

LONDON STANSTED AIRPORT

Stansted Transformation Programme (STN-TP)

Terminal Extension

Utilities Statement (July 2023)

Issue and Revision Record

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1.0 Introduction

1.1 Purpose of Document

Mott MacDonald (MMD) has been commissioned by Stansted Airport Limited (STAL) to undertake the design work for the proposed terminal extension and associated infrastructure at London Stansted Airport.

The purpose of this report is to outline the information collected on the present utilities across the project site and provide an assessment on the requirements of the terminal extension's scope of works. It has been prepared to fulfil the requirements of Uttlesford Council's planning application validation checklist.

1.2 Development Details

The planning application proposes; a partial demolition of the existing Track Transit System and full demolition of 2 no. Skylink walkways and the bus-gate building; and the construction of a 3-bay extension to the existing passenger terminal, a Baggage Handling Building, a plant enclosure and 3 no. Skylink walkways and associated hardstanding.

The proposed development is shown in Figure 1.

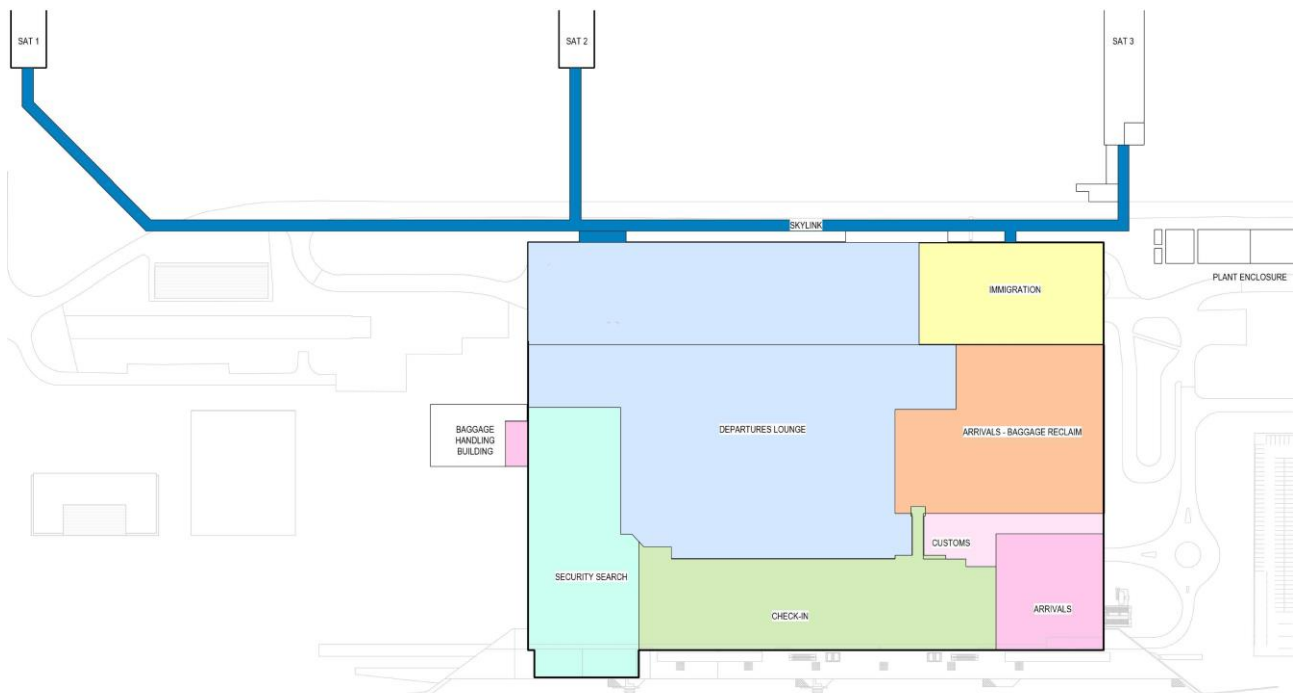


Figure 1 – Proposed development scope of works

1.3 Methodology

The utility information shown in the following sections is not exhaustive and will require further investigation works to confirm what utilities are present on site and to ascertain exact positioning prior to construction. The design will refer to guidance contained in BS 6031:2009 “Code of Practice for Earthworks”, HSG47 Health and Safety Executive “Avoiding Danger from Underground Services” and Street Works UK publications, for buried utility positions in external areas.

The data used is a mixture of survey and as-built CAD (.dwg) models. This information originates from various sources created at different times, with different specifications and caution should be exercised when using this information. Site investigations will be required to confirm this data.

