Our ref: L.B23951.025_34_Racecourse_Road.Docx

16 December 2022

Ballina Shire Council
40 Cherry Street
Ballina NSW 2478

PO Box 450, Ballina NSW 2478

Attention: Peter Brown

Dear Paul,

RE: FLOOD IMPACT ASSESSMENT – 34 Racecourse Road, Ballina, NSW 2478

This letter report outlines the background, methodology and results of the flood impact assessment for the proposed development at 34 Racecourse Road (the Site). The primary objective of the assessment is to quantify the impact to peak flood levels, as a result of proposed development inclusions (including earthworks for (the Site) for the 20%, 5% and 1% annual exceedance probability (AEP) flood events.

1 Introduction

1.1 Background

The Site is located west of the Ballina Jockey Club and north of North Creek Canal. Directly east of the Ballina Jockey Club is North Creek and to the north are floodplain areas. Figure 1.1 shows the general locality of the surrounding Site. It is understood that the Site is for a rezoning application, and is to consider complete filling of the lot above the relevant Flood Planning Level.

Council has identified that the Site is flood affected. The dominant flood mechanism (peak level), results from storm surge in each design event simulated. A flood impact assessment has been requested by Council to inform approval processes for the Site.

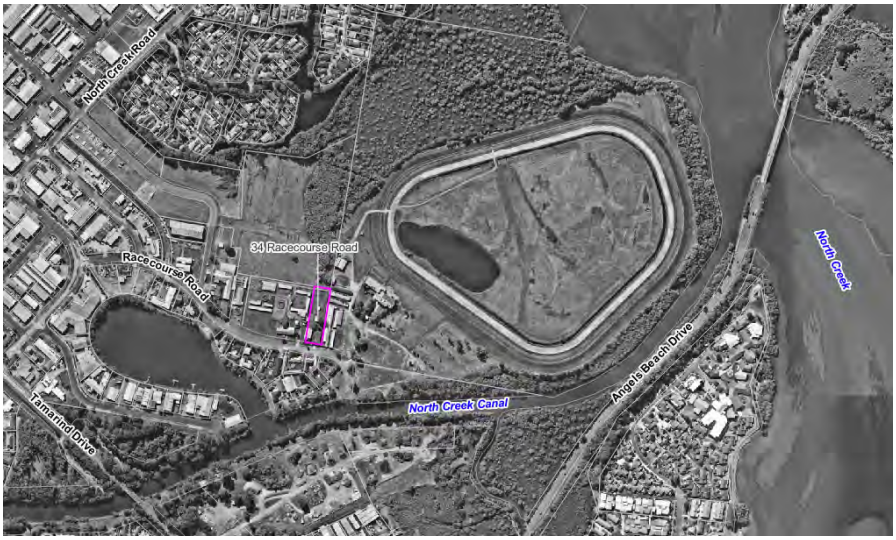


Figure 1.1 Locality Plan

1.2 Adopted Interim Assessment Approach

The Site has been assessed for flood impacts with Council's Integrated Flood Model generally in accordance with the Draft Interim Flood Impact Assessment Procedure[1]. It is noted that the Integrated Flood Model is currently being updated and the interim procedure is still under review. The model has been used in its current form (as confirmed with Council), which has been deemed suitable for the assessment of relative impacts.

The Integrated Flood model currently considers:

- The following floodplain Development Scenarios:
  - **Current catchment conditions (B1)**, including currently constructed developments.
  - **Future catchment conditions (B2)**, current catchment conditions (B1) plus assuming all approved and rezoned land is developed.
  - **Ultimate catchment conditions (B3)**, assuming all strategic sites are developed, in addition to the approved and rezoned inclusions from B2.
- Australian Rainfall and Runoff 1987 hydrology;
- 2050 climate change considerations for the Future (B2) and Ultimate (B3) Integrated Flood Model Development Scenarios;
- Richmond River, local catchment and storm surge dominated floods, with the following joint probability cases:
  - For the 1% and 5% AEP events:

[1] M.A11418.003_Ballina_Interim_Impacts_Policy.pdf

- **Case A:** Richmond River dominated flood – long duration design event in the Richmond River combined with 10% AEP coincident local catchment runoff and storm surge.
- **Case B:** Local catchment dominated flood – short duration design event in the local creeks combined with 10% AEP coincident Richmond River and storm surge.
- **Case C:** Storm surge dominated flood - storm surge design event combined with 10% AEP coincident local catchment runoff and Richmond River event.

- For the 20% AEP event:
  - **Case D:** Equal probability sources - assigns equal probability to Richmond River, local catchment and storm surge sources.

The Site's development inclusions are represented in a post-development version of each of the three floodplain development scenarios (B1, B2 and B3), for which all design events and associated joint probability cases (A, B, C and D) for pre- and post-development scenarios for the Site are simulated, and worst-case incremental impacts quantified. The methodology of quantifying impacts is described in Section 3.

The tolerance for incremental peak flood impacts for a development within the Ballina Shire on suitably zoned land is understood to be generally accepted as 10mm by Council.

Consideration of cumulative impacts of future development to the floodplain are integral to Council. However, as discussed in the Draft Interim Flood Impact Assessment Procedure[2], assessment of any cumulative impacts against a proposed Ultimate Limit to impacts under the proposed revised approach cannot be undertaken at this interim stage. This is subject to Council's flood study update and further flood planning works to be completed in the future.

The integrated flood model inclusions for the floodplain development scenarios (B1, B2 and B3) are summarised in Table 1.1, based on the current status of the model updates. It is noted there are sites that have already been flagged for review and inclusion in the future (B2) and ultimate (B3) development scenarios, however the timing and delivery timelines of this development assessment has meant that these updates were unable to be incorporated. Council should consider the current status of model updates and appropriateness or likelihood of the included potential future developments when reviewing results for these scenarios.

This approach has been agreed with Council. Primarily, there are a number of strategic sites previously considered that are not currently represented in the B3 ultimate development base scenario, as directed by Council:

- West Ballina Masterplan
- Southern Cross Masterplan
- Barlows Road upgrade
- North Creek Road upgrade
- Racecourse Road upgrade.

This assessment process, the current inclusions and Council's position on acceptable impacts is constantly evolving, as the process of consultation, review and revision is developed.

[2] M.A11418.003_Ballina_Interim_Impacts_Policy.pdf

Table 1.1 Integrated Model Inclusions

Site ID	Name	Status	Base Scenario		
			B1 - Partial or complete construction	B2 – DA / Rezoned	B3 - Strategic
1	B&B Timbers Teven Road	Constructed, filled.	✓	✓	✓
2	Transport Precinct Teven Road	No DA or approval, granted additional permitted use, status like "rezoned'		✓	✓
3	Ballina Bypass	Constructed	✓	✓	✓
4	Ballina Heights sports fields	Constructed	✓	✓	✓
5	Ballina Homeworld	DA Approved, Under construction.	✓	✓	✓
6	Ballina Racecourse	DA Approved		✓	✓
7	Ballina Waterways (including Burns Ferry Road site)	Rezoned		✓	✓
8	'Barretts development' North Creek	Strategic growth area			✓
9	Cumbalum Precinct B	Rezoned		✓	✓
12	Emigrant Creek South Bridge Upgrade	Constructed	✓	✓	✓
14	GoGrow site Teven Road	Part of Teven Road Transport Precinct		✓	✓
15	Hutley Drive	Approved DA, partly constructed	✓	✓	✓
16	Riveroaks	Under construction	✓	✓	✓
17	Pimlico Road minor residential filling	Under construction	✓	✓	✓
18	Ray Date site Teven Road	Part of Teven Road Transport Precinct.		✓	✓
19	Ferngrove	Constructed	✓	✓	✓
20	Service Centre at West Ballina between Pacific Hwy and Bruxner Hwy	Constructed	✓	✓	✓
22	Waste Transfer Centre floodway	Strategic			✓
23	West Ballina Arterial	Strategic			✓
25	West Ballina Service Centre and Flood Relief Culverts	DA Approved		✓	✓
26	Woodburn to Ballina	Constructed	✓	✓	✓
29	Airport Drive Upgrade	Under construction	✓	✓	✓
30	North Creek Canal floodway	Constructed	✓	✓	✓
31	Palm Lakes	Constructed	✓	✓	✓
32	Airport Runway Upgrade and Bay 5	DA Approved & Imminent Construction	✓	✓	✓

2 Proposed Development

2.1 Pre-developed Scenario

Figure 2.1 below illustrates the pre-development existing scenario ground elevations surrounding the proposed Site.

Figure 2.1 Pre-development scenario ground elevations

2.2 Developed Scenario

The post-development scenario ground elevations, shown in Figure 2.2 below, includes the filling of 34 Racecourse Road. These modifications are included in each of the floodplain development scenarios (B1, B2 and B3).

Figure 2.2 Post-development scenario ground elevations

3 Flood Modelling Results

The pre-development and post-development scenarios have been simulated for the 20%, 5% and 1% AEP event for each of the B1, B2 and B3 base development scenarios. Richmond River, local catchment, and storm surge dominated floods have been simulated and combined to identify the worst-case scenario for flooding at the Site and impacted areas.

Annex A provides mapped flood results for:

- The pre- and post-development Site scenarios:
  - Peak water level results.
  - Peak hazard categories.
- Incremental velocity level impacts (enveloped maximum of impacts from each dominant flood case).

There were no water level impacts (+/- 10mm) for the 20% and 5% AEP events. Due to the limited impacts in the 1% AEP and 1% AEP + 2050 climate change ocean condition events, rather than providing a full set of flood impact mapping, a summary of these impacts has been provided (highlighting those that exceed 10mm) below.

The following summarises the post-development impact results across the events and scenarios simulated:

- For each event, the results between the base B1 (current), B2 (future) and B3 (ultimate) development scenarios are very similar. The fully filled Site remains dry for all events in the post-development scenario modelled, with little to no change in inundation extent outside the Site. The following general summary is applicable to each of these.
- 20% AEP & 5% AEP:
  - The flood extent on Site, generally in the north-eastern portion of the lot, is reduced in the post-development scenario due to the fill at the Site.
  - Peak flood level impacts remain less than 10mm at the Site and surrounds.
- 1% AEP:
  - A large portion of the Site is inundated in its northern section in the pre-development scenario. The flood extent becomes marginally reduced around the Site due to the fill at the Site.
  - Peak flood level impacts exceed 10mm in some locations outside the proposed Site, including:
    - Lot 3 DP 820688 (Figure 3.1) – Directly east of the Site, there is a maximum impact of 13mm over a couple of model cells in the B1 scenario only (resulting from the Richmond River dominated event), noting that the flood depth on this lot for this flooding mechanism exceeds approximately 0.5m. It is also noted that the post-development scenario fill on the Site is assumed across the entire lot with no consideration of fill batter or local drainage between lots. Given the relative coarseness of the regional flood model, a slight topographically constrained low point has been created at the location of this impact. As such, this impact is considered likely an artefact of the model resolution.
    - Within road reserves at topographic low points that would in reality be hydraulically connected via fine scale hydraulic features which are not well represented by the regional-scale model:

Tamarind Drive / Tamarind Drive table drain (Figure 3.1/Figure 3.2) - the maximum impact is 56mm with several smaller impacts surrounding the intersection of Southern Cross Drive noting that the flood depth exceeds approximately 0.5m in this area.

Racecourse Road (Figure 3.1/Figure 3.2) – the maximum impact is 15mm within Racecourse Road.

Ascot Road (Figure 3.1/Figure 3.2) - the maximum impact is 56mm over one modelled cell, within the road reserve.

Ascot Road (Figure 3.3) – At the edge of the flood extent up to 60mm. This impact is generally within the road reserve and towards the edge of the flood extent.

- Peak flood level impacts remain less than 10mm elsewhere.

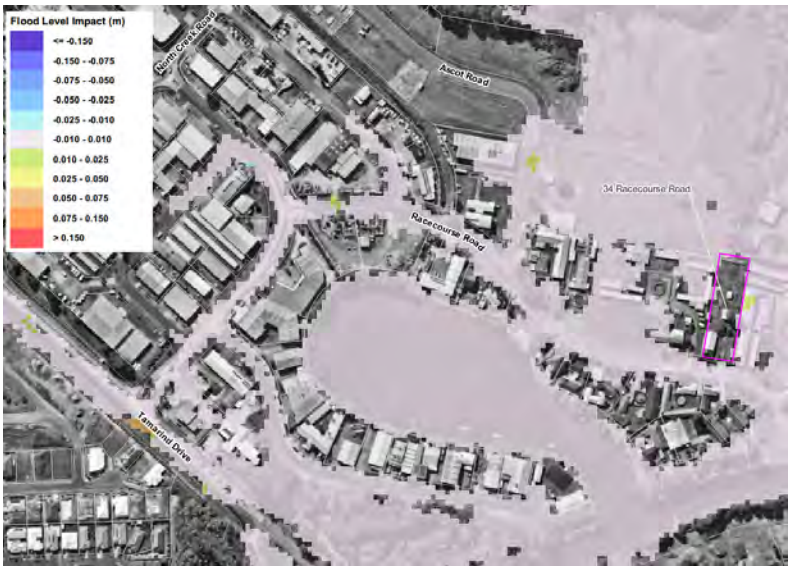


Figure 3.1 1% AEP Peak Flood Impacts – Scenario B1 (Current)

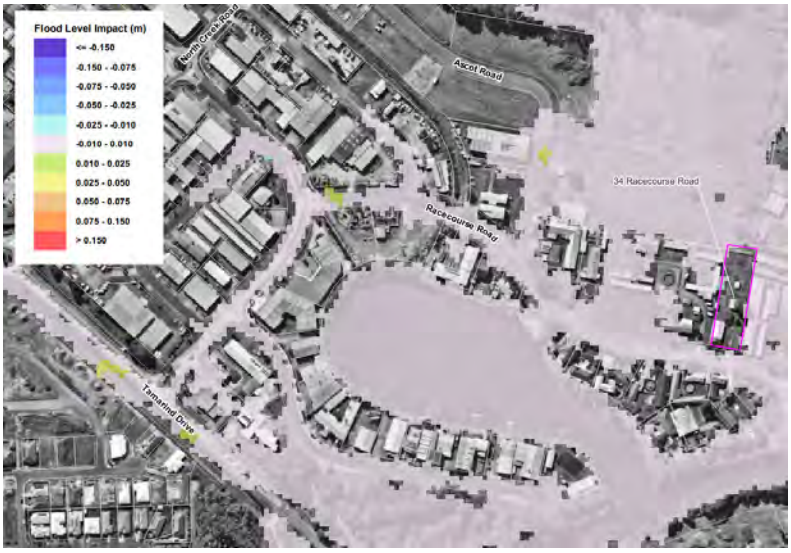


Figure 3.2 1% AEP Peak Flood Impacts – Scenario B2 (Future)

Figure 3.3 1% AEP peak Flood Impacts – Scenario B3 (Ultimate)

- 1% AEP + 2050 climate change ocean conditions:
  - The Site is almost completely inundated in the pre-development scenario.
  - Peak flood level impacts exceed 10mm within some road reserves outside of the Site, refer Figure 3.4 and Figure 3.5. However, inspection of the model configuration indicates that these impacts are of only a few cells and can be attributed to fine scale hydraulic features and structures not being represented well in the regional-scale Integrated Model. For example:
    - Drainage easement between North Creek Road and Racecourse Road.
    - Table drain on the corner of Southern Cross Road and North Creek Road.
    - Table Drain on Tamarind Drive.
  - Peak flood level impacts remain less than 10mm elsewhere.

