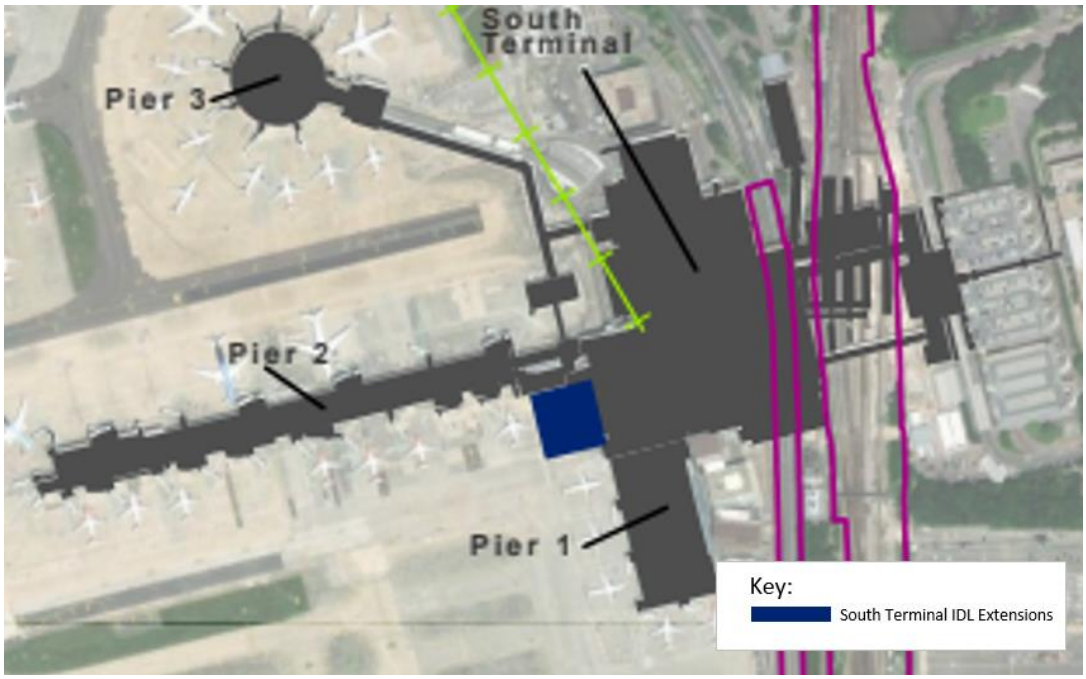

Figure 44: Location of South Terminal International Departure Lounge Extension

8.8.40 The construction activities required for this element of the work are:

- Site clearance of existing footprint of all obstacles.
- Diversion and relocation of existing utilities.
- Mechanised break out of some existing paved surfaces for new foundations and new buried utilities.
- Installation of new rotary bored pile foundations.
- Erection of internal hoardings in existing IDL.
- Removal of existing building façade and services.
- Truck transport and crane erection of new structural steel portal frame structure.
- Clearing of existing IDL floor (level 20) and the isolation of utilities.
- Removal of the existing roof structure.
- Installation of new suspended concrete floor slabs.
- Construction/installation of new roof structure.
- Installation of new building façade and glazing.
- Installation of new building services, internal fit-out, and hard and soft furnishings.

8.8.41 The typical construction equipment expected to be used for the IDL expansion includes:

- Flatbed trucks with hydraulic lifting arms.
- Road sweepers.
- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Large steel wheel roller compactor.
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- Mobile elevated working platform.
- Rotary bored piling rig.

8.8.42 The contractor is expected to work from a welfare unit on the site of the IDL expansion, with support from the MA1 Compound. The contractor is expected to access this site from the existing Airport Way.

South Terminal MUPS

8.8.43 Additional Make Up Positions for baggage (MUPS) are required to enable growth in passenger throughput and processing capacity. Up to 10 additional MUPS and feedlines will be installed in the area previously occupied by the South Terminal Baggage Handling System adjacent to the existing Baggage Factory.

8.8.44 The construction activities for this element of the works are expected to be as follows.

- Clear the area previously occupied by the South Terminal Baggage Handling System.
- Remove all existing services.
- Installation of the new MUPS and associated feed lines.
- Installation of the electrical and instrumentation systems for the new MUPS and feed lines.
- Modification/upgrade to the baggage handling system.
- Refurbishment/upgrade and or installation of new services to support the new installation, including lighting and ventilation systems.
- Renovation/sealing of the area flooring and ceilings.

- Provision of signage and wayfinding as required.

8.8.45 The typical equipment expected for the installation of the new South Terminal MUPS installation includes:

- Flatbed trucks with hydraulic lifting arms.
- Mobile elevated working platform.
- Forklift truck.
- Trolley jacks/skids (to place equipment).

8.8.46 The contractor is expected to work from a temporary welfare unit on the site of the new MUPS installation and will access the work area from the airside via the MA1 Compound.

South Terminal Check-In

8.8.47 The reconfiguration of the existing check-in Zones is required to install kiosks and self-service Bag Drops.

8.8.48 The construction activities for this element of the works are expected to be as follows.

- Installation of hoarding around Zone D.
- Removal of the desks and baggage feed belts (20 number) at Zone D and associated services.
- Repair/renovation of the flooring in Zone D.
- Installation of new services to support the new high-capacity bag drops.
- Installation of 21 new high-capacity bag drops and belts.
- Removal of the hoarding from Zone D and hoarding off Zone H.
- Converting existing desks in Zone H (12 number) to high-capacity bag drops and undertake any associated upgrades/changes to services and any associated repair/renovation works on the flooring.
- Removal of the hoarding from Zone H and hoarding of Zone E.
- Removal of the desks and baggage feed belts at Zone E and associated services.
- Repair/renovation of the flooring in Zone E.
- Installation of new services to support the new high-capacity bag drops at the Eastern end of Zone E and the new CUSS (Common use self-service) units to be installed in the Western end of Zone E.
- Installation of 7 new high-capacity bag drops and belts in the eastern end of Zone E.

- Installation of new full-function CUSS units in the western section of Zone E and associated scales.
- Removal of the hoarding from Zone E and the hoarding of Zone B.
- Removal of the desks and baggage feed belts from Zone B.
- Removal of the associated utilities and making good of the area.
- Removal of the hoarding from Zone B.
- Installation of new signage.

8.8.49 The typical equipment expected for the expansion includes:

- Flatbed delivery truck with articulated lifting arm.
- Mobile elevated working platform.
- Jack Hammer and diesel-powered air compressor.
- Trolley jack and skids.

8.8.50 The contractor is expected to work from a welfare unit located within or immediately adjacent to the check-in zone, with support from the South Terminal Compound. The contractor is expected to access this site through the main terminal.

South Terminal Reclaim

8.8.51 The required increase in the international reclaim capacity will be achieved by converting Belt 8 from domestic to international use.

8.8.52 The construction activities for this element of the works are expected to be as follows.

- Hoard off the Belt 8 area.
- Demolish the partition walls separating Belt 8 from the existing international reclaim belts.
- Construct new partition walls for separating the international reclaim facilities from the domestic connections.
- Modify the feed conveyors for Belt 8 for international baggage.
- Remove hoarding.

8.8.53 The typical equipment expected for the reclaim works includes:

- Forklift truck.
- Mobile elevated working platform.

8.8.54 The contractor is expected to work from a temporary welfare unit within or adjacent to the work area and will access the work area from the airside via the MA1 Compound.

South Terminal Borders

8.8.55 The reconfiguration of the existing South Terminal Border requires the removal of the 12 e-gates and the provision of 30 new desks.

8.8.56 The construction activities for this element of the works are expected to be as follows.

- Installation of hoarding around the area allocated for the desks on the East side of the Border Zone.
- The provision of power and data connections to the location of the new desks, along with any additional lighting required.
- Installation of the new desks followed by the removal of the hoarding.
- Installation of hoarding around the area allocated for the e-gate lanes on the South West side of the Border Zone.
- Removal of the 12 e-gates in this area.
- Make good the floor in the area.
- The provision of power and data connections to the location of the new desks, along with any additional lighting required.
- Installation of the new desks followed by the removal of the hoarding.

8.8.57 The typical construction equipment expected to be required for the works includes:

- Flatbed delivery truck with articulated lifting arm.
- Scissor lift working platform.
- Trolley jack and skids.

8.8.58 The contractor is expected to work from a welfare unit located within or immediately adjacent to the border zone, with support from the South Terminal Compound. The contractor is expected to access this site through the main terminal.

Autonomous Vehicle Station, South Terminal

8.8.59 The proposed use of autonomous vehicles requires the construction of a two-storey "coaching gate" station at the South Terminal for the proposed new autonomous vehicles serving Pier 7 is shown in Figure 45.

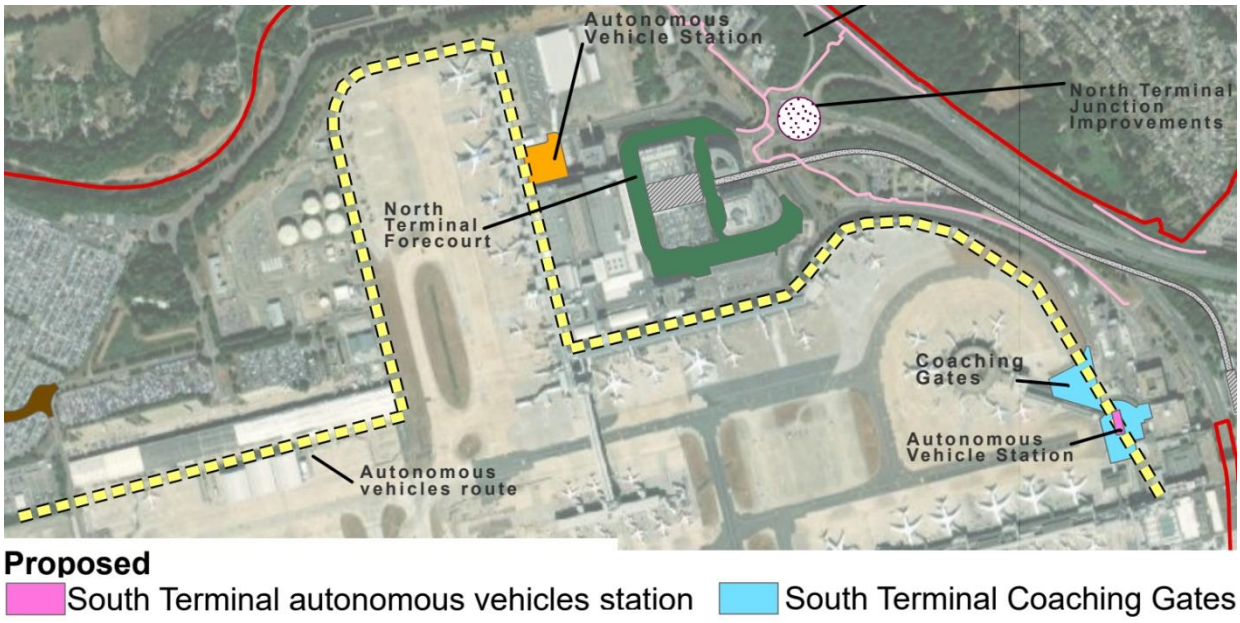

Figure 45:Location of South Terminal Autonomous Vehicle Station

8.8.60 The construction of the Autonomous Vehicle Station includes:

- Site clearance of existing footprint of all obstacles.
- Mechanised break out of some existing paved surfaces.
- Diversion and relocation of existing utilities.
- Installation of new piled foundations (if required).
- Excavation to formation level.
- Installation and compaction of granular base material.
- Installation of underground new building utilities (power, data, clean and dirty water drainage).
- Casting of ground/base slab.
- Truck transport and crane erection of new structural steel portal frame structure.
- Installation of new suspended concrete floor slabs.
- Installation of new building façade and glazing.
- Installation of new building services, internal fit-out, and hard and soft furnishings.

8.8.61 The typical equipment expected for these works includes:

- Flatbed trucks with hydraulic lifting arms
- Rotary piling rigs

- Road sweepers
- Tipper trucks (non-all-terrain)
- Hydraulic arm excavator with bucket attachment
- Combination loader backhoe excavator
- Large steel wheel roller compactor
- Concrete mixer truck
- Concrete pump
- Mobile crane
- Mobile elevated working platform

8.8.62 The contractor is expected to access this site through the MA1 Compound

Additional South Terminal Coaching Gates

8.8.63 Additional coaching gates will be constructed to facilitate additional fully serviced stands in lieu of the Pier 7 building. The gates will be constructed in two blocks.

8.8.64 The construction activities for these works will include:

- Site clearance of existing footprint of all obstacles.
- Diversion and relocation of existing utilities.
- Mechanised break out of existing paved surfaces for new foundations and new buried utilities.
- Installation of new piled foundations.
- Truck transport and crane erection of new structural steel portal frame structure.
- Installation of new suspended concrete floor slabs and roof structure.
- Truck transport and crane erection of new structural steel portal frame structure.
- Installation of new building cladding and glazing.
- Installation of new building services.
- Installation of escalators and lifts.
- Installation of the electrical HVAC and lighting.
- Provision of signage and wayfinding as required.

8.8.65 The typical construction equipment expected to be required for the expansion includes:

- Flatbed trucks with hydraulic lifting arms.
- Road sweepers.
- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Large steel wheel roller compactor.
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- Mobile elevated working platform.
- Piling rig.

