

DRAINAGE STATEMENT SYDNEY AVENUE PLANNING APPLICATION

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Manchester Airport Ltd

MAG Landside - FI, SA & VCC
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Acronyms and abbreviations

MAG	Manchester Airports Group
MCC	Manchester City Council
CKD	Combined Kerb Drain
T2	Terminal 2
MAN-TP	Manchester Airport Transformation Programme
DMRB	Design Manual for Roads and Bridges
D&B	Design and Build
DEFRA	Department of Environment, Food and Rural Affairs

1. Introduction

Manchester Airports Group (MAG) continues to invest in its airport infrastructure. MAG are close to completion of the Manchester Airport Transformation Programme (MAN-TP), a £1.3bn investment programme that will transform passenger experiences and help attract yet more of the world's leading airlines. The transformation was first announced in 2015 with a 10-year vision to revolutionise the customer experience at the Northern hub and unlock the potential of its two full-length runways. The programme involves an extension, doubling the size of Terminal 2 (T2) and refurbishing the original terminal, including the construction of two new aircraft piers, creation of a state of the art baggage hall, installing next generation scanners in a new security hall, additional retail and food and beverage outlets as well upgrading the airfield and taxiways to cater for next generation aircraft. It also includes the development of the landside road network to allow sufficient capacity and access to the terminal to drop off passengers, pick-up passengers as well as additional car parking.

In review of this landside road network, a traffic modelling exercise has been undertaken to review various parts of the road network and the impacts of increasing traffic numbers in the area following the opening of the full Terminal 2 following the completion of MAN-TP in 2025. This exercise has concluded the need for changes to the road network at the western end of T2. With the existing layout, the Sydney Avenue junction with Thorley Lane is anticipated to be over capacity with queues extending into the West End Roundabout and Palma Avenue, therefore blocking the forecourt exit. An optioneering exercise for solutions was undertaken and the option now progressed is for the closure of the existing short Sydney Avenue and construction of a new link road/carriageway from the western side of the existing West End roundabout and connecting into Thorley Lane via a new signal controlled junction. The proposed project includes the following:-

- A new carriageway from the West End Roundabout (where Palma Avenue and Sydney Avenue meet) via the existing Staff West Car Park to Thorley Lane (including a 3.0m wide shared footway/cycleway)
- Widening of Thorley Lane to accommodate a signal-controlled junction between the new carriageway and Thorley Lane
- The upgrade of the existing Thorley Lane junction with Runger Lane to a signalised junction.
- Creation of a 3m wide shared footway/cycleway on Thorley Lane.
- Closure of the existing Sydney Avenue carriageway from the West End Roundabout to Thorley Lane and associated retention and realignment of the existing footpaths and cycleway
- Creation of a new exit from the West End Roundabout into the existing Staff West car park

The planning application is limited to seeking planning permission for the creation of a new access from the northern end of the new road to the Thorley Lane carriageway. The extent of the planning application boundary and the extent of the project boundary are shown on the drawing in Appendix B (reference MT2RSYDN-MAN.LG.00.RD-JAC-Z-GA-LANDRD-0006).

Reference should be made to the Proposed Surface Water Drainage Sydney Avenue drawing (reference MT2RSYDN-MAN.LG.00.RD-JAC-C-GA-STORM-0001) in Appendix A which shows the proposed surface water drainage network works, all of which are subject to detailed design by the Contractor.

2. Proposed Drainage – MAG Network

The proposed design has no attenuation requirements as the area of new pavement is less than 50% of the area of existing impermeable surfacing to be converted to grassed verges. Should the layout of the proposed pavement and verges alter, the drainage design shall require reassessment to ensure 50% brownfield equivalent rates are achieved. The entire surface water drainage system is to be positively drained across the site, and existing surface water drainage is retained where possible. The position of gullies shown in any drawings is indicative and final gully spacing is subject to detailed design. The drainage design for this area within the MAG boundary should be carried out in accordance with the DMRB CG-501 Design of Highway Drainage Systems requirements. Namely, the below criteria applies:

- 1 in 1 year – no surcharge of the drainage system.
- 1 in 5 years – no flooding from the drainage system.
- All drainage systems shall be designed so that highway surface water flooding does not extend beyond the highway boundary up to the 1-in-100 year rainfall event, including an allowance for climate change.
- The runoff volume must be discharged at a rate that does not adversely affect flood risk.

It should be noted that if future non-road development is to occur within the MAG boundary, drainage systems should be designed in compliance with the UK Government Planning Practice Guidance.

Landscaping proposed as part of the works has been assumed to include the removal of the full depth of any relevant carriageways and pavement which are to be replaced by fully permeable soft landscaping. Landscaped areas have therefore not been considered to contribute to the positively drained carriageway and pavement areas. Any retention of impermeable surfacing or subbase in these areas shall affect the surface water catchments and may have subsequent impacts on attenuation requirements.