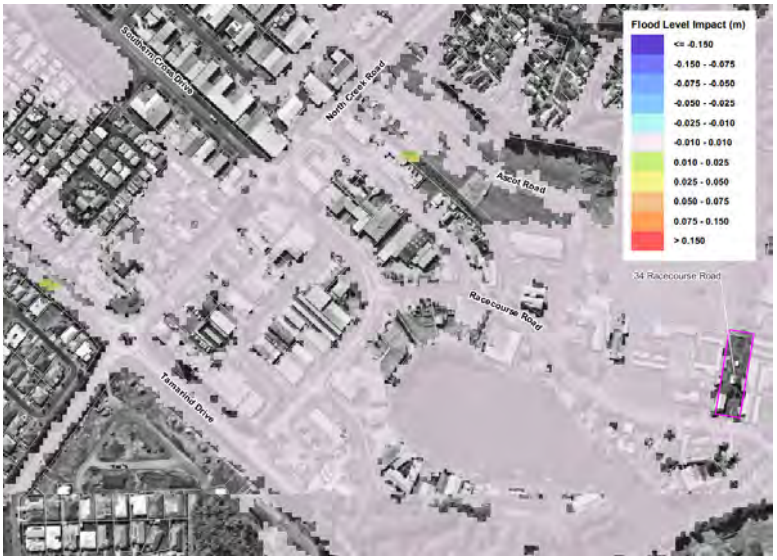


Figure 3.4 1% AEP 2050 + Climate Change Ocean Conditions – Scenario B2 (Future)

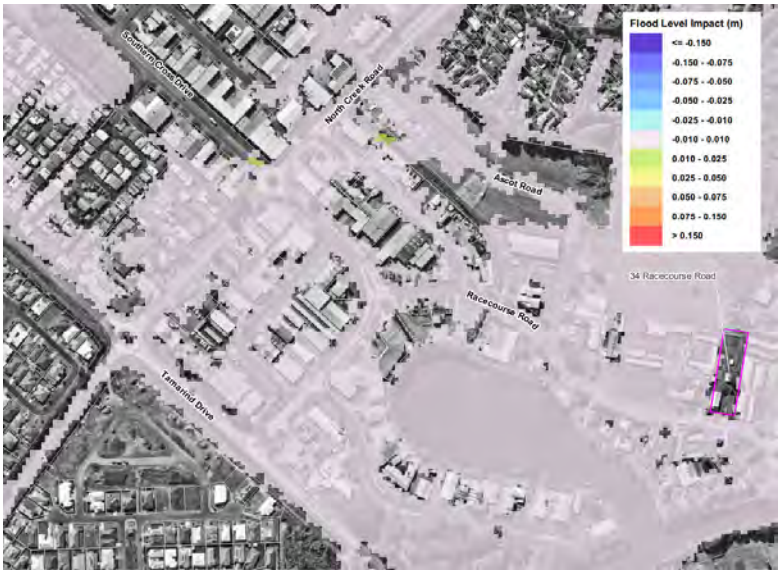


Figure 3.5 1% AEP + 2050 Climate Change Ocean Conditions – Scenario B3 (Ultimate)

4 Summary

The separate floodplain development scenarios assessed (B1 (current), B2 (future) and B3 (ultimate)) are intended to capture the incremental impacts of the proposed development at different 'snapshots' in time, capturing the uncertainty in development timelines. For each of the 20%, 5% and 1% AEP events, the results and incremental impact magnitude and spatial profile are comparable between the three development scenarios – there is not a significant difference whether or not the Site development is considered with other future potential floodplain development in Ballina Shire.

The dominant flooding mechanism (in terms of peak level) at the Site across all events is from storm surge.

There are no peak flood level impacts that exceed 10mm in the 20% and 5% AEP events.

In the 1% AEP events (with and without 2050 climate conditions), where impacts have occurred that exceed 10mm, these have primarily been attributed to fine scale hydraulic features and structures not being represented well in the regional-scale Integrated Model, with slightly higher water levels overtopping into an area of constrained topography that would in reality be likely to be hydraulically connected with minor drainage systems with levels likely to equilibrate.

The impact exceeding 10mm on Lot 3 DP 820688 occurs only in the 1% AEP event (without climate change allowance) at the eastern boundary of the Site. However, this impact is minor in both extent (a few model cells) and magnitude of impact (maximum 13mm) and is considered an artefact of the

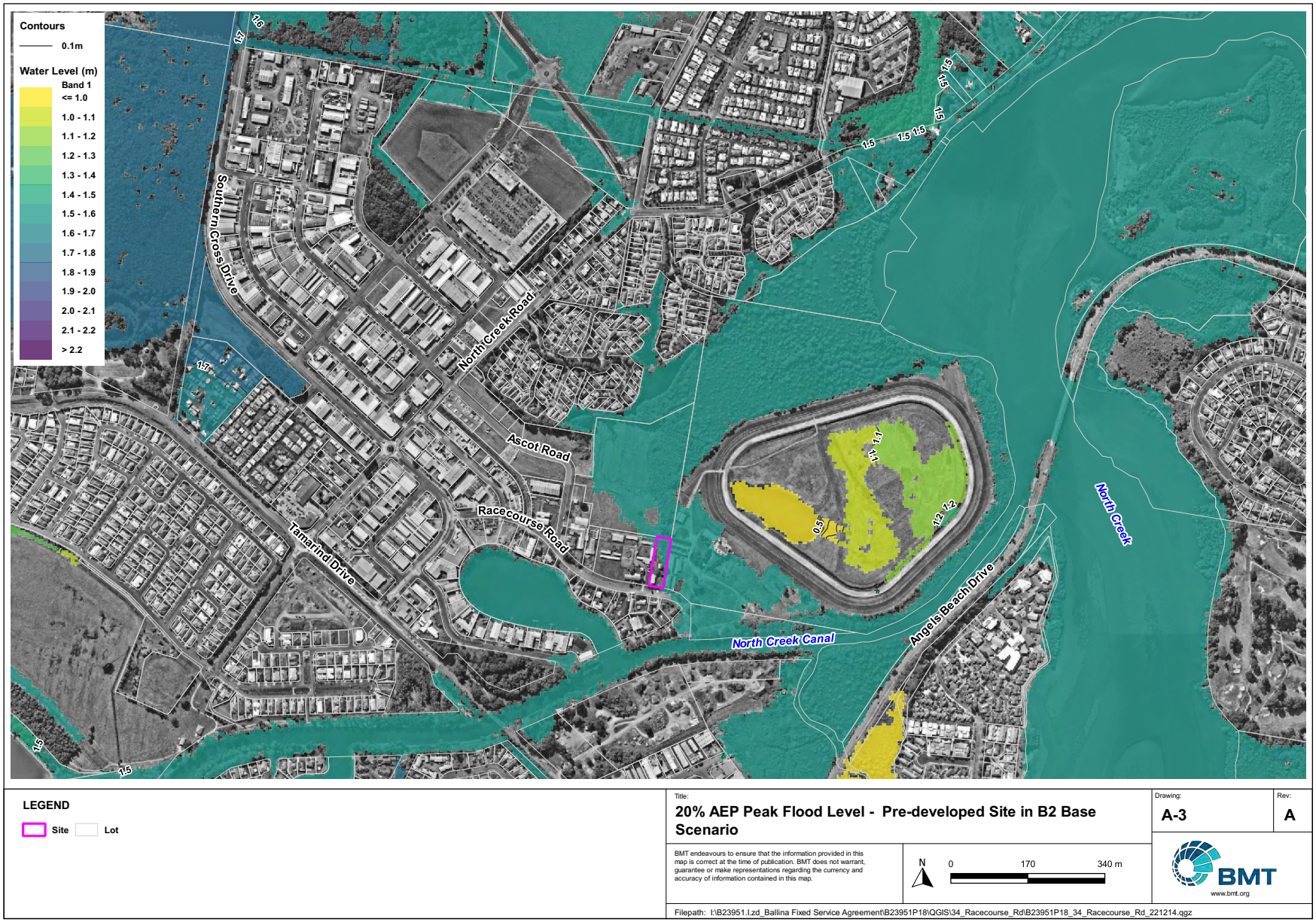
regional scale model resolution and the conservative assumptions of fill on the Site that do not account for fine scale local drainage features.