2.0 Existing Site Utilities

The extent of the planning application site boundary is provided below in Figure 2. Numerous utilities are present in this area. These include:

- Electrical
- Gas
- Information and Communications Technology
- Water
 - Potable water
 - Fire water
 - Surface water
 - Foul water

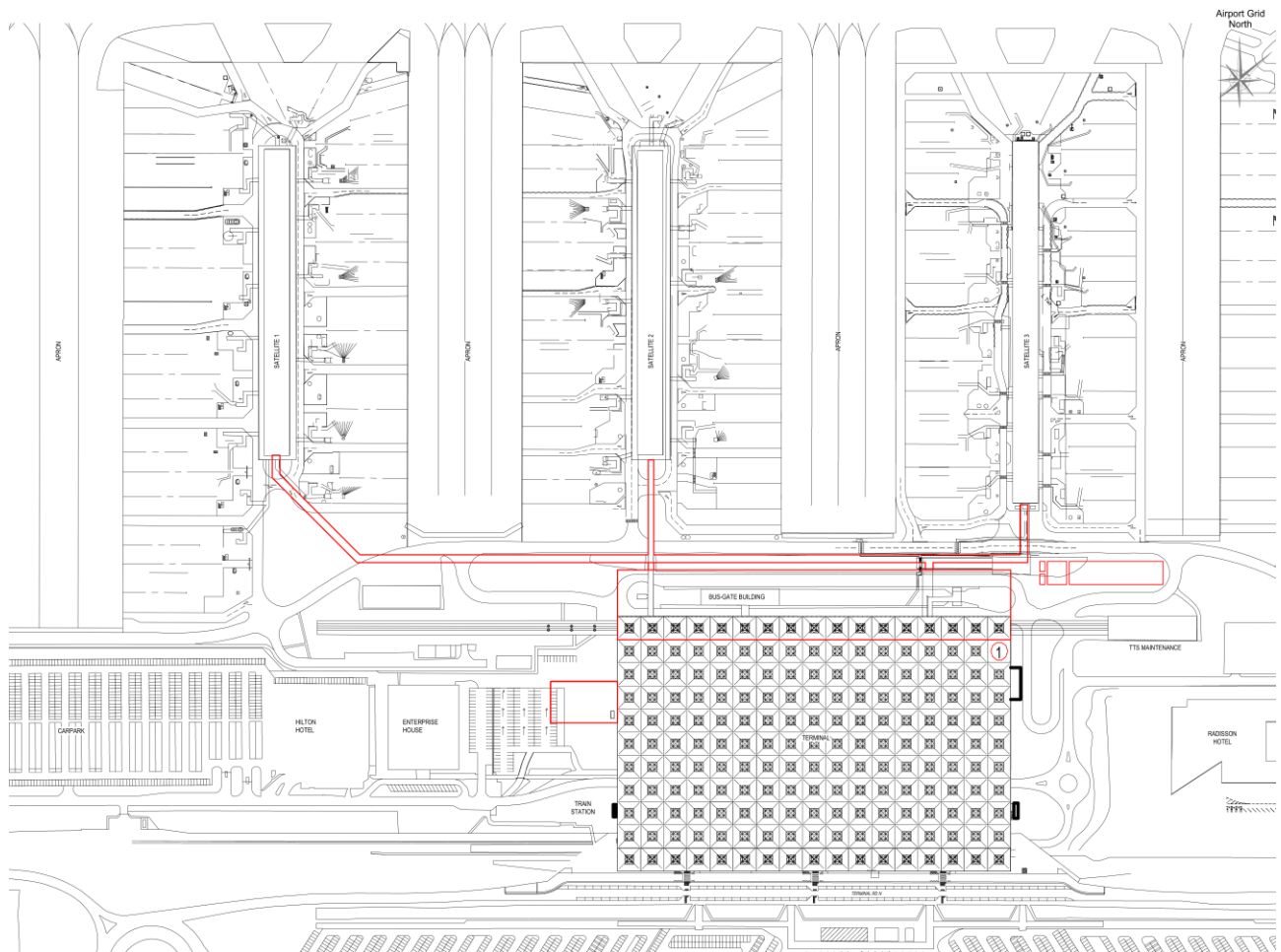


Figure 2 – Planning application site boundary

2.1 Electrical

2.1.1 Existing infrastructure landside and airside

Electrical services are present across the entire application site.

The infrastructure identified with relevance to the terminal extension and associated works is summarised below.

Landside: Substation 100:

Located south of the existing terminal building near Coopers End Roundabout, substation 100 has two 33kV/11kV transformers supplying separate HV busbars with an interlink connection. This substation is a primary supply point for various 11kV substations located across the site.

