

**RESPONSE TO THE STUDY 2 OPERATIONAL FEASIBILITY****CONTENTS**

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To be read with the following graphics:-

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- MTTRA two long runway July 2014 elliptical footprint
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- St. Cedd Reservation Phase 1 and 2 Maps.

**1 FLOOD RISK**

With reference to clause 2.7.4, the MTTRA airfield is doubly protected from flooding by the outer pool impoundments, providing protection from storms, storm surges and waves, and by the airfield perimeter impoundment from changes of level within the flood storage and tidal-pumped-storage pools. The datum for construction of the airfield is chosen to minimise the volume and the distance of moving material. Since much of the airfield falls on intertidal areas the datum is likely to be set to around mean sea level, this being some 2.28m below sea level during an average high tide. The airfield perimeter impoundment is raised to a flood datum level of 8m, this also being sufficient for protection from the doubling of the tidal range within

the high-and-low pool system. The result is an airfield with a perimeter impoundment some 8m high, which along the flanks usefully helps to screen airport noise from the environment. However an 8m impoundment would need to be set well back from the ends of the runways. This is avoided by raising the airfield from the PTAs to the ends so the runways are level with the perimeter flood bund.

The standard of flood protection in terms of frequency of flood risk events would be assessed following the detailed hydrographic analysis that is required for the impoundment design, flood storage and tidal power assessments. This is not expected to take more than six months to resolve. The double protection provided by the outer pool impoundment and airfield perimeter impoundment enables critical infrastructure to be placed within the inner impoundment though some areas can be given a third level of protection if required.

An area for surface water run-off and treatment is indicated by "T" on the proposals plan. This is a substantial area and further storage cisterns can be provided at low level beneath the airfield if required.

## **2 BIRD STRIKE RISK**

With reference to clause 5.5.3, the MTTRA proposals provide an elliptical bird strike protection zone of 31.9sq.km is shown across the East Configuration May 2014 airfield, consisting of 15.7sq.km on-field and 16.2sq km off-field. For the 2003 SERAS consultations the DfT had commissioned a report by asking what the bird strike risks and impacts on bird life would be if an airport were opened in the Thames Estuary today (2003). The research, by Jenny Bell, showed that the main attractors to bird life were the landfill sites around the estuary notably at Mucking and Shakespeare Farm and the intertidal areas. The report analysed the populations and relative bird strike effects of various species to assess an overall bird strike risk. The questions that should have been asked were, what impact would the airport development have on the attractors to birdlife, what would be the best plan for

managing and remediating the impacts on birdlife and what would be the resultant bird strike risk in at least ten years' time subject to implementation of the plan and airport? Jenny Bell had agreed in 2003 that a positive report could have been prepared in response to these questions instead of answering what the impacts would be "today". We are now in 2014 and there will no doubt be surveys to show how there is a greater range and population of birdlife in and around the estuary today than in 2003. This would be readily explained by the extensive work undertaken by the RSPB and others over the last decade to improve the habitat of the estuary and create wildlife reserves from remaining areas of low-lying meadows and marshland, and on this they should be congratulated. What should also be recognised is that this has been achieved quite economically by active habitat management. The skills of the RSPB and others can be similarly applied over the next decade to relocate the birdlife to more attractive new habitats created by active management further out in the estuary and along the coast.

The questions that should have been asked in 2003 are answered in principle as follows:-

- what impact would the airport development have on the attractors to birdlife? The Jenny Bell report for the 2003 SERAS Study identified the landfill sites around the estuary as major attractors of the bird population. These would be closed thereby substantially reducing the local bird population. Similarly construction of the airport on the intertidal areas and formation of the pools over intertidal areas removes major attractors resulting in a further reduction of the local bird populations before any active suppression is required.
- what would be the best plan for managing and remediating the impacts on birdlife? A substantial part of the £4bn allowed for environmental impacts would be directed to creating, over the next decade, substantial new attractive habitats further out in the estuary and along the coast, by managed retreat and the creation of new islands with intertidal areas.
- what would be the resultant bird strike risk in a decade's time subject to implementation of the plan and airport? In addition to providing flood storage and

generating tidal power a key role for the pools is to cover the local intertidal areas immediately around the airport so that they are not attractors for birds. If there were no pools substantial sums would have to be spent dredging intertidal areas beside the airport to remove them as attractors. Hence the pools are an efficient and economical way of addressing the issue. A bird strike risk report would be commissioned to demonstrate the cost, feasibility and effect of the closure and removal of existing attractors along with the decade of active management to direct the bird populations to more attractive habitats elsewhere in the outer estuary and on the coast from Ramsgate to Lowestoft, and the implementation of the pools and airport accompanied by the airport protection zone.