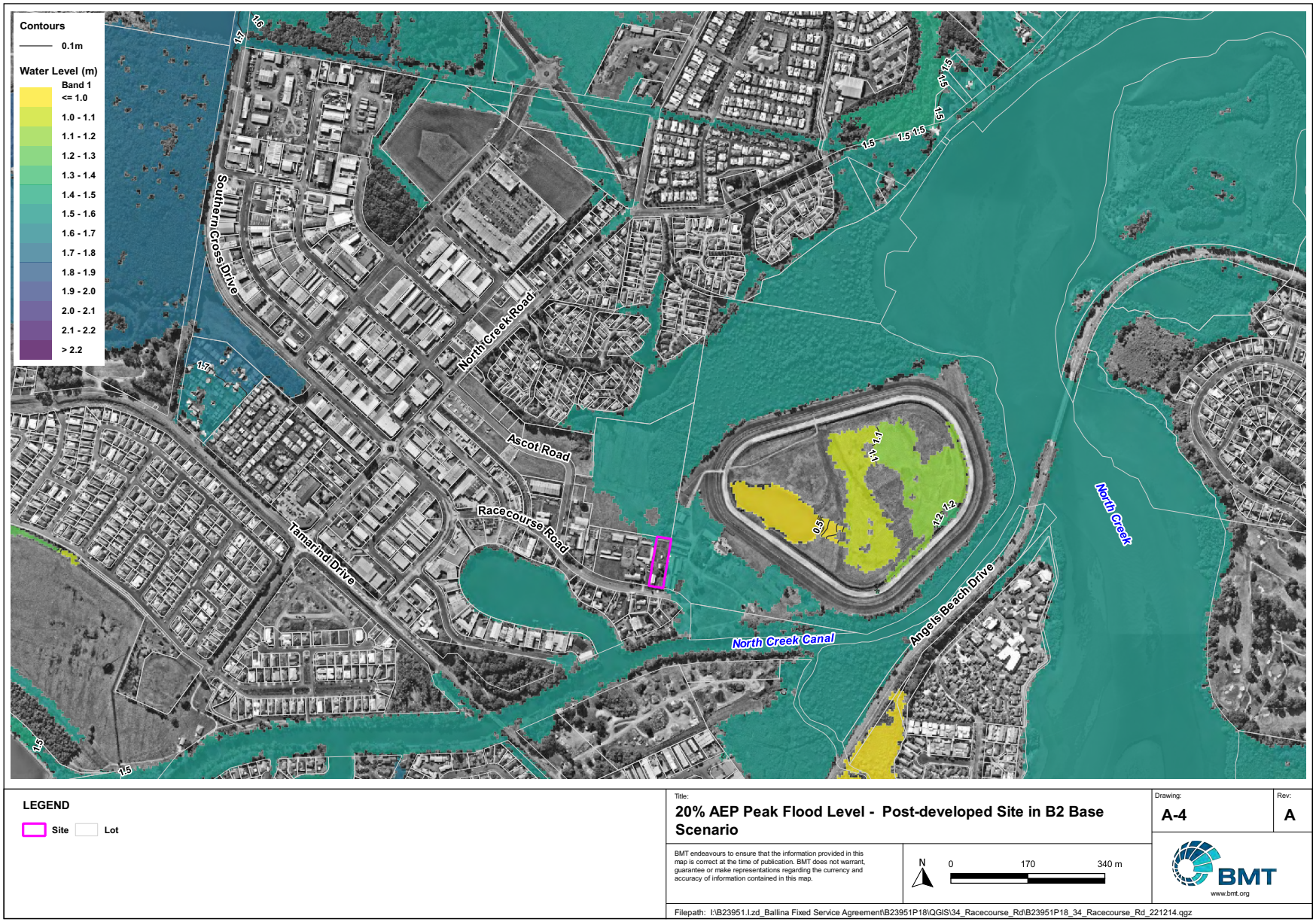
Yours Sincerely

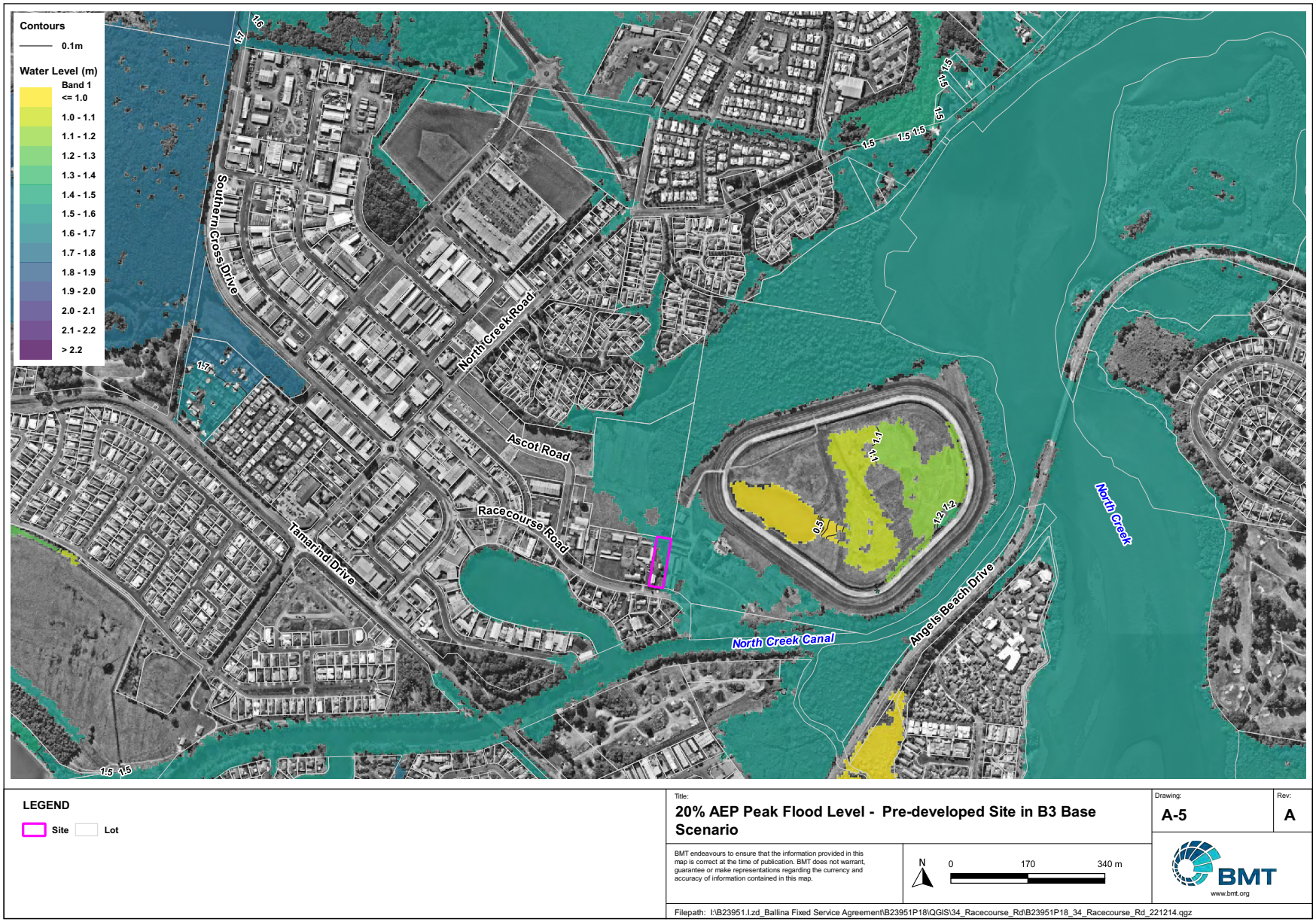
BMT

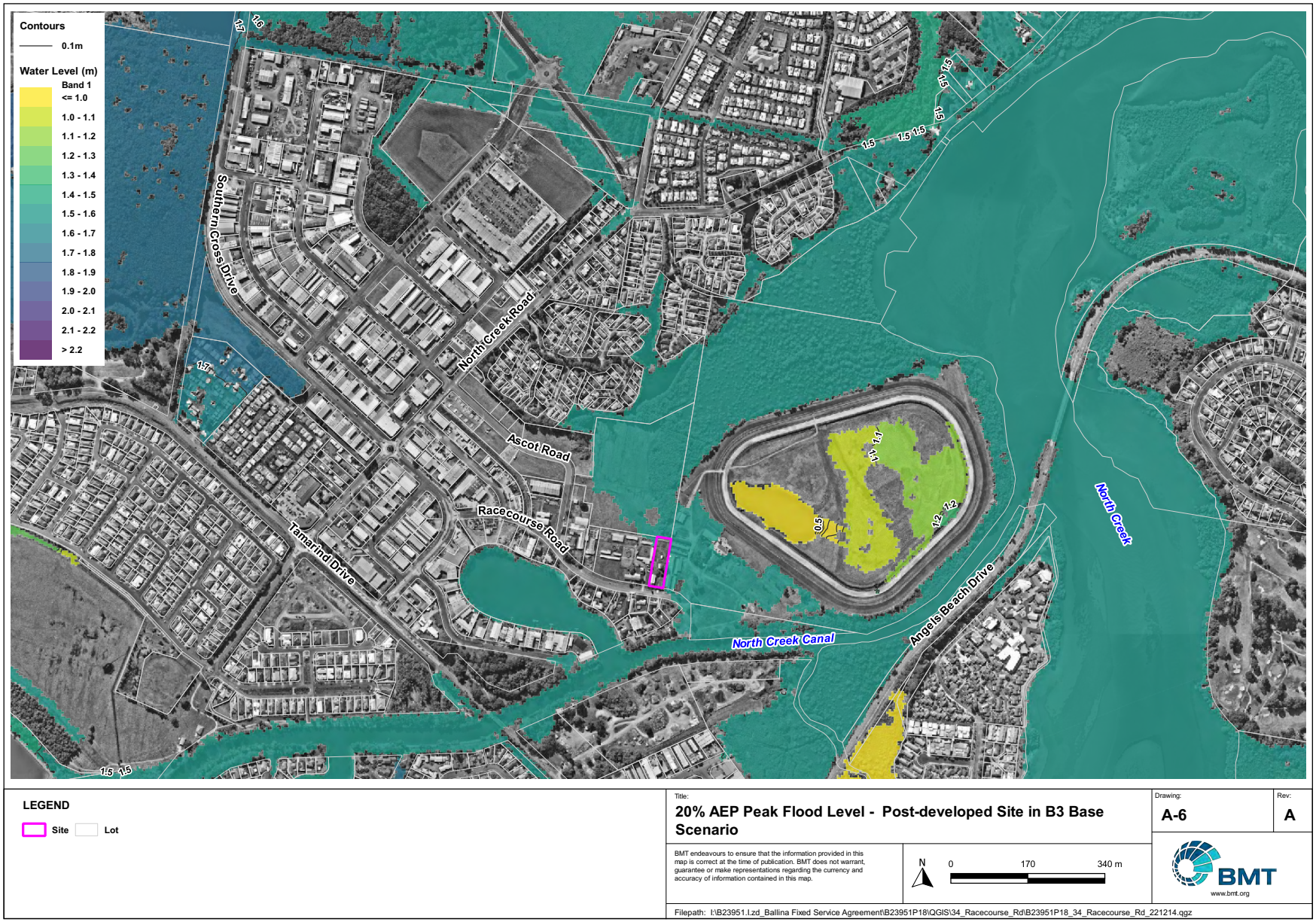
Teegan Burke
Associate Principal Flood Engineer

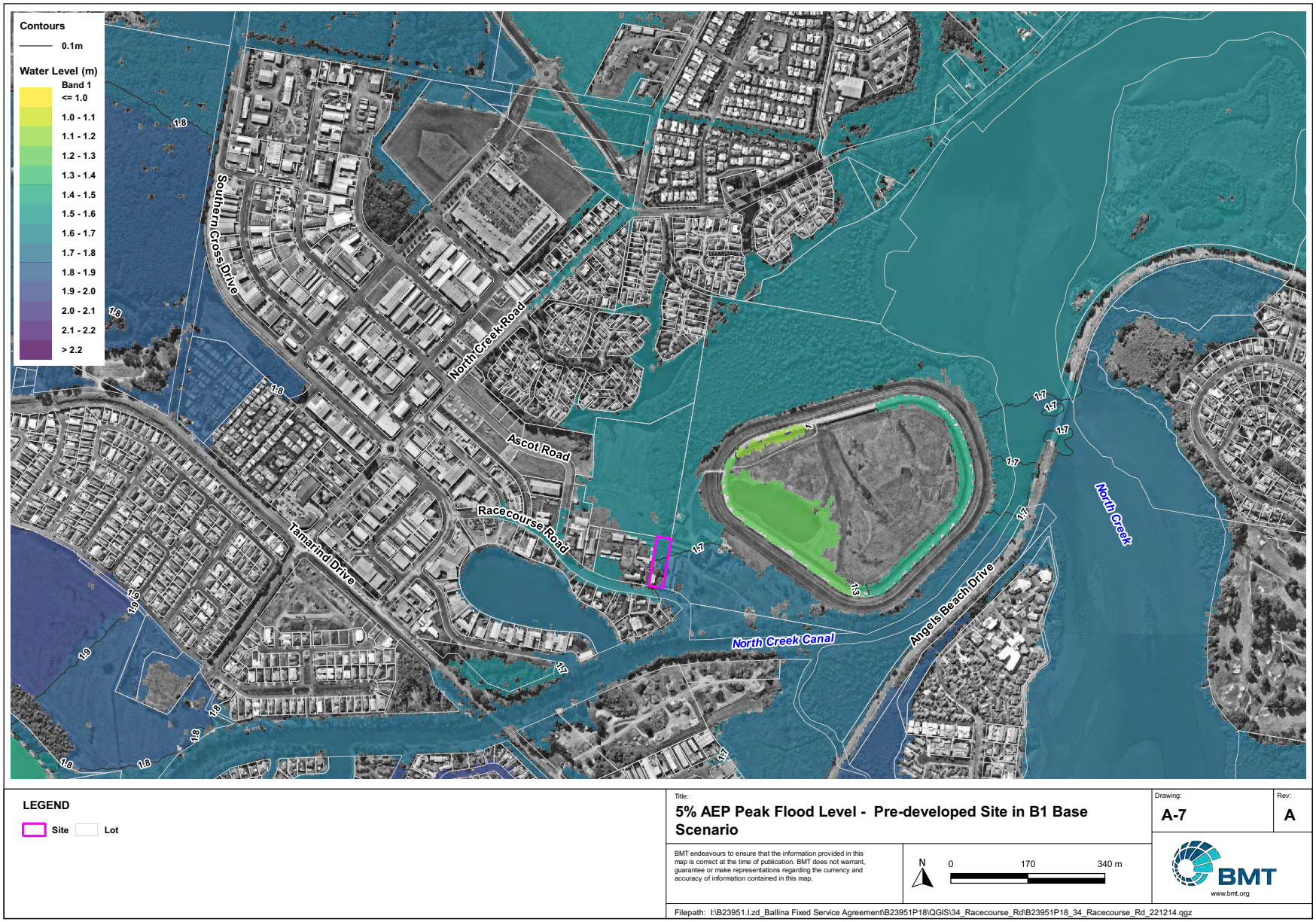
Annex A Flood Result Mapping

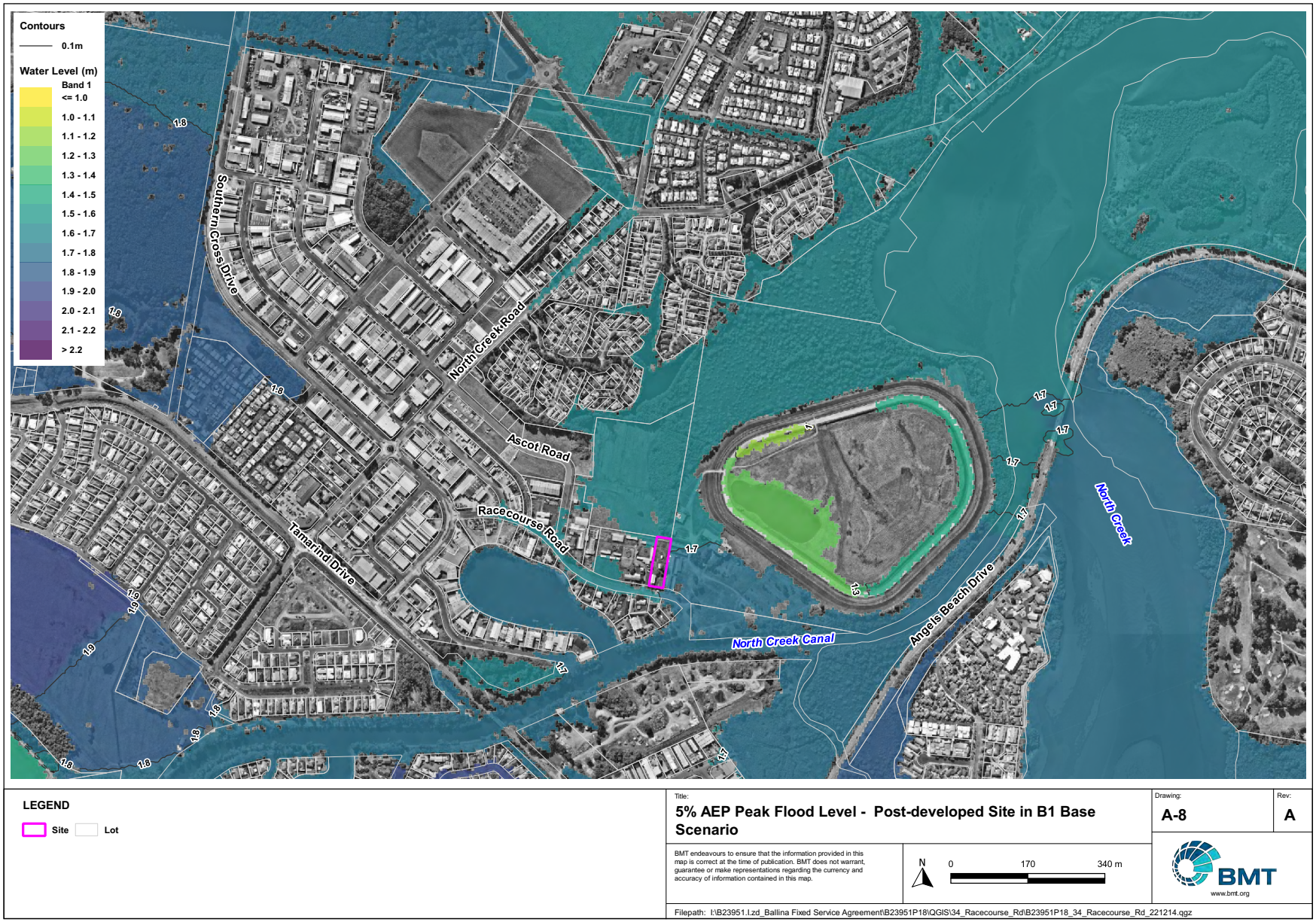

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
20% AEP Peak Flood Level - Pre-developed Site in B2 Base Scenario
Drawing:
A-3
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