8.8.66 The contractor is expected to work from a temporary welfare unit on the site of the coaching gate. The contractor is expected to access the work area from the airside via the Airfield Satellite Compound or the Northern Access Gate (dependent on the ultimate timing of the works).

South Terminal and North Terminal Forecourt

8.8.67 The location of the enhancements to the North and South Terminal Forecourts are shown in Figure 46 and Figure 47 respectively.

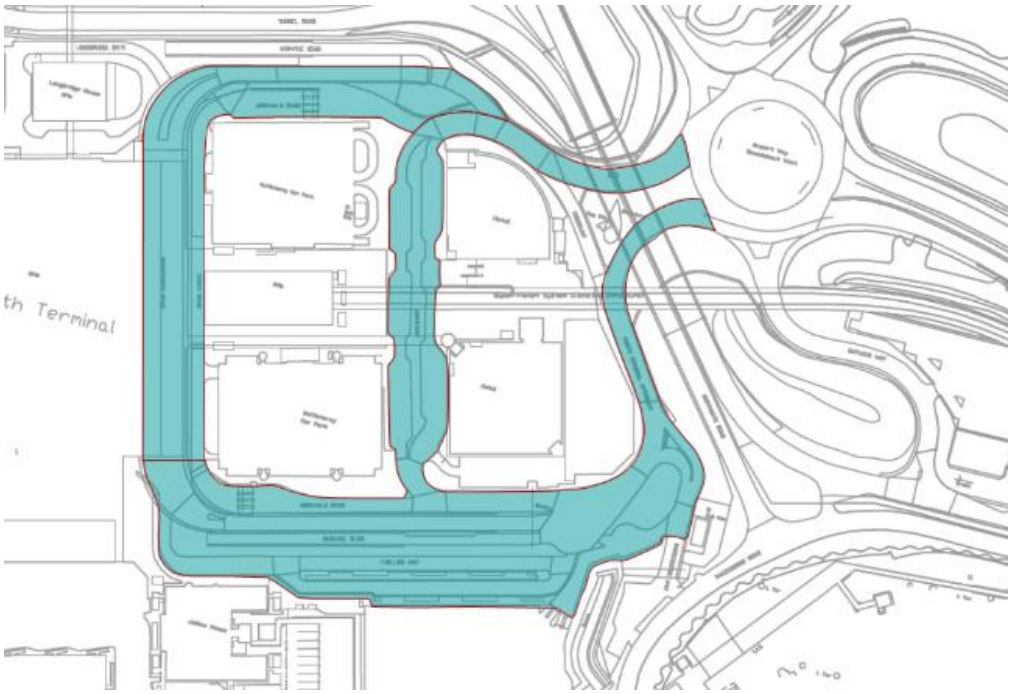

Figure 46: North Terminal Forecourt Enhancements

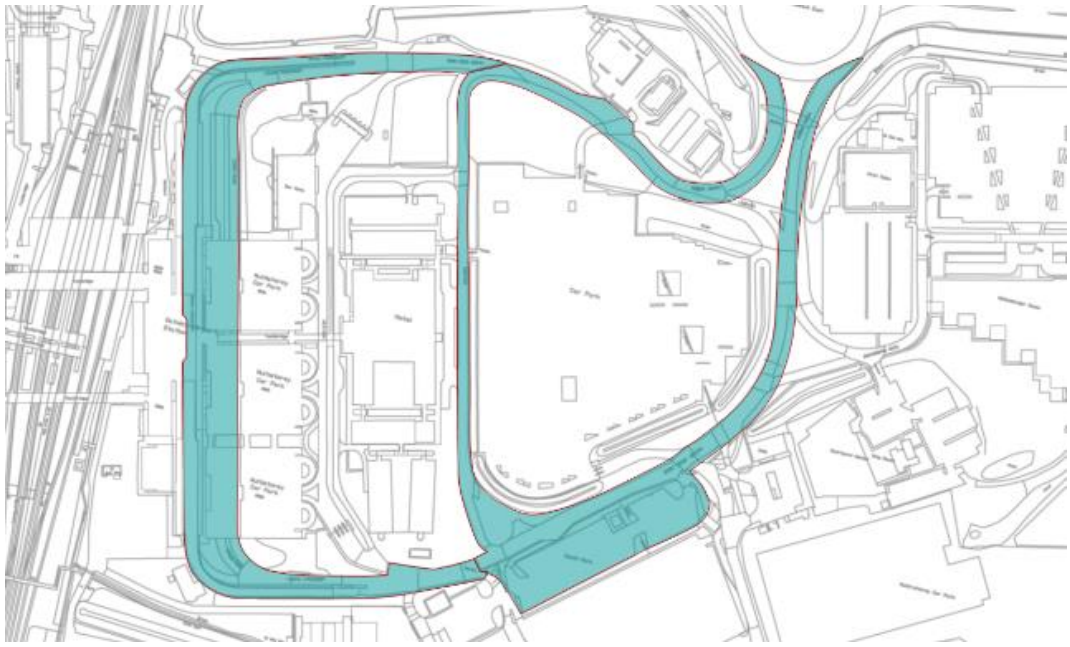

Figure 47: South Terminal Forecourt Enhancements

8.8.68 The construction activities associated with these works are anticipated to be limited to the construction of kerbs and footpaths and would include:

- Ground preparation, including new drainage.

- Kerb placement.
- Installation of granular fill and/or bedding material.
- Asphalting and/or paving of the area.

8.8.69 Typical construction equipment used for this work is expected to comprise:

- Loader backhoe excavator combination.
- Flatbed delivery truck with articulated lifting arm.
- Tipper dump truck (non-all terrain).
- Medium rubber tyred hydraulic arm excavator.
- Compactor.

8.8.70 The contractor is expected to work from a welfare unit adjacent to the work area with support from the MA1 Compound.

8.9. Hotel and Commercial Facilities

8.9.1 An increase in passenger and aircraft operations will require additional office and hotel provisions to meet the needs of airport companies and passengers. The works required to provide additional hotel and commercial facilities are given below. The locations of new hotels and offices are shown in Figure 48 below. Further details are set out in the subsections below.

- ST Hotel – Car Rental FOH Site
- ST Hotel – Car Park H
- ST Offices – Car Park H
- Hotel adjacent to MSCP3
- Destinations Place Hotel

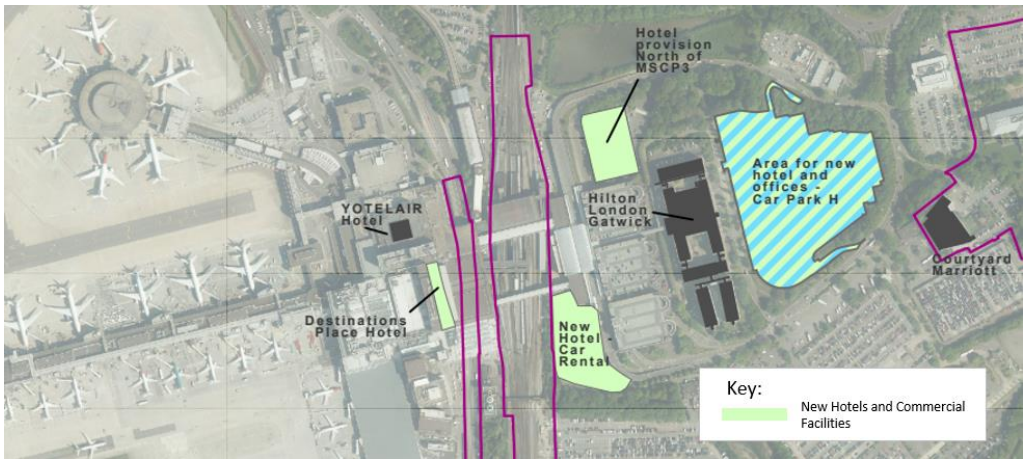

Figure 48: Location of New Hotels and Offices

Hotels

8.9.2 In order to meet the projected demands of increased passenger volumes, four new hotels are proposed to be built.

8.9.3 The works associated with the construction of the hotels would consist of the following:

- Diversion of existing utilities that run through the area.
- Removal of the car park associated utilities (such as lighting, drainage, and others).
- Demolition of existing structures.
- Excavation for foundations and services.
- Placement of base layers and blinding.
- Pouring of foundations.
- Installation of services (drainage, power, water, and sewage lines/ducts).
- Placement of ground slab.
- Construction of elevator shafts.
- Erection of steel.
- Installation of beams and precast elements.
- Casting of floors and erection of walls.
- Cladding and glazing.

- Installation of MEP and HVAC systems, including lighting, power, fire detection and suppression, electrical drainage distribution (substations and switch rooms), security system, building control systems, elevators, sewage system/toilets etc.
- Building fit out.
- External finishes, including landscaping roads and forecourts and tie-ins to the road system and external services (power, water, and drainage).

8.9.4 The equipment types anticipated for this work are:

- Flatbed trucks with hydraulic lifting arms.
- Road sweepers.
- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Large steel wheel roller compactor.
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- Forklift truck.
- Mobile elevated working platform.

8.9.5 The contractor is expected to work from a welfare/compound area local to works. The construction welfare provisions are expected to be two-story cabins, and there will also be some limited local storage containers and laydown areas within the contractor's compound.

South Terminal Offices - Car Park H

8.9.6 In order to support the Project's increased demand from airlines and other operational organisations, two new offices are proposed to be built in Car Park H. The office construction works in Car Park H will be undertaken in a coordinated and sequenced way consistent with the other works in these areas.

8.9.7 The works associated with the construction of the offices would consist of the following:

- Diversion of existing utilities that run through the area.
- Removal of the car park associated utilities (lighting drainage etc.).
- Demolition of existing structures.

- Excavation for foundations and services.
- Placement of base layers and blinding.
- Pouring of foundations.
- Installation of services (drainage, power, water, and sewage lines/ducts).
- Placement of ground slab.
- Construction of elevator shafts.
- Erection of steel.
- Installation of beams and precast elements.
- Casting of floors and erection of walls.
- Cladding and glazing.
- Installation of MEP and HVAC systems, including lighting, power destruction, fire detection and suppression, electrical drainage distribution (substations and switch rooms), security system, building control systems, elevators, sewage system/toilets etc.
- Building fit out.
- External finishes, including landscaping roads and forecourts and tie-ins to the road system and external services (Power, water and drainage).

8.9.8 The types of construction equipment anticipated to be required for this work are:

- Flatbed trucks with hydraulic lifting arms.
- Road sweepers.
- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Large steel wheel roller compactor.
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- Forklift truck.

- Mobile elevated working platform.

8.9.9 The contractor is expected to work from a welfare/compound area local to works. The construction welfare provisions are expected to be two-story cabins, and there will also be some limited local storage containers and laydown areas within the contractor's compound.

8.10. Car Parking

8.10.1 Additional new car parking would be required on-site to meet additional demand generated by the proposed increase in passengers due to the Project and to replace existing parking spaces that would be lost due to development associated with the Project. The work packages required to provide the car parking needed as a result of the Project are summarised below. Further details are set out in subsections below.

- Purple Parking – re-provision of lost spaces
- MSCP J
- MSCP Y
- MSCP H
- Deck NT Long Stay

Purple Parking Land Swap and parking provision

8.10.2 The scope of the Purple Parking land swap includes the demolition of the existing Purple Parking, parking structures and the re-provision of parking places. The location of Purple Parking is shown in Figure 49 below.

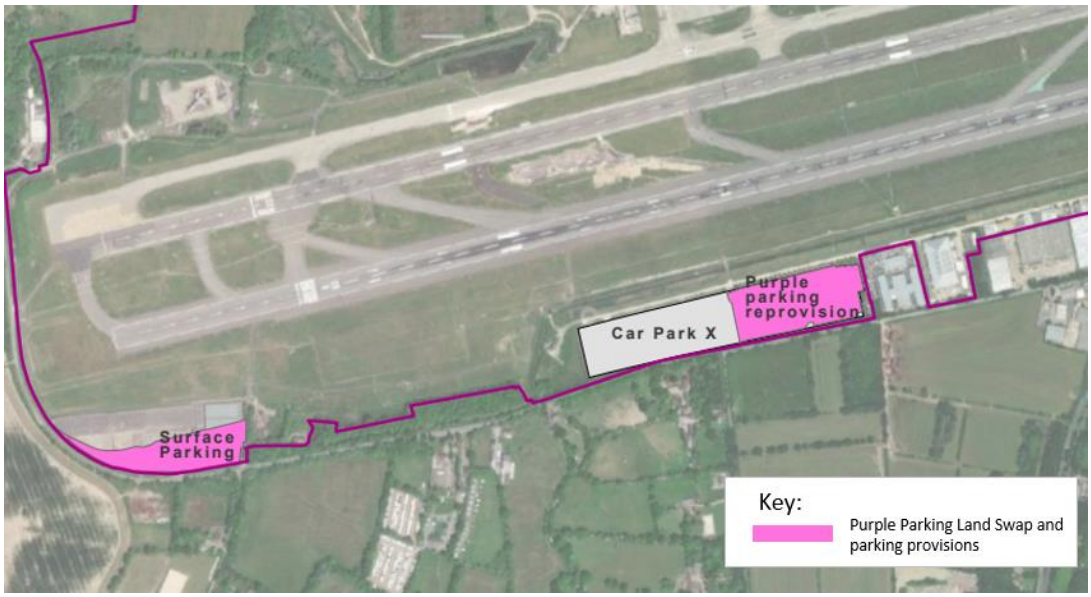

Figure 49: Location of Purple Parking Land Swap and Parking Provisions

8.10.3 The construction activities required for the demolition of part of the existing multi-storey parking structure include:

- Diversion and relocation of any existing utilities contained within the footprint of the structure or fixed to the structure.
- Isolation of the part of the structure to be demolished from the remaining structure.

