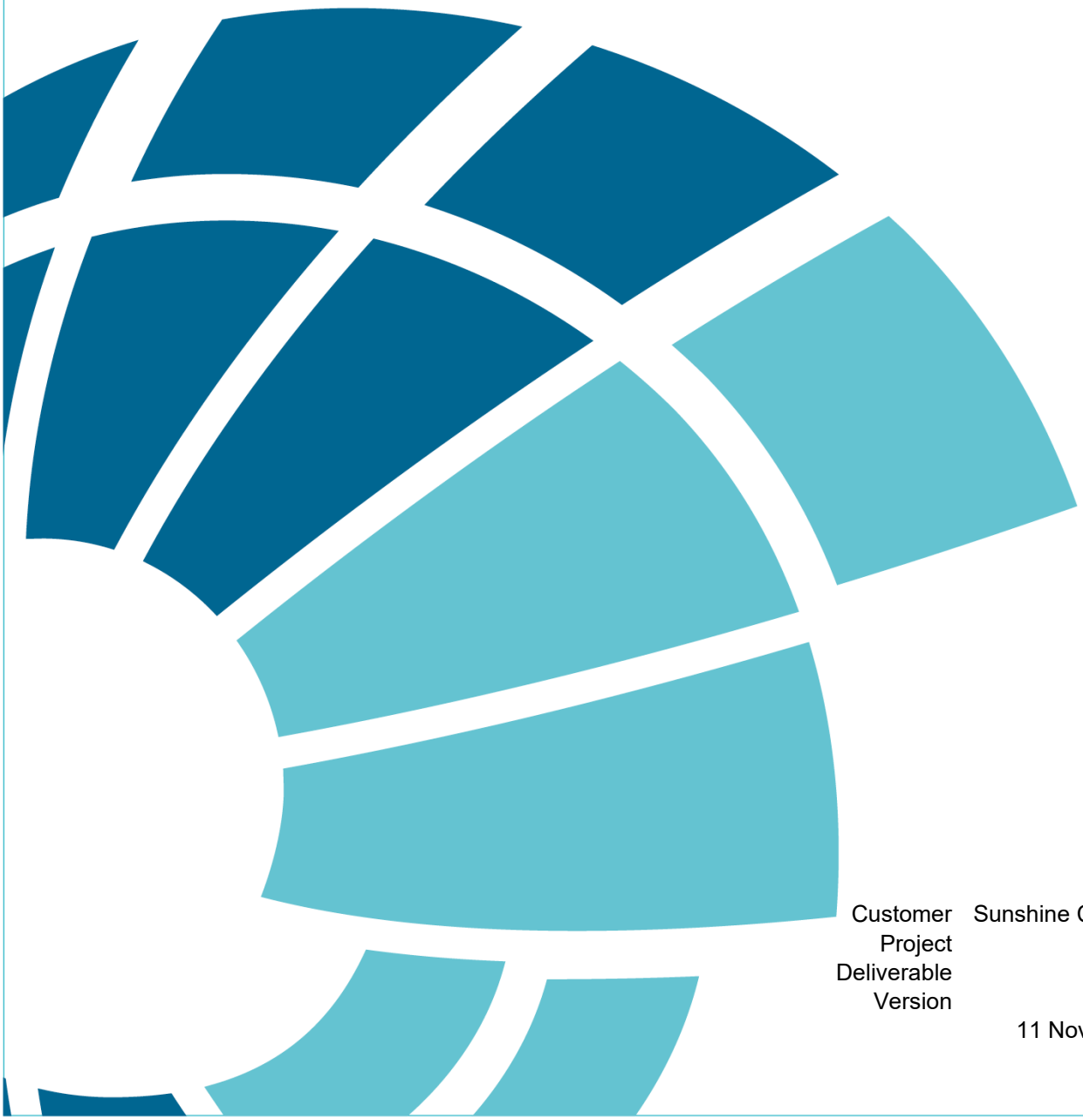
PRIVATE

Sunshine Coast Airport Gateway Precinct Masterplan

Flood Impact Assessment



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Executive Summary

In September 2024, the SCA Priority Development Area (PDA) Development Scheme (DS) was gazetted and was supported by a Hydraulics Report prepared by BMT (BMT, 2024) which documented a detailed flooding assessment of the whole PDA. The Hydraulics Report presented flood impacts and a PDA mitigation scheme to lessen those impacts. As part of ongoing model improvements, an updated PDA Hydraulics Report was subsequently prepared in 2025 (BMT, 2025). This report documented a number of improvements to both the regional and local flood models to prepare the model for local precinct assessments.

The PDA is currently proceeding into Masterplanning of its individual precincts. This report documents a flood impact assessment (FIA) for the Gateway Precinct, considering both the proposed Gateway Precinct development by itself and cumulatively with the remainder of the proposed PDA development. Both regional (Maroochy River flooding) and local (North Shore catchment flooding) assessments have been undertaken.

Simulation of the Gateway Precinct development by itself showed flood impacts in the form of increased peak flood levels within the Airport's Eastern Perimeter Drain (EPD) and adjacent areas including David Low Way. These impacts occur in the 1 in 100 AEP event under both a current and future climate.

To reduce the flood impacts resulting from the proposed Gateway Precinct development the PDA flood mitigation items detailed in Table 1 are required. The overall outcome results in notable benefits to urban areas in the form of reduced peak flood levels. Increases in peak flood level are largely confined to within the airport boundary and where they do exceed the airport boundary they are generally consistent with those previously accepted (BMT, 2025). Overall, the maximum increases in peak flood level for the mitigated Gateway Precinct are consistent with those accepted in the PDA assessment whilst the benefits (in the form of reduced peak levels) to urban areas are generally more extensive.

Table 1. Flood Mitigation Works Required for the Gateway Precinct

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.
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.

PDA Mitigation Item Number	Works Description
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 3.8mAHD. 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.

A cumulative flood impact assessment was also undertaken for the whole of PDA development, including the Gateway Precinct. It was found that flood impacts remain consistent with those presented in the PDA assessment (BMT, 2025). The PDA development maintains the significant flood impact benefits (reduction in peak flood levels) to urban areas in north and south Marcoola.

A time to drain assessment was undertaken for the airport's Eastern Perimeter Drain which repeats the analysis documented in the PDA report. The analysis confirms that the Gateway Precinct development and its associated flood mitigation result in no worsening of drainage times compared to the existing case. The analysis was also undertaken for the whole of PDA assessment and demonstrated that the time to drain for the 1 in 20 AEP event under both current and future climates remains within the tolerances requested by Sunshine Coast Council and is an improvement over the existing case.

The cumulative flood impact assessment will be updated with each future revision of PDA precinct masterplans.

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1 Introduction

1.1 Background

Sunshine Coast Airport (SCA) is partially located within the floodplain of the Maroochy River near Marcoola on the Sunshine Coast (Figure 1.1). In September 2024, the SCA Priority Development Area (PDA) Development Scheme (DS) was gazetted. The PDA covers almost 460 hectares of land and consists of a number of precincts. The PDA and precincts are shown in Figure 1.2.

The PDA DS was supported by a Hydraulics Report prepared by BMT (BMT, 2024) which documented a detailed flooding assessment of the whole PDA (herein the 'PDA report' or 'PDA assessment'). The PDA assessment developed flood models and used them to understand the potential impacts of development earthworks within three of the precincts, namely:

- Aerospace Precinct
- Gateway Precinct
- Airport North Precinct

The flooding assessment used both a 'regional' model to assess Maroochy River flooding and a 'local' model to assess flooding to urban areas from a local Maroochy North Shore catchment.

A 'whole of PDA' flood mitigation scheme was developed to provide a holistic solution for the development that sought to provide local flooding betterment for adjacent communities as an offset for loss of regional flood storage, whilst also ensuring no offsite impacts to urban areas from regional flood events. A key aspect of the proposed mitigation is the Airport's Eastern Perimeter Drain (EPD) which is to be widened along with a realigned section. In addition, a proposed raising and extending of part of the Marcoola Bund will reduce the volume of Maroochy River floodwater that spills into the EPD during significant flood events.

As part of ongoing model improvements, au updated PDA Hydraulics Report was prepared in 2025. This report documented a number of improvements to both the regional and local flood models to prepare the model for local precinct assessments. These updated regional and local models are the ones used as the basis of this Gateway Precinct FIA report.

1.2 Study Locality and Drainage Features

The Gateway Precinct and the topography and key features surrounding the SCA are shown in Figure 1.3. The Gateway Precinct is bounded by David Low Way to the south, residential property to the east, Airport Drive to the west and the Aviation Precinct to the north.

The airport is in close proximity to the urban areas of Marcoola, Mudjimba and Pacific Paradise. A number of drains convey runoff from the airport and its surrounding urban areas into the Maroochy River. The eastern portion of the airport falls within the catchment area of the smaller Maroochy North Shore catchment.

During large Maroochy River flood events, the Maroochy River breaks its banks and water flows from the west into the floodplain surrounding the airport. To limit the floodwaters from entering Marcoola, a bund 'Marcoola Bund' extends on an approximate north south alignment at the northern end of the airport. The Marcoola Bund provides protection to the urban area of Marcoola for Maroochy River flood events up to and including a 2% Annual Exceedance Probability (AEP) (see Section 1.4 for definitions).

The local Maroochy North Shore catchment primarily consists of low to high density residential development, in addition to some open space and vacant land. Runoff generated within the local catchment drains generally southward, by very shallow longitudinally graded drainage channels and canals. The EPD is located within the airport property and is the principal drainage channel within the Maroochy North Shore catchment. The EPD conveys runoff southwards to its outfall into the Maroochy River (via the Twin Waters Canal system).

The Gateway Precinct includes the former runway, associated taxiways and existing roads and commercial premises. Existing elevations within the Gateway Precinct typically range between 3mAHD to 4mAHD with lower elevations associated with drainage features.

1.3 Purpose of this Report

As masterplaning for individual precincts progress, there is a need for a flood assessment of the emerging detailed precinct earthwork plans in place of the broad filling assumptions applied in the PDA DS. Whilst individual precincts are planned, approved and developed at different points in time, it is important that they are considered together for the purposes of understanding flood impacts. The Gateway Precinct is the first precinct to undergo detailed masterplanning and is the subject of this report. The purpose of this report is as follows:

- To update the regional and local flood models to include the latest proposed Gateway Precinct development landform. This includes a relocation of the Gateway Precinct Southern Drain to the northern side of the precinct.
- To undertake a flood impact assessment (FIA) on the updated Gateway Precinct design along with the whole of PDA development (Aerospace and Airport North precincts) and flood mitigation scheme.
- To identify which components of the overall PDA flood mitigation are required to enable the Gateway Precinct development to proceed.

1.4 Design Flood Terminology

The flood modelling described in this report simulates design flood events. Design flood events are hypothetical flood events with a given probability of occurrence. This probability of occurrence is the chance that the flood may occur or be exceeded in any one year and is termed the Annual Exceedance Probability (AEP). A 1% AEP flood is a flood that statistically has a 1% chance of occurring or being exceeded in any given year. This is also sometimes stated as a '1 in 100' chance of occurrence. Table 1.1 lists the AEPs considered in this study. In this report the AEP terminology, expressed in its '1 in Y' form, has been used to describe probability of occurrence.

Table 1.1 Design Flood Events Used in Assessment

AEP (%)	AEP (1 in Y)
50%	1 in 2
20%	1 in 5
10%	1 in 10
5%	1 in 20
2%	1 in 50
1%	1 in 100

Legend

PDA Site Boundary

Sunshine Motorway

Watercourses

Mount Coolum

Coolum Creek

Marcoola Drain

Marcoola

Maroochy River

Sunshine Motorway

Bli Bli

Pacific Paradise

Mudjimba

Figure 1.1 Sunshine Coast Airport Location

BMT

www.bmt.org

0 300 600 m

Figure 1.2 Sunshine Coast Airport Priority Development Area Precincts

Legend

PDA Site Boundary

Gateway Precinct Boundary

Elevation (m AHD)

<=0.0

0.5

1.0

1.5

2.0

2.5

3.0

3.5

4.0

4.5

>=5.0

Coolum Beach

Mount Coolum

Coolum Creek

Marcoola Drain

Marcoola

Maroochy River

Sunshine Motorway

Bli Bli

Pacific Paradise

Mudjimba

Figure 1.3 Topography and Key Features

BMT

www.bmt.org

0 300 600 m

2 Precinct Works

2.1 Gateway Precinct Updates

The Gateway Precinct is the subject of the current assessment. As such, proposed filling of the Aerospace and Airport North Precincts remains unchanged from the conceptual fill assessed in the 2024 PDA assessment.