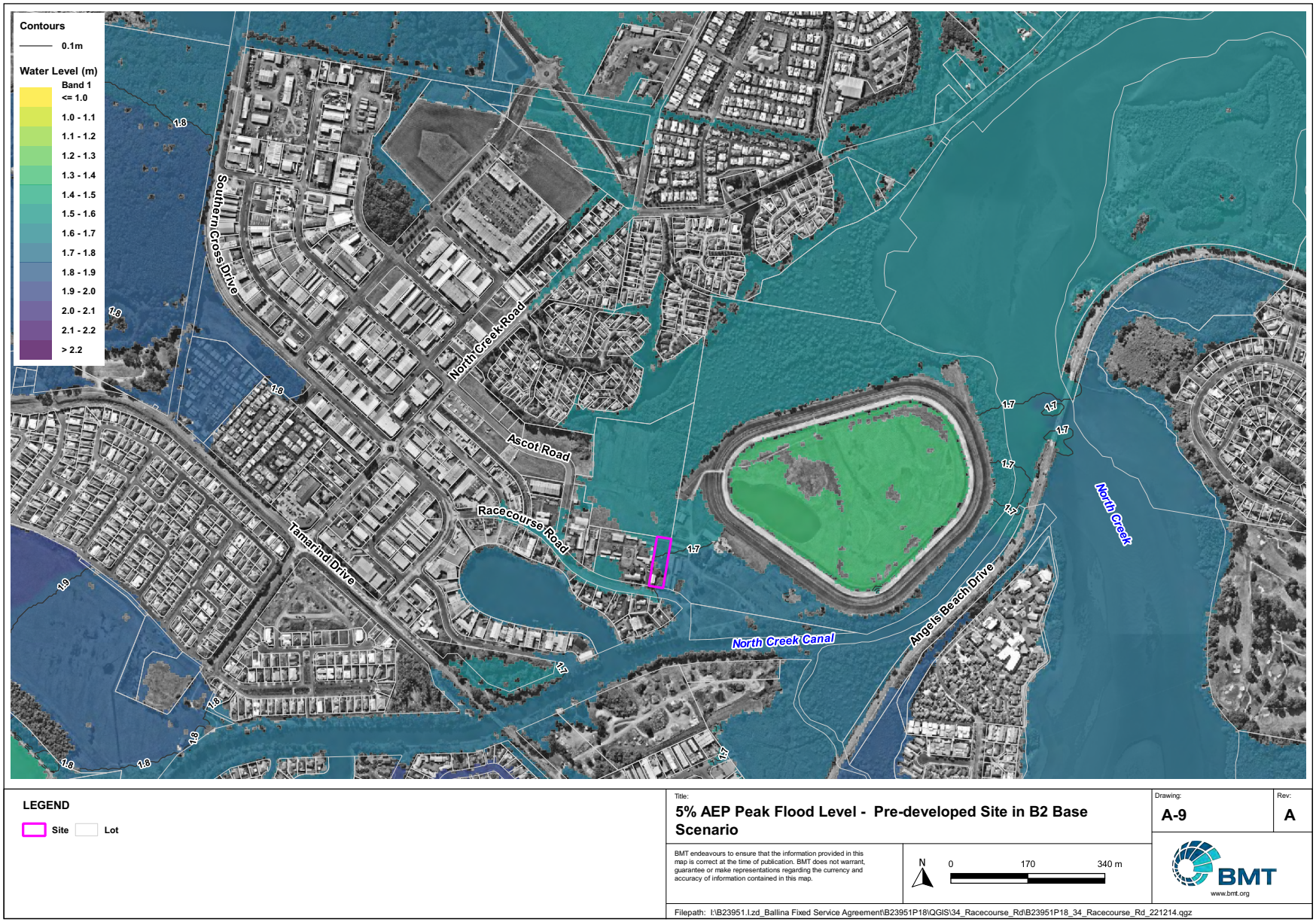

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
20% AEP Peak Flood Level - Post-developed Site in B2 Base Scenario
Drawing:
A-4
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

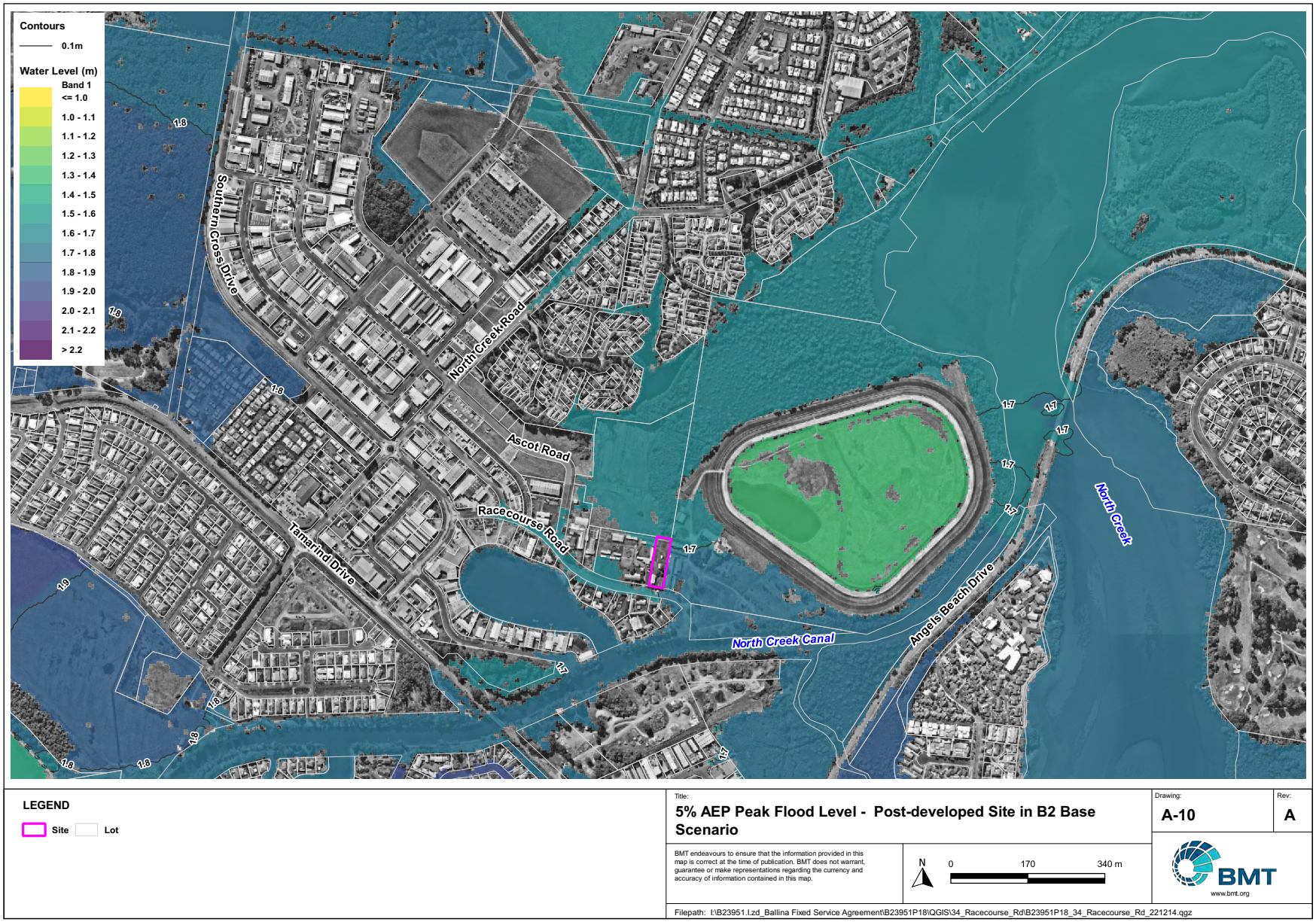

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
20% AEP Peak Flood Level - Pre-developed Site in B3 Base Scenario
Drawing:
A-5
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

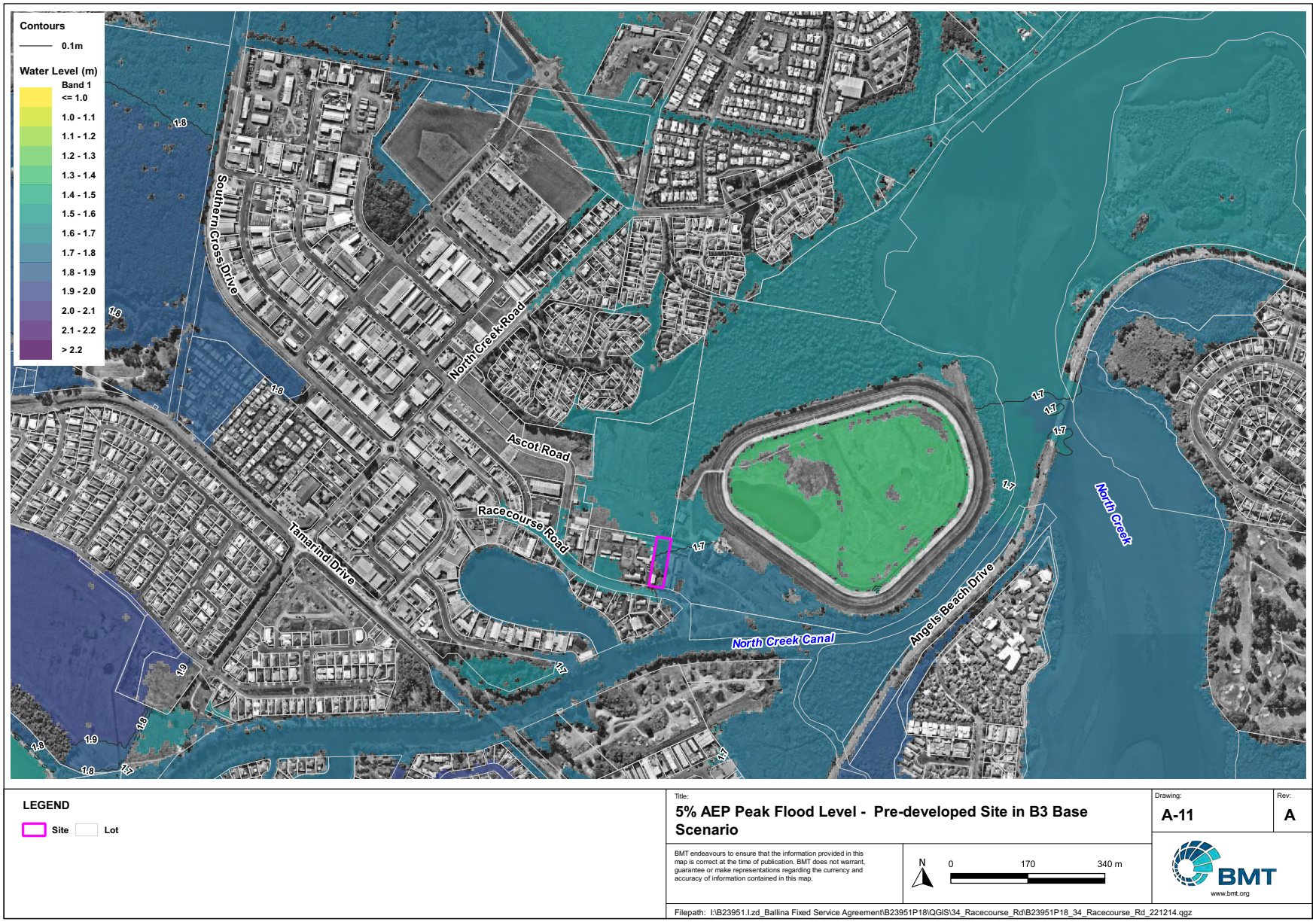

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek Canal
Angels Beach Drive
North Creek
LEGEND
Site
Lot
Title:
20% AEP Peak Flood Level - Post-developed Site in B3 Base Scenario
Drawing:
A-6
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

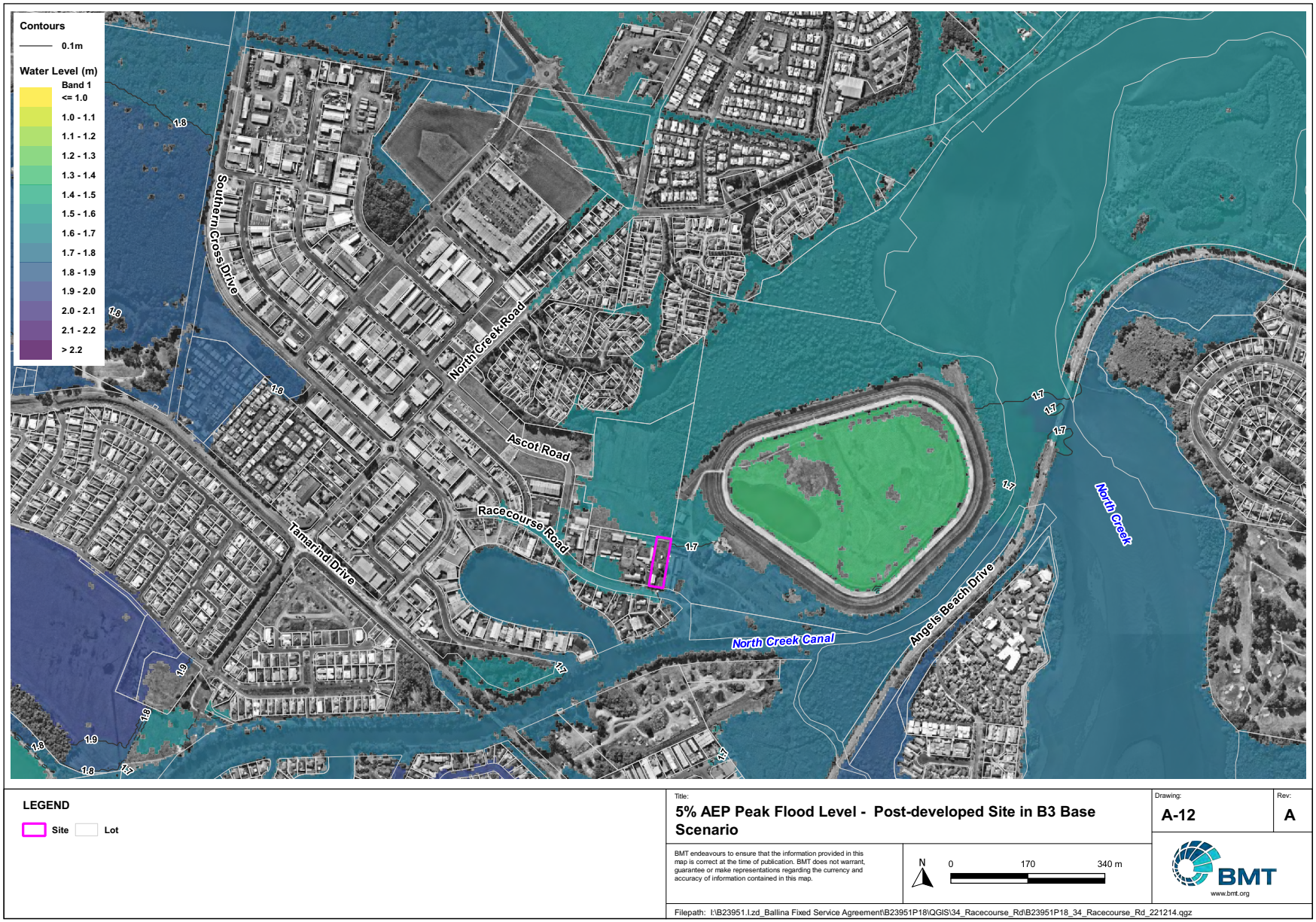

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
5% AEP Peak Flood Level - Pre-developed Site in B1 Base Scenario
Drawing:
A-7
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