- Structural strengthening or redistribution of load paths by installing new structural elements.
- Soft strip of the part to be demolished, including recycling, where possible of soft strip materials.
- Removal of all demountable items such as vehicle fences or lighting poles.
- Controlled demolition of the structure within its own footprint.
- Removal of demolition arisings for offsite recycling.
- Reinstatement and making safe the demolished footprint for subsequent works.

8.10.4 The typical equipment associated with the demolition includes:

- Loader backhoe excavator combination.
- All-terrain dumper.
- Flatbed delivery truck with articulated lifting arm.
- Tipper dump truck (non-all terrain).
- Water tanker truck.
- Large long-reach hydraulic arm excavator with demolition attachment.
- Medium-tracked hydraulic arm excavator.
- Medium frontend loader.
- Telescopic boom lift working platform.
- Scissor lift working platform.

8.10.5 The construction activities for new surface parking include:

- Diversion and relocation of any existing utilities.
- Installation of new entry points by removing trees and culverts over any ditch.
- Mechanised strip of topsoil and soil to formation level and stockpile on site for possible reuse or recycling.
- Mechanised placement and compaction of granular sub-base layers.
- Installation of the drainage system and connection to the existing surface water system.
- Mechanised installation of electrical ducts, pull pits and light pole foundations.
- Installation of kerbs and gutters.
- Mechanised placement and compaction of asphalt layers.
- Line marking painting.
- Erection of light poles.

- Cable pulling, terminations and testing of the light system.
- Installation of security fencing.

8.10.6 The typical construction equipment associated with this work includes:

- Loader backhoe excavator combination.
- All-terrain articulated tipper truck.
- All-terrain dumper.
- Flatbed delivery truck with articulated lifting arm.
- Tipper dump truck (non-all terrain).
- Asphalt delivery truck (non-all terrain).
- Large hydraulic arm excavator.
- Medium-tracked hydraulic arm excavator.
- Medium frontend loader.
- Asphalt paving machine.
- Small steel wheel roller compactor.
- Large steel wheel roller compactor.
- Pneumatic tyred roller (PTR).
- Concrete mixer truck.

8.10.7 The contractor is expected to work from a welfare/compound area local to works. The construction welfare provisions are expected to be two-story cabins, and there will also be some limited local storage containers and laydown areas within the contractor's compound.

MSCP J, Y and H

8.10.8 Multi-story car parks will be built in the locations of existing Car Parks J, Y, and H. The location of the new MSCP J, Y and H is shown in Figure 50

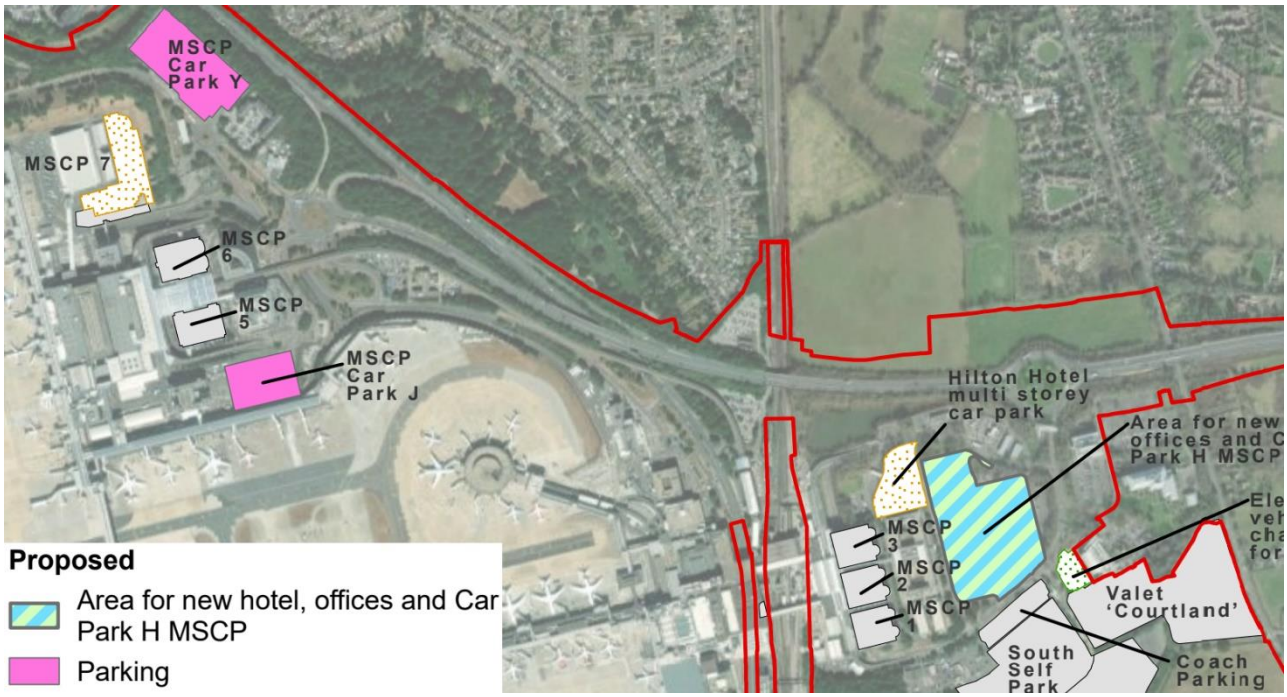

Figure 50: Location of the new MSCP J, Y and H

8.10.9 The works will be coordinated with the other works in these areas (hotels and offices). Typically, the works associated with the construction of the car parks would consist of the following:

- Diversion of existing utilities that run through the area.
- Removal of the car park associated utilities (such as lighting and drainage).
- Demolition of existing structures.
- Excavation for foundations and services.
- Placement of base layers and blinding.
- Pouring of foundations.
- Installation of services (drainage, power, water and sewage lines/ducts).
- Placement of ground slab.
- Erection of steel.
- Installation of beams and pre-cast elements.
- Casting of car park floors.
- Installation of services, lighting, fire detection and suppression, parking systems, drainage, electrical distribution (substations and switch rooms), security system (CCTV barrier gates etc.), elevators, sewage system / toilets etc.

- Provision of signage, road markings etc.

8.10.10 The types of construction equipment anticipated to be required for this work are:

- Flatbed trucks with hydraulic lifting arms.
- Road sweepers.
- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Large steel wheel roller compactor.
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- Forklift truck.

8.10.11 The contractor is expected to work from a welfare/compound area local to works. The construction welfare provisions are expected to be two-story cabins, and there will also be some limited local storage containers and laydown areas within the contractor's compound.

Deck NT Long Stay

8.10.12 The existing car park where decking is proposed is a section of the North Terminal Long Stay car park (also referred to as the existing Self-Park North car park). Two additional layers of decking will be constructed for the North Terminal car park. In the event that the On-airport WWTW forms part of the final consented Project, the decked structure would be sized to accommodate the car parking spaces lost by the On-airport WWTW on the existing Self-Park North car park.

The location of the North Terminal Long Stay Car Park is shown in Figure 51.

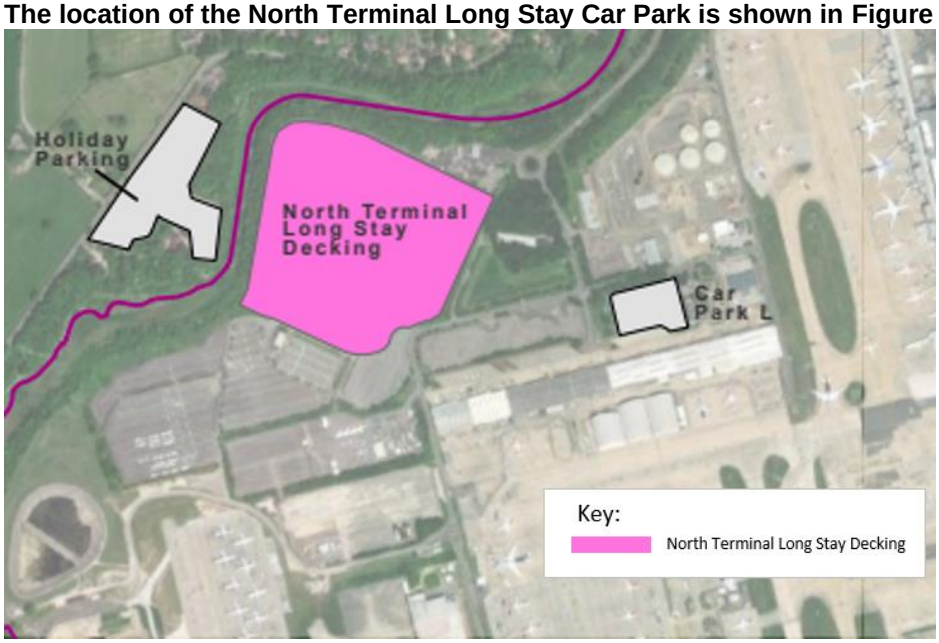

Figure 51: Location of the North Terminal Long Stay Car Park

8.10.13 The decking works in these two car parks would typically consist of:

- Clearing of the area for the foundation and locally diverting any utilities.
- Excavation for foundations.
- Placement of base layers and blinding.
- Pouring of foundations.
- Erection of steel.
- Installation of beams and pre-cast elements.
- Casting of carpark floors.
- Installation of services, lighting, fire detection and suppression, parking systems, drainage electrical distribution (substations and switch rooms), security system (such as CCTV and barrier gates), elevators, sewage system/toilets.
- Provision of signage, road markings

8.10.14 The types of construction equipment anticipated to be required for this work are:

- Flatbed trucks with hydraulic lifting arms.
- Road sweepers.
- Tipper trucks (non-all-terrain).

- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Large steel wheel roller compactor.
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- Forklift truck.

8.10.15 The contractor is expected to work from a welfare/compound area local to works. The construction welfare provisions are expected to be two-story cabins, and there will also be some limited local storage containers and laydown areas within the contractor's compound.

8.11. Surface Access works

8.11.1 In order to accommodate the proposed increase in passenger numbers accessing the Airport and take into account other known and planned developments in the area, improvements are required to the highways that serve both the South Terminal and North Terminal roundabouts to add capacity. The location of these works is shown in Figure 52

The details on the buildability of the Surface Access Works, which include improvements to the South Terminal Roundabout, North Terminal Junction, and Longbridge Roundabout, can be found in **ES Appendix 5.3.1: Buildability Report Part B** [APP-080, APP-081]

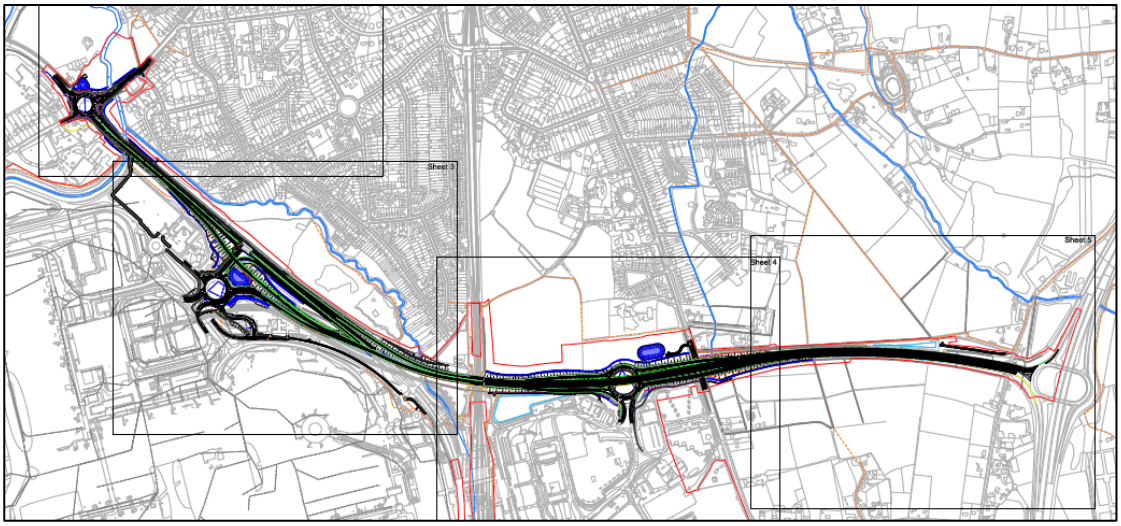

Figure 52: Surface Access Works

8.12. Water Management

8.12.1 In order to accommodate the alterations to the northern runway, to allow for the areas of new development and to meet current planning requirements (including an allowance for climate change), revisions to the existing surface water management are proposed. The list of the works necessary to complete the water management is given below.

- Museum Field Flood Compensation Area
- Removal of Pond A and creation of a new section of River Mole Valley
- Car Park X Flood Compensation Area
- Car Park Y Storage

8.12.2 Further details are given in the following sub-sections.

Museum Field Flood Plain

8.12.3 Museum Field shown in Figure 53 would be lowered by up to approximately 2.6 metres below ground level. This would provide a new flood compensation area connected to the River Mole. There would be a landscaped bund along the southern and eastern perimeters that would be approximately 6 metres high and a footpath around the area. A road would enable maintenance access of approximately 5 metres wide.