A Digital Elevation Model (DEM) representing the proposed Gateway Precinct earthworks was supplied to BMT by Stantec[1]. The DEM includes filling of proposed commercial areas to the 1 in 100 AEP climate change flood level. The DEM was incorporated into the model's Developed Case and is the same as that used in the PDA Hydraulics Report. For details about the Gateway Precinct design, reference should be made to the Civil Engineering Services Report (Stantec, 2025). As detailed in the PDA Hydraulics Report, the principal changes in the Gateway Precinct DEM from that used in the 2024 assessment which are of relevance to the flood assessment are as follows:

- The relocation of the widened Gateway South Drain from the southern side of the Gateway Precinct, to the northern side.
- Retention of a strip of land adjacent to David Low Way to act as a 'flood level' spreader for floodwater that exceeds the capacity of the EPD.
- Extension of fill footprint to the east and a realignment of an approximate 250m length of the EPD with the invert of the drain relocated around 10m to the east of its present location. The widened drain has a top width of approximately 45m.

The Gateway Precinct DEM is shown in Figure 2.1 with these three features highlighted. The DEM does not include any details associated with widening of David Low Way as this will be the subject of a separate FIA associated with the David Low Way intersection works.

[1] 304702111-stn-BEWK 20250722.dem

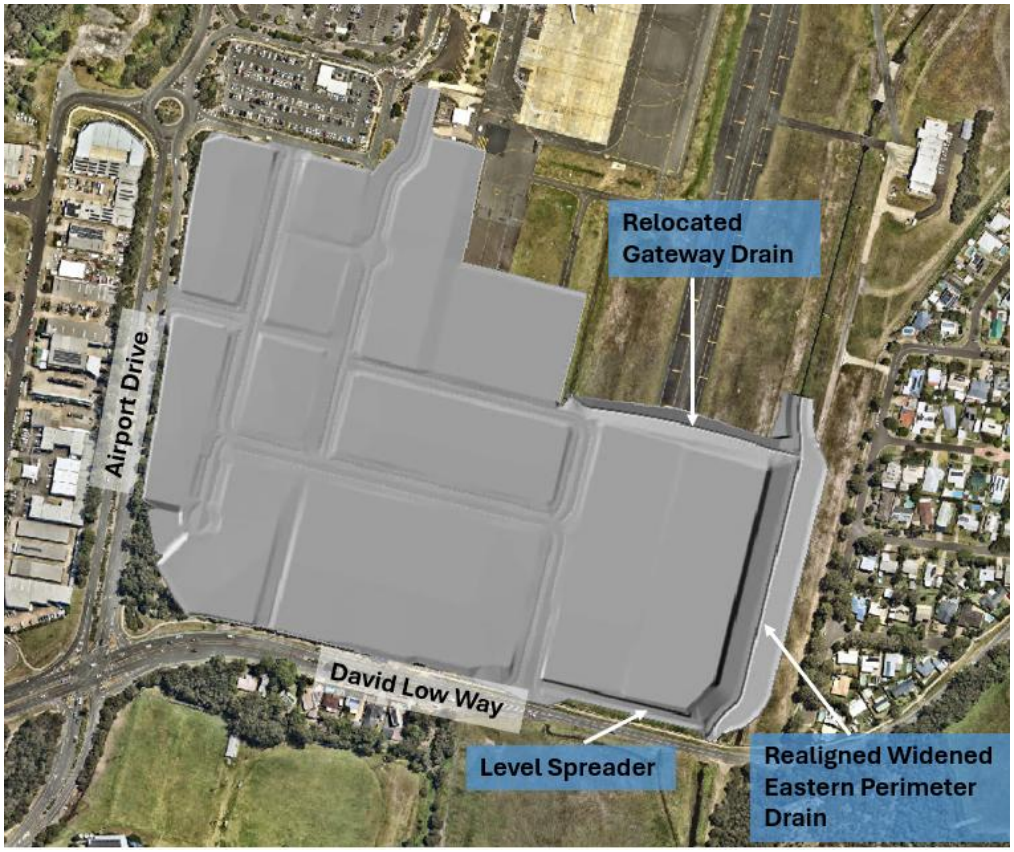

Figure 2.1 Gateway Precinct DEM

2.2 Flood Impact Considerations

The majority of land upon which the Gateway Precinct development is to occur is at or above the elevation of the 1 in 50 AEP regional flood (and 1 in 100 local flood). Smaller, more frequent floods are therefore only minimally affected due to works to associated with the relocated drain and widened EPD, the latter creating a greater capacity to convey flows in smaller floods. For floods rarer (larger) than the regional 1 in 50 AEP event and local 1 in 100 AEP event, the proposed fill displaces floodwater and affects both flood storage and conveyance. This is partially offset by the adjacent widened EPD but the relocation of the southern drain to the north of the Gateway Precinct transfers additional inflow volume through this section of EPD.

The total excavation volume for works associated with the Gateway Precinct is estimated to be 32,300m^3 which compares to an estimated fill volume (below the 1 in 100 AEP, 2100 flood level) of 60,200m^3. This results in a net loss of storage of 27,900m^3 as a result of the Gateway Precinct development. This compares to a total net loss of storage of 230,800m^3 when the whole of PDA development is considered.

Figure 2.2 presents a cross section of the EPD elevations for the Base and Developed Cases. The cross section location is shown in Figure 2.3 and is located towards the southern end of the EPD approximately 50m north of David Low Way. The Base Case water levels for the regional flooding in the 1 in 100 AEP and 1 in 100 AEP with climate change are also shown.

It can be seen from Figure 2.2 that the revised EPD profile results in a loss of conveyance capacity on the western side of the drain and that this will be most pronounced for the 1 in 100 AEP with climate change event regional flood event.

Unmitigated, the loss of storage and changes to conveyance within the EPD resulting from the Gateway Precinct design have the potential to cause increases in peak flood levels to low lying areas adjacent to the EPD near David Low Way. To mitigate the Gateway Precinct design in order to limit the potential for offsite impacts, the mitigation focus is on reducing inflows entering into the EPD further to the north.

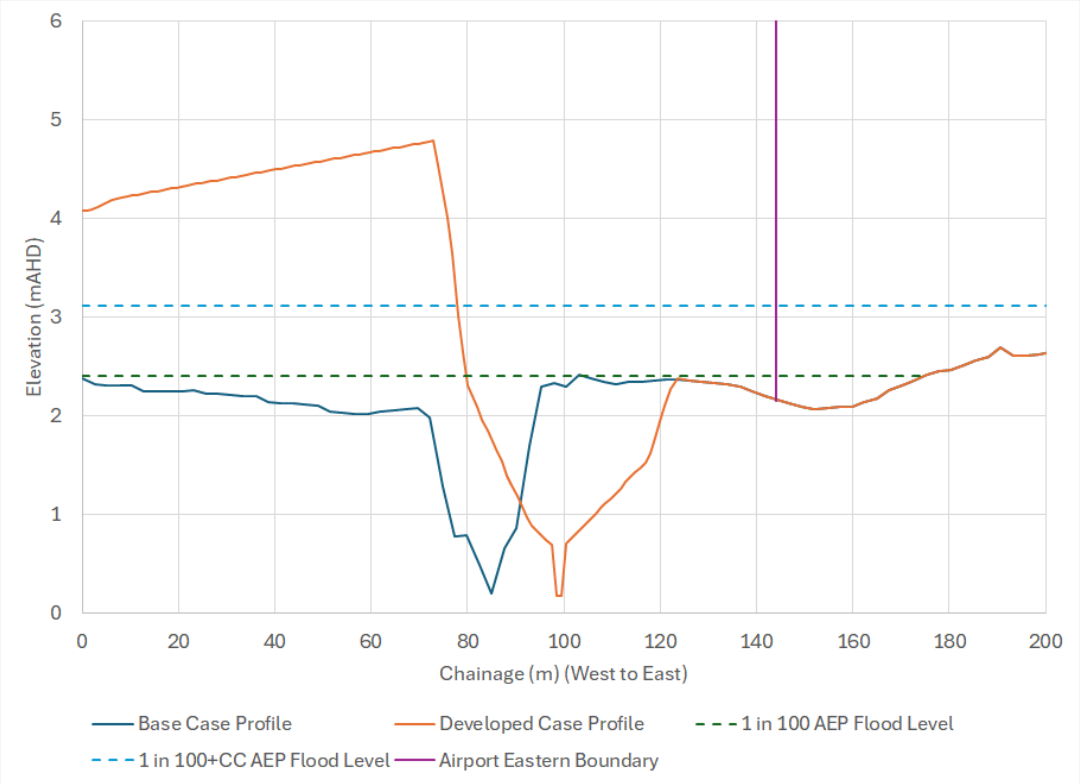

Figure 2.2 Eastern Perimeter Drain Profile: Base Case and Developed Case

Figure 2.3 Cross Section Location with Chainage Marked

2.3 Proposed Mitigation Works

The PDA DS report identified 9 mitigation works that will mitigate and reduce the flooding to areas surrounding the airport. Some of these items were refined as part of the PDA Hydraulics Report (2025) to allow for adjustments needed as a result of the improved modelling. Table 2.1 from the PDA Hydraulics Report is duplicated below and lists the 9 mitigation items. The locations of mitigation items are shown in Figure 2.4 which is also duplicated from the PDA Hydraulics Report.

The majority of the mitigation items listed in Table 2.1 are focussed on the EPD and seek to either reduce Maroochy River floodplain flow from entering the EPD or widen the EPD to provide increased storage capacity within the drain. The mitigation has to balance the reduction in Maroochy River floodwater entering the EPD with the consequent increase in flood levels within the Maroochy River floodplain, keeping these increases to a minimum.

Table 2.1 PDA Proposed Mitigation Works (reproduced from BMT, 2025).

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.
3	**Widened Eastern Perimeter Drain – Gateway to Airport North Precinct** Widened cross sections of the drain to have a top width of approximately 45 metres, for a length of 2000m, between the Gateway Precinct and the northern site boundary adjacent to the Airport North Precinct. Drain invert is between 0.25 and approximately 1.0m AHD.
4	**Realigned Eastern Perimeter Drain – Airport North Precinct to Marcoola Bund** A new realigned 180m section of the Eastern Perimeter Drain from Airport North to the existing drain.
5	**Realigned Section of Marcoola Bund** To accompany the realignment of the Eastern Perimeter Drain (Item 4, above), a new 250m section of the Marcoola Bund is proposed. The crest level of this section is proposed to be 3.8m AHD.
6	**Raised Section of Existing Marcoola Bund** Raising of the existing Marcoola Bund for a 100m section from the junction of the existing bund with the realigned section (item 5 above). The existing bund crest of 3.13m AHD is to be raised by 0.67m to provide a crest level of 3.8m AHD.
7	**Westerly Diversion of Runoff from Airport North Precinct** Grading the earthworks associated with the development of the Airport North Precinct will divert rainfall surface runoff from this precinct from current east-flowing, to west-flowing, into the proposed Northern Perimeter Drain. Airport North Precinct internal piped drainage into the Eastern Perimeter Drain will be in accordance with the Hydraulic modelling undertaken with the Precinct Planning.
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 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.

Legend

- PDA Site Boundary
- Existing Marcoola Bund
- Drainage Flowpaths
- Development Flow Directions
- Airport North Precinct
- Aerospace Precinct
- Gateway Precinct

Mitigation Items (numbered in red)

- Mitigation Item 1 - Level Spreader
- Mitigation Item 2 - Widened EPD
- Mitigation Item 3 - Widened EPD
- Mitigation Item 4 - Realigned EPD
- Mitigation Item 5 - Realigned Marcoola Bund
- Mitigation Item 6 - Raised Marcoola Bund
- Mitigation Item 7 - Airport North Drainage
- Mitigation Item 8 - Culvert Replacement
- Mitigation Item 9 - New Culvert

Inset A

Inset B

Southern Perimeter Drain

Northern Perimeter Drain

Eastern Perimeter Drain

David Low Way

North Shore Connection Road

Figure 2.4 PDA Proposed Flood Mitigation Works

BMT

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0 180 360 m

2.4 Flood Mitigation for Gateway Precinct

The PDA development scheme will occur in stages. As such, the flood mitigation will also be staged in order to mitigate potential flood impacts at the different development stages. This current assessment identifies the PDA mitigation items that will be required to enable the proposed Gateway Precinct development. The identification of mitigation items has been undertaken cognisant of both regional (Maroochy River) dominated floods and local (Maroochy North Shore) dominated floods.