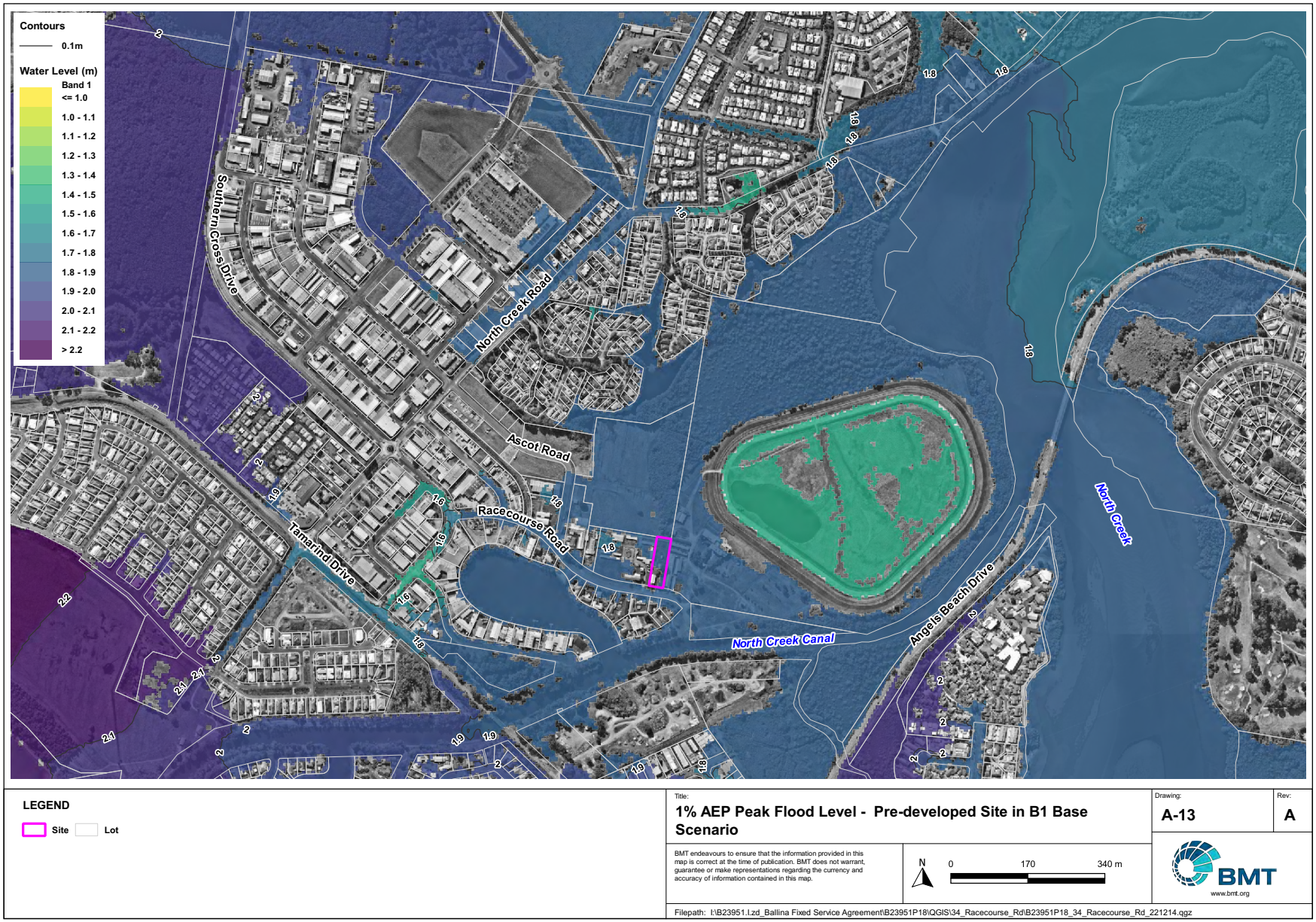

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
5% AEP Peak Flood Level - Post-developed Site in B1 Base Scenario
Drawing:
A-8
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

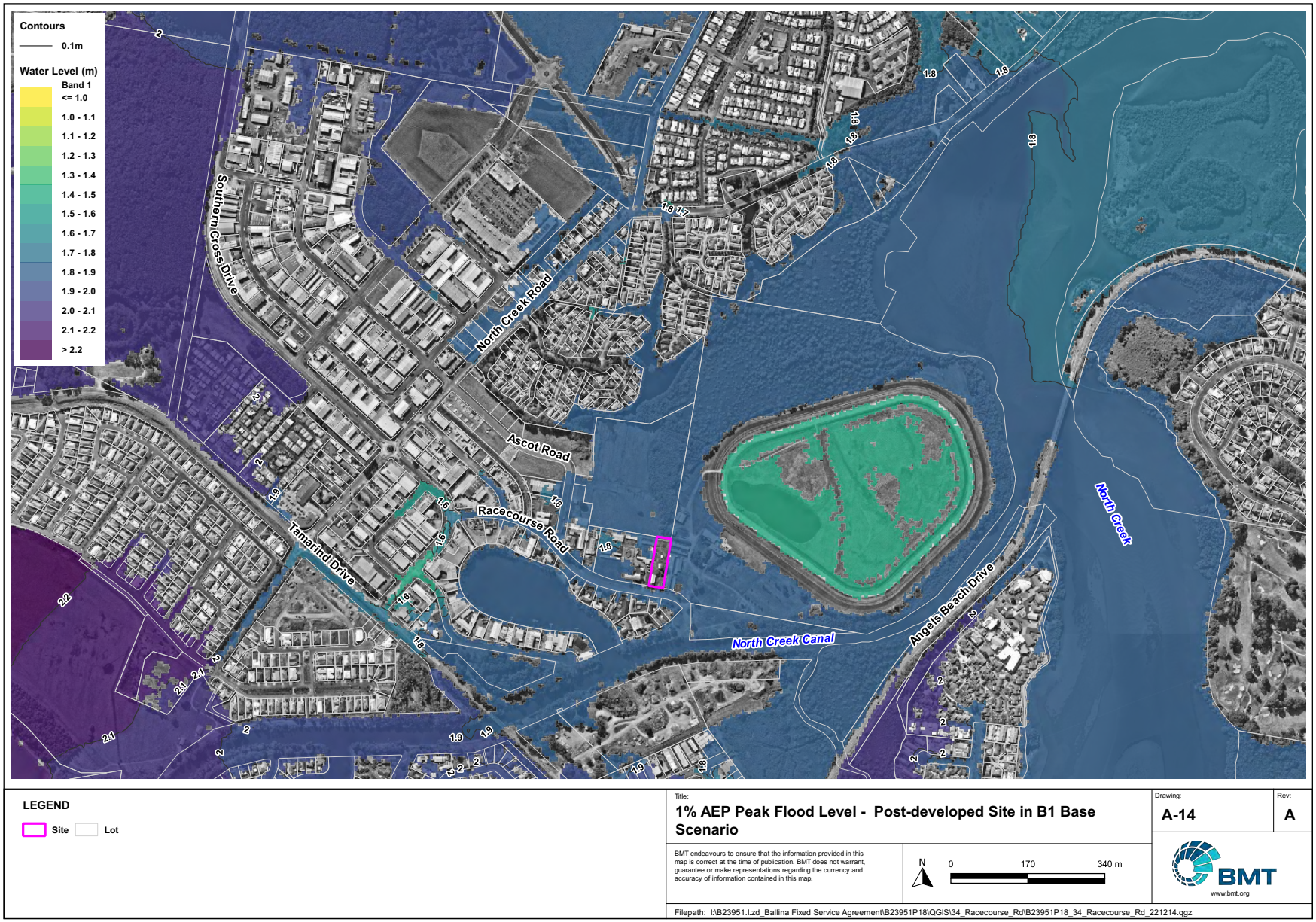

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
5% AEP Peak Flood Level - Pre-developed Site in B2 Base Scenario
Drawing:
A-9
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

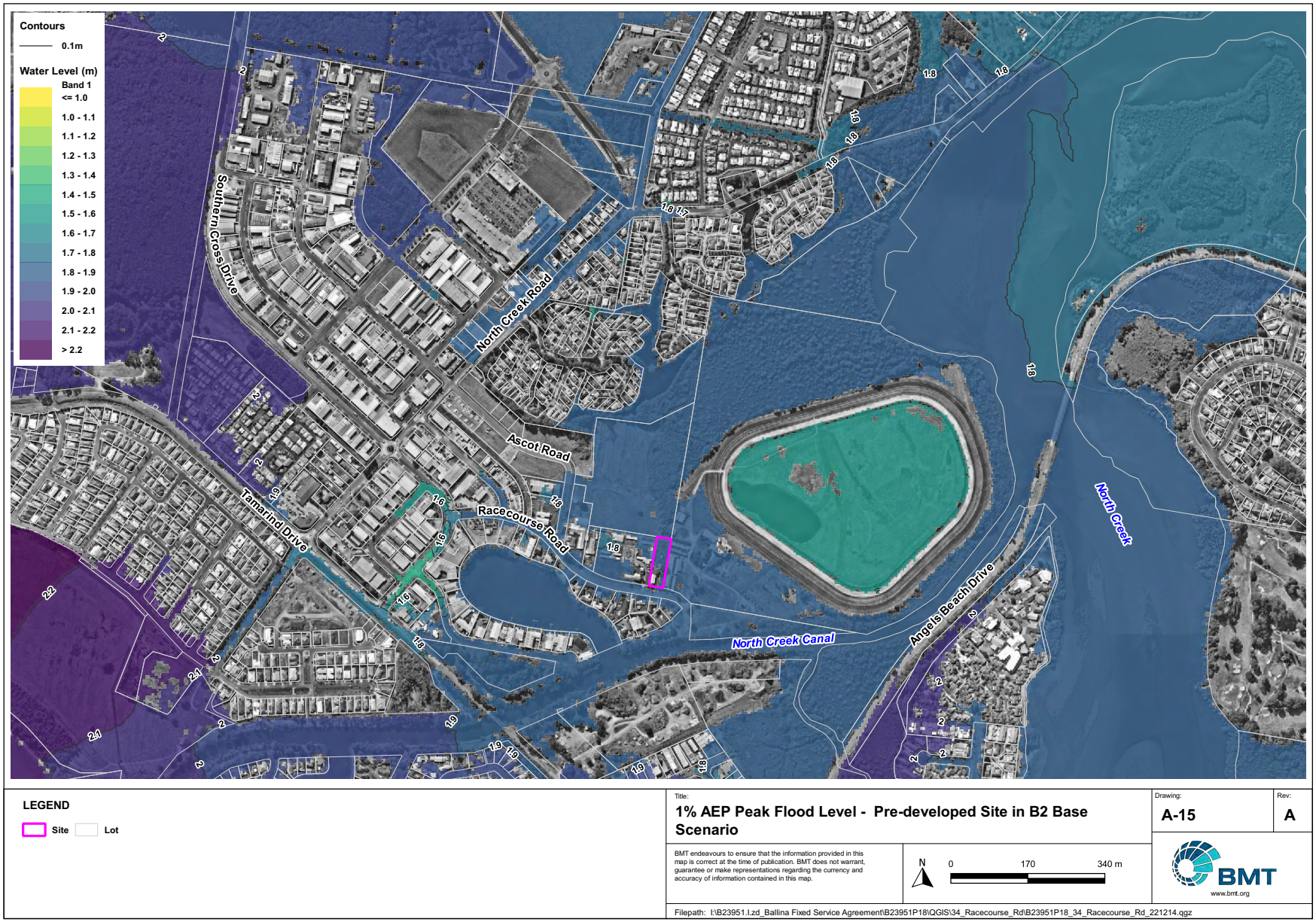

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
1.7
1.8
1.9
LEGEND
Site
Lot
Title:
5% AEP Peak Flood Level - Post-developed Site in B2 Base Scenario
Drawing:
A-10
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

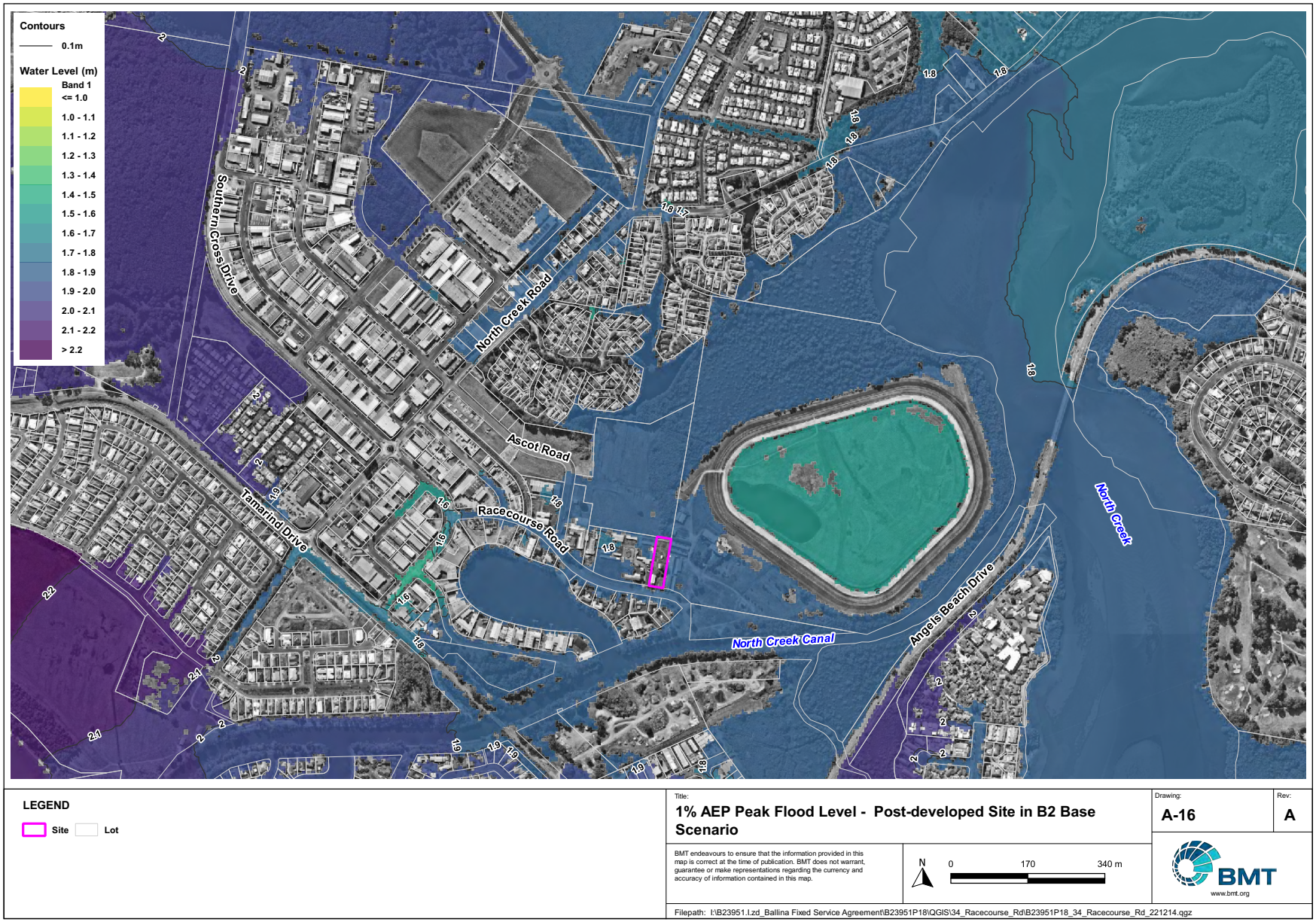

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
5% AEP Peak Flood Level - Pre-developed Site in B3 Base Scenario
Drawing:
A-11
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