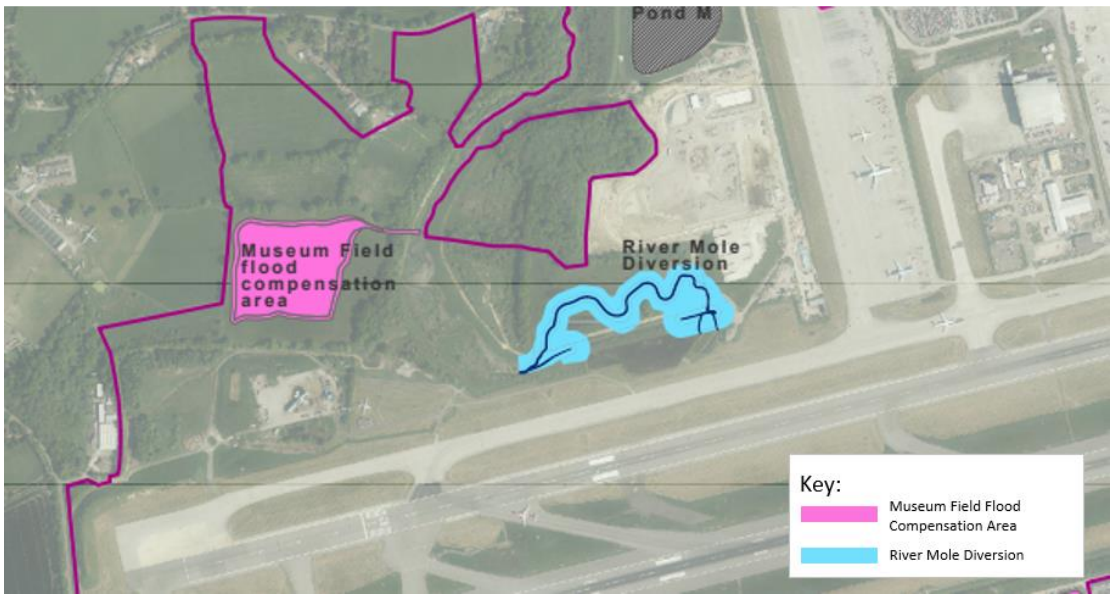

Figure 53: Location of the Museum Field Flood Compensation Area

8.12.4 The construction activities for this element of the works are as follows:

- Construct a temporary haul road to the West of Museum Field connecting to Larkins Road for removal from the site of the excavated material.
- Reduce the level of Museum Field by excavating approximately 125,000m3 of material. This material will be exported offsite for reuse or disposal via the new haul road.

- Excavate the trench for the drainage lines.
- Install bedding material for drainage pipes.
- Lay the drainage pipes in the trench and backfill.
- Clear the route for the slipway connecting the museum field to the river.
- Excavate to the foundation level of the slipway.
- Prepare and level the base of the foundation.
- Shutter out and cast the slipway structure.
- Install any weirs and/or penstocks.
- Grade, level, then grass the lowered Museum Field.
- Install a grasscrete footpath around the outside of the field.
- Install a footbridge over the channel/slipway.
- Level and place granular base material for the footpath connecting to the River Mole.
- Remove the haul road and re-grass the area.

8.12.5 The typical construction equipment expected for these works includes:

- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Bulldozer.
- Sheep foot roller.
- Tipper trucks.
- Concrete mixer truck.
- Concrete pump.
- Flatbed trucks with hydraulic lifting arms.
- Mobile crane.
- Road sweeper.

8.12.6 The contractor is expected to work from a local welfare unit to works, and the construction welfare provisions are expected to be single-storey cabins.

Removal of Pond A and creation of a new section of River Mole Valley

8.12.7 The realignment of Taxiway Juliet West at the western end of the airfield requires the relocation of the existing Pond A and the extension and strengthening of the River Mole syphon and culvert.

8.12.8 These works will be undertaken in two stages to allow for the Airfield Satellite Contractors compound to be constructed in parallel with the construction of the syphons and culverts and reclaim part of the area of the existing pond A. The revised location of Pond A and the relocation of the River Mole are shown in Figure 54

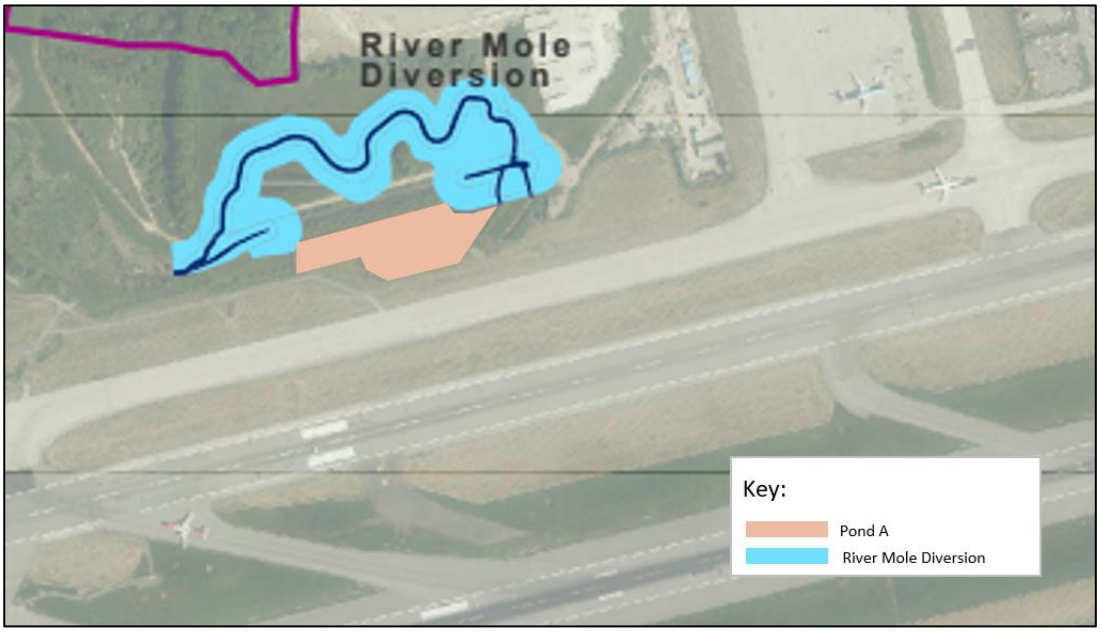

Figure 54: Location of relocated River Mole and Removal of Pond A

8.12.9 The planned sequence of work associated with the removal of Pond A and the culvert and syphon is as follows:

- Construct the permanent pumping station, with the pumping station being designed to house both the permanent end-state pumps and the additional temporary pumps. The pumping station will include electric pumps, diesel generator(s), and a welfare facility.
- Construct a piping system to allow pumping from Pond A to Pond M.
- Reclaim the west side of the pond to create space for the construction of the culvert and syphon extension, and if required to the south to allow for the construction of Taxiway Juliet.
- Relocate the outfall from the pond to River Mole.
- Construct the extension of the river Mole culverts and divert the Mole into the new culverts.
- Send flow from the syphon into the culvert.
- Extend and reconfigure the syphon.
- Divert flow from culvert back through the syphon and extend and reconfigure culvert.

- Construct the Satellite Welfare Contractor Compound.

8.12.10 Construction activities for this work would include the following elements.

Pumping station

- Clear the area for the new pumping situation.
- Excavate to foundation level, install and compact the granular base material and cast the pumping station foundation.
- Construct the pumping station (block work).
- Install the pumps and switchgear.
- Connect to external utilities.
- Install the pump suction and discharge pipework and run to the outside of the building.
- Install the building services.
- Once the suction and discharge pipework (external to the pumping station) has been installed and hydro tested, commission the pumps.

Discharge Pipeline

- Clear the pipe route between the new pumping station and Pond M (this will be running through both hard and soft landscaping).
- Sheet pile on the sides of the excavation.
- Excavate a trench to the sub-base level.
- Place and compact bedding material in the trench up to the pipe invert level.
- Lay the pipe.
- Backfill and pave/landscape the pipe route as required.
- Hydrotest the rising main and then tie it to the pump station.

Suction Pipeline

- Clear the pipe route between the new pumping station and the temporary suction point in the existing Pond A.
- Excavate a trench to the sub-base level, shoring where required with sheet piles.
- Place and compact bedding material in the trench up to the pipe invert level.
- Lay the pipe.

- Backfill and landscape the pipe route.
- Hydrotest the temporary suction line and then tie it to the pump station.

Culvert and Syphon

8.12.11 Once the area has been reclaimed for the installation of the extensions to the syphon and culvert:

- Excavate the route of the area for the installation of both the syphon, with the sides of the excavation shored with sheet piles.
- Dam the syphon and divert the whole of the river flow through the culvert.
- Install and compact granular base material along the diverted and extended syphon route.
- Break into the existing syphon structure.
- Construct (cast in situ) the new syphon structure.
- Excavate the temporary channel connecting the new syphon to the River Mole.
- Beak in / tie in the new syphon structure to the River Mole.
- Excavate and break out the old syphon structure.
- Dam the culvert and divert the whole of the river flow through the new syphon.
- Install and compact granular base material along the route of the diverted and extended culvert.
- Break into the existing culvert structure.
- Construct (cast in situ) the new culvert structure.
- Excavate the temporary channel connecting the new culvert to the River Mole.
- Beak in / tie in the new culvert structure to the River Mole.
- Excavate and break out the old culvert structure.
- Remove the diversion from the culvert back through the syphon.
- Backfill and landscape as required.

Diversion of the River Mole

8.12.12 Once the satellite Compound has been decommissioned:

- Clear the route of the diverted River Mole (hard and soft landscaping).
- Excavate the route of the diverted riverbed up to and including the tie-ins to the new culvert and syphon.

- Install lining material and build up the river walls/banks.
- Dam the temporary connection to the syphon, diverting the river flow through the new culvert.
- Open permanent connection from the diverted River Mole into the new syphon structure.
- Tie in / connect the diverted river route into the River Mole at the Western end of the diverted riverbed.
- Dam the original River Mole at the tie-in point (West end of the diverted route) and divert the whole of the river form through the new diverted route and the new syphon.
- Open the new culvert connection to the diverted river.
- Pump out the original riverbed and backfill.

Landscaping of the Area

8.12.13 On completion of the diversion of the River Mole and the removal of Pond A:

- Grade and level the area around the removed Pond A and diverted River Mole.
- Grass and landscape the area as defined for environmental enhancement.

8.12.14 Typical construction equipment used for this work is expected to be:

- Tracked and rubber tyred hydraulic arm excavators with bucket attachments.
- Tracked or rubber tyred hydraulic arm excavators with demolition hammer attachments.
- All-terrain water tanker trucks.
- Bulldozer.
- Combination loader backhoe.
- Steel tyred compaction roller.
- All-terrain tipper truck.
- Concrete pump.
- Concrete mixer truck.
- Mobile crane (either crawler type or rubber tyre type).
- Flatbed delivery truck.
- Water tankers.
- Water pumps.

8.12.15 The contractor is expected to work from the site established in the area of the works, with access to the site being through the Airfield Satellite Compound for this work or the Northern Access Gate.

Car Park X Flood Compensation Area

8.12.16 The existing Car Park would be lowered by a depth of up to 2 meters to enable the construction of the underground Flood Compensation Area. The new deck car park will be constructed within the same footprint above the underground Flood Compensation Area. The location of Car Park X Flood Compensation Area is shown in Figure 55.

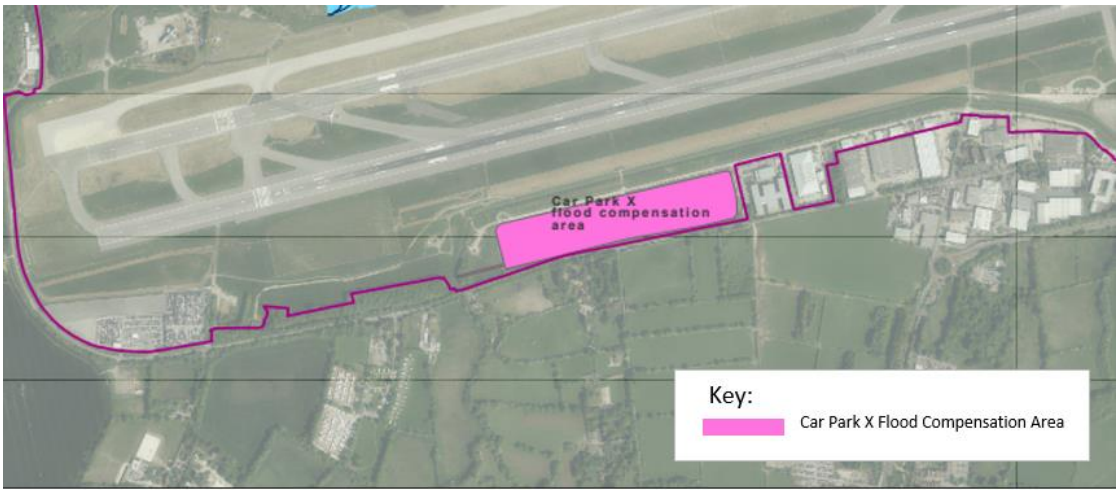

Figure 55: Location of Car Park X Flood Compensation Area

8.12.17 The construction activities for this element of the works are described below.

8.12.18 Wherever trees and shrubs need to be cleared, a pre-construction ecological verification inspection of the area will be done before the start of the construction. Following any verification inspection, the works required are:

- Clear the above-ground elements of Car Park X (such as cabins, signage, access control, lighting, trees and shrubbery).
- Break out and remove the existing car park pavement.
- Isolate and remove the existing underground utilities, diverting where required.
- Install piled wall around the car park (Secant piles).
- Working from the mid-section of the car park out excavate to the new foundation level of the park

8.12.19 Once approximately a third of the excavation is complete, work on the base of the storage pond and decked car park structure will start. The works required are:

- In the base of the excavation, install underground utilities (such as power, data, and drainage).
- Pile foundations for the car park.