The strategy for Thames Reach Airport, in lieu of a 13km habitat management zone around the airfield, is to provide stricter management and suppression within a bird strike protection zone to achieve the required reduction in bird strike risk so that habitat management beyond the zone can be light. The intention is that wildlife reserves around the estuary outside the airport protection zone, managed by the Essex Wildlife Trust, RSPB, PLA, London Gateway and others, will continue unaffected and while growth in their bird populations would not be encouraged there would not need to be harmful suppression. This nevertheless represents a significant change of strategy for these sites with emphasis switching from attracting more bird life to providing leisure and recreational uses. Compensation would be paid for this change in the strategy and use of the sites with the sums coming from the £4bn allowed for environmental management.

The operation of the high and low tidal pools around the airfield help to reduce the bird strike risk by maintaining water cover over intertidal areas that would otherwise be exposed close to the runways. Hence contrary to the suggestion in the report that the western approaches to the runways are unprotected one of the explicit purposes of the surrounding pools is to reduce the bird strike risk by preventing the gathering of birds on the mudflats beneath the flight paths during low tide.

### **3 ENERGY FACILITIES**

Figure 28 on pp 8-10 demonstrates that the MTTRA elliptical template falls outside the LNG consultation zones. There is no need for the runway facilities proposed by MTTRA to extend further south. With the long and narrow runway system proposed by MTTRA the southern runway is considerably further north of the LNG storage facility than the other proposals so that subject to a health and safety review only obstacle marking and lighting of the existing LNG facility is required, thereby avoiding disruptive and expensive relocation.

### **4 SHIPPING CONFLICTS**

The report has not addressed the two possible areas of conflict with shipping:-

- effects on flow in the tideway and shipping channels from building out into the estuary
- conflicts between the flight path approaches to the runways and tall container ships on the Thames and Medway shipping channels

H.R.Wallingford have been briefed on the proposals so they can undertake hydrographic analysis of the direct and indirect impacts on the Thames tideway and shipping. Their study will optimise the configuration for the flood defence and tidal pool impoundment to mitigate and manage adverse long term effects on the Thames and Medway shipping channels and tideways. Western and eastern configurations for the elliptical pool and airfield template have been mooted to define a range for analysis. Subject to analysis, an East Configuration is likely to provide the best arrangement. There is some north-south tolerance for the footprint, subject to whether the Grade 1 listed church of St. James Allhallows is retained or relocated, with the East Configuration retaining the church. There will need to be some temporary navigational diversions during construction of the immersed tube tunnel across the shipping channel but as these occur in Sea Reach there is sufficient area to accommodate them without difficulty.

The recently dredged shipping lane for the London Gateway Port passes north around the elliptical impoundment and heads gently west-south-west and east-south-east upstream and downstream respectively. The degree to which this occurs remains outside the 4km exclusions of the flight path approach and departure corridors.

The Metrotidal July 2013 text describes how some restrictions may have to be applied to shipping passing through the Canvey throttle at times of peak storm surges but these are rare events and the restrictions are unlikely to last longer than 24 hours.

Fully loaded container ships must be kept safely outside the runway approach and departure surfaces. The long and narrow footprint proposed by MTTRA has an advantage that it can be translated further east between the Thames and Medway shipping channels before encountering conflicts. The wider runway configurations of the other Inner estuary proposals result in a runway located significantly further south, which then encounters conflicts with the Medway shipping channel. Similarly an airfield with runways on Cliffe Marshes will encounter severe conflicts with shipping on the Lower Hope of the Thames to the west, to the extent that it renders the runways unusable.