For regional flood events, the mitigation items that focus on reducing Maroochy floodwater flows into the EPD are the most effective at mitigating the Gateway Precinct development flood impacts. For local events, the diversion of runoff from the airport north precinct to the west is the most effective option. Widening of the EPD adjacent to the Gateway Precinct development also partially offsets the reduction in EPD conveyance capacity for large flood events.

Table 2.2 summarises the mitigation items required to enable the Gateway Precinct development to occur. The mitigation items result in reduced flood levels to much of the flood affected urban areas in Marcoola providing an overall flood benefit to those areas. Figure 2.5 shows the locations of each mitigation item. The supporting regional and local flood model assessments are contained in Sections 3 and 4 respectively.

Table 2.2 Flood Mitigation Works Required for Gateway Precinct

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.
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 3.8mAHD. 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.

Legend

- PDA Site Boundary
- Gateway Precinct Boundary
- Mitigation Item 2
- Mitigation Item 6
- Mitigation Item 7
- Level Spreader Item 1
- Culvert Replacement Item 8
- New Pipe Item 9

Northern Perimeter Drain

Southern Perimeter Drain

David Low Way

Eastern Perimeter Drain

Sunshine Motorway

North Shore Connection Road

David Low Way

Figure 2.5 Gateway Precinct Proposed Flood Mitigation Works

BMT

www.bmt.org

0 180 360 m

3 Regional Flooding

3.1 Introduction

A flood impact assessment has been undertaken on the development associated with the Gateway Precinct using the regional flood model. This model assesses regional Maroochy River flood events. The assessment has been undertaken in two parts as follows:

- A Gateway Precinct assessment to identify the flood impacts associated with the Gateway Precinct in isolation. This is then used to determine what components of the PDA mitigation are required to be in place to enable the Gateway Precinct to be developed without resulting in flood impacts that exceed those accepted as part of the PDA Assessment.

- A whole of PDA cumulative assessment which includes all proposed PDA development and mitigation within the Developed Case model. This is to ensure that the updated Gateway Precinct layout still results in acceptable flood outcomes when considered cumulatively with the wider PDA development.

3.2 Regional Model Background

The Regional Model was originally developed in 2017 to support preliminary design phases of the Sunshine Coast Airport Expansion Project (SCAEP). It uses TUFLOW software and has been updated at various points in time to support different stages of the SCAEP and, more recently was used for the SCA PDA Hydraulics Report (BMT, 2024) and subsequent PDA Hydraulics Report update (BMT, 2025). The model includes an approximate 14km length of the Maroochy River extending downstream to the ocean at Maroochydore. It has major inflows for the Maroochy River, Petrie Creek and Eudlo Creek and 118 localised inflows across the catchment area covered by the model. The model is sufficient in extent to include the Maroochy River floodplains which surround the SCA. It also includes the SCA runway 13/31 which was completed in June 2020 along with all relevant associated works. The model uses a fixed 10m grid spatial resolution. A description of the regional model is included in the PDA Assessment (BMT, 2024).

3.3 Model Scenarios

The regional model used in the PDA Hydraulics Report has formed the basis of the current modelling. The model maintains the same Base Case as used in the PDA assessment and which includes the SCA runway 13/31 and all works associated with that project. The model is used to assess the potential for flood impacts from the Gateway Precinct development, both in isolation and cumulatively with the remainder or the PDA development.

The regional model has been simulated for the Base Case and Developed Cases for the same annual exceedance probability (AEP) events as used in the PDA assessment. These are listed in Table 3.1 and have been simulated separately with a storm surge tidal boundary and a mean high water springs (MHWS) tidal boundary.

An additional 1 in 100 AEP event is included which incorporates allowances for increased rainfall and sea level due to climate change under a 2100 climate, using the increases as applied in the PDA assessment. The climate change scenario (CC2100) also takes into account future urban development through conceptual filling of land parcels across the model domain, including existing commercial areas within the Gateway Precinct.

Table 3.1 Modelled AEP Design Flood Events (Regional Model)

AEP	Storm Surge	MHWS
1 in 2	✓	✓
1 in 5	✓	✓
1 in 10	✓	✓
1 in 20	✓	✓
1 in 50	✓	✓
1 in 100	✓	✓
1 in 100 (CC2100)	✓	✓

Regional model Base Case depth mapping is included in Annex A for both the Storm Surge and MHWS tailwater conditions.

3.4 Gateway Precinct Assessment

In order to understand the impacts resulting solely from the Gateway Precinct development, the Gateway Precinct layout was simulated in the regional flood model by itself and with no regional scale mitigation. The unmitigated flood impacts from these simulations are presented in Annex B and are summarised below.

For events up to and including the 1 in 50 AEP, there are either no impacts or minor impacts that are confined to the EPD. This is because the majority of the existing Gateway Precinct is at or above the elevation of the 1 in 50 AEP flood and so any filling that occurs above this does not affect these events.

For the 1 in 100 AEP and 1 in 100 AEP with climate change, the proposed fill displaces floodwater affecting both flood storage and conveyance. This is partially offset by the adjacent widened EPD but overall there is a reduction in conveyance capacity for these rare flood events and this causes increases in peak flood levels within the EPD and adjacent areas (refer to Annex Figure B6 and B7).

There are increases in flood levels within the EPD adjacent to the Gateway Precinct (for example, see Figure B6 and Figure B7). The increases are most extensive in the 1 in 100 AEP with climate change (MHWS) case with increases in peak flood level of up to 30mm. Increases of up to 25mm are seen for the 1 in 100 AEP with climate change (storm surge) scenario. Lower magnitude and less extensive impacts are seen in the respective 1 in 100 AEP events due to the lower overall flood levels in this event compared to the climate change event, although the unmitigated 1 in 100 AEP impacts do extend onto David Low Way.

It is noted that the PDA assessment (BMT, 2024) did not present unmitigated impacts for the Gateway Precinct but similar impacts would have been expected.

3.5 Mitigated Gateway Precinct Assessment

Annex C presents the mapped peak flood level impacts for the mitigated Gateway Precinct development, incorporating the mitigation items set out in Table 2.2. The impacts previously apparent adjacent to the southern end of EPD near David Low Way are no longer present. The following is summarised.

- For events up to and including the 1 in 10 AEP any changes in peak flood level are minor and are confined to the EPD. These changes are predominantly decreases in peak flood level associated with the widening of the EPD.
- In the 1 in 20 AEP there are increases in peak flood level within the SCA boundary associated with the redirection of flow in the Airport North precinct (Mitigation Item 7). There is a consequent decrease in peak flood level along a significant length of the EPD.
- In the 1 in 50 AEP and 1 in 100 AEP (SS and MHWS) the works associated with redirection of Airport North precinct flows have a greater influence. Increased flood levels extend across parts of SCA's land including to a small proportion of Mount Coolum National Park. There are significant decreases in peak level within the EPD and to urban areas south of David Low Way (see for example Annex Figure C5 and Figure C6).
- In the 1 in 100 AEP with climate change (SS and MHWS) there are widespread benefits to urban areas in the form of reduced peak flood levels (see Annex Figure C7 and Figure C14). This is due to the mitigation bunds reducing the volume of Maroochy River floodwater entering the EPD. There is a consequent increase in peak flood level within the SCA boundary and which extends into Mount Coolum National Park. The increases in peak level within Mount Coolum National Park are up to 13mm which is similar and no worse than those accepted within the PDA assessment.
- Overall the maximum increases in peak flood level for the mitigated Gateway Precinct are consistent with those presented in the PDA assessment whilst the benefits (in the form of reduced peak levels) to urban areas are generally more extensive.

3.6 Whole of PDA Cumulative Assessment

The Gateway Precinct has been modelled with the other PDA development precincts (Airport North and Aerospace) and full mitigation scheme in a whole of PDA Developed Case. The mitigation included in Table 2.1 has been incorporated for the whole of PDA assessment.

Annex D presents the mapped peak flood level impacts for the whole of PDA assessment. The overall results are the same as those presented in the PDA Hydraulics Report, retaining notable improvements in the form of reduced peak flood levels attributed to urban parts of Marcoola and minor increases in a peak flood level across a localised area of Mount Coolum National Park.

Overall the cumulative PDA flood impacts show no overall worsening from the assessment accepted as part of the PDA Hydraulics Report and considerable benefit is achieved to urban areas due to the mitigation works associated with the EPD. The cumulative impact assessment will be revisited at each stage of the various PDA precinct masterplans to ensure that the adopted PDA outcomes are maintained as the PDA progresses.

4 Local Flooding

4.1 Introduction

A flood impact assessment has been undertaken on the development associated with the Gateway Precinct using the local flood model. This model assesses local Maroochy North Shore flood events in the absence of significant Maroochy River flooding. The purpose of the local model is therefore to evaluate flood impacts to urban areas to the east of the EPD, south of David Low Way and north of Marcoola. The assessment has been undertaken in two parts as follows:

- A Gateway Precinct assessment to identify the flood impacts associated with the Gateway Precinct in isolation. This is then used to determine what components of the PDA mitigation are required to be in place to enable the Gateway Precinct to be developed without resulting in flood impacts that exceed those accepted as part of the PDA Assessment.

- A whole of PDA cumulative assessment which includes all proposed PDA development and mitigation within the Developed Case model. This is to ensure that the updated Gateway Precinct layout still results in acceptable flood outcomes when considered cumulatively with the wider PDA development.

4.2 Local Model Background

The Local Model was originally developed for the Maroochy North Shore Master Drainage Study (SMEC, 2021) and includes Marcoola, Mudjimba, Twin Waters, Pacific Paradise and the Sunshine Coast Airport. The model was used to identify existing flood conditions and to consider conceptual flood mitigation. It is a direct rainfall model and the terrain is represented with a 2m spatial resolution.

The PDA assessment (BMT, 2024) updated the Base Case Local Model to extend west across the Maroochy River floodplain in the vicinity of the Airport. This was to allow for an assessment of diverting local runoff in the vicinity of the Airport North Precinct to the west, away from EPD as part of the PDA drainage strategy. The PDA assessment adopted the ‘Ultimate I2’ scenario as developed during the Master Drainage Study (SMEC, 2021). This scenario models a conceptual DEM with lots filled to be above the design flood level. The PDA modelling was further updated as part of the PDA Hydraulics Report (BMT, 2025). For the local model the updates focused on improving consistency with datasets applied in the regional model and improving (reducing) excessive simulation times to prepare the model for individual precinct optimisation assessments.

4.3 Model Scenarios

The Local Model used in the PDA assessment has formed the basis of the current modelling. The model maintains the same Base Case assumptions as used in the PDA assessment and which includes the SCA runway 13/31 and all works associated with that project. The model is used to assess the potential for flood impacts from the Gateway Precinct development, both in isolation and cumulatively with the remainder or the PDA development.

The Local Model has been simulated for the Base Case and Developed Cases for the same annual exceedance probability (AEP) events as used in the PDA assessment. These are listed in Table 3.1 and have been simulated with a fixed mean high water springs (MHWS) downstream boundary as previously applied.

An additional 1 in 100 AEP event is included which incorporates allowances for increased rainfall and sea level due to climate change under a 2100 climate, using the increases as applied in the PDA assessment.

Table 4.1 Modelled AEP Design Flood Events (Local Model)

AEP	MHWS
1 in 2	✓
1 in 10	✓
1 in 20	✓
1 in 50	✓
1 in 100	✓
1 in 100 (CC2100)	✓

The Base Case flood depths and extents for the Local Model are shown in Annex E.

4.4 Gateway Precinct Assessment

In order to understand the impacts resulting solely from the Gateway Precinct development, the Gateway Precinct layout was simulated in the Local Model by itself without other PDA development or mitigation. The unmitigated flood impacts from these simulations are presented in Annex F and the following is summarised.

- For all modelled events there are localised flood impacts (increases in peak flood level) shown to the west of the Gateway Precinct. As noted in Section 4.1, this is outside of the focus area of the local model and within an area where peak flood levels are governed by Maroochy River flooding. Furthermore, the local model does not include any internal piped drainage within the Gateway Precinct which would be sized to convey the peak flows generated from within the development. It is noted that similar impacts were present within this area for the approved PDA assessment.

- For the 1 in 20 AEP event and rarer events there are increases in peak water level at the southern end of the EPD, north of David Low Way. With the exception of the 1 in 100 (CC2100) event, these increases remain confined to the EPD with benefits in the form of reduced peak levels to adjacent areas.

- For all modelled events except the 1 in 100 AEP (CC2100) there are minor decreases in peak level in the drainage channel to the north of David Low Way and east of the EPD.