- Prepare and level the base of the foundation.
- Cast in situ the car park base slab and outfall structure.
- Continue construction of the base and the foundation works as the excavation continues.

8.12.20 Once approximately half of the base and foundations are complete, construction of the first section of the decked car park will start. That construction requires:

- Erection of steel.
- Installation of beams and pre-cast elements.
- Casting of car park floors.
- Installation of services (lighting, fire detection and suppression, parking systems, drainage, electrical distribution (substations and switch rooms), lighting, security system (such as CCTV, barrier gates), sewage system and toilets.
- Install new fencing, gates, signage, and road markings.

8.12.21 Once the mid part of the decked car park structure is complete, work would start in parallel with two teams on the decked car park structures on either side of the mid part. That construction requires:

- Erection of steel.
- Installation of beams and pre-cast elements.
- Casting of car park floors.
- Installation of services (lighting, fire detection and suppression, parking systems, drainage, electrical distribution (substations and switch rooms), lighting, security system (such as CCTV, barrier gates), sewage system and toilets.
- Install new fencing, gates, signage and road markings.
- The typical construction equipment expected for these works includes:
- Piling rig.
- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Bulldozer.
- Tipper trucks.
- Concrete mixer truck.

- Concrete pump.
- Flatbed trucks with hydraulic lifting arms.
- Mobile crane.
- Road sweeper.

8.12.22 The contractor is expected to work from a local welfare unit to works, and the construction welfare provisions are expected to be single-storey cabins.

Car Park Y Storage

8.12.23 An attenuation facility will be provided below Car Park Y. The storage facility will be excavated up to 8 m below the current surface level. The location of the Car Park Y storage facility is shown in Figure 56.

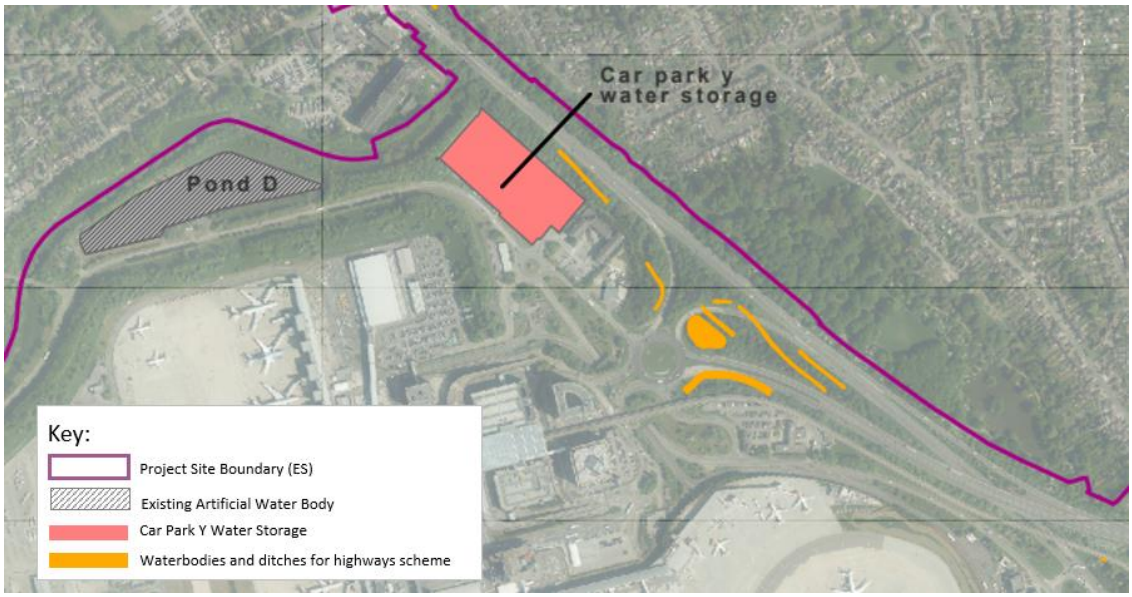

Figure 56: Location of the Car Park Y Water Storage Facility

8.12.24 The construction activities for this element of the works are:

- Relocate as required utilities running through the car park.
- Remove local car park lighting and associated services.
- Demolish and clear the car park area.
- Installation of sheet piling.
- Excavate the storage pond area, dewatering as required.
- Place, level, and compact a layer of selected fill at the base of the excavation.

- Blind the base of the excavation.
- Place and fix (grout) the pre-cast elements of the pond.
- Backfill the area.
- Reinstate the car park's associated services (lighting, security, and drainage).
- Repave the car park.
- Install signage, road markings and fencing.

8.12.25 The typical construction equipment expected for these works includes:

- Flatbed trucks with hydraulic lifting arms.
- Tipper trucks (non all-terrain).
- Road sweepers.
- Piling rig.
- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.

8.12.26 The contractor is expected to work from a welfare unit local to works, and the construction welfare provisions are expected to be single-storey cabins, and there is no anticipated need for an extensive, wide, or tall contractor compound or other facilities.

8.13. Foul and surface water

8.13.1 The existing Airport drains to local watercourses via attenuation ponds. In order to accommodate the alterations to the northern runway, to allow for the areas of new development and to meet current planning requirements (including an allowance for climate change), revisions to the existing surface water drainage strategy are proposed. The work packages required in relation to this are given below:

- Pumping Station PS2a
- Pumping Stations PS6, PS7a and upgraded interconnecting pipework
- Relocate polluted water discharge to Pond D (via Dog Kennel Pond)
- Substation L flood mitigation works

- North Terminal Foul Water
- South Terminal Foul Water
- PS40 Rising Main Upgrade
- Pumping Station east of the railway
- Water Treatment Works (Reed Beds)
- On-Airport WWTW
- Pumping Station and rising main near to Gatwick Airport Police Station

8.13.2 Further details are provided in the sub-sections below.

8.13.3 The locations of the new pumping stations are shown in Figure 57

Figure 57: Locations of proposed new pumping stations

Pumping Station PS2a

8.13.4 As a result of the change in the orientation of Taxiway Juliet, there is a requirement for the provision of a new pumping station PS2a. The PS2a works will include new connections to the existing PS2 and the main sewer or to the On-airport WWTW if it forms part of the final consented Project. These would be followed by the conversion of PS4 and PS5 to act as septic tanks to be used until such time as the buildings serving these areas are abandoned and ready for demolition, at which time PS4 and PS5 would be abandoned.

8.13.5 The anticipated construction activities for PS2a are:

- Site clearance of the existing footprint of the new pumping station.
- Placement and compaction of piling platform for temporary sheet piles.
- Piling for temporary excavation support.
- Installation of groundwater over-pumping for dry excavation (with discharge into the surface water system for downstream treatment).
- Excavation to formation layer.
- Placement and compaction of the blinding concrete layer.
- Installation of formwork for cast in situ concrete pump station.
- Cast the pump station structure.
- Remove the formwork and backfill around the pump station.
- Install the pumps within the pumping station and the pump control panel immediately adjacent to the pumping station.
- Install duct banks and cables connecting the pumping stations to the nearest substation.
- Modify, as required, the substation switch gear to provide a feed to the pumping station.

8.13.6 The construction activities for the pipeline installation are described below.

8.13.7 Following the pre-construction ecological verification inspection of the pipe route, any issues or assets arising along the pipe route will be resolved and signed off by the relevant regulator before the start of the construction. Pipeline installation would then require the following work:

- Clear the pipe route of all above-ground obstacles, where running through soft-scaped areas grub out the areas.
- Excavate the trench for the new pipeline shoring the sides of the excavation with sheet piles.
- Place the bedding material in the trench and lay the pipe.
- Backfill and pave/landscape the pipe route as required.
- Tie the pipes into the pumping stations (PS2, PS45, PS39, PS6) by connecting to the pipe penetration outside the pumping station.
- At the tie-in point to the main sewer drain the existing pipeline line will require the installation of a “T” fitting and the connection to the new pipeline line.
- On completion of the pipeline installation and tie-ins, pressure tests the feed and discharge lines, then commission the pumping station.

8.13.8 The construction methods for converting the pumping stations PS4 & PS5 into cesspits and ultimately decommissioning pumping stations PS3, PS4 & PS5 and the associated pipelines will consist of the activities described below.

8.13.9 Converting the pumping station to a Cesspit:

- Drain the pump chamber.
- Remove the pumps, instrumentation, mechanical fittings, and cables from the pumping stations.
- Remove any local control panels and break out their foundations.
- Pull back the pumping station cabling from the ducts and trenches where possible.
- Backfill the pipe connections in the pumping station with concrete.

8.13.10 When the pumping station is ready to be abandoned:

- Drain the chamber.
- Break the concrete structure of the pumping stations.
- Backfill the pumping station excavation.
- Reinstate the surface at the pumping station location as required (paving/landscaping).
- The typical construction equipment expected for these works includes:
- Flatbed trucks with hydraulic lifting arms.
- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Piling rig (steel sheet piles).
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- All-terrain tipper trucks.
- Road sweepers.

8.13.11 The contractor is expected to work from a welfare unit local to the works with support from the MA1 Compound. The contractor is expected to access this site through MA1.

Pumping Station PS6 to PS7a

8.13.12 As part of the required new drainage infrastructure, the PS6 pumps and pumping main need to be upgraded to provide additional wastewater capacity. A new pumping station (Pumping Station 7a 'PS7a') is required to accommodate flows from the extended North Terminal and Pier 7, proposed as part of the Project.

8.13.13 The construction activities for the PS6 works will include:

- Upgrade and or replacement of the PS6 switch gear.
- Removal and replacement of pump cabling.
- Removal of pipework within PS6 and replacement with larger diameter pipework.
- Removal of existing pumps in PS6 and replacing them with increased capacity pumps.
- Testing and commissioning of the new pump installation.

8.13.14 The construction activities associated with the pipeline works between PS6 and PS7a will include the following:

- Clearing the route of the existing gravity main.
- Excavate the trench for the new pipeline (following the route of the existing gravity mains).
- Where required shoring the sides of the excavation with sheet piles.
- When excavating in the vicinity of the existing live pipeline, hand excavation or vacuum excavation will be required.
- Place the bedding material in the trench and lay the pipe.
- Install the pipe in the trench, maintaining a minimum distance between the new and the existing main.
- Backfill and pave / landscape as required.
- At the point where the pumped main connects to the gravity main, conduct a cast in an intermediate chamber to construct the new chamber (excavate to formation layer, place and compact sub-base and cast the new chamber in situ).
- On completion of the pipeline installation and tie-ins, hydro-test the line and then commission the pumping station.

8.13.15 The anticipated construction activities for the new pumping station PS7a are:

- Site clearance of the existing footprint of the new pumping station.
- Placement and compaction of piling platform for temporary sheet piles.

- Piling for temporary excavation support.
- Installation of groundwater over-pumping for dry excavation (with discharge into the surface water system for downstream treatment).
- Excavation to formation layer.
- Placement and compaction of the blinding concrete layer.
- Installation of formwork for cast in situ concrete pumping station.
- Cast the pumping station structure.
- Remove the formwork and backfill around the pumping station.
- Installation of new buried pipes to form connection to existing foul water and surface water system including valve chambers etc.
- New interconnection of existing pumping stations with new buried pipe connections.
- Install the pumps within the pumping station and the pump control panel immediately adjacent to the pumping station in a weatherproof enclosure above ground.
- Install duct banks and cables connecting the new pumping station to the nearest substation.
- Modify, as required, the substation switch gear to provide a feed to the new pumping station.
- Testing and commissioning of the new pump installation.

8.13.16 The typical construction equipment expected for these works includes:

- Flatbed trucks with hydraulic lifting arms.
- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Piling rig (steel sheet piles).
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- All-terrain tipper trucks.
- Road sweepers.

8.13.17 The contractor is expected to work from a welfare unit local to the works with support from the MA1 Compound. The contractor is expected to access this site through MA1.

Relocate Polluted water Discharge to Pond D (via Dog Kennel Pond)

8.13.18 In order to transfer polluted water from the outfall of Pond M to Pond D, the existing pumped main on the outfall will be abandoned and a new discharge main will be installed. The new main will connect to Dog Kennel Pond and the water will then be transferred from Dog Kennel Pond to Pond D using the existing installed infrastructure. The location of Pond M, Dog Kennel Pond and Pond D are shown in Figure 58. Coordination of the route of the new discharge main with the location of assets within the proposed On-airport WWTW maybe required, as the route may pass through the proposed On-airport WWTW site, if it forms part of the final consented Project.