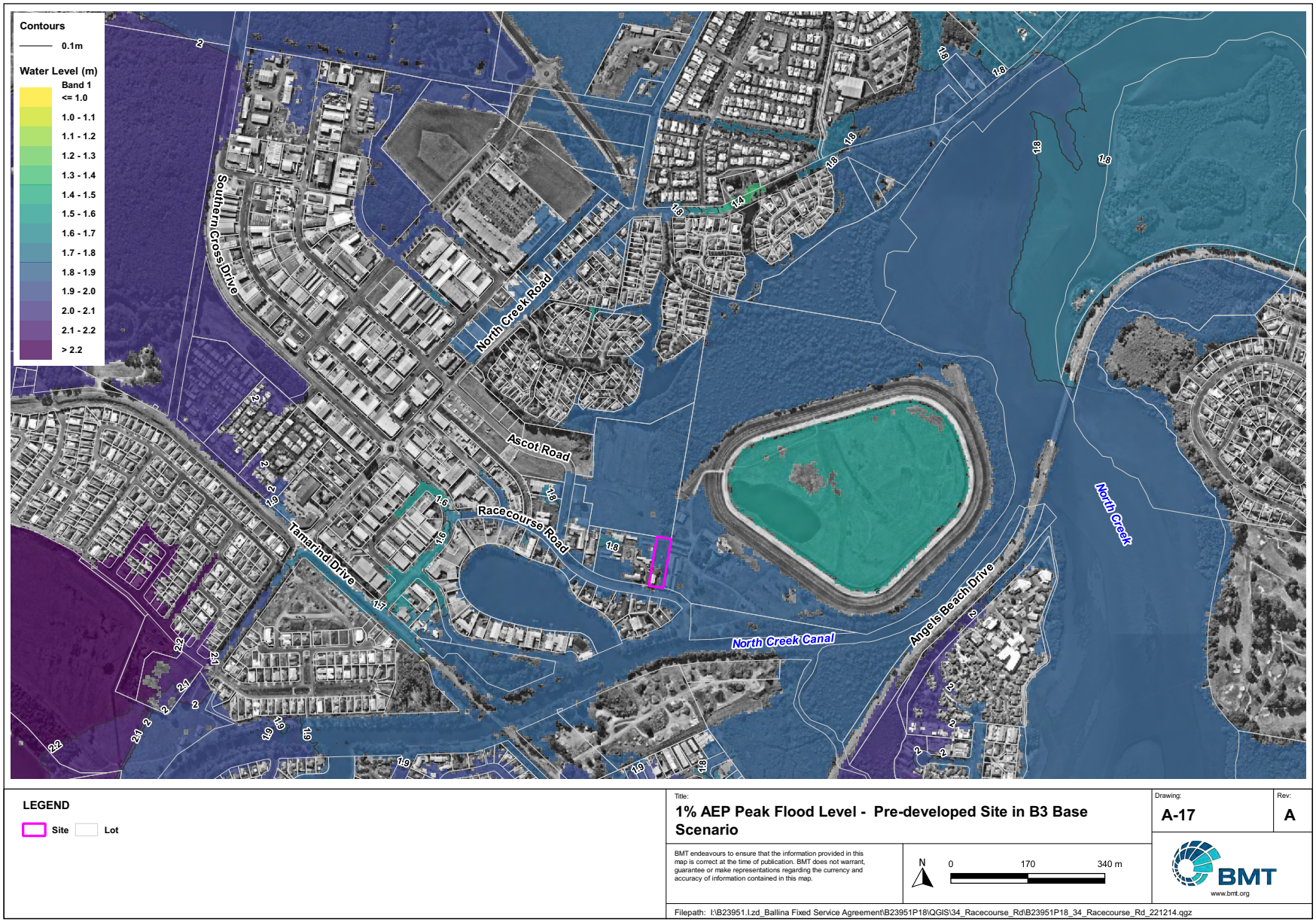

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
1.8
1.7
1.9
LEGEND
Site
Lot
Title:
5% AEP Peak Flood Level - Post-developed Site in B3 Base Scenario
Drawing:
A-12
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

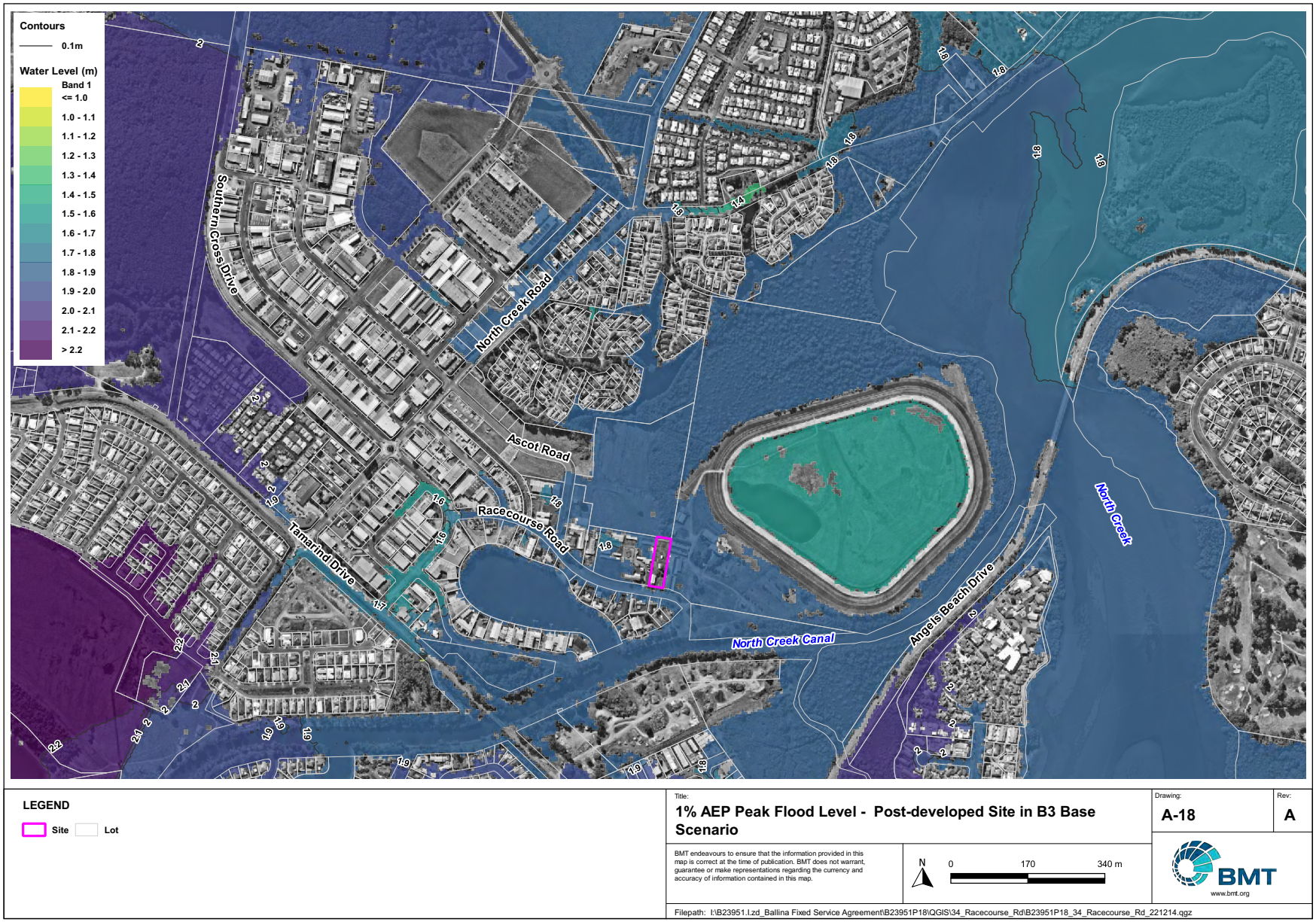

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
1% AEP Peak Flood Level - Pre-developed Site in B1 Base Scenario
Drawing:
A-13
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

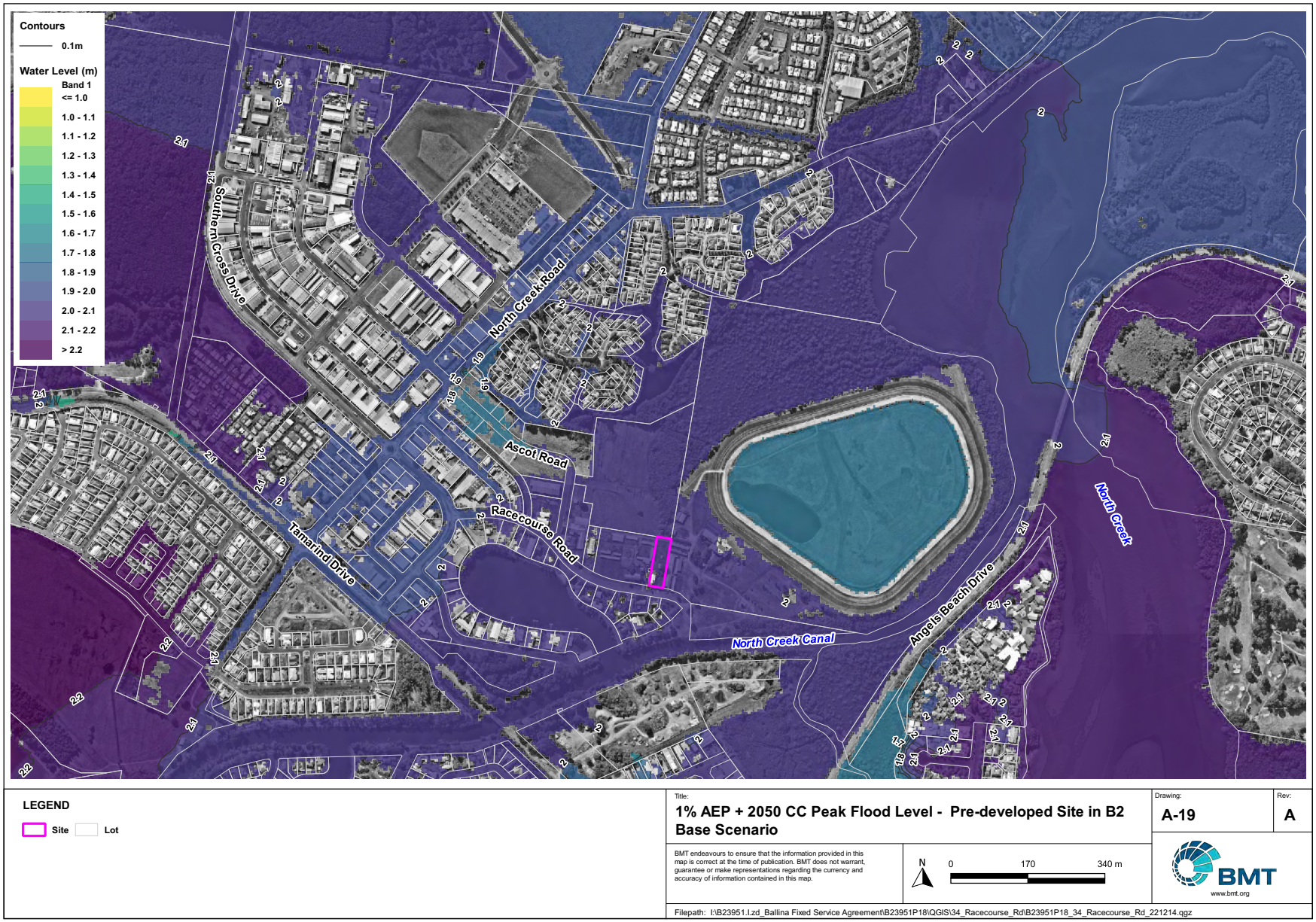

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
1% AEP Peak Flood Level - Post-developed Site in B1 Base Scenario
Drawing:
A-14
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

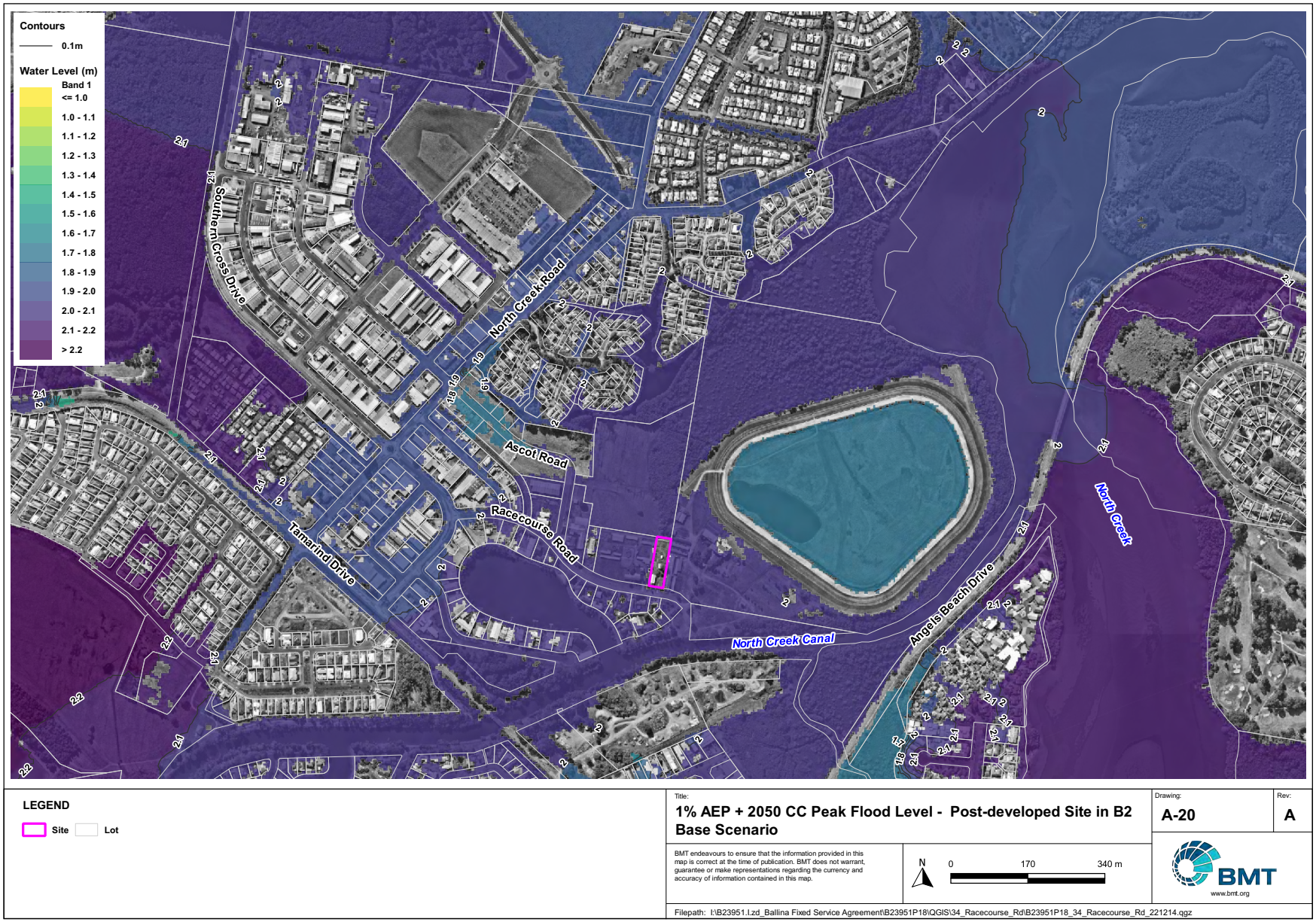

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Tamarind Drive
Racecourse Road
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
1% AEP Peak Flood Level - Pre-developed Site in B2 Base Scenario
Drawing:
A-15
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