- For the 1 in 100 (CC2100) event there are increases in peak level in the drainage channel to the north of David Low Way and east of the EPD. David Low Way is not overtopped by flows from the EPD but impacts do extend east from the drain into nearby residential streets. There are peak flood level increases of up to 40mm in the lowest southern end of Boundary Crescent.

- For all modelled events, the flood impacts remain localised to the vicinity of the Gateway Precinct. There are no impacts extending upstream or downstream into urban areas beyond what is described above.

It is noted that the PDA assessment (BMT, 2024) did not present unmitigated impacts for the Gateway Precinct but similar impacts would have been expected.

4.5 Mitigated Gateway Precinct Assessment

Annex G presents the mapped peak flood level impacts for the mitigated Gateway Precinct development, incorporating the mitigation items set out in Table 2.2. The following is summarised.

- The impacts previously apparent adjacent to the southern end of EPD near David Low Way in the 1 in 100 AEP (CC2100) event are no longer present following mitigation.
- For all modelled events there are localised flood impacts (increases in peak flood level) shown to the west of the Gateway Precinct. As noted in Section 4.1, this is outside of the focus area of the local model and within an area where peak flood levels are governed by Maroochy River flooding. Furthermore, the local model does not include any internal piped drainage within the Gateway Precinct which would be sized to convey the peak flows generated from within the development. It is noted that similar impacts were present within this area for the approved PDA assessment.
- For all modelled events, there is a notable reduction in peak flood level throughout most of the EPD. This is primarily due to the reduction in flow volume entering the EPD as a result of the Airport North drainage diversions.
- For the 1 in 50 AEP and rarer events, there are benefits to urban areas north and south of the airport in the form of reduced peak flood levels.
- The Airport North precinct drainage diversions generate increases in peak flood level to the west of the old runway with these impacts extending into the National Park for the 1 in 20 AEP event and rarer events. As noted above, these areas are outside of the focus area of the local model and within an area where peak flood levels are governed by Maroochy River flooding.

4.6 Whole of PDA Cumulative Assessment

Annex H presents the mapped peak flood level impacts for the whole of PDA development, incorporating the mitigation items set out in Table 2.1. The following is summarised.

- For all modelled events, there is a notable reduction in peak flood level throughout most of the EPD. This is due to the reduction in flow volume entering the EPD as a result of the Airport North drainage diversions along with the additional storage available in the EPD as a result of drain widening works.
- The reduction in EPD flows/levels result in benefits to urban areas north and south of the airport for all modelled events.
- For all modelled events there are localised flood impacts (increases in peak flood level) shown to the west of the Gateway Precinct and within parts of the National Park to the north of the airport. As noted in Section 4.1, these areas are outside of the focus area of the local model and within an area where peak flood levels are governed by Maroochy River flooding.
- The mapped flood impacts are consistent with those previously presented for the Local Model within the PDA Hydraulics Report.

4.7 Time for EPD to Drain

The PDA assessment presented an analysis of time taken for the EPD to drain which was repeated using the local model updated as part of the PDA Hydraulics Report. The 1 in 20 AEP event (under both current and future climates) was used for the assessment, modelling a 12 hour duration storm.

The time to drain assessment has been undertaken for the Gateway Precinct assessment to ensure that no worsening results. For completeness the assessment is also repeated for the cumulative PDA development.

As for the approved PDA assessment, the Local Flood Model has been used for the time to drain assessment and results are reported to two locations within the EPD shown in Figure 4.1.

Figure 4.2 and Figure 4.3 show the stage hydrographs for the current and future (2100) climates respectively. They include the Base Case and the Mitigated Gateway Precinct Developed Case. Figure 4.4 and Figure 4.5 also show the stage hydrographs for the current and future (2100) climates respectively but include the Base Case and the full PDA Developed Case. Each plot shows water levels over time at the two nominated point locations. Also shown are the times at which rainfall ends and 24 hours following the end of rainfall to assist with the analysis herein.

The Gateway Precinct development has limited influence on EPD drainage times with the bulk of the PDA flood mitigation to the EPD occurring during the Airport North Precinct development phase. For the Gateway Precinct assessment it was assumed that a no-worsening from existing conditions is an acceptable outcome. The plots shown in Figure 4.2 and Figure 4.3 demonstrate that at each point, the hydrographs for the Base Case and Developed Case are similar, with a slight overall reduction in level across the hydrograph for the Developed Case. The plots confirm there is no worsening of drain down times for the Gateway Precinct development.

For the PDA Developed Case, Sunshine Coast Council has stated that it is desirable for the water level to return to within 40mm of the starting water level within 24 hours of the cessation of rainfall for current climate conditions and within 60mm of the starting water level for the climate change case. This represents an improvement on existing (Base Case) conditions.

Table 4.2 summarises the drain down times for the PDA Developed Case. It can be seen from Figure 4.4, Figure 4.5 and Table 4.2 that Council's specified criteria are satisfied.

The plots demonstrate that there is an overall lowering of peak flood levels and no worsening of drain down times with water levels being within the required tolerances.

Table 4.2 Drainage of EPD 1 in 20 AEP (PDA Developed Case)

	Current Day			With Climate Change		
Location	Start (mAHD)	24 Hours After End (mAHD)	Difference (mm)	Start (mAHD)	24 Hours After End (mAHD)	Difference (mm)
Point 1	0.76	0.79	30	1.47	1.47	0
Point 2	0.67	0.67	0	1.47	1.47	0

Figure 4.1 Stage Hydrograph Extraction Points

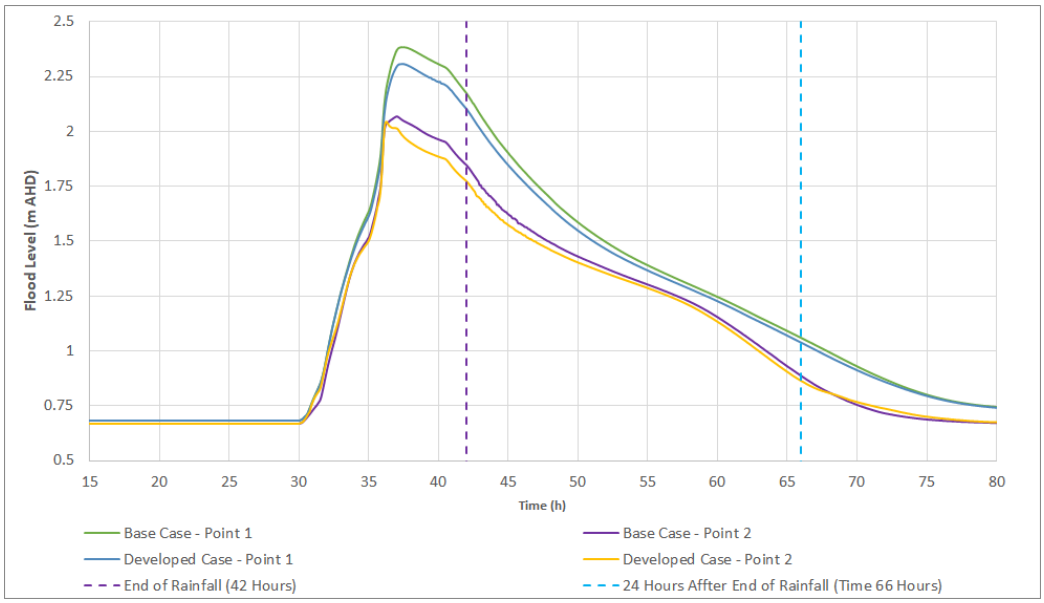

Figure 4.2 Stage Hydrographs, 1 in 20 AEP, Current Day (Gateway Precinct Development)

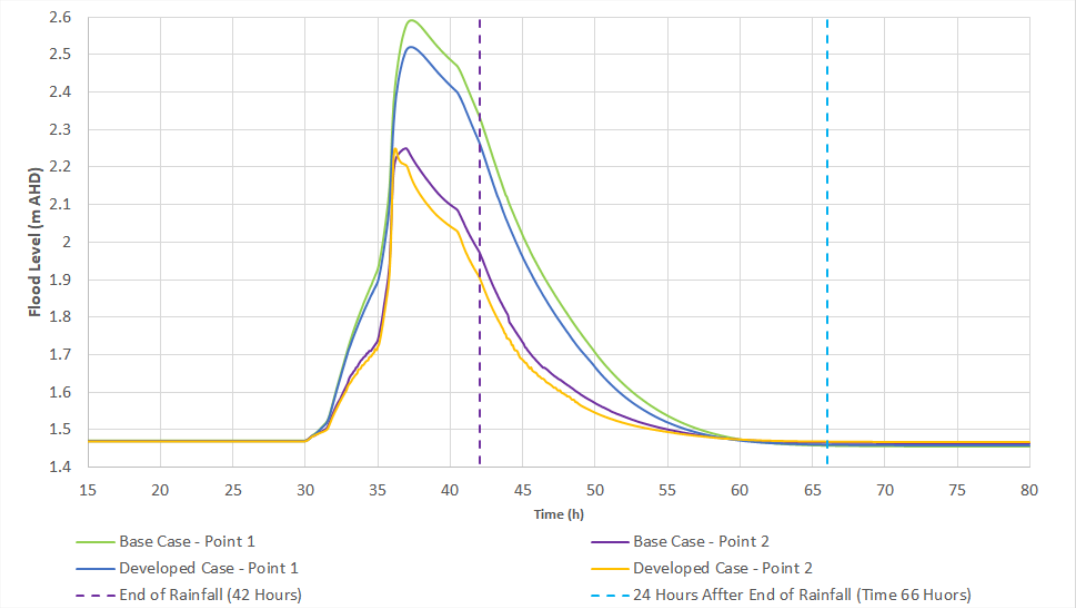

Figure 4.3 Stage Hydrographs, 1 in 20 AEP, with Climate Change (Gateway Precinct Development)

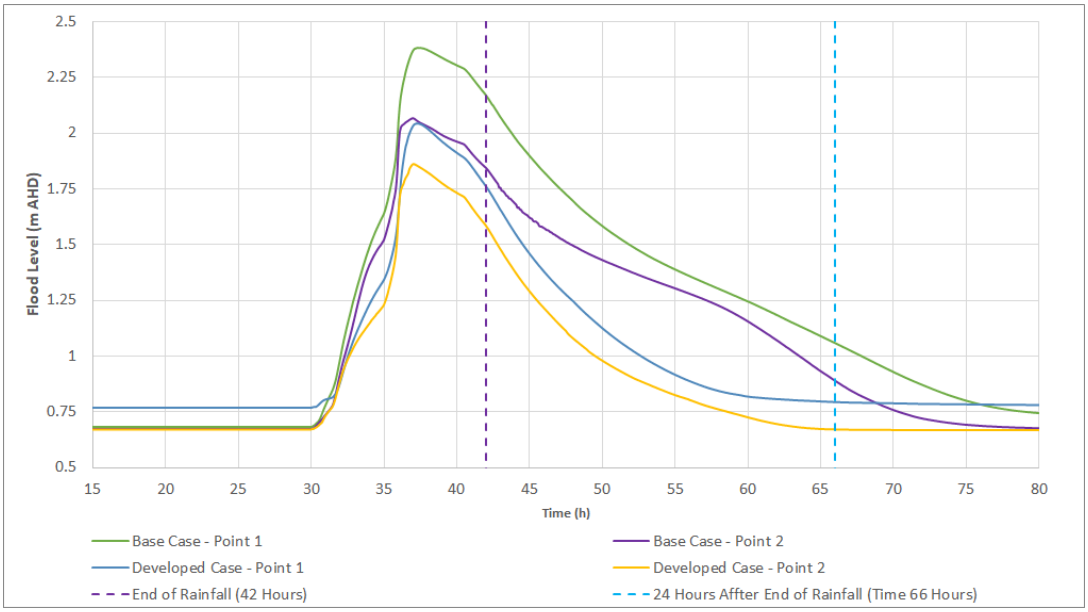

Figure 4.4 Stage Hydrographs, 1 in 20 AEP, Current Day (PDA Development)

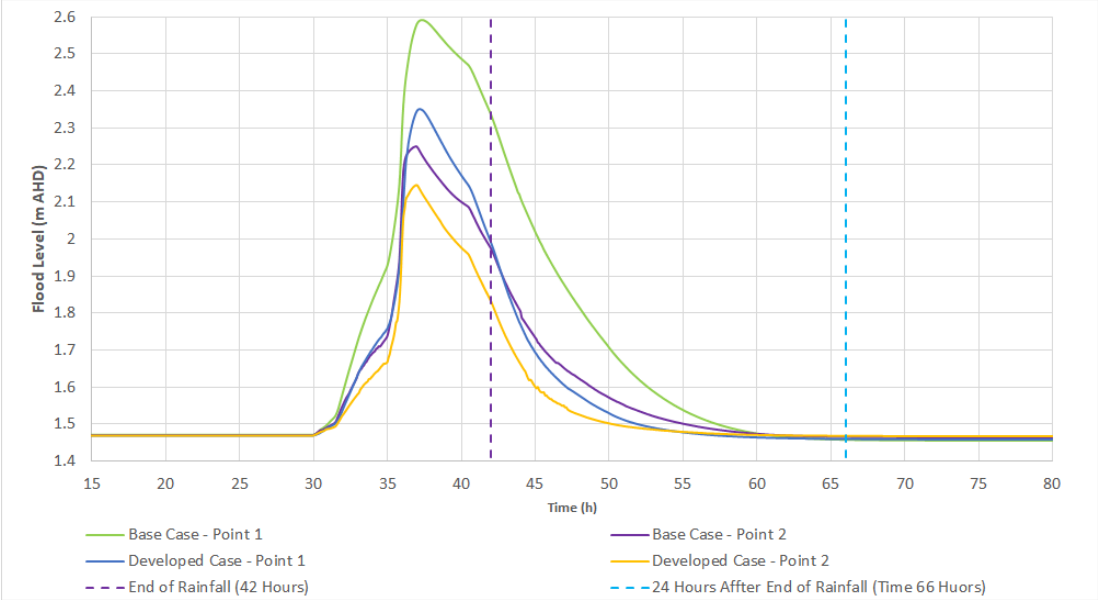

Figure 4.5 Stage Hydrographs, 1 in 20 AEP, with Climate Change (PDA Development)

5 Conclusions

The regional and local flood models last updated in the PDA Hydraulics Report (BMT, 2025) were used to undertake an assessment of the Gateway Precinct design in order to establish which PDA flood mitigation items are required in order for the Gateway Precinct development to occur.