Landside: Substation 39 and Substation 2:

The high voltage 11kV switchgear within substation 39 and substation 2 is located within separate fire rated rooms on Level 00 in the undercroft of the existing terminal building. These two substations currently provide redundant HV supply points to the existing terminal building.

Airside: Substation 19 and 29:

Located airside and external to the terminal building, substations 19 and 29 are in close proximity to the proposed extension and associated works. Substation 29 currently supplies the Track Transit System (TTS) with traction power along with the maintenance facility associated local loads. It is anticipated to have spare capacity following decommissioning of the TTS.

2.1.2 Proposed Infrastructure

Figure 3 and Figure 4 illustrates a total of three new substations proposed to support the terminal extension and associated works. Each location identified will contain two 11kV transformers and be fed by two redundant HV feeders from the sites existing ring main configured network. The locations and quantity of substations is driven by the lengths of resultant LV submain cabling and voltage drop implications.

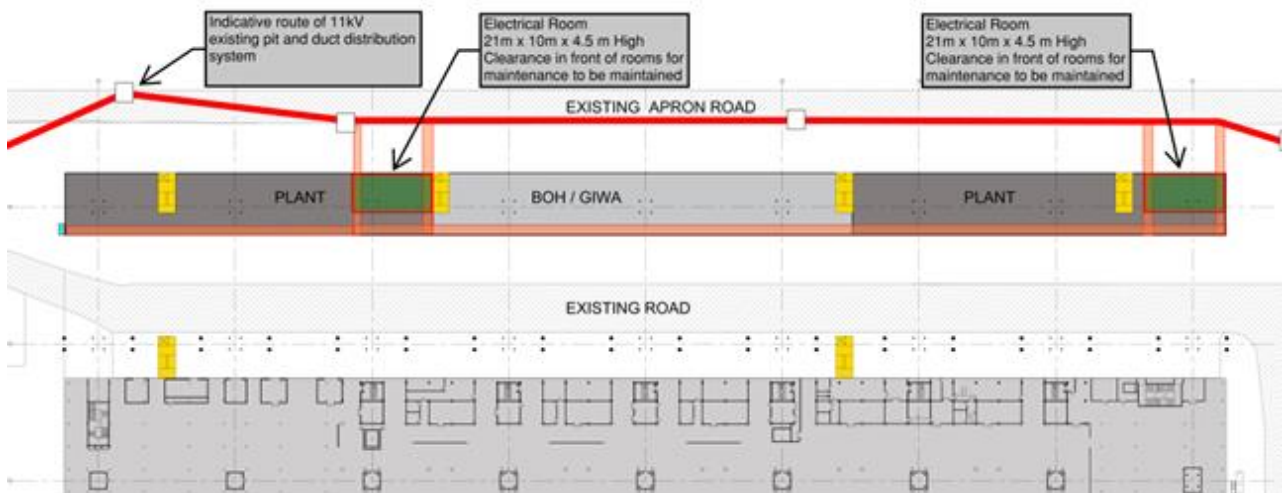


Figure 3 - Proposed infrastructure within terminal extension footprint

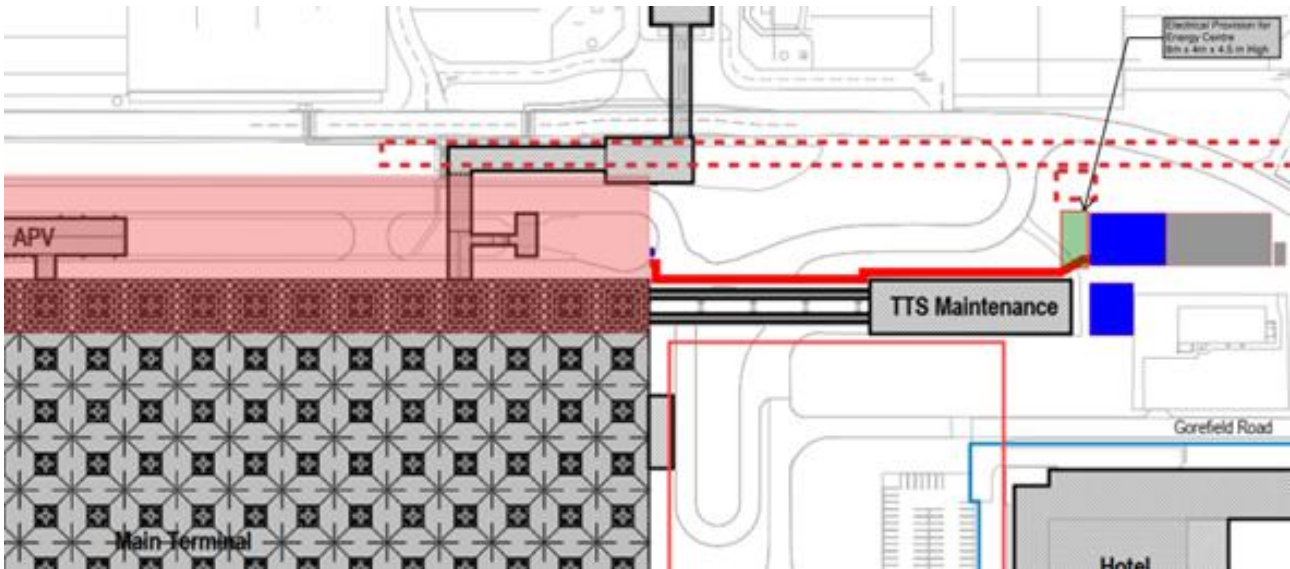


Figure 4 - Proposed electrical infrastructure adjacent to plant enclosure

2.1.3 Load Availability

There is available capacity within the existing electrical utilities, however to deliver the proposed works some limited reconfiguration of the existing infrastructure is required.

2.2 Gas

Gas is available on site and is currently utilised by boilers for the heating loads in the existing terminal building. For the terminal extension, gas will not be utilised.

2.3 Information and Communications Technology

The terminal extension will be integrated with the existing local telecommunications infrastructure, as well as the wider MAG (the airport operator) technology infrastructure.

Existing pits, ducts and cable containment shall be used where there is sufficient capacity. Where new routes are required these will be identified as early as possible to ensure coordination with other mechanical, electrical and public health services. Establishing service zones and a standard layout where possible, enables planning and use of shared infrastructure.

The proposed three bay extension includes the area above the existing data centre, which results in an increase in the number of services that will require coordinated integration. New ducts may be required to facilitate the development, but there is adequate space around and within the proposed development to accommodate any arising need.

2.4 Water

2.4.1 Potable Water

Although the current Water Supply (Water Fittings) Regulations 1999 are not retrospective, if an existing potable water system is extended or altered, to incorporate new sanitary appliances or other water system components etc., then it will need to be proved that the existing potable water system complies with the requirements of the current Water Regulations.

