



# Gatwick Airport Northern Runway Project

## Appendix E: Response to SCC's Airfield Drainage Queries

### Book 10

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## 1 The Applicant’s Response to Surrey County Council’s Airfield Drainage Queries

1.1.1. The Applicant received a direct request on 1 May 2024 from Surrey County Council (SCC) with clarifications it requires relating to airfield drainage. **Table 1.1** sets out the Applicant’s response to the matters requested by SCC.

**Table 1.1: Applicant’s Response to SCC’s airfield drainage-related queries**

Ref	SCC’s Request	Applicant’s Response
1	Please can you provide plans of the existing northern runway, including a drainage layout which indicates all of the drainage features within the northern runway, how this connects into the wider drainage network and the discharge location	<p>The airfield surface water drainage network for the Northern Runway is identified in sketches GALNRP-SK003, GALNRP-SK004 and GALNRP-SK001 contained in <b>Annex A</b>. Please also see <b>Photos 1 and 2</b> below showing the existing slot drain in the existing Northern Runway.</p> <p>The operation of the airfield surface water drainage network is explained in <b>ES Chapter 11 Water Environment</b> [<a href="#">APP-036</a>] paragraphs 11.6.29 to 11.6.37.</p>
2	Where does the existing slot drain (noted in the northern runway shoulder) flow to and what is the runoff rate? What is its purpose and what are the dimensions?	<p>The existing slot drain that receives runoff from the existing Northern Runway drains to a combination of Ponds A, M and D via the wider drainage network. The runoff rates from these catchments are set out in <b>ES Appendix 11.9.6 Flood Risk Assessment (FRA) Annex 3</b> Section 5.2 [<a href="#">APP-149</a>]. The relevant tables indicating peak runoff are below this response and show that peak outflows from the airport would not increase as a result of the Project.</p>

		<p>The existing slot drain is located between the existing Northern Runway pavement (at its edge) and the runway shoulder. The position of the proposed drain will be finalised during detail design but may be positioned at the edge of runway shoulder in order to drain both the pavements of the runway and its shoulder.</p> <p>The existing slot drainage dimensions are typically 150mm and 300mm in diameter and are shown in sketch GALNRP-SK002 (in <b>Annex A</b>) and <b>Photo 2</b> below.</p>
3	<p>How are any pollutants from the runway currently managed, where does the runoff from the runway currently flow to and will any interceptors / pollutant control measures need to be replaced or repositioned as a result of the runway works?</p>	<p>The existing management of potentially de-icer contaminated runoff from the airfield is set out in <b>ES Chapter 11 Water Environment</b> [<a href="#">APP-036</a>], paragraphs 11.6.29 to 11.6.37. A schematic of the system is included as <b>ES Appendix 11.9.42: Figure 1.4.2</b> [<a href="#">APP-145</a>]. In addition, there are hydrocarbon interceptors at Pond D prior to any discharge to the River Mole.</p> <p>Runoff from the northern runway drains to the airfield surface water drainage network which drains to either Ponds A, M or D and Dog Kennel Pond which outfall into the River Mole, see <b>ES Figure 11.8.1</b> [<a href="#">APP-057</a>]. However if the runoff is of insufficient quality to meet its discharge consent it is pumped to the long-term storage lagoons which drain to Thames Water’s Crawley Sewage Treatment Works (STW) for treatment and discharge to the Gatwick Stream.</p>

		The drainage philosophy of the airfield would not change due to the project. With the Project the treatment of potentially contaminated runoff would be via a new wetland treatment system rather than the Crawley STW.
4	Will the repositioned runway alter the existing runoff rates or volumes to the existing catchments areas? Will this result in any impacts downstream?	<p>The repositioned Northern Runway will not change in dimensions so will not alter existing rates or volume of runoff. It will therefore not result in any impacts downstream.</p> <p>The impact of the Project on runoff rates and volumes has been assessed as part of <b>ES Appendix 11.9.6 Flood Risk Assessment</b> Section 5.3 [<a href="#">AS-078</a>].</p>
5	Will catchment areas change?	The total catchment areas across the airfield will not change due to the Project.
6	How deep is the River Mole culvert and will this be impacted by the new runway?	Our survey inspection records indicate the River Mole (runway) culvert varies in depth between approximately 1.2m and 2.5m below ground level to the top of the crown. The depth to the culvert will not be affected by the repositioning of the northern runway.
7	Is there any other drainage infrastructure that will need to be moved as result of the runway works? If so, has the impact of this been considered?	The relocation of the northern runway will require the provision of a replacement new slot drain and filter drain that will connect into a carrier drain that will discharge to the existing airfield surface water drainage network. Please see sketches GALNRP-SK003, GALNRP-SK004 and GALNRP-SK001 contained in <b>Annex A</b> .