Simulation of the Gateway Precinct development by itself showed flood impacts in the form of increased peak flood levels within the EPD and adjacent areas including David Low Way. These impacts occur in the 1 in 100 AEP event under current and future climates for the regional model and for the 1 in 100 AEP future climate for the local model. The unmitigated Gateway Precinct flood impacts are relatively minor but exceed the impacts which were accepted as part of the PDA assessment.

The PDA flood mitigation items, identified within the PDA assessment, were progressively modelled until the Gateway Precinct impacts were generally within the extents and magnitudes previously assessed and approved. Table 5.1 summarises the PDA mitigation items required for the Gateway Precinct development.

Table 5.1 Flood Mitigation Works Required for Gateway Precinct

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.
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 3.8mAHD. 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.

PDA Mitigation Item Number	Works Description
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.

The overall outcome results in benefits to urban areas in the form of reduced peak flood levels. Increases in peak flood level are largely confined to within the airport boundary and where they do exceed the airport boundary they are considered minor and within the extents of the flood impacts accepted as part of the PDA assessment.

A cumulative flood impact assessment was then undertaken for the whole of PDA development, including the updated Gateway Precinct. Flood impacts remain generally consistent with those previously presented and approved. The PDA development maintains the significant flood impact benefits (reduction in peak flood levels) to urban areas in north and south Marcoola.

A time to drain assessment was undertaken for the EPD which repeats the analysis documented in the PDA report. The analysis confirms that the Gateway Precinct development and its associated flood mitigation result in no worsening of drainage times compared to the existing case. The analysis was also undertaken for the whole of PDA assessment and demonstrated that the time to drain for the 1 in 20 AEP event under both current and future climates remains within the tolerances requested by Sunshine Coast Council and is an improvement over the existing case.

The cumulative flood impact assessment will be updated with each future revision of PDA precinct masterplans.

6 References

BMT (2024). Sunshine Coast Airport PDA Hydraulics Report, prepared for Sunshine Coast Airport. 26 June 2024.

BMT (2025). Sunshine Coast Airport PDA Hydraulics Report, prepared for Sunshine Coast Airport. 11 November 2025.

Stantec (2025). Sunshine Coast Airport Gateway Precinct Masterplan Civil Engineering Services Report, prepared for RPS. 23 July 2025.

Annex A Base Case Flood Maps – Regional Model

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

Figure A1 1 in 2 AEP (Storm Surge Tide) Peak Flood Depth - Base Case

BMT
www.bmt.org

0 300 600 m

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

BMT
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0 300 600 m

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Figure A2 1 in 5 AEP (Storm Surge Tide) Peak Flood Depth - Base Case

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Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

BMT
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Figure A3 1 in 10 AEP (Storm Surge Tide) Peak Flood Depth - Base Case

0 300 600 m

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

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Figure A4 1 in 20 AEP (Storm Surge Tide) Peak Flood Depth - Base Case

0 300 600 m

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

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Figure A5 1 in 50 AEP (Storm Surge Tide) Peak Flood Depth - Base Case

0 300 600 m

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

BMT
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Figure A6 1 in 100 AEP (Storm Surge Tide) Peak Flood Depth - Base Case

0 300 600 m

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

BMT
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Figure A7 1 in 100 AEP Year 2100 (Storm Surge Tide) Peak Flood Depth - Base Case

N
0 300 600 m

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

Figure A8 1 in 2 AEP (MHWS Tide) Peak Flood Depth - Base Case

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0 300 600 m

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Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

Figure A9 1 in 5 AEP (MHWS Tide) Peak Flood Depth - Base Case

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0 300 600 m

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

Figure A10 1 in 10 AEP (MHWS Tide) Peak Flood Depth - Base Case

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0 300 600 m

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Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

Figure A11 1 in 20 AEP (MHWS Tide) Peak Flood Depth - Base Case

BMT
www.bmt.org

0 300 600 m

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

Figure A12 1 in 50 AEP (MHWS Tide) Peak Flood Depth - Base Case

BMT
www.bmt.org

0 300 600 m

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

Figure A13 1 in 100 AEP (MHWS Tide) Peak Flood Depth - Base Case

BMT
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0 300 600 m

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Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

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Figure A14 1 in 100 AEP Year 2100 (MHWS Tide) Peak Flood Depth - Base Case

N
0 300 600 m

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Annex B Regional Model Gateway Precinct Flood Impacts (Unmitigated)

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

BMT

www.bmt.org

Figure B1 1 in 2 AEP (Storm Surge Tide) Peak Flood Level Impact - Gateway Precinct (Unmitigated)

0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure B2 1 in 5 AEP (Storm Surge Tide) Peak Flood Level Impact - Gateway Precinct (Unmitigated)

BMT

www.bmt.org

0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure B3 1 in 10 AEP (Storm Surge Tide) Peak Flood Level Impact - Gateway Precinct (Unmitigated)

BMT

www.bmt.org

0 300 600 m

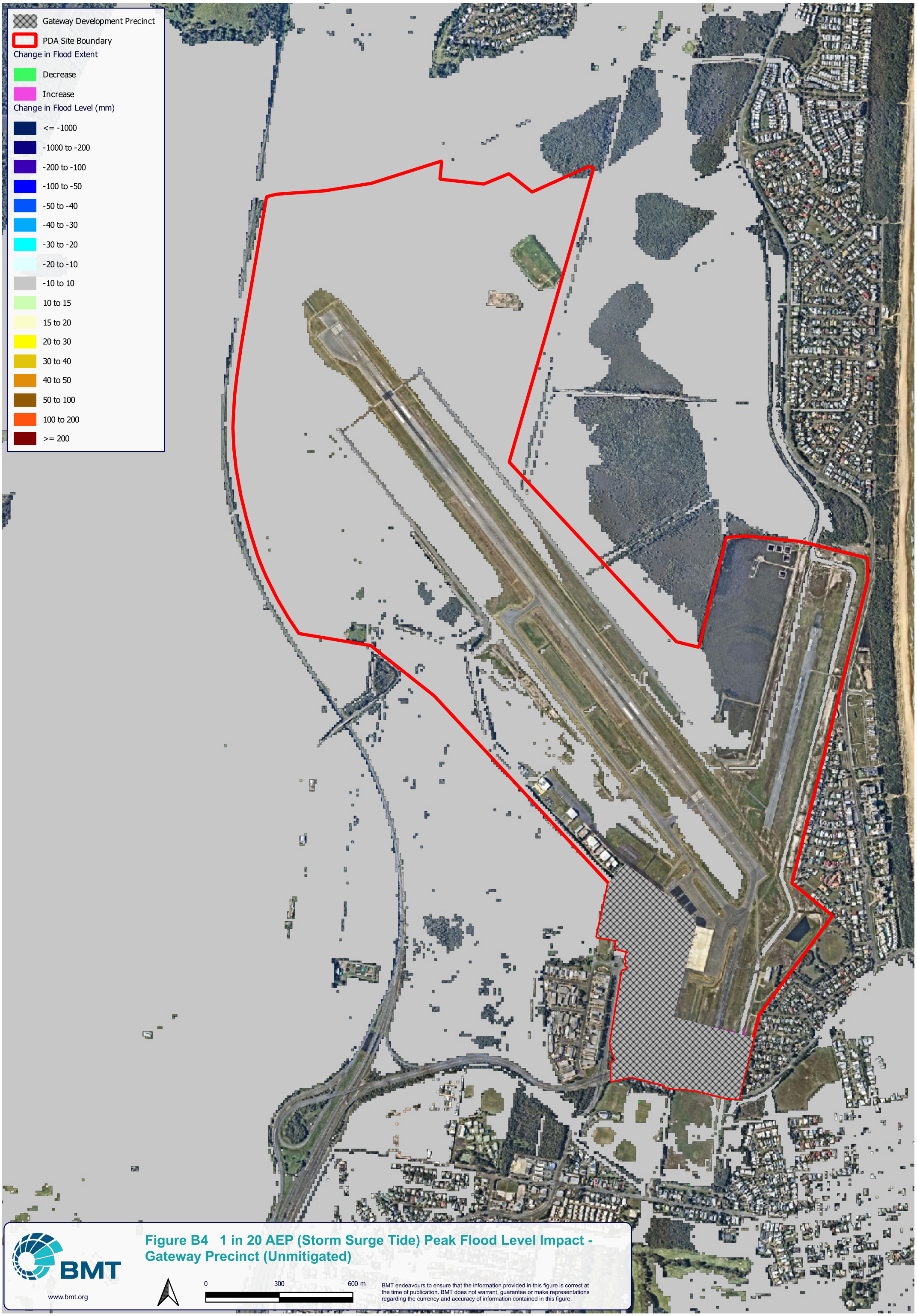

Figure B4 1 in 20 AEP (Storm Surge Tide) Peak Flood Level Impact - Gateway Precinct (Unmitigated)