This will necessitate intrusive surveys to ascertain the level of compliance of the existing potable water system and, potentially, modifications to that system to ensure its compliance. The requirement to undertake any modification works is not known at this stage.

From record information, parts of the existing potable water infrastructure extend into the area that the new terminal extension would occupy, and some diversion works will likely be required as a result. These are anticipated to be limited but would be confirmed during the detailed design stages.

Potable water supplies in the new terminal extension will be provided for small areas of toilet accommodation, a small concessions area, as well as for water usage in the plant and back of house areas. As such, the overall water demand is not expected to be high, which means that the water services system requirements will not be excessive.

The potable water supply options for the new terminal extension are:

- Extend the existing potable water services systems to accommodate the new terminal extension. As mentioned above, this will necessitate survey works and potentially upgrading works in the existing terminal building, to ensure Water Regulations compliance.
- Potable water services, for the new terminal extension, to be kept independent of those in the existing terminal building, avoiding any water services works in the existing terminal.

It is, therefore, proposed that the extension will be provided with new water supply connections, from the existing on-site water supply infrastructure. The new connection(s) will be provided with a water meter to measure water use etc.

2.4.2 Non-potable Water

There is an opportunity to incorporate a non-potable water supply, sourced from a rainwater harvesting (RWH) system. The RWH system will collect run-off from the terminal extension roof and will include a below ground storage tank, treatment plant and a day tank and booster pump.

The location of the below ground tank and size of the collection area is currently being investigated by the Civil Engineer. The non-potable water can be used for WC flushing, irrigation, vehicle washing and internal and external washdown. The usage requirements will need to be confirmed, to ensure the correctly sized below ground storage tank is provided..

2.4.3 Fire Water

The firefighting services provision will be the same as that in the main terminal building, i.e. sprinkler protection and provision for dry risers, all following current regulations and requirements.

Whilst detailed investigations are carried out on the capacity of the existing sprinkler system to ascertain if it can be extended to cover the new extension, the proposed development currently provides spatial allowance for a new separate sprinkler system, with a water supply from the existing site wide water infrastructure.