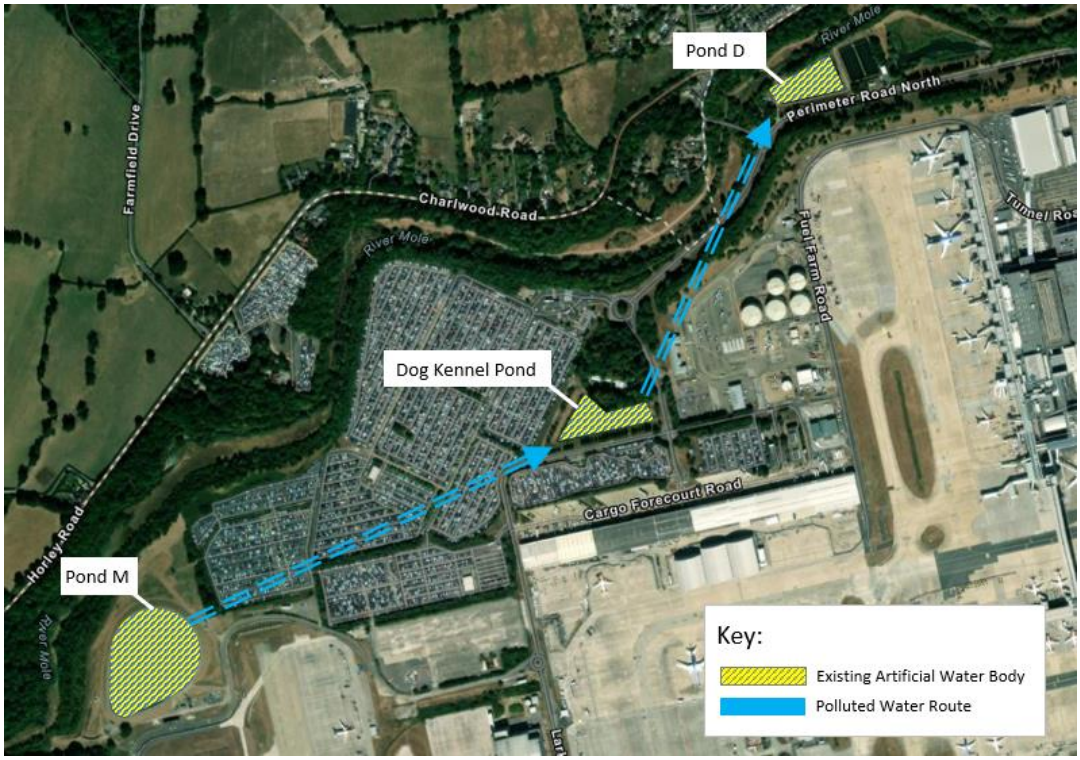

Figure 58: Route of Polluted Water from Pond M to Pond D

8.13.19 The construction activities for these works are described below.

8.13.20 Following the pre-construction ecological verification inspection of the pipe route, any issues or assets arising along the pipe route will be resolved and signed off by the relevant regulator before the start of the construction. The relocation works would then require the following activities:

- Clear the pipe route off all above-ground obstacles, and where it is running through soft scape and grub out the areas.
- Excavate the area for the manhole connecting the new pipeline into the collector drain feeding Dog Kennel Pond.
- Blind the base of the excavation.

- Cast in situ the manhole structure and place the lids.
- Excavate the trench for the new pipeline shoring the sides of the excavation with sheet piles.
- Place the bedding material in the trench and lay the pipe.
- Backfill and pave/landscape the pipe route as required.
- Pressure test the new pipeline
- Disconnect, and drain the existing pump discharge line.
- Seal and blind with concrete the end of the abandoned discharge line
- Tie the new discharge line into the pumping station
- Backfill the tie-in location and end of the abandoned line
- After completing the new pipeline installation and tie-in, re-commission the pumping station.

8.13.21 The contractor is expected to work from a welfare unit local to the works with support from the Airside Satellite Compound and access to the site from the compound.

Substation L flood mitigation works

8.13.22 Minor works are required to improve the operational resilience of Substation L in terms of known and estimated flood events. These include upgrading existing flood protection measures and raising the electrical equipment higher within the existing building.

8.13.23 The construction activities for this work are expected to be minor modifications to existing flood protection measures:

- Additional sealing of brickwork at or near ground level.
- Raising the electrical equipment within the building and installing taller equipment plinths.

8.13.24 Typical construction equipment used for this work is expected to be:

- Loader backhoe excavator combination.
- Flatbed delivery truck with articulated lifting arm.

8.13.25 The contractor is expected to work from a local welfare unit adjacent to the substation for the construction activities, with the support operations located in the Main Contractor Compound MA1.

North Terminal Foul Water

8.13.26 The capacity of the foul water systems needs to be increased to accommodate the increased load from the North Terminal and Pier 7 by:

- Construction of an underground pumping station and connection into the existing main feeding Crawley Sewage Treatment Works (STW).
- Conversion of the existing Pumping Station 7 into a surface water pumping station connecting to the existing surface water drainage network.

8.13.27 The construction activities required for this element of the work are:

- Site clearance of the existing footprint of all the new pumping stations.
- Placement and compaction of piling platform for temporary sheet piles.
- Piling for temporary excavation support.
- Installation of groundwater over-pumping for dry excavation (with discharge into the surface water system for downstream treatment).
- Excavation to formation layer.
- Placement and compaction of the blinding concrete layer.
- Installation of formwork for cast in situ concrete pump station.
- Cast the pump station structure.
- Remove the formwork and backfill around the pump station.
- Excavate a trench and install the discharge line to the tie-in point with the Crawley STW feed lines.
- Excavate a trench and lay the two feed lines to their tie-in points to the PS6 and NT feed points.
- Install the pumps within the pumping station and the pump control panel immediately adjacent to the pumping station.
- Install duct banks and cables connecting the pumping stations to the nearest substation.
- Modify, as required, the substation switch gear to provide a feed to the pumping station.
- Clean PS7.
- Excavate a trench and lay a new pipeline connecting to the surface water discharge point.

8.13.28 The typical construction equipment expected for to be required these works includes:

- Flatbed trucks with hydraulic lifting arms.
- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment.

- Combination loader backhoe excavator.
- Piling rig (steel sheet piles).
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- All-terrain tipper trucks.
- Road sweepers.

8.13.29 The contractor is expected to work from a welfare unit local to the works with support from the MA1 Compound. The contractor is expected to access this site through MA1.

South Terminal Foul Water

8.13.30 A connection is required for a new underground pumping station and pipeline to pump effluent to Crawley STW. This connection will reroute all the effluent from the existing and new developments east of the railway and away from the existing sewage system.

8.13.31 The construction activities for this element of the works are described below.

8.13.32 Following the pre-construction ecological verification inspection of the pipe route, any issues or assets arising along the pipe route will be resolved and signed off by the relevant regulator before the start of the construction. The works involved in the rerouting of effluent to Crawley STW would require the following activities:

- Site clearance of the existing footprint of the new pumping station.
- Placement and compaction of piling platform for temporary sheet piles.
- Piling for temporary excavation support.
- Installation of groundwater over-pumping for dry excavation (with discharge into the surface water system for downstream treatment).
- Excavation to formation layer.
- Placement and compaction of the blinding concrete layer.
- Installation of formwork for cast in situ concrete pump station.
- Cast the pump station structure.
- Remove the formwork and backfill around the pump station.
- Install the pumps within the pumping station and the pump control panel immediately adjacent to the pumping station.

- Install duct banks and cables connecting the pumping stations to the nearest substation.
- Modify, as required, the substation switch gear to provide a feed to the pumping station.
- Excavate a trench and install the discharge line to the tie-in point in Crawley STW.
- Excavate a trench and lay the supply line to its tie-in point in the South terminal.
- The pipe trench will run through soft landscaped and paved areas, which will require clearing. Easting utilities in the pipe route will also need a diversion.
- Install the pumps within the pumping station and the pump control panel immediately adjacent to the pumping station.
- Install duct banks and cables connecting the pumping stations to the nearest substation.
- Modify, as required, the substation switch gear to provide a feed to the pumping station.

8.13.33 The typical construction equipment expected for these works includes:

- Flatbed trucks with hydraulic lifting arms.
- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Piling rig (steel sheet piles).
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- All-terrain tipper trucks.
- Road sweepers.

8.13.34 The contractor is expected to work from a welfare unit local to the pipe route/pumping station. The shift patterns for this work will be undertaken primarily on the day shift.

PS40 Rising Main Upgrade

8.13.35 The revised sewage network design requires installing a new rising main on the outlet side of PS40.

8.13.36 The construction activities for these works would include:

- Clear the pipeline route of obstacles.

- Install sheet piles to the sides of the excavation and excavate a trench along the route of the existing pipeline(s).
- Open the trench to a width of approximately 450mm to allow the new line to be placed at least 300mm apart from the existing pipe. As the excavation will involve excavating near live services, hand excavation or possibly vacuum excavation will be required.
- Place and compact bedding material in the trench.
- Lay the pipe.
- Backfill and pave/landscape the pipe route as required.
- Hydrotest the rising main and then tie it to the pump station.

8.13.37 The typical construction equipment expected for these works include:

- Flatbed trucks with hydraulic lifting arms.
- Tipper trucks (non-all-terrain).
- Hydraulic arm excavator with bucket attachment.
- Vacuum excavator.
- Combination loader backhoe excavator.
- Piling rig (steel sheet piles).
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- Road sweepers.

8.13.38 The contractor is expected to work from a welfare unit local to the works with support from the MA1 Compound. The contractor is expected to access this site through MA1.

Pumping Station east of the railway

8.13.39 A new pumping station east of the railway is required to accommodate increased flows from the South Terminal. Horley STW cannot accommodate the additional loads therefore an alternative route is required to pump effluent to Crawley STW. This will require re-routing all existing and the connection of future development east of the railway via an approximate 200m diversion from the existing ST system.

8.13.40 The anticipated construction activities for the new pumping station east of the railway are:

- Site clearance of the existing footprint of the new pumping station.

- Placement and compaction of piling platform for temporary sheet piles.
- Piling for temporary excavation support.
- Installation of groundwater over-pumping for dry excavation (with discharge into the surface water system for downstream treatment).
- Excavation to formation layer.
- Placement and compaction of the blinding concrete layer.
- Installation of formwork for cast in situ concrete pumping station.
- Cast the pumping station structure.
- Remove the formwork and backfill around the pumping station.
- Installation of new buried pipes to form connection to existing foul water and surface water system including valve chambers etc.
- New interconnection of existing pumping stations with new buried pipe connections.
- Install the pumps within the pumping station and the pump control panel immediately adjacent to the pumping station in a weatherproof enclosure above ground.
- Install duct banks and cables connecting the new pumping station to the nearest substation.
- Modify, as required, the substation switch gear to provide a feed to the new pumping station.
- Testing and commissioning of the new pump installation.

8.13.41 The construction activities associated with the pipeline works between the new pumping station east of the railway and Crawley STW will include the following:

- Clear the pipeline route of obstacles.
- Excavate the trench for the new pipeline.
- Where required shoring the sides of the excavation with sheet piles.
- Place the bedding material in the trench and lay the pipe.
- Install the pipe in the trench.
- Backfill and pave / landscape as required.
- Construction a chamber and outlet where the pumped main connects to the STW.
- On completion of the pipeline installation and tie-ins, hydro-test and commission the pipeline.

8.13.42 The typical construction equipment expected for these works includes:

- Flatbed trucks with hydraulic lifting arms.
- Tipper trucks.
- Hydraulic arm excavator with bucket attachment.
- Combination loader backhoe excavator.
- Piling rig (steel sheet piles).
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- All-terrain tipper trucks.
- Road sweepers.

8.13.43 The contractor is expected to work from a welfare unit local to the works with support from the MA1 Compound. The contractor is expected to access this site through MA1.

Water Treatment Works (Reed Beds)

8.13.44 The proposed water treatment works would be located to the south of the existing storage pollution lagoons (shown in Fig. 58). The water treatment works would comprise a constructed wetland (reed bed) system with Forced Bed Aeration (FBA) technology to treat the de-icer contaminated waters.

8.13.45 The constructed wetland system would include:

- Six wetland areas, constructed in pairs and surrounded by embankments and timber post and rail fencing.
- Six blowers to facilitate the FBA system, provided along with acoustic hoods and enclosed by acoustic fencing.
- Cabin and secure storage unit
- Temporary 2.4m high noise barrier
- Associated components to the reed bed systems, including bunding, pipework, pumps and a bunded nutrient dosing tank and pumps
- Maintenance access
- Access roadway.

Figure 59

8.13.46 Construction activities associated with the Water Treatment Works (Reed Beds) include:

- Establishment of the Reed Bed Compound, including parking and laydown areas.
- Erection of a temporary 2.4m high noise barrier
- Earthworks, topsoil strip and grading to new levels to form wetland (reed bed) areas.
- Installation of liner to wetland (reed bed) areas
- Installation of concrete structures – headwalls and structural foundations
- Installation of bunded nutrient dosing tank and pumps
- New underground pipework, ducting, services
- Import and place granular material into reed beds
- Erection of boundary and acoustic fencing
- Provision of a temporary additional footpath route, running parallel to the existing access road
- New cabin and secure storage unit with replacement car parking for use by Gatwick Greenspace Partnership volunteers
- Installation of new FBA system, bunding, pumps, blowers and associated M&E works
- Planting of reed beds
- Hydraulic testing and commissioning
- Finishes including planting.

8.13.47 The typical equipment expected for this work includes:

- Mobile Crane
- Contractor offices and storage
- Excavators
- Bulldozer
- Dump trucks
- Asphalt paver
- Roller / compactors
- Loader, tractor /trailer
- Lorries – import / disposal
- Concrete mixer / pump - trucks
- Flatbed trucks with and without hydraulic lifting arms
- Road sweeper
- Mobile elevated working platform
- Installation of new Reed Bed Construction Compound.

On-airport Wastewater Treatment Works (WWTW)

8.13.48 The On-airport WWTW, if it forms part of the final consented Project, would be located within the existing Self Park North car park.