K:\001291.k.br_SCA_Precinct_Op\QGIS\Annex_B\Annex_B.qgz

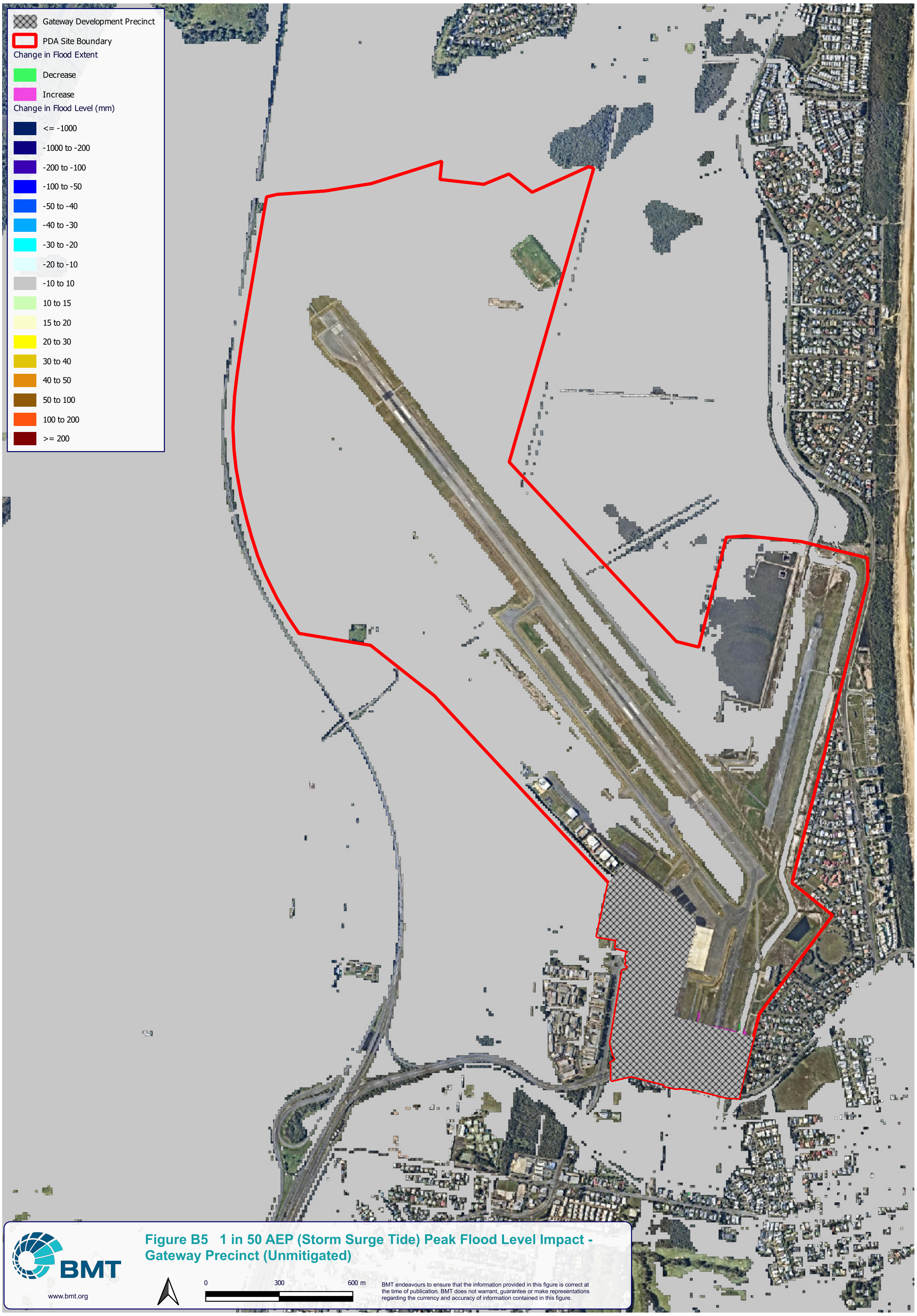

Figure B5 1 in 50 AEP (Storm Surge Tide) Peak Flood Level Impact - Gateway Precinct (Unmitigated)

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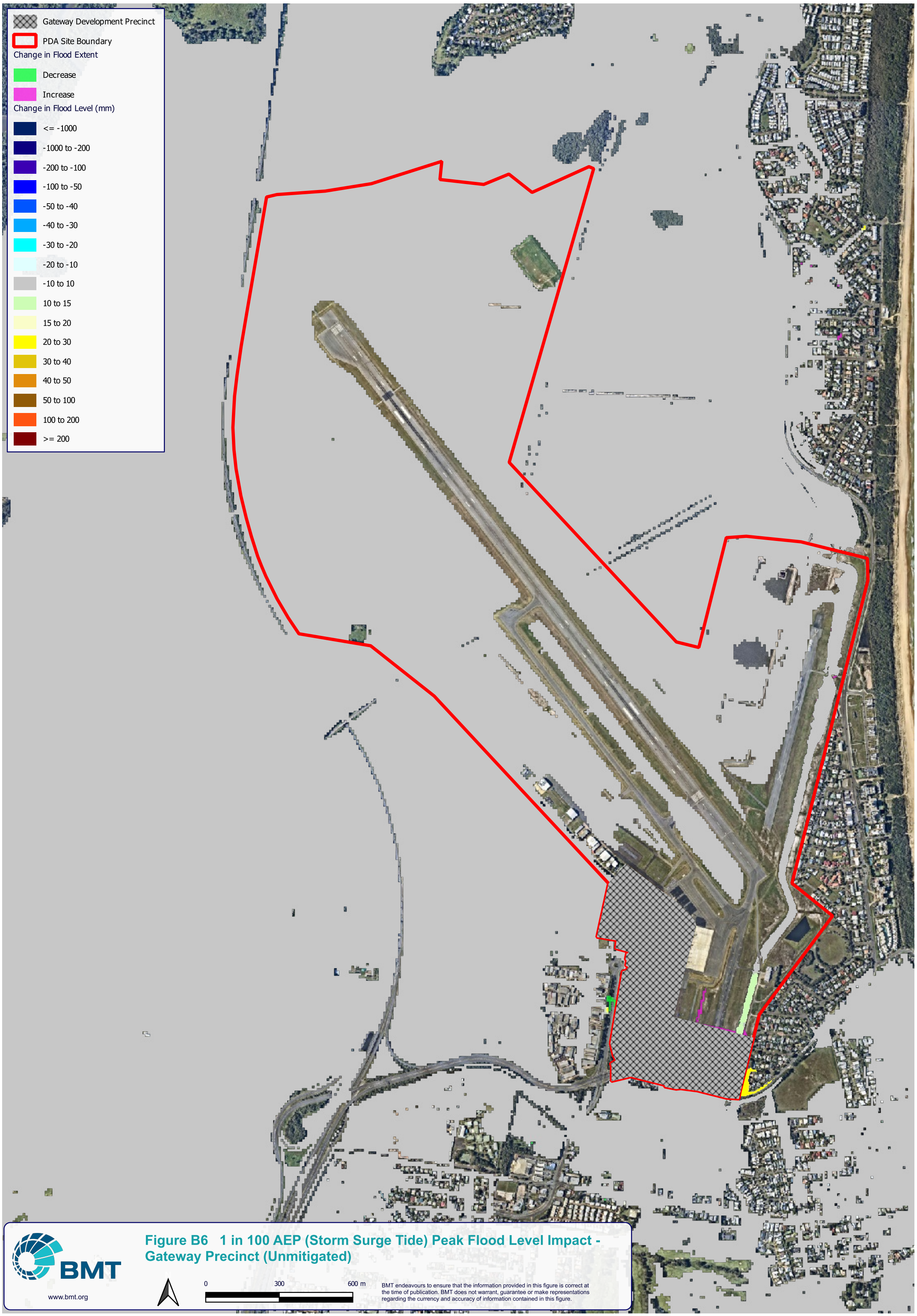

Figure B6 1 in 100 AEP (Storm Surge Tide) Peak Flood Level Impact - Gateway Precinct (Unmitigated)

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Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure B7 1 in 100 AEP Year 2100 (Storm Surge Tide) Peak Flood Level Impact - Gateway Precinct (Unmitigated)

BMT

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0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure B8 1 in 2 AEP (MHWS Tide) Peak Flood Level Impact - Gateway Precinct (Unmitigated)

BMT

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0 300 600 m

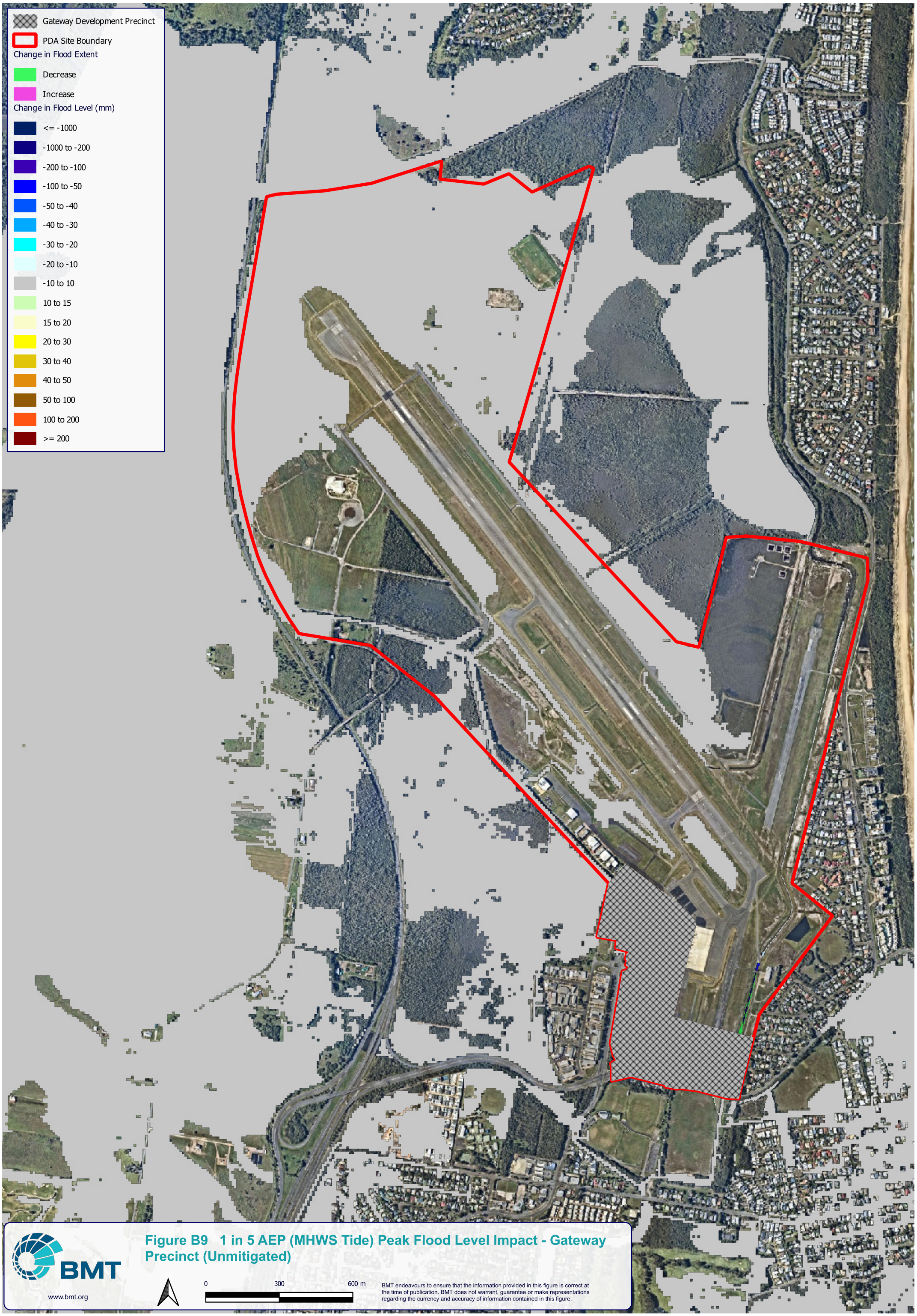
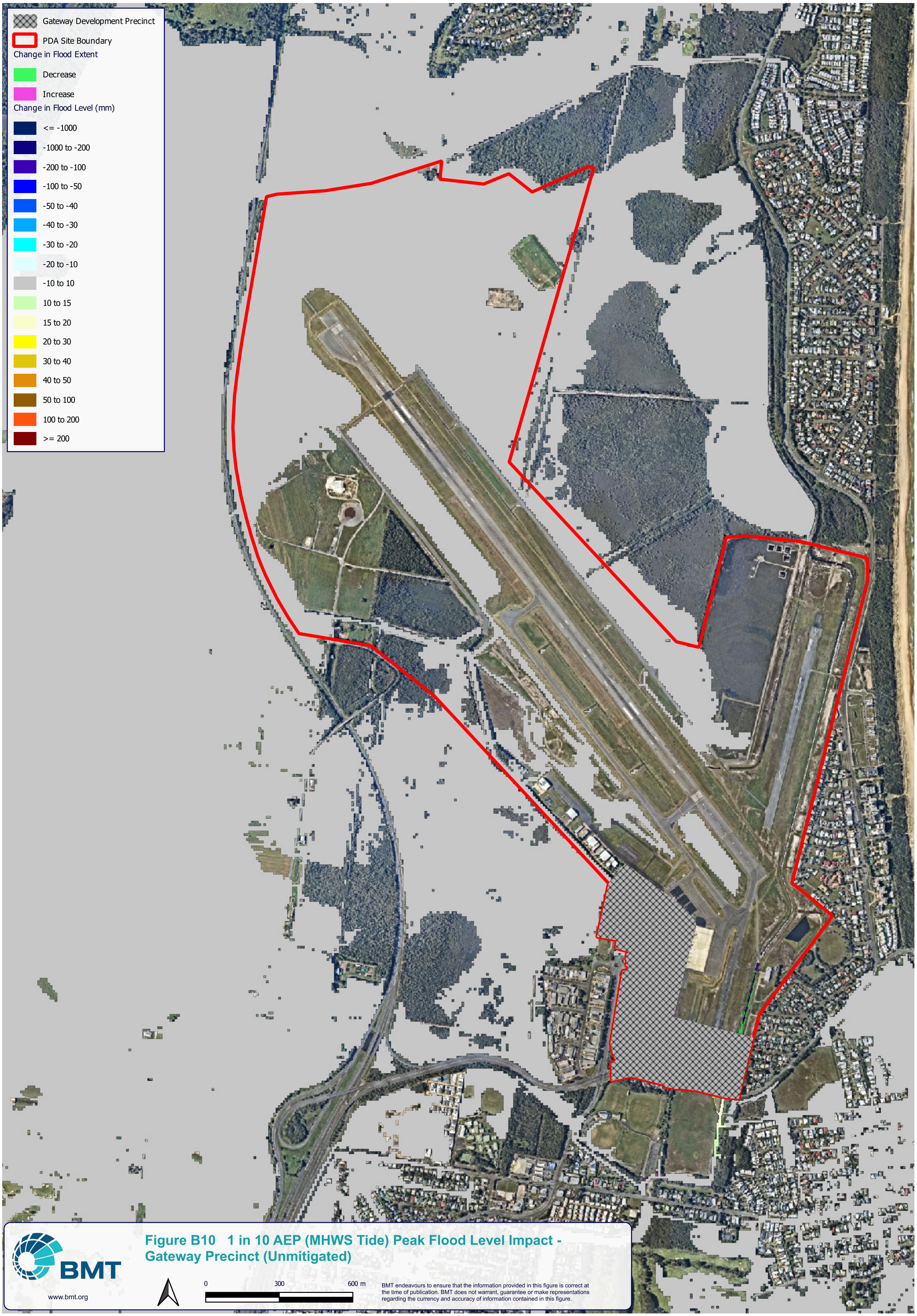