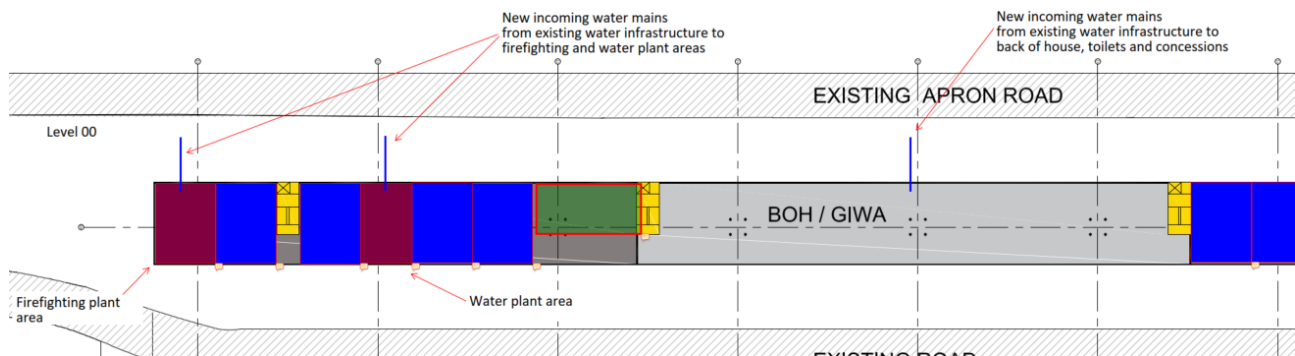


Figure 5- Proposed potable water connections to the new extension

2.4.4 Surface Water

The proposed terminal extension roof will be drained in a similar fashion to that of the existing terminal roof. A series of siphonic RWOs will be located between roof panels and routed horizontally to the East and West facades, where vertical RWP's will drop down outside the building envelope, to connect with the below ground drainage system.

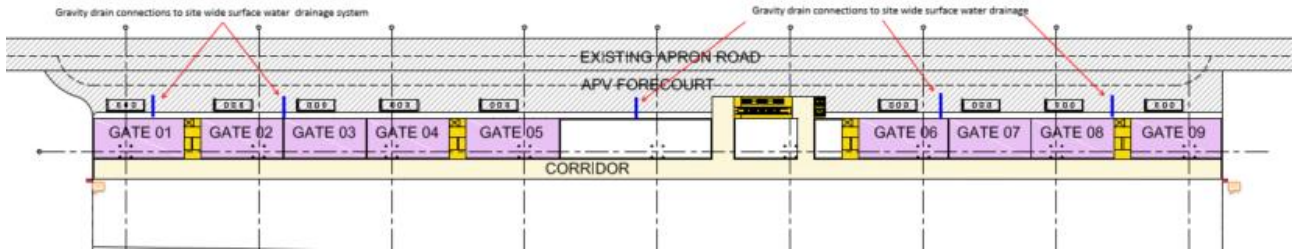


Figure 6 - Proposed surface water outfalls from the new extension

2.4.5 Foul Water Drainage

New foul water drainage will be provided to the plant, toilet and concession areas, connecting to the existing site wide foul drainage system.

The plant areas are at distribution road level and are expected to be below the level of the existing foul water drainage system and will therefore require to be pumped. The toilets and concessions will discharge to the existing system by gravity.

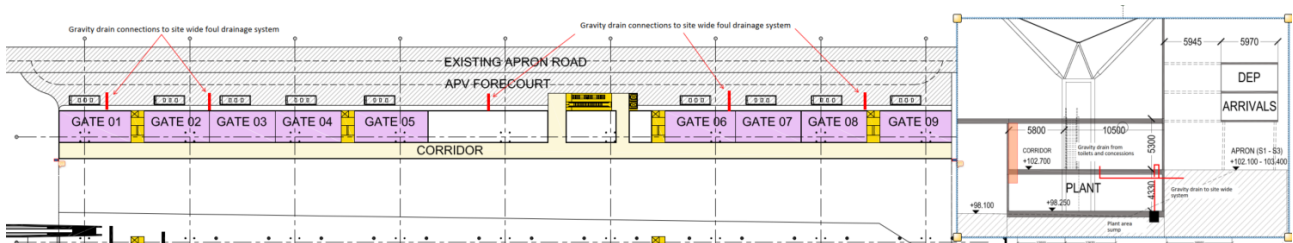


Figure 7 - Proposed foul water outfalls from the new extension

3.0 Conclusion

This initial study concludes that the site is currently served by all necessary utilities and that where necessary, diversions, upgrades and reconfigurations can be delivered as required.