

Technical note

Project	001291 Sunshine Coast Airport PDA Master Planning		
From:	BMT		
Date:	06/08/2026	To: SCA	Sunshine Coast Airport (Simon Kay)
Doc Ref:	M.001291.005.01		
Subject:	Gateway Precinct Masterplan Flood Mitigation		

Introduction

In November 2025 BMT completed a flood impact assessment (FIA) to support the Gateway Precinct Masterplan for Sunshine Coast Airport (SCA). The Gateway Precinct is one of six airport precincts that form part of the SCA Priority Development Area (PDA). The PDA was gazetted in September 2024 and was supported by a Hydraulics Report prepared by BMT. The Hydraulics Report includes flood mitigation items which are required to reduce the impacts of flooding from the PDA development. The Hydraulics Report was updated in 2025 (BMT, 2025) and forms the reference document for individual precinct flood impact assessments.

The Gateway Precinct FIA determined flood impacts from the proposed Gateway Precinct development and identified which of the PDA flood mitigation items are required to mitigate flood impacts. Table 2.2 from the FIA report which summarises these flood mitigation items is replicated in Table 1 below.

EGIS has been undertaking the masterplan civil design for the Gateway Precinct including earthworks and drainage. BMT has been engaged by SCA to review the PDA mitigation items designed by EGIS and confirm if they are in accordance with those modelled as part of the Gateway Precinct Masterplan FIA. The review focuses on the physical form and location of the mitigation features and does not cover engineering design and feasibility aspects. The technical memorandum contains BMT's review.

Table 1 Flood Mitigation Works Required for the Gateway Precinct (replicated from FIA)

PDA Mitigation Item Number	Works Description
1	Gateway South Level Spreader Preservation of a strip of land approximately 140m long adjacent to David Low Way to be reserved for the purpose of allowing flow to spread during significant flood events. Development fill is set back around 17m from existing footpath on northern side of David Low Way.
2	Widened Eastern Perimeter Drain – Adjacent to Gateway Precinct Widened existing drain with a top width of approximately 45m, for a length of 250m. Drain invert elevation is materially unchanged from existing but is realigned by approximately 10m to the east. A cross-section of this revised Eastern Perimeter Drain at the Gateway Precinct is included in Figure 2.2.

PDA Mitigation Item Number	Works Description
6	Raised Section of Existing Marcoola Bund Raising of the existing Marcoola Bund for a 200m length extending north from the Airport's northern boundary. The existing bund crest of 3.13m AHD is to be raised by 0.67m to provide a crest level of 3.8m AHD. The works are temporary as they will be extended and partially replaced by a realigned section of bund (Mitigation Item 5) during future PDA precinct masterplanning.
7	Westerly Diversion of Runoff from Airport North Precinct For the purposes of the Gateway Precinct assessment the works require the construction of a temporary low set bund of an approximate 1km length and with a minimum crest elevation of 3.8m AHD. The bund will extend through the Airport North precinct and join with Mitigation Item 6 forming a continuous barrier to limit Maroochy floodwater entering the Eastern Perimeter Drain. Any runoff collecting behind (west) of the bund should be drained to the west. The bund is temporary as it will ultimately be replaced by the Airport North development when PDA Mitigation Item 7 is implemented in full.
8	Culvert (replacement) Replacement of existing 1/1.2x0.525m culverts with a 1/2.4x0.9m reinforced concrete box culvert (RCBC) beneath David Low Way, between the existing Gateway South Perimeter Drain and the drainage channel downstream (south) of David Low Way. The upstream invert level is 0.85m AHD.
9	Culvert and stormwater pit inlets (new) Addition of 2/0.6x0.45m RCBCs, or equivalent area, beneath David Low Way between the eastbound carriageway, abutting the Gateway Precinct, and the drainage channel downstream (south) of David Low Way. Upstream invert level of 1.3m AHD. Addition of 2/3.0m lintel with grate stormwater inlets on-grade.

Supplied Data for Review

A digital elevation model (DEM) of the proposed Gateway Precinct PDA flood mitigation features was provided to BMT by EGIS on 17 July 2026¹. The DEM incorporates the following mitigation features:

- Representation of a level spreader adjacent to David Low Way (PDA Mitigation Item 1)
- A widened Eastern Perimeter Drain adjacent to the Gateway Precinct (PDA Mitigation Item 2)
- A raised section of existing Marcoola Bund (PDA Mitigation Item 6)
- A bund running north to south connecting with the Marcoola Bund to the north and existing high ground to the south (PDA Mitigation Item 7)

Mitigation items 8 and 9 regarding drainage under David Low Way are not included in the supplied DEM or associated data. BMT understands from SCA that the intention is for these items to be addressed as part of the construction of the David Low Way. Given that these Mitigation Items are primarily to address flood impacts occurring to David Low Way then BMT agrees with this approach. To support this approach and to understand the implications on flood impacts of not including Mitigation Items 8 and 9 as part of the Gateway Precinct, further modelling has been undertaken as is documented within this memo.