Figure B9 1 in 5 AEP (MHWS Tide) Peak Flood Level Impact - Gateway Precinct (Unmitigated)



BMT

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Figure B10 1 in 10 AEP (MHWS Tide) Peak Flood Level Impact - Gateway Precinct (Unmitigated)

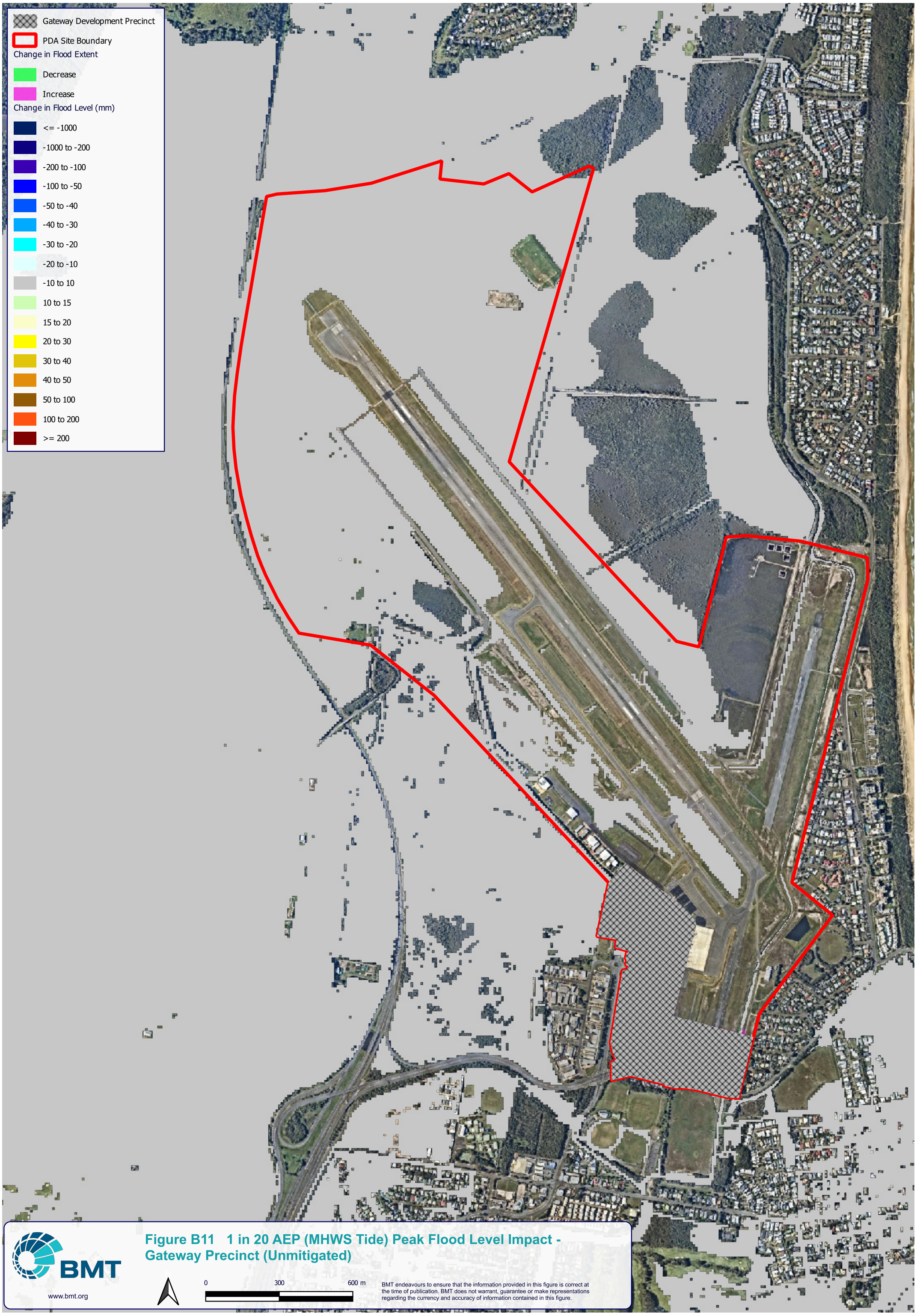
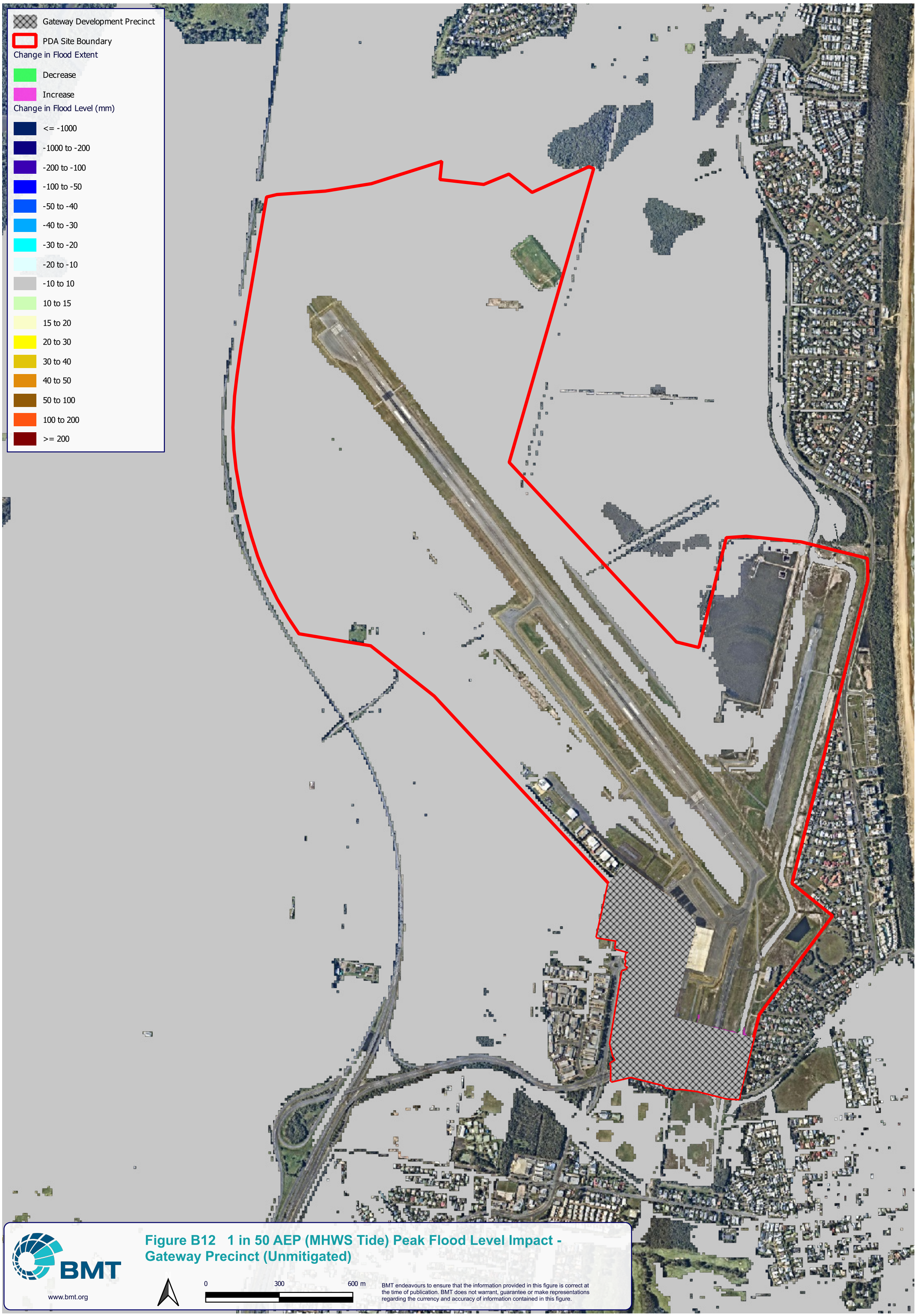


Figure B11 1 in 20 AEP (MHWS Tide) Peak Flood Level Impact - Gateway Precinct (Unmitigated)



BMT

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Figure B12 1 in 50 AEP (MHWS Tide) Peak Flood Level Impact - Gateway Precinct (Unmitigated)

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

BMT

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0 300 600 m

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Figure B13 1 in 100 AEP (MHWS Tide) Peak Flood Level Impact - Gateway Precinct (Unmitigated)

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Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

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Figure B14 1 in 100 AEP Year 2100 (MHWS Tide) Peak Flood Level Impact - Gateway Precinct (Unmitigated)

0 300 600 m

Annex C Regional Model Gateway Precinct Flood Impacts (Mitigated)

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

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Figure C1 1 in 2 AEP (Storm Surge Tide) Peak Flood Level Impact - Gateway Precinct (Mitigated)

0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure C2 1 in 5 AEP (Storm Surge Tide) Peak Flood Level Impact - Gateway Precinct (Mitigated)

BMT

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0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure C3 1 in 10 AEP (Storm Surge Tide) Peak Flood Level Impact - Gateway Precinct (Mitigated)

BMT

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0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

BMT

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Figure C4 1 in 20 AEP (Storm Surge Tide) Peak Flood Level Impact - Gateway Precinct (Mitigated)

0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

BMT

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Figure C5 1 in 50 AEP (Storm Surge Tide) Peak Flood Level Impact - Gateway Precinct (Mitigated)

N

0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure C6 1 in 100 AEP (Storm Surge Tide) Peak Flood Level Impact - Gateway Precinct (Mitigated)

BMT

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0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure C7 1 in 100 AEP Year 2100 (Storm Surge Tide) Peak Flood Level Impact - Gateway Precinct (Mitigated)

BMT

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0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

BMT

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Figure C8 1 in 2 AEP (MHWS Tide) Peak Flood Level Impact - Gateway Precinct (Mitigated)

0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure C9 1 in 5 AEP (MHWS Tide) Peak Flood Level Impact - Gateway Precinct (Mitigated)

BMT

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0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure C10 1 in 10 AEP (MHWS Tide) Peak Flood Level Impact - Gateway Precinct (Mitigated)