8.13.49 The On-airport WWTW would require a footprint of approximately 2.2 hectares. The facility would include the following physical elements, being up to 9.4m above ground level and up to 2m below ground level:

- Headworks (the entry point for raw wastewater);
- Two circular primary clarifiers, each of approximately 12m in diameter;
- Two aeration basins, each with secondary clarifiers;
- Gravity thickeners;
- Biotower (odour control facility);
- Rotary drum thickeners, belt filter presses and tertiary disk filter facilities, each housed in a dedicated building;
- Blower building accommodating four turbo blowers and one positive displacement blower;

- Chemical storage building;
- Associated pipelines and pumping stations;
- Flocculation tank and a rapid mix tank;
- Sludge blend facility and sludge storage area;
- Operations and maintenance building (up to 2-storeys);
- Truck loading area; and
- Outfall from the facility to the River Mole, including a concrete structure beside the River Mole to dissipate wastewater energy prior to discharge to the watercourse.

8.13.50 The physical elements within the On-airport WWTW are shown on the indicative layout in Figure 60.

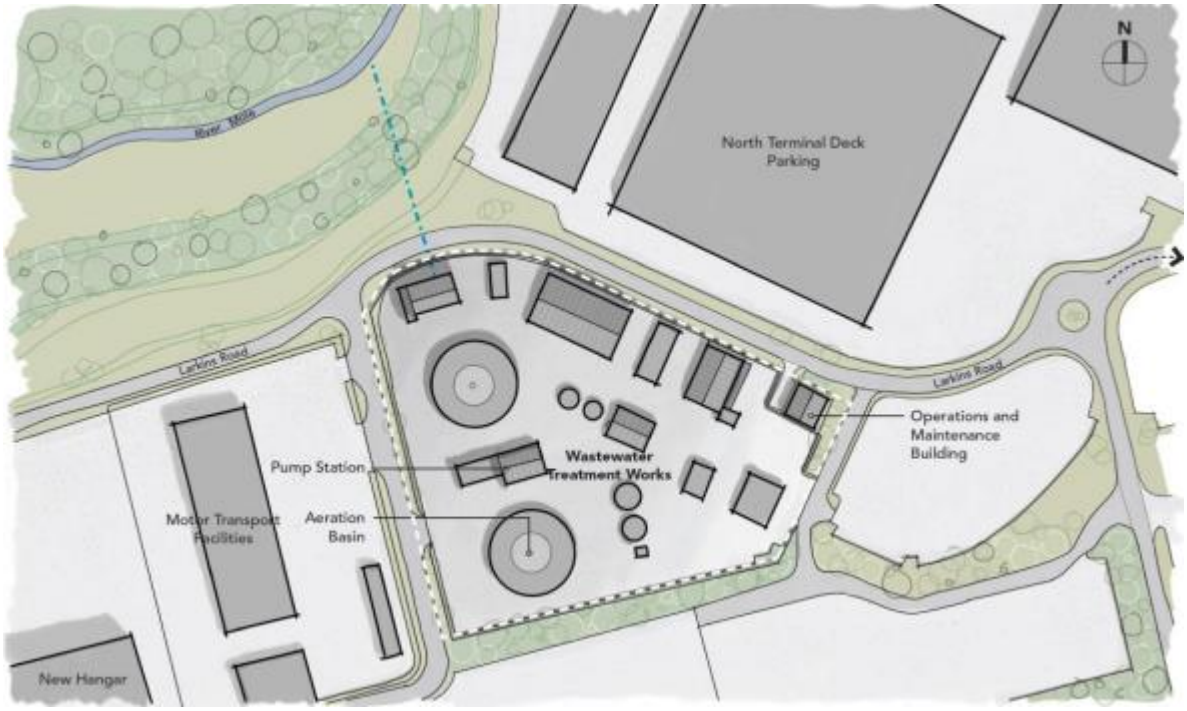

Figure 60: Indicative layout of the On-airport WWTW

8.13.51 An associated network of wastewater infrastructure would be required within the airport to serve the potential On-airport WWTW, including new rising mains and a new Pumping Station located adjacent to the existing Gatwick Airport Police.

8.13.52 The construction activities associated with the On-airport WWTW facility (if it forms part of the final consented Project) and the River Mole Outfall would include:

- Establishment of the temporary construction compounds in the existing Self Park North car park area.

- Relocate existing utilities running through the car park, as required.
- Remove local car park lighting and associated services.
- Site clearance and removal of the existing car park pavement.
- Installation of sheet piling and/or concrete pile foundations.
- Excavate underground areas and install dewatering systems as required.
- Place, level and compact a layer of selected fill at the base of the excavation.
- Place concrete blinding at the base of the excavation, then place in-situ and/or pre-cast concrete elements for treatment structures.
- Install underground pipework and services including supporting concrete headwalls where applicable.
- Backfill around all structures.
- Clear the inlet and outfall pipeline routes of obstacles.
- Install sheet piles to the sides of the pipework routes and excavate a trench along the route of the pipelines.
- Excavate trenches for the installation of the new inlet and outfall pipework.
- Place and compact bedding material in the trenches and lay the pipes.
- Backfill and landscape the inlet and outfall pipework routes.
- Install a temporary coffer dam in the bank of the River Mole, install dewatering systems and excavate existing material for the outfall.
- Place concrete blinding at the base of the coffer dam, then place in-situ and/or pre-cast concrete elements for the outfall headwall structure.
- Excavate and install concrete foundations for buildings;
- Erect steel frame for buildings, including wall and roof cladding.
- Fit out of buildings with walls, doors, ceilings, building services etc.
- Lay vehicular, car park and footpaths pavements including kerbs where applicable.
- Prepare and plant landscaping to non-paved areas.
- Install signage, road markings, perimeter fencing and gates.

8.13.53 The typical construction equipment expected for these works includes:

- Contractor offices and storage containers.
- Flatbed trucks with hydraulic lifting arms.
- Tipper trucks.
- Hydraulic arm excavator.
- Combination loader backhoe excavator.
- Piling rigs.
- Concrete mixer truck.
- Concrete pump.
- Mobile crane.
- Bulldozer
- Dump trucks
- Asphalt paver
- Roller / compactors.
- Mobile elevated working platforms.
- Loader, tractor /trailer.
- Road sweepers.

8.13.54 The contractor will operate from a temporary site compound and a temporary material storage area, both of which are located on the existing Self Park North car park directly adjacent to the On-airport WWTW site, as shown in Figure 61.

Figure 61: Temporary Construction Compounds associated with the On-airport WWTW

8.13.55 The new pumping station and rising main associated with the On-airport WWTW located within an area of grassland adjacent to the existing Gatwick Police Station would also include a small temporary compound for the construction of these works as shown in Figure 62.

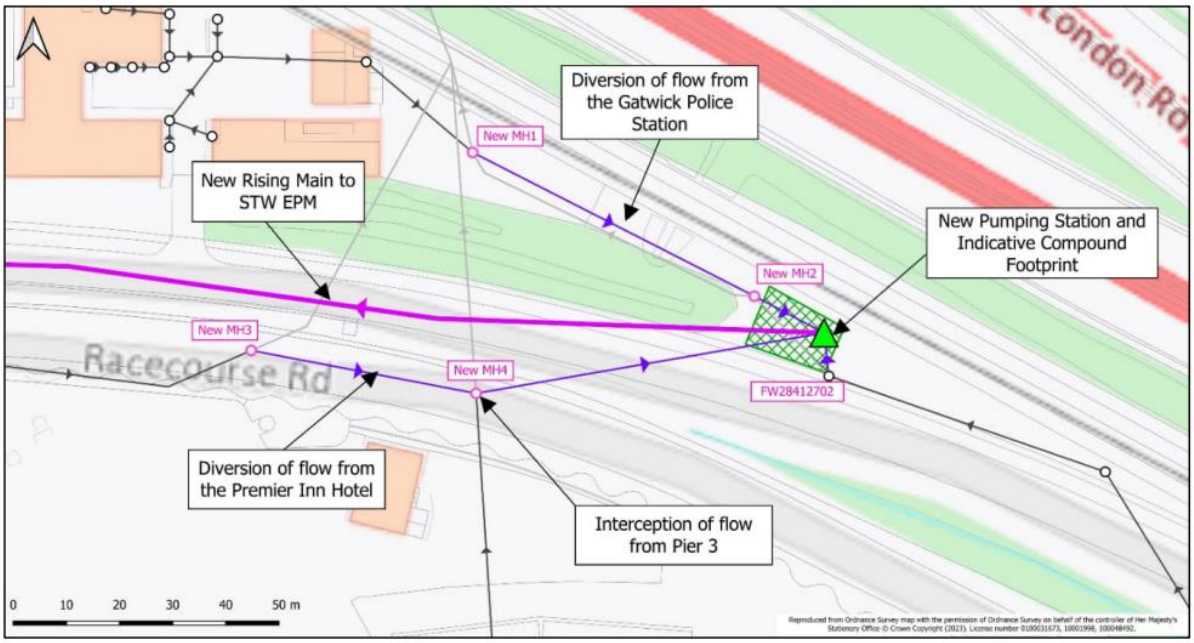

Figure 62: Location of the New Pumping Station and associated temproary construction compound

8.14. Environmental Mitigation Areas

8.14.1 A summary of the environmental mitigation, landscape and ecological planting work packages is set out in below. Further details are provided in the subsections below for the first 5 areas listed.

- Open Space/Planting Replacement for the North Terminal Roundabout
- Pedestrian Link from Car Park B North Side to Riverside Park
- Landscape Structural Planting Belts
- Ecological Habitat Creation 1
- Ecological Habitat Creation 2
- Pentagon – Spoil, ecology, and biodiversity
- Longbridge Roundabout Open Space/Ecological Mitigation
- Ecological Habitat Creation Areas 3, 4 & 5 west of Project
- Provision of a permanent diversion to the Sussex Border Path to the south of the A23 arising from the new North Terminal junction

Open Space/Planting Replacement for the North Terminal Roundabout

8.14.2 The current North Terminal Roundabout scheme will require constructing an area of open space in Riverside Garden Park. As a result, an area of land replacement is needed, and it is proposed to redevelop Car Park B into a landscaped area instead of the land taken by the new NT roundabout. The areas to be converted from car parking to landscaped areas at Car Park B are shown in Figure 63.

Figure 63: Car Park B: Areas to be Converted from Carparking to Landscaped Areas

8.14.3 The construction activities anticipated for these works are:

- Remove fencing gates, lights, and any other associated above-ground structures.
- Break out of the car park surface and remove redundant underground utilities (retaining all utilities associated with the substation).
- Excavate and install an underground area drainage system.
- Using selected fill and excess excavated material (where available), build up and landscape the area.
- Install a new security fence around the substation and a footpath connecting to the Public Right of Way.
- Install selected shrubs, trees, and a grassed area.

8.14.4 The anticipated construction equipment required for these works include:

- Flatbed delivery truck with articulated lifting arm.
- Hydraulic arm excavator with bucket.

- All-terrain tipper truck.
- Concrete mixer truck.
- Roller compactor.
- Mobile crane (either crawler or rubber tyred type).

8.14.5 The contractor is expected to work from within the permanent works footprint and the airfield areas and to use the South Terminal Compound as a support compound.

Pedestrian Link from Car Park B North Side to Riverside Garden Park

8.14.6 A pedestrian route linking Car Park B (north side) to Riverside Garden Park will be constructed.

8.14.7 The construction activities anticipated for these works are:

- Construct/provide temporary diversions to the public Right of Way.
- Clear the route of the footpath.
- Place granular material on the footpath route and surface as required.
- Excavate to base level the foundations/footings for the pedestrian bridge.
- Cast the bridge foundations.
- Deliver the prefabricated bridge to the site, place and fix on the foundations.

8.14.8 The typical construction equipment expected for these works include:

- Flatbed trailer.
- Mobile crane.
- Mini excavator/backhoe.
- Mini roller.

8.14.9 The contractor is expected to work from a welfare unit local to the works with support from the Reigate Field Compound.

Landscape Structural Planting Belts

8.14.10 In order to address the potential impacts on sensitive land receptors, several additional areas of planting are required in a number of areas.

8.14.11 The construction activities for these works would include:

- Minor landscaping works.
- Hand excavation and planting of shrubs.

- Planting of mature trees.

8.14.12 The typical construction equipment expected for these works include:

- Flatbed truck with hydraulic lifting arms.
- Mini-tracked hydraulic arm excavator.
- Dump truck.
- Road sweeper.

8.14.13 The contractor is expected to work from a welfare unit local to the works with support from the MA1 Compound.

Ecological Habitat Creation 1

8.14.14 In order to address the environmental requirements of the Project, an area of grassland/woodland is required to be created in the area of Brook Farm and the Aviation Museum. The area to be developed is shown in Figure 64.