¹ FloodMitigations-Design-0.5m-20260717.dem

BMT understands from EGIS that the level spreader adopts the dimensions and elevations as modelled for the Gateway FIA. EGIS has advised that the level spreader design will be revisited as part of the David Low Way design so as to integrate with the proposed design.

Review of Mitigation Items

Comment has been provided below on each of the four mitigation items included in the supplied EGIS DEM. The commentary compares the supplied features to those modelled as part of the Gateway Precinct Masterplan FIA and confirms if the supplied feature satisfies the flood mitigating intent of the feature modelled in the FIA. The review is based on a comparison of features only. Further modelling has not been undertaken.

Item 1 Level Spreader

Based on advice from EGIS, the level spreader is the same design as that modelled for the FIA (based on a design by Stantec). As such, the flood mitigation is consistent with that modelled within the FIA.

Item 2 Widened EPD

The DEM includes a widened EPD channel adjacent to the Gateway Precinct. The supplied channel widening is similar to that modelled as part of the Gateway Precinct Masterplan FIA with the following differences:

- The invert of the widened section of drain has moved approximately 6m to the east. The width of the widened channel either matches or exceeds the width of the channel modelled for the Gateway Precinct Masterplan FIA. The overall conveyance capacity of the drain remains broadly the same as that previously modelled with no reduction in conveyance.
- The widened drain extends approximately 200m further north from that previously modelled and so represents a longer widened drain than that previously modelled.

The supplied design remains consistent with the intent of the mitigation item. The adjusted channel invert location is not considered to result in any material change to the mitigation as the conveyance in the channel is maintained. The extended widening would likely increase flood mitigation benefits (and not decrease them).

Item 6 Raised Section of Existing Bund

The DEM includes the raised section of existing Marcoola Bund (Item 6). The crest elevation in the supplied data is 3.8mAHD and matches the required elevation. The length of the bund raising extends 180m north of the Airport's northern boundary although BMT understands this will be extended to 200m in accordance with Item 6. At the time of writing, further investigations are ongoing for the Airport North precinct and these may result in amendments to the length of this bund raising to ensure flood impacts remain consistent with those established in the PDA reporting. As Airport North investigations are ongoing the raised section of the existing bund remains at a length of 200m and is therefore consistent with that modelled within the FIA.

Item 7 Temporary Bund

The DEM includes a temporary bund located along a similar alignment to that modelled in the Gateway Precinct Masterplan FIA. The key criteria for this bund are that it has a crest elevation of 3.8mAHD and that it forms a continuous barrier to prevent ingress of regional Maroochy River floodwaters into the EPD during rare flood events. The bund, in combination with high ground, including existing spoil heaps, achieves this continuous barrier.

Items 8 and 9

Items 8 and 9 are culvert upgrades under David Low Way. It is proposed to undertake these works as part of the David Low Way upgrade to ensure that the culverts integrate with the road design. BMT has undertaken modelling simulations of the Gateway development with the flood mitigation items included except for Items 8 and 9. The resulting flood impacts have been compared to those reported in the Gateway Precinct FIA (which includes Items 8 and 9). The comparison has been undertaken for the 1% AEP event using the local model, as the need for these mitigation features was identified using the local model.

Figure 1 shows the comparison for the 1% AEP. The locations of the culvert upgrades are shown with a dashed line. From Figure 1 it can be seen that the simulation without culvert upgrades (lower image) shows increased impacts adjacent to David Low Way. These impacts are localised and are within the David Low Way corridor. When the 1% AEP flood levels in the EPD are compared, there is less than a 5mm difference in peak flood level between the developed case model with the culverts and the developed case model without the culverts.