BMT

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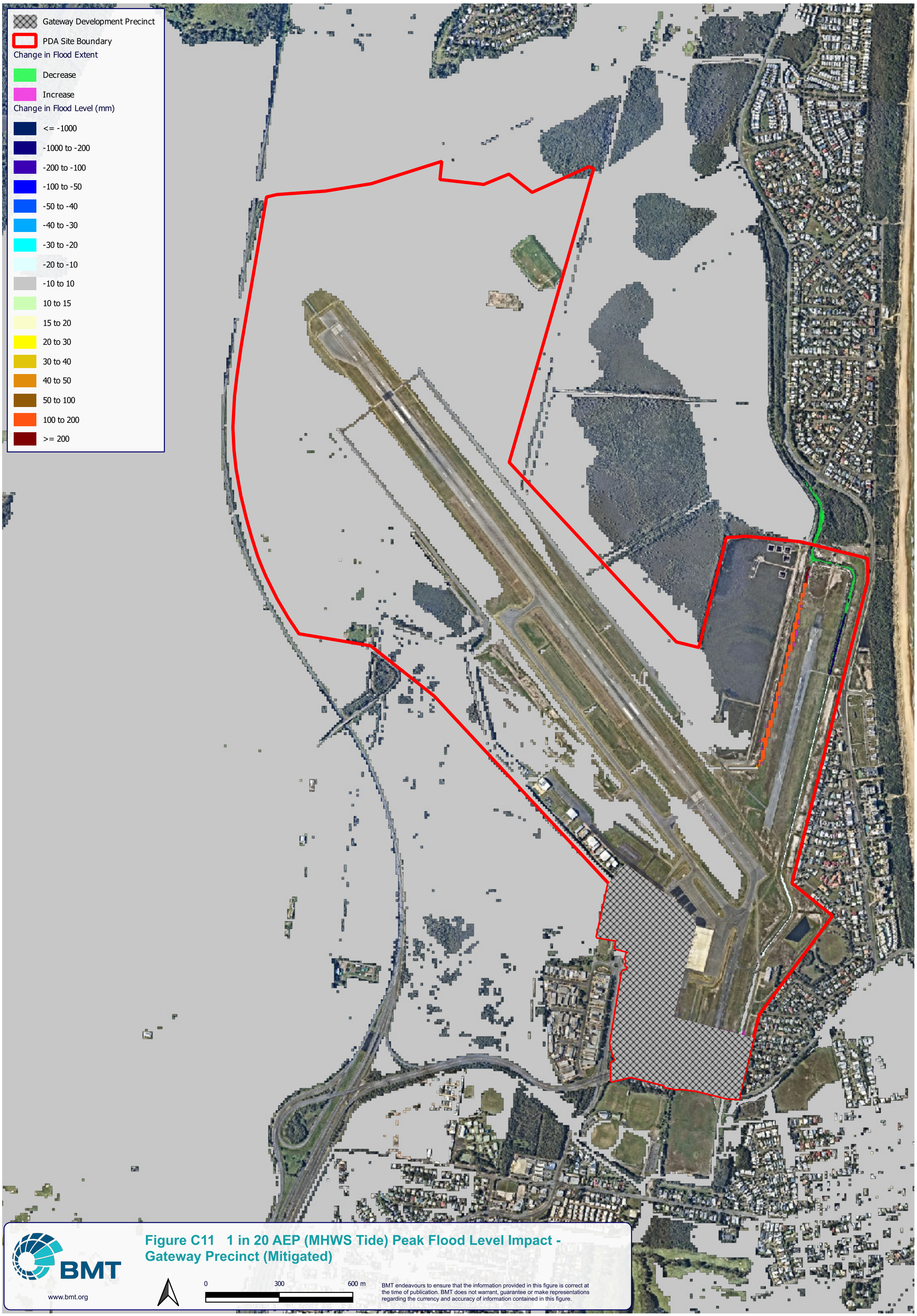
0 300 600 m



BMT

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Figure C11 1 in 20 AEP (MHWS Tide) Peak Flood Level Impact - Gateway Precinct (Mitigated)

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure C12 1 in 50 AEP (MHWS Tide) Peak Flood Level Impact - Gateway Precinct (Mitigated)

BMT

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N

0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure C13 1 in 100 AEP (MHWS Tide) Peak Flood Level Impact - Gateway Precinct (Mitigated)

BMT

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0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure C14 1 in 100 AEP Year 2100 (MHWS Tide) Peak Flood Level Impact - Gateway Precinct (Mitigated)

BMT

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0 300 600 m

Annex D Regional Model PDA Cumulative Flood Impacts (Mitigated)

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

BMT

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Figure D1 1 in 2 AEP (Storm Surge Tide) Peak Flood Level Impact - PDA (Mitigated)

0 300 600 m

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure D2 1 in 5 AEP (Storm Surge Tide) Peak Flood Level Impact - PDA (Mitigated)

BMT

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0 300 600 m

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure D3 1 in 10 AEP (Storm Surge Tide) Peak Flood Level Impact - PDA (Mitigated)

BMT

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0 300 600 m

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

N

0 300 600 m

BMT

www.bmt.org

Figure D4 1 in 20 AEP (Storm Surge Tide) Peak Flood Level Impact - PDA (Mitigated)

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure D5 1 in 50 AEP (Storm Surge Tide) Peak Flood Level Impact - PDA (Mitigated)

BMT

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N

0 300 600 m

PDA Site Boundary
Development Precincts
Change in Flood Extent
Decrease
Increase
Change in Flood Level (mm)
<= -1000
-1000 to -200
-200 to -100
-100 to -50
-50 to -40
-40 to -30
-30 to -20
-20 to -10
-10 to 10
10 to 15
15 to 20
20 to 30
30 to 40
40 to 50
50 to 100
100 to 200
>= 200

Figure D6 1 in 100 AEP (Storm Surge Tide) Peak Flood Level Impact - PDA (Mitigated)

BMT
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N

0 300 600 m

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure D7 1 in 100 AEP Year 2100 (Storm Surge Tide) Peak Flood Level Impact - PDA (Mitigated)

BMT

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N

0 300 600 m

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

BMT

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Figure D8 1 in 2 AEP (MHWS Tide) Peak Flood Level Impact - PDA (Mitigated)

0 300 600 m

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure D9 1 in 5 AEP (MHWS Tide) Peak Flood Level Impact - PDA (Mitigated)

BMT

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0 300 600 m

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure D10 1 in 10 AEP (MHWS Tide) Peak Flood Level Impact - PDA (Mitigated)

BMT

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0 300 600 m

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure D11 1 in 20 AEP (MHWS Tide) Peak Flood Level Impact - PDA (Mitigated)

BMT

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0 300 600 m

PDA Site Boundary
Development Precincts
Change in Flood Extent
Decrease
Increase
Change in Flood Level (mm)
<= -1000
-1000 to -200
-200 to -100
-100 to -50
-50 to -40
-40 to -30
-30 to -20
-20 to -10
-10 to 10
10 to 15
15 to 20
20 to 30
30 to 40
40 to 50
50 to 100
100 to 200
>= 200

Figure D12 1 in 50 AEP (MHWS Tide) Peak Flood Level Impact - PDA (Mitigated)

BMT
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N

0 300 600 m

PDA Site Boundary
Development Precincts
Change in Flood Extent
Decrease
Increase
Change in Flood Level (mm)
<= -1000
-1000 to -200
-200 to -100
-100 to -50
-50 to -40
-40 to -30
-30 to -20
-20 to -10
-10 to 10
10 to 15
15 to 20
20 to 30
30 to 40
40 to 50
50 to 100
100 to 200
>= 200

Figure D13 1 in 100 AEP (MHWS Tide) Peak Flood Level Impact - PDA (Mitigated)

BMT
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0 300 600 m

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure D14 1 in 100 AEP Year 2100 (MHWS Tide) Peak Flood Level Impact - PDA (Mitigated)

BMT

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0 300 600 m

Annex E Base Case Flood Maps – Local Model

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

Figure E1 1 in 2 AEP Local Model Peak Flood Depth - Base Case

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0 300 600 m

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

Figure E2 1 in 10 AEP Local Model Peak Flood Depth - Base Case

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0 300 600 m

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Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

Figure E3 1 in 20 AEP Local Model Peak Flood Depth - Base Case

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0 300 600 m

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K:\001291.k.br_SCA_Precinct_Op\QGIS\Annex_E\Annex_E.qgz

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

Figure E4 1 in 50 AEP Local Model Peak Flood Depth - Base Case

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0 300 600 m

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K:\001291.k.br_SCA_Precinct_Op\QGIS\Annex_E\Annex_E.qgz

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

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0 300 600 m

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Figure E5 1 in 100 AEP Local Model Peak Flood Depth - Base Case

K:\001291.k.br_SCA_Precinct_Op\QGIS\Annex_E\Annex_E.qgz

Gateway Precinct Boundary
PDA Site Boundary
Flood Depth (m)
<= 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.2
1.2 - 1.4
1.4 - 1.6
1.6 - 1.8
> 1.8

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Figure E6 1 in 100 AEP Year 2100 Local Model Peak Flood Depth - Base Case

N
0 300 600 m

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K:\001291.k.br_SCA_Precinct_Op\QGIS\Annex_E\Annex_E.qgz

Annex F Local Model Gateway Precinct Flood Impacts (Unmitigated)

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

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0 300 600 m

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Figure F1 1 in 2 AEP Local Model Peak Flood Level Impact - Gateway Precinct (Unmitigated)

K:\001291.k.br_SCA_Precinct_Op\QGIS\Annex_F\Annex_F.qgz

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

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0 300 600 m

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Figure F2 1 in 10 AEP Local Model Peak Flood Level Impact - Gateway Precinct (Unmitigated)

K:\001291.k.br_SCA_Precinct_Op\QGIS\Annex_F\Annex_F.qgz

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

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Figure F3 1 in 20 AEP Local Model Peak Flood Level Impact - Gateway Precinct (Unmitigated)

0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure F4 1 in 50 AEP Local Model Peak Flood Level Impact - Gateway Precinct (Unmitigated)

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0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure F5 1 in 100 AEP Local Model Peak Flood Level Impact - Gateway Precinct (Unmitigated)

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0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure F6 1 in 100 AEP Year 2100 Local Model Peak Flood Level Impact - Gateway Precinct (Unmitigated)

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0 300 600 m

Annex G Local Model Gateway Precinct Flood Impacts (Mitigated)

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure G1 1 in 2 AEP Local Model Peak Flood Level Impact - Gateway Precinct (Mitigated)

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0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

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0 300 600 m

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Figure G2 1 in 10 AEP Local Model Peak Flood Level Impact - Gateway Precinct (Mitigated)

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure G3 1 in 20 AEP Local Model Peak Flood Level Impact - Gateway Precinct (Mitigated)

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0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure G4 1 in 50 AEP Local Model Peak Flood Level Impact - Gateway Precinct (Mitigated)

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0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

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Figure G5 1 in 100 AEP Local Model Peak Flood Level Impact - Gateway Precinct (Mitigated)

0 300 600 m

Gateway Development Precinct

PDA Site Boundary

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

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0 300 600 m

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Figure G6 1 in 100 AEP Year 2100 Local Model Peak Flood Level Impact - Gateway Precinct (Mitigated)

Annex H Local Model PDA Cumulative Flood Impacts (Mitigated)

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

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Figure H1 1 in 2 AEP Local Model Peak Flood Level Impact - PDA (Mitigated)

0 300 600 m

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

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Figure H2 1 in 10 AEP Local Model Peak Flood Level Impact - PDA (Mitigated)

0 300 600 m

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

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Figure H3 1 in 20 AEP Local Model Peak Flood Level Impact - PDA (Mitigated)

0 300 600 m

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure H4 1 in 50 AEP Local Model Peak Flood Level Impact - PDA (Mitigated)

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0 300 600 m

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure H5 1 in 100 AEP Local Model Peak Flood Level Impact - PDA (Mitigated)

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0 300 600 m

PDA Site Boundary

Development Precincts

Change in Flood Extent

Decrease

Increase

Change in Flood Level (mm)

<= -1000

-1000 to -200

-200 to -100

-100 to -50

-50 to -40

-40 to -30

-30 to -20

-20 to -10

-10 to 10

10 to 15

15 to 20

20 to 30

30 to 40

40 to 50

50 to 100

100 to 200

>= 200

Figure H6 1 in 100 AEP Year 2100 Local Model Peak Flood Level Impact - PDA (Mitigated)

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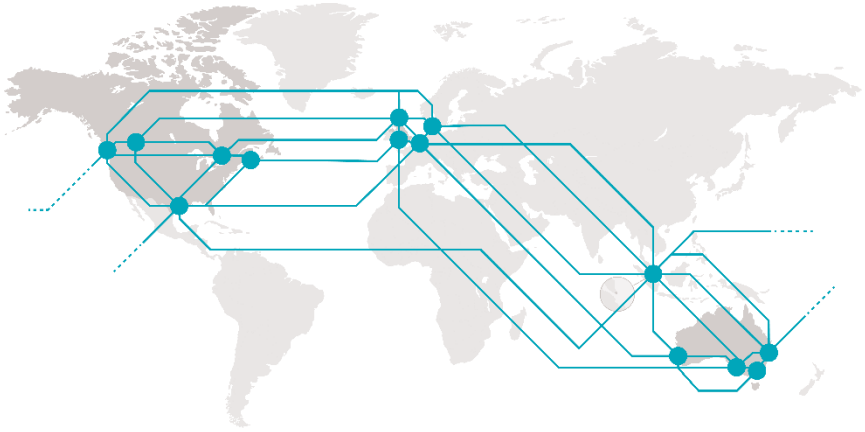
0 300 600 m



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