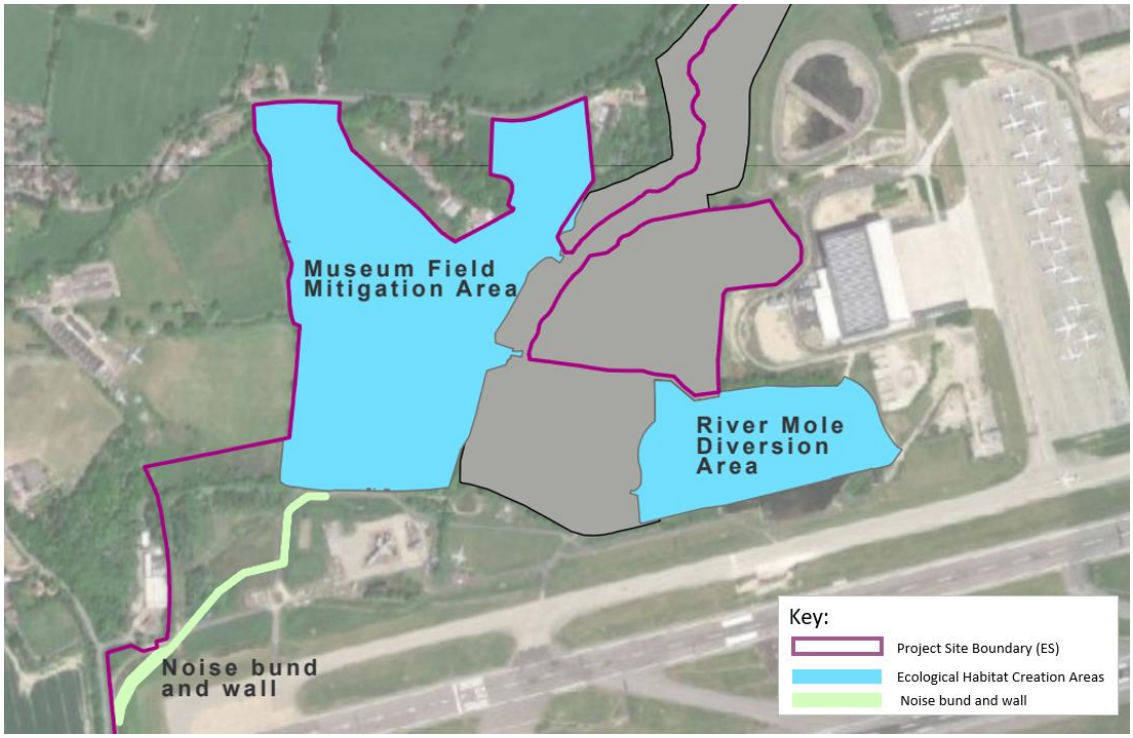

Figure 64: Ecological Habitat Creation Areas to be developed

8.14.15 The construction activities for these works would include:

- Minor landscaping works.
- Hand excavation and planting of shrubs.
- Planting of mature trees.

8.14.16 The typical construction equipment expected for these works include:

- Flatbed truck with hydraulic lifting arms.
- Mini-tracked hydraulic arm excavator.
- Dump truck.
- Road sweeper.

8.14.17 The contractor is expected to work from a welfare unit local to the works with support from the Airfield Satellite Compound. The shift patterns for this work will be day work.

Ecological Habitat Creation 2

8.14.18 In order to address the environmental requirements of the Project to replace existing hedges and grass verges, two locations in the south-eastern corner of the airfield will be replanted with species of rich / scrub hedges and other plants to promote habitat for bats. They are in the following locations:

- Along Perimeter Road East (see Figure 65).
- Along Crawter's Brook (see Figure 66).

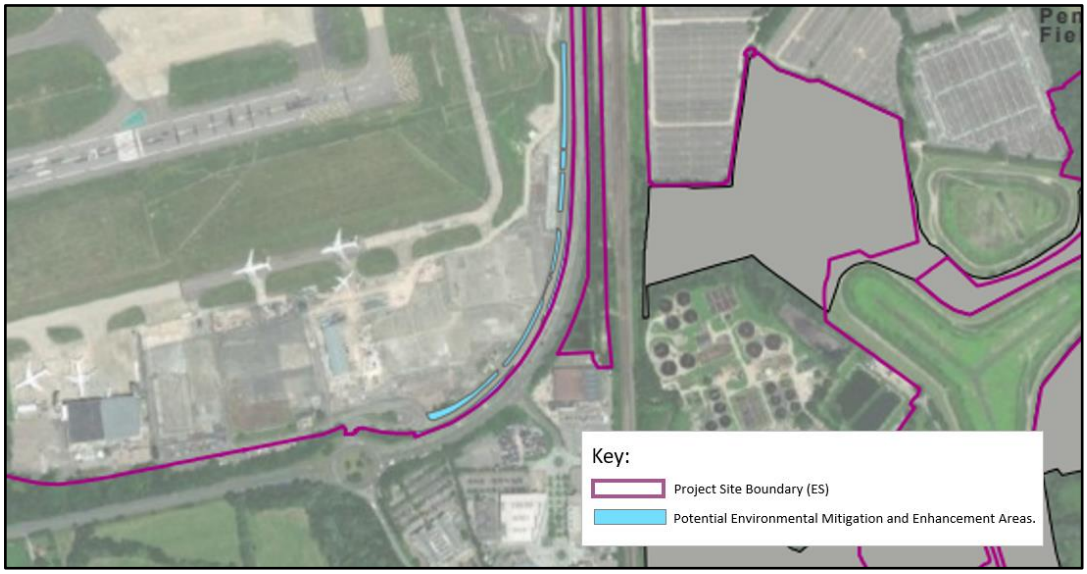

Figure 65: Hedge Location Perimeter Road East

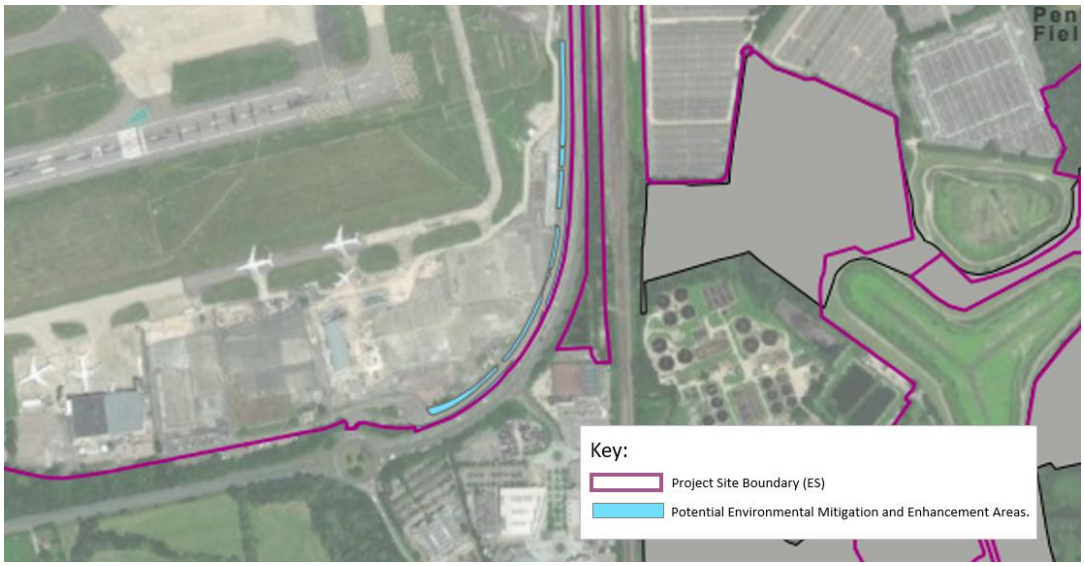

Figure 66: Hedge Location Crawter's Brook

8.14.19 The construction activities for these works would include:

- Grub out existing vegetation.
- Hand and or machines excavation.
- Planting of hedge row and other species.

8.14.20 The typical construction equipment expected for these works include:

- Flatbed truck with hydraulic lifting arms.
- Mini-tracked hydraulic arm excavator.
- Dump truck.
- Road sweeper.

8.14.21 The contractor is expected to work from a welfare unit local to the works with support from the MA1 Compound.

8.15. Utility Relocations and Substations

8.15.1 Various electrical substations and utilities around the site require relocation or removal due to physical interaction with the proposed new infrastructure or to be cleared out of the wing tip clearance of taxiing aircraft.

8.15.2 The method for the relocation will include building the new facility offline from the existing one and transitioning to the new facility once all components of that new facility are proven to be working correctly.

8.15.3 The construction activities for this work are anticipated to be standard light-duty single-storey prefabricated building construction and utility diversion works and would include:

- Diversion to a new route or strengthening of existing utilities which the new facilities may indirectly impact.
- Clearing the new locations of obstacles and stripping any soft landscaping, such as grassed areas or material unsuitable for placing the new substation on (e.g. asphalt).
- Where the new location is on existing airfield pavement, the existing pavement will likely be retained as the foundation for the building or enclosure.
- Installation of new buried cable connections in new trenches to the new locations of the substations and reinstatement of the surfaces.
- Installation of a concrete plinth or pad foundation for the substations using concrete delivered in a concrete mixer truck.
- Delivery of prefabricated substation and electrical equipment by flatbed truck and offload with rubber tyred mobile crane.
- Installation of the electrical equipment and cable terminations.
- Installation of any HVAC equipment, lighting and fire detection and suppression systems in the substations (if not already pre-installed).
- Testing and commissioning of the electrical equipment and building services.
- Upon confirmation that all systems are operating correctly, the new substation will be energised, and the old substation will be de-energised.
- Demolition and removal of the old substation equipment for potential recycling or reuse where possible (likely offsite).
- Reinstatement of the location of the old substation in preparation for its next use.

8.15.4 Typical construction equipment used for this work is expected to be:

- Loader backhoe excavator combination.
- All-terrain dumper.

- Flatbed delivery truck with articulated lifting arm.
- Tipper dump truck (non-all terrain).
- Large hydraulic arm excavator.
- Medium rubber tyred hydraulic arm excavator.
- Mini tracked-hydraulic arm excavator.
- Medium frontend loader.
- Small steel wheel roller compactor.
- Concrete mixer truck.
- Rubber-tyred mobile crane.

8.15.5 The contractor is expected to work from a local welfare unit adjacent to the substation locations for the construction activities, with the support operations located in the Airside Satellite Compound.

Glossary

Table 2: Glossary of the Terms

Term	Description
AGL	Aeronautical Ground Lighting
AOB	Airport Operations Building
BAU	Business As Usual
BPAUS	Best Practice in Avoiding Underground Services
C Box	Charlie Box
CAG	Construction Access Gate
CAPEX	Capital Expenditure
CARE	Central Area Recycling Enclosure
CDM	Construction (Design and Management) Regulations
CEMP	Construction Environmental Management Plan
CIP	Capital Investment Plan
CoCP	Construction Code of Practice
Code C	An Aircraft with dimensions meeting the specifications in the Aerodrome Reference Code table in Annex 14, Volume I, to the Convention on International Civil Aviation Organisation
Code E	An Aircraft with dimensions meeting the specifications in the Aerodrome Reference Code table in Annex 14, Volume I, to the Convention on International Civil Aviation Organisation
COSHH	Control of Substances Hazardous to Health
CPRSA	Critical Parts / Security Restricted Areas
CSCS	Construction Skills Certification Scheme C
CSS	Core Service Standard
CTMP	Construction Traffic Management Plan
CUSS	Common Use Self Service
CWTP	Construction Work Travel Plan
DCO	Development Consent Order
DfT	Department of Transport
EIA	Environmental Impact Assessment
ET	End around Taxiway
EUE	Estates, Utilities & Environment Engineering Team
FEGP	Fixed Electrical Ground Power
FOH	Front Of House
GAL	Gatwick Airport Limited
GAL EDMS	Electronic Document Management System
GP	Genesis Portfolio referred to as Northern runway programme
GPP	Guidance for Pollution Prevention
GSE	Ground Support Equipment

HAUC	Highways Authorities and Utilities Committee
HGV	Heavy Goods Vehicle
HVAC	Heating Ventilation and Air Conditioning
IDL	International Departure Lounge
IFR	Issued for Review
ITTS	Inter Terminal Transport System
LHA	Local Highway Authorities
MA1	Maintenace Area 1 used as the Main Contractor compound
MARS	Multi Aircraft Ramp Stands
MEP	Mechanical, electrical and plumbing
MMPA	million passengers per annum
MRF	Materials Recycling Facility
MSCP	Multi Storey Car Park
MUPS	Make-up Positions (Baggage)
MUX	Make-up Positions
NAG	North Access Gate
NH	National Highways
NRP	Northern Runway Project
NRSWA	New Roads and Street Works Act
NT	North Terminal
NWZ	Northwest Zone
OCTMP	Outline Construction Traffic Management Plan
OCWTP	Outline Construction Workforce Travel Plan
OLS	Obstacle Limitation Surfaces
PEIR	Preliminary Environmental Information Report
PQC	Pavement Quality Concrete
PTR	Pneumatic Tyre Roller
RAT	Runway Access Taxiway Provides a route onto the Runway Preparatory to take off
RET	Rapid Exit Taxiway: Taxiway provided at an acute angle to the Runway so that an aircraft can leave at a higher-than-normal taxying speed
RFFS	Rescue Fire Fighting Service
RIBA	Royal Institute of British Architects
RVP	Rendezvous Point
SAG	Southern Access Gate
SEGS	Stand Entry Guidance System
SOP	Security Operating Procedures
SQEP	Suitably qualified and experienced personnel
SRN	Strategic Road Network
ST	South Terminal
ST IDL	South Terminal International Departure Lounge
STR	South Terminal Roundabout
TBF	Transfer Baggage Facility

TCR	Private service provider for rental and maintenance of Ground Support Equipment
ULD	Unit Loading Device
UXO	Unexploded Ordnance
VAA	Virgin Atlantic Airways
WAP	Workers Accommodation Programme
WIG WAGS	Illuminated runway protection signs and runway guard lights (Wig-Wags)
WWTW	Wastewater Treatment Works