		<p>The relocation of Taxiway Juliet will necessitate the removal of Pond A that drains the western end of the airfield. A new surface water pumping station will be constructed to receive the flows that currently drain to Pond A, which will pump them into the Pond M catchment.</p> <p>These impacts have been considered in <b>ES Appendix 11.9.6 Flood Risk Assessment</b> <a href="#">[AS-078]</a>.</p>
8	<p>Is the intention to replicate the current drainage construction layout/specification for the re-positioned runway or adopt a different approach? i.e. can GAL confirm if drainage will be replicated in the same position (between the new Northern shoulder and the runway) or if not how surface water would drain from the re-positioned runway? Further details of this approach should be provided</p>	<p>The drainage of the repositioned Northern Runway will follow the same design philosophy as the existing, its configuration and alignment will be finalised through detailed design.</p> <p>The repositioning of the Northern Runway will necessitate repositioning of its associated drainage, but only to the extent to drain the runway and connect it into the existing drainage system slightly further north than at present.</p> <p>Further details on the existing and proposed drainage approach for northern runway are included in sketches GALNRP-SK003, GALNRP-SK004 and GALNRP-SK001 in <b>Annex A</b>.</p>

Extract from **ES Appendix 11.9.6 Flood Risk Assessment: Annex 3** Section 5.2 [[APP-149](#)]: Peak Runoff Rates

**Table 5.3.2 Future baseline peak runoff**

Scenario	Storm Event	Duration (min)	Peak runoff rate (m <sup>3</sup> /s)					
			Pond M	Dog kennel	Pond D	Pond E	Pond A	Total
Baseline	M100	30	0.2	0.1	1.7	1.4	0.8	4.1
Baseline	M100	1440	0.4	0.1	1.7	0.2	0.8	3.2
Baseline	M100 +25%	30	0.2	0.1	1.7	1.4	1.0	4.3
Baseline	M100 +25%	1440	0.5	0.1	1.7	0.3	1.2	3.8
Baseline	M100 +40%	30	0.2	0.1	1.7	1.4	1.1	4.5
Baseline	M100 +40%	1440	0.5	0.1	1.7	0.3	1.2	3.8

**Table 5.3.10: Scenario 4 (preferred) Peak runoff rate**

Storm Event	Duration (min)	Peak runoff rate for 30min duration (m3/s)					
		M pond	Dog kennel	D pond	E pond	A pond	Total
M100	30	0.2	0.1	1.7	1.4	0.7	4.0
M100	1440	0.4	0.1	1.7	0.2	0.1	2.5
M100 +25%	30	0.2	0.1	1.7	1.4	0.9	4.3
M100 +25%	1440	0.5	0.1	1.7	0.3	0.1	2.7
M100 +40%	30	0.3	0.1	1.7	1.4	1.0	4.4
M100 +40%	1440	0.5	0.1	1.7	0.3	0.1	2.7

**Table 5.3.18: Scenario 4 (preferred) Difference in peak runoff rate from future baseline**

Storm Event	Duration (min)	Difference in Peak runoff (m <sup>3</sup> /s)					
		Pond M	Dog kennel	Pond D	Pond E	Pond A	Total
M100	30	0.0	0.0	0.0	0.0	-0.1	-0.1
M100	1440	0.0	0.0	0.0	0.0	-0.7	-0.7
M100 +25%	30	0.0	0.0	0.0	0.0	-0.1	-0.1
M100 +25%	1440	0.1	0.0	0.0	0.0	-1.1	-1.0
M100 +40%	30	0.0	0.0	0.0	0.0	-0.1	-0.1
M100 +40%	1440	0.1	0.0	0.0	0.0	-1.1	-1.0



**Photo 1:** Existing Northern Runway showing the existing slot drain

Northern Runway  
Shoulder

Northern Runway

300mm diameter  
Heavy Duty Slot  
Drain



**Photo 2:** Existing Northern Runway and exit taxiway showing the existing slot drain.