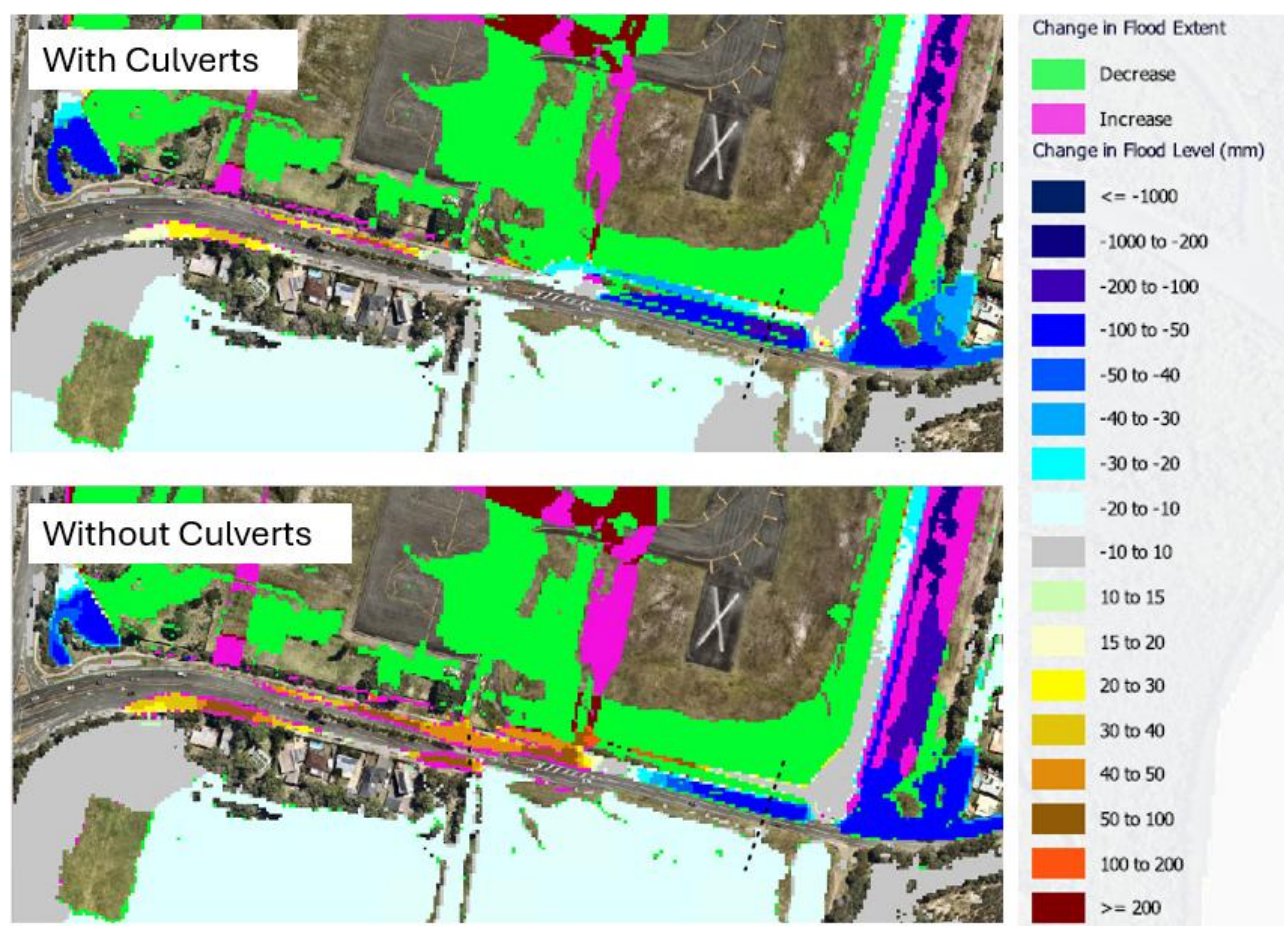


Figure 1 Comparison of 1% AEP Gateway Mitigated Flood Impacts (Local Model)

Conclusion

Overall it is concluded that the flood mitigation items incorporated by EGIS into the Gateway design (Items 1,2, 6 and 7) adequately replicate those documented and tested in the Gateway Precinct Masterplan FIA. Items 8 and 9 (culvert upgrades under David Low Way) are not included in the design. BMT understands that these items will be undertaken as part of future David Low Way works. A sensitivity test in which the Gateway Precinct development and associated flood mitigation was simulated without these culvert upgrades was undertaken and demonstrated that the resulting increases in impact were localised to the David Low Way corridor. Given that David Low Way is to be upgraded as part of the overall PDA, BMT considers it appropriate that these culvert upgrades are undertaken as part of the David Low Way upgrade. This will ensure that the culvert upgrades can be integrated and optimised to allow for any changes to runoff resulting from the David Low Way upgrade.