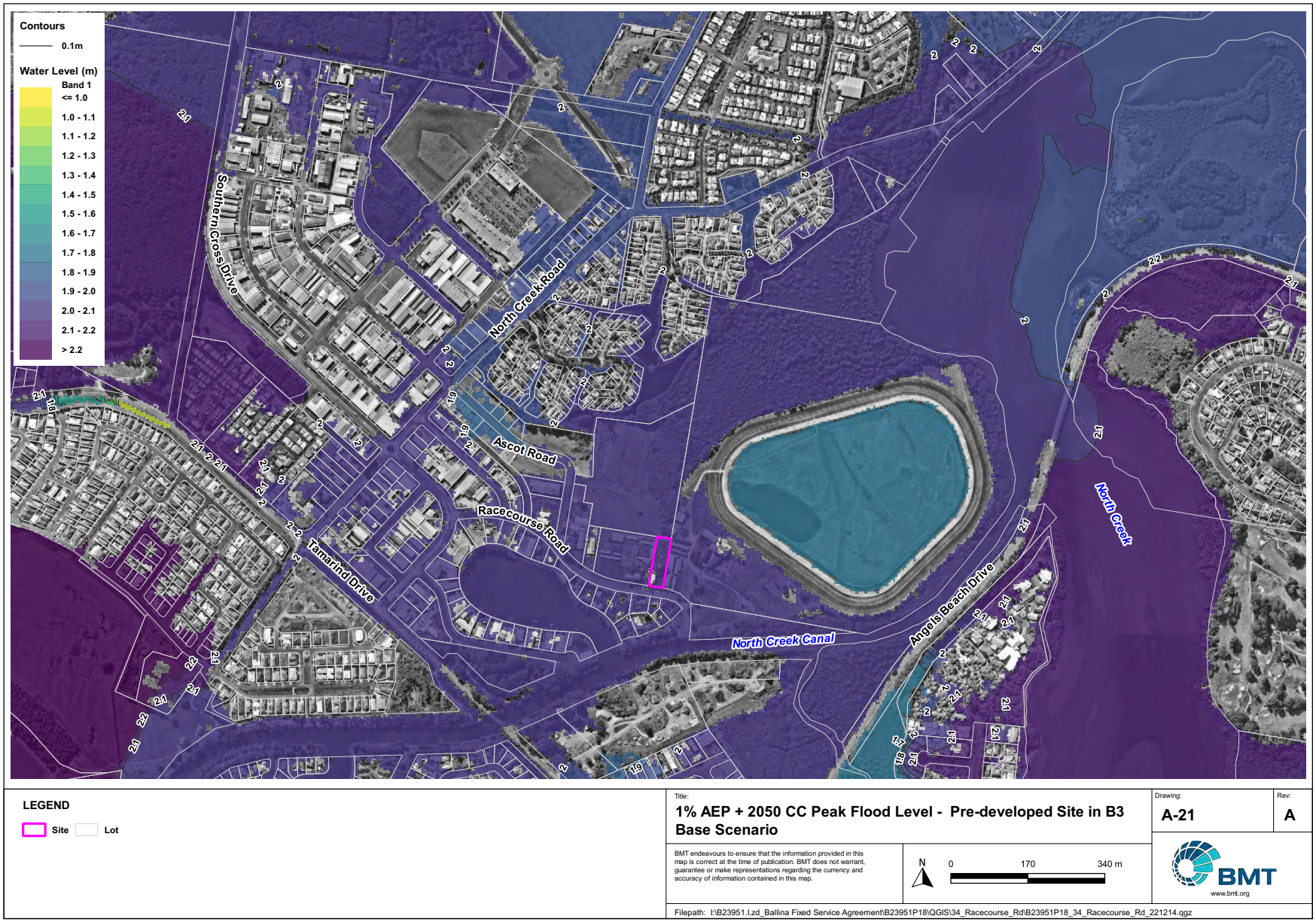

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
1% AEP Peak Flood Level - Post-developed Site in B2 Base Scenario
Drawing:
A-16
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

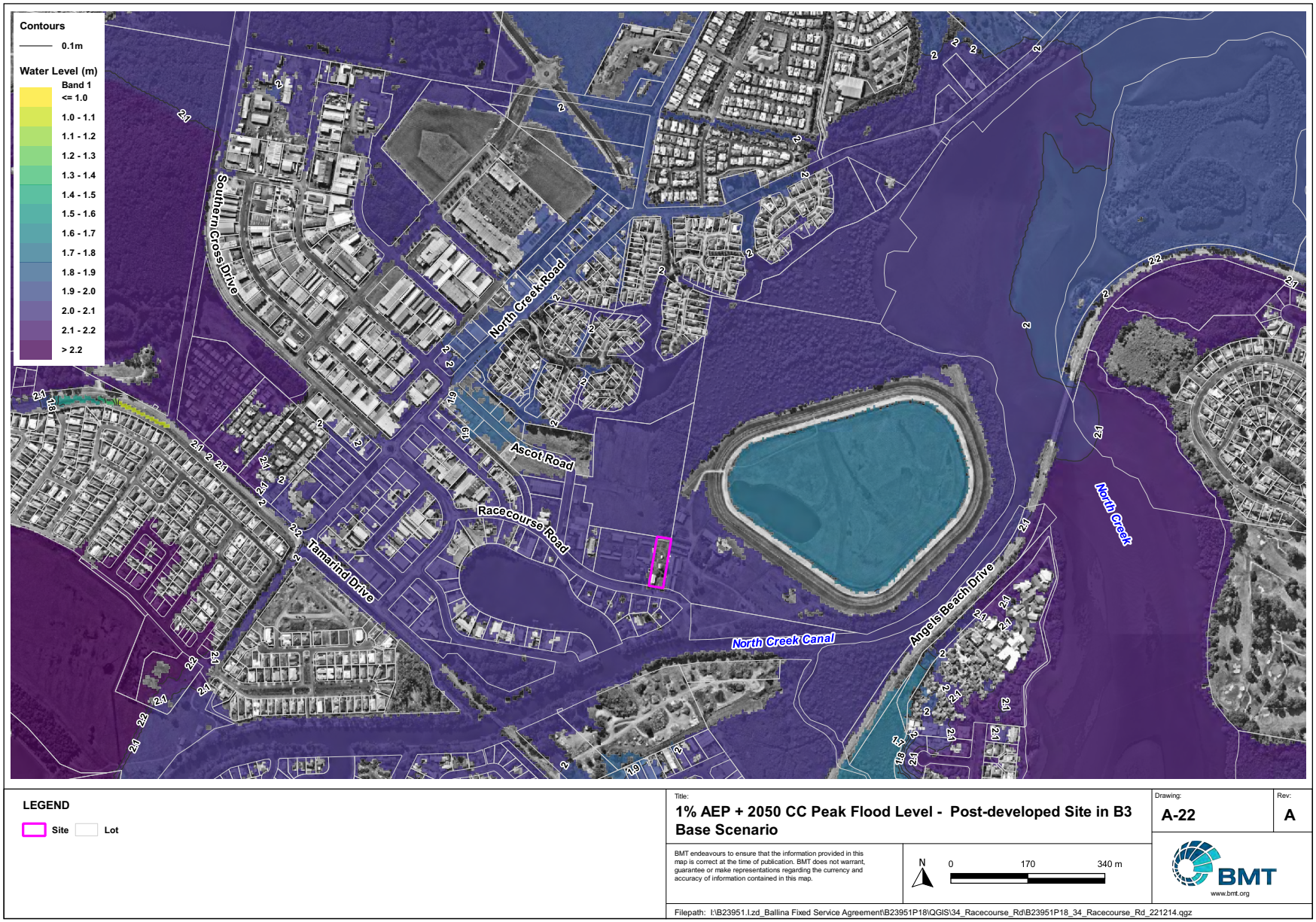

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
1% AEP Peak Flood Level - Pre-developed Site in B3 Base Scenario
Drawing:
A-17
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

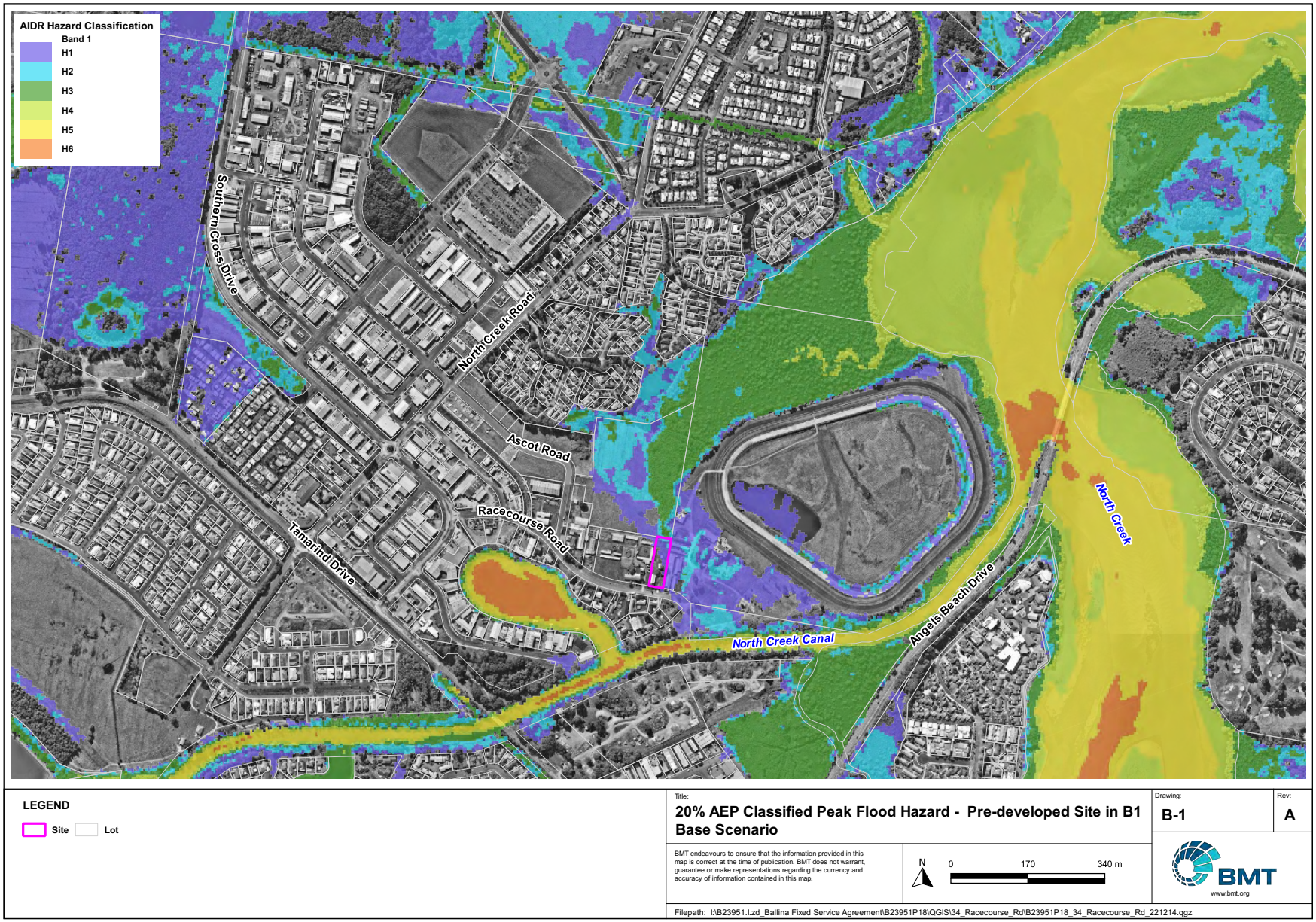

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
1% AEP Peak Flood Level - Post-developed Site in B3 Base Scenario
Drawing:
A-18
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