2.1 Sydney Avenue

The modifications around Sydney Avenue include replacing the existing highway with soft landscaping and installing a new Staff West Car Park access road. These amendments pose no net increase in catchment size, with the new permeable landscaping offsetting the impermeable car park access road. The existing gullies serving Sydney Avenue are to be removed and new highway gullies are to be installed along the proposed kerb line and shall tie into the existing surface water drain. A new surface water collection feature is required to run along to full length of the proposed verge to collect flows from the existing car park, discharging to the existing carrier drains via catch-pits.

The Contractor is to review the existing location of chamber access covers in relation to the proposed kerb line of the new highway and realign if necessary.

2.2 West End Roundabout

Existing drainage on the West End Roundabout is provided by combined kerb drainage. Where changes are to be made to the kerbs on the roundabout, combined kerb drainage is to be used and is to discharge into the surface water network at the same location as existing.

2.3 New Thorley Link

The new Thorley Link highway introduces verges in addition to a new catchment area in an existing vegetated area at the Thorley Lane junction. This new catchment of 261m² (shown on drawing MT2RSYDN-MAN.LG.00.RD-JAC-C-GA-STORM-0001 as a blue hatch) is proposed to be offset by the new verges (shown on drawing MT2RSYDN-MAN.LG.00.RD-JAC-C-GA-STORM-0001 as an orange hatch) along the proposed highway which are in excess of 560m².

Gullies to collect surface water from the proposed highway are to be provided along the proposed kerb line and shall tie in to the existing 225mm carrier drains crossing the new Thorley Link Road. The locations of these gullies and confirmation of the carrier pipe dimensions and capacities are required at detailed design. Any protection required for the existing carrier pipes shall also be confirmed at detailed design.

Surface water from Thorley Lane has the potential to runoff onto the new Thorley Link Road carriageway. As such, gullies are proposed on both sides of the carriageway on the boundary between MAG and Manchester City Council land and shall tie into the existing carrier drains in the new Thorley Link Road.

The existing gullies and drainage clashing with the new highway alignment are to be abandoned. Existing chamber covers and ironworks in the proposed pavement adjacent to the new Thorley Link Road are to be reviewed in relation to the proposed pavement levels and adjusted as necessary.

3. Proposed Drainage – MCC Network

3.1 Thorley Lane/ Runger Lane

The carriageway widening on Thorley Lane/ Runger Lane results in a catchment increase of approximately 1607m² (shown on drawing MT2RSYDN-MAN.LG.00.RD-JAC-C-GA-STORM-0001 as a purple hatch). This area is outside the MAG boundary and liaison with MCC during detailed design is required to agree acceptable levels of discharge into the downstream drainage network via modelling or otherwise. The drainage design for this area outside of the MAG boundary should be carried out in accordance with the DMRB CG-501 Design of Highway Drainage Systems requirements. Namely, the below criteria applies:

- 1 in 1 year – no surcharge of the drainage system.
- 1 in 5 years – no flooding from the drainage system.
- All drainage systems shall be designed so that highway surface water flooding does not extend beyond the highway boundary up to the 1-in-100 year rainfall event, including an allowance for climate change.

There is also a new paved footpath to be introduced running along the East-side of the new carriageway – this is to replace an existing paved footpath with no net increase in impermeable area, therefore hasn't been accounted for in the new drainage plan.

Greenfield run-off rates have been calculated for the site of 0.16 Hectares of the proposed new road over existing greenfield land – with an average discharge rate (Q_{bar}) of 0.94 l/s calculated. Storage and attenuation requirements are to be determined to accommodate flows from a 1 in 100 year critical duration design event, increased by a climate change uplift of 30% as per DEFRA standard for the region, in-line with the central allowance for a 1% annual exceedance event for a project design life of 100 years. Flows exceeding the greenfield run-off for the 1 in 100 year event will be limited to the corresponding greenfield value, with attenuation provided to account for the difference. On release back into the network, attenuated flows will be throttled to the same Greenfield value via Hydrobrake or otherwise. Further details on attenuation volumes and associated rainfall criteria and connection details are to be finalised in detailed design phase following these discharge of conditions.

The line of the surface water sewer has been interpolated from the 2023 utility survey results. Provisional gully-pot locations have been proposed on the above drawing at 15-20m spacing and are to tie-in to the line of the existing 450mm diameter surface water sewer running down Thorley Lane. An open grass channel has been proposed along the base of the new embankment along Thorley Lane to manage flows from the new bank and footpath, discharging to a new chamber at the Southern-end and flowing via carrier drain to an attenuation system or to the existing 450mm diameter sewer, pending checks on the above discharge rate.