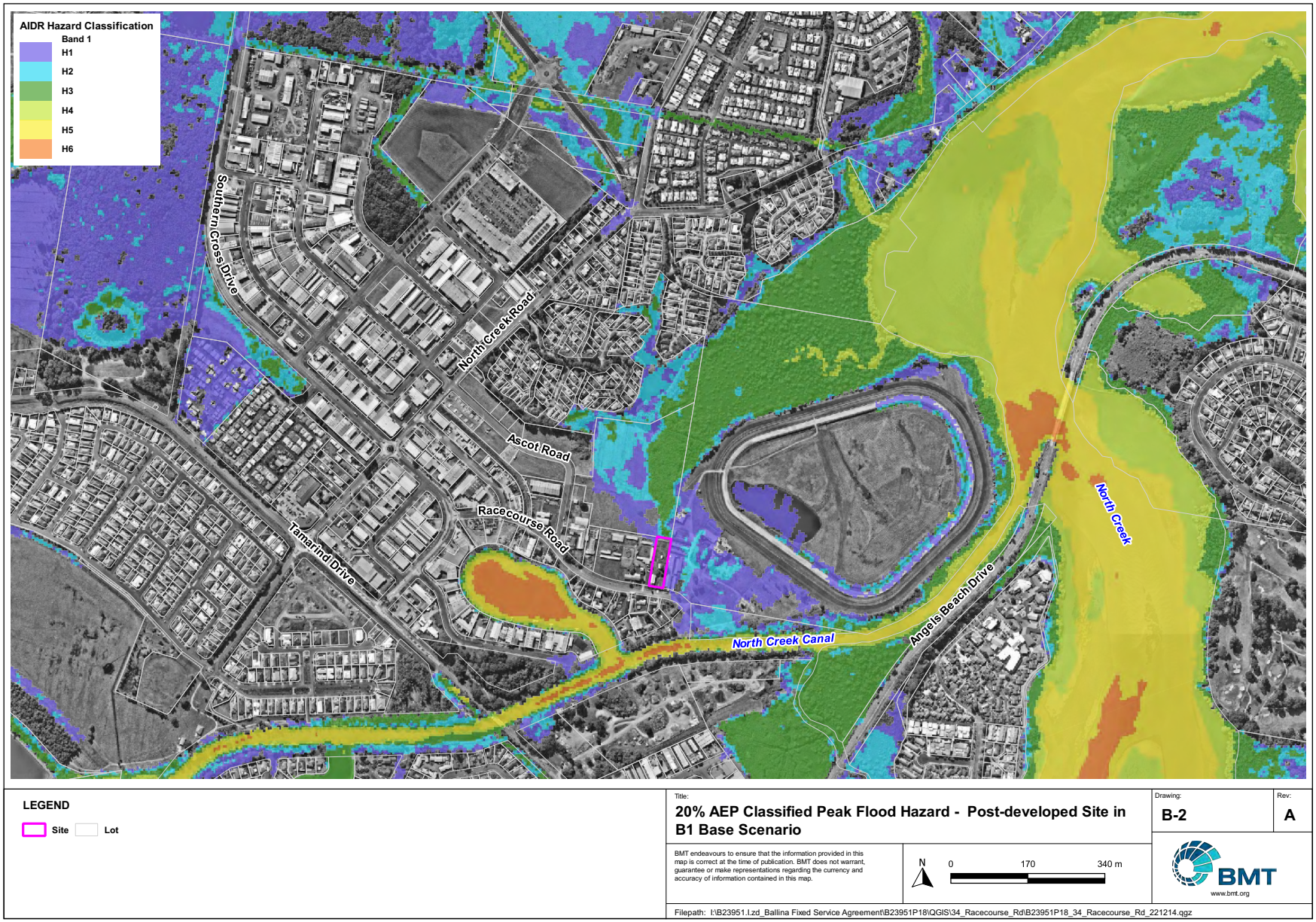

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
1% AEP + 2050 CC Peak Flood Level - Pre-developed Site in B2 Base Scenario
Drawing:
A-19
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

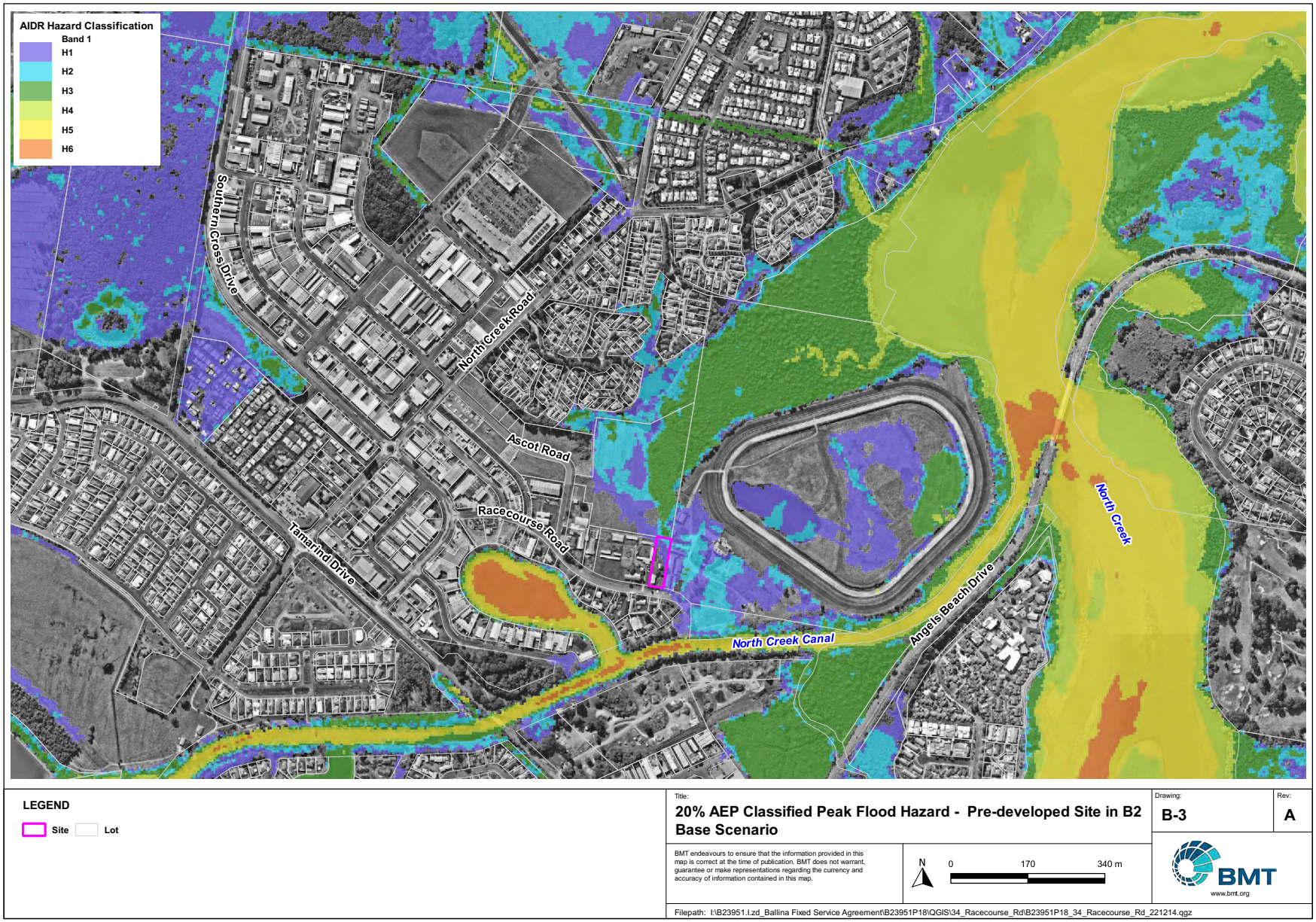

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
1% AEP + 2050 CC Peak Flood Level - Post-developed Site in B2 Base Scenario
Drawing:
A-20
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

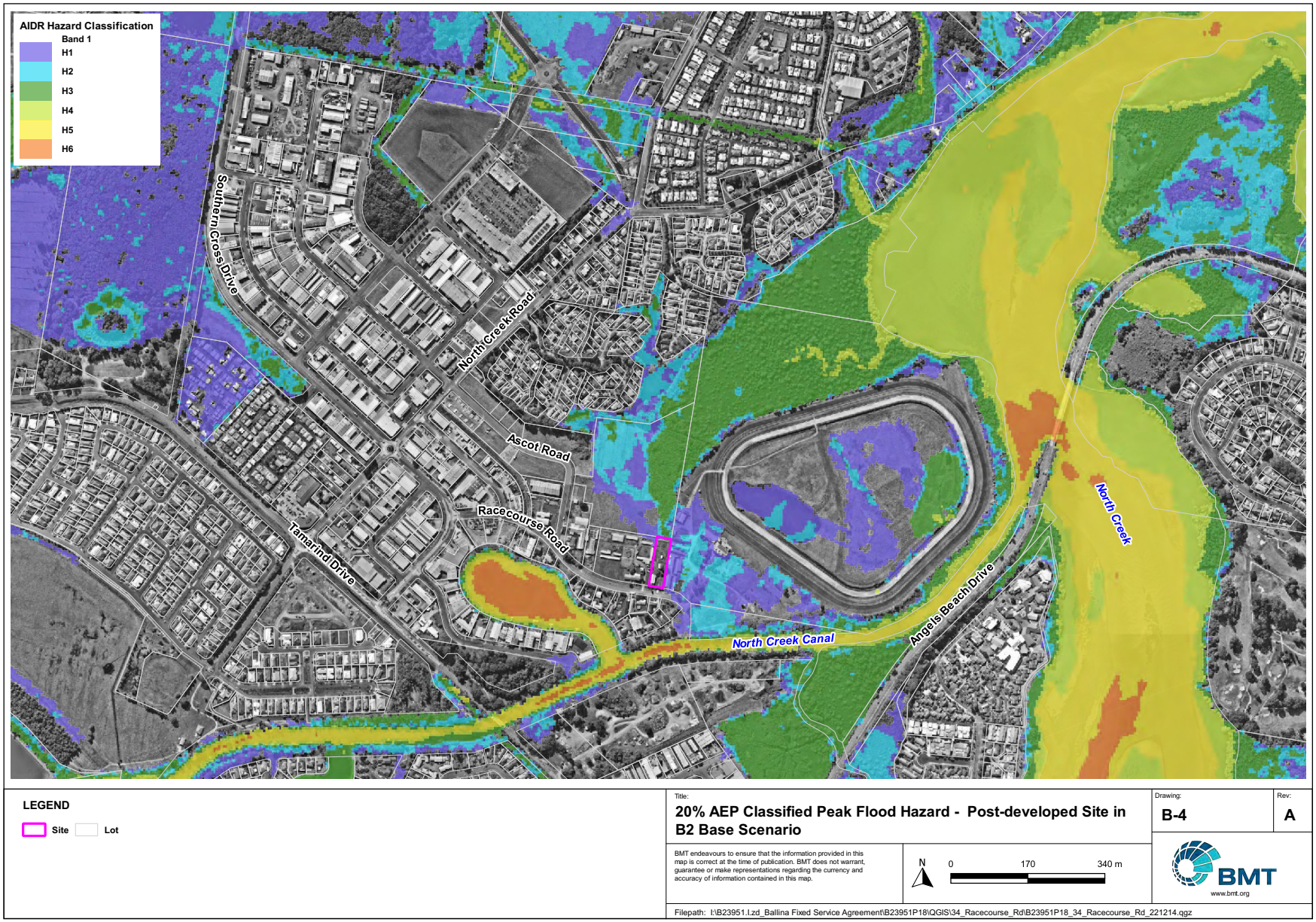

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
1% AEP + 2050 CC Peak Flood Level - Pre-developed Site in B3 Base Scenario
Drawing:
A-21
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

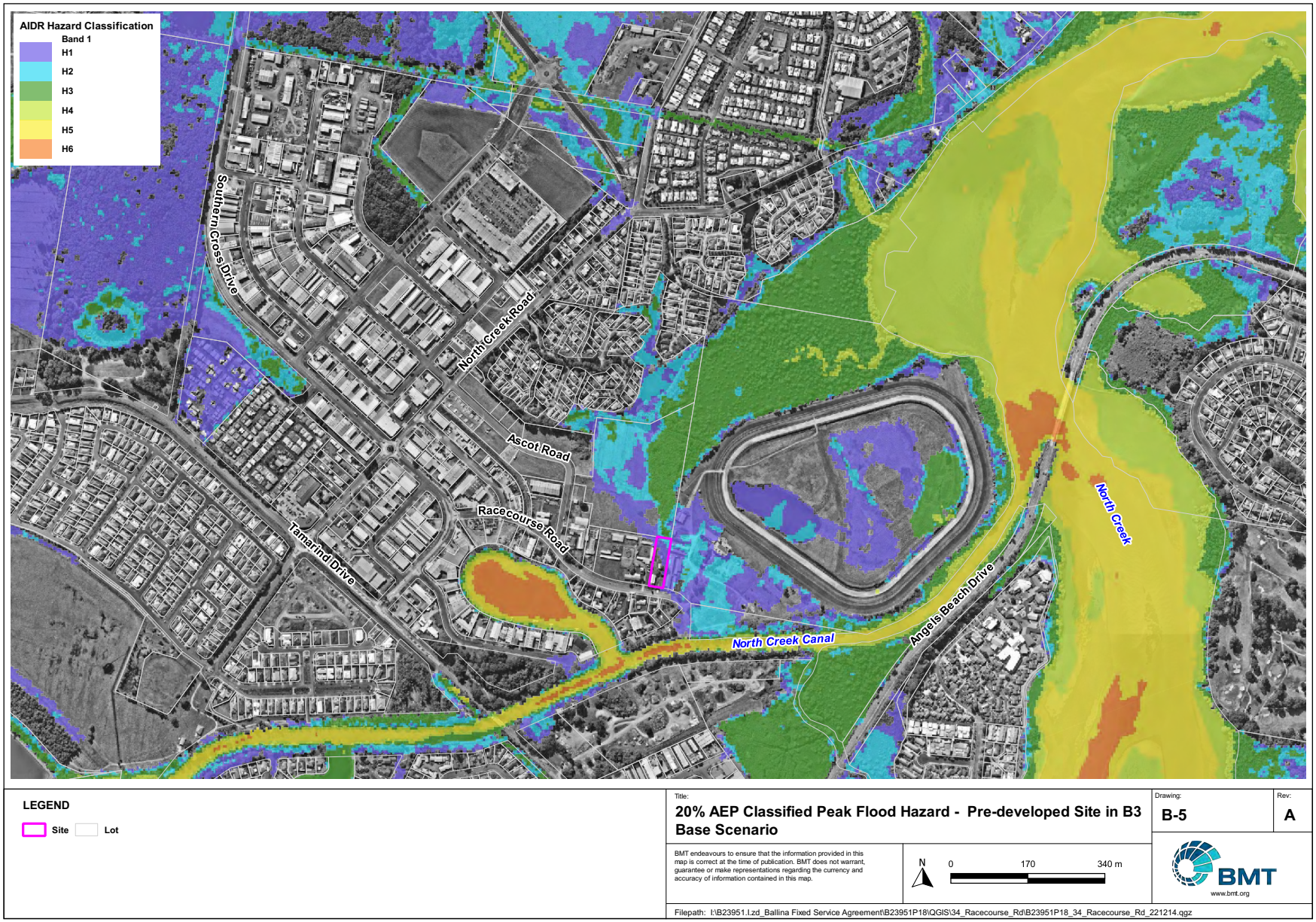

Contours
0.1m
Water Level (m)
Band 1
<= 1.0
1.0 - 1.1
1.1 - 1.2
1.2 - 1.3
1.3 - 1.4
1.4 - 1.5
1.5 - 1.6
1.6 - 1.7
1.7 - 1.8
1.8 - 1.9
1.9 - 2.0
2.0 - 2.1
2.1 - 2.2
> 2.2
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
1% AEP + 2050 CC Peak Flood Level - Post-developed Site in B3 Base Scenario
Drawing:
A-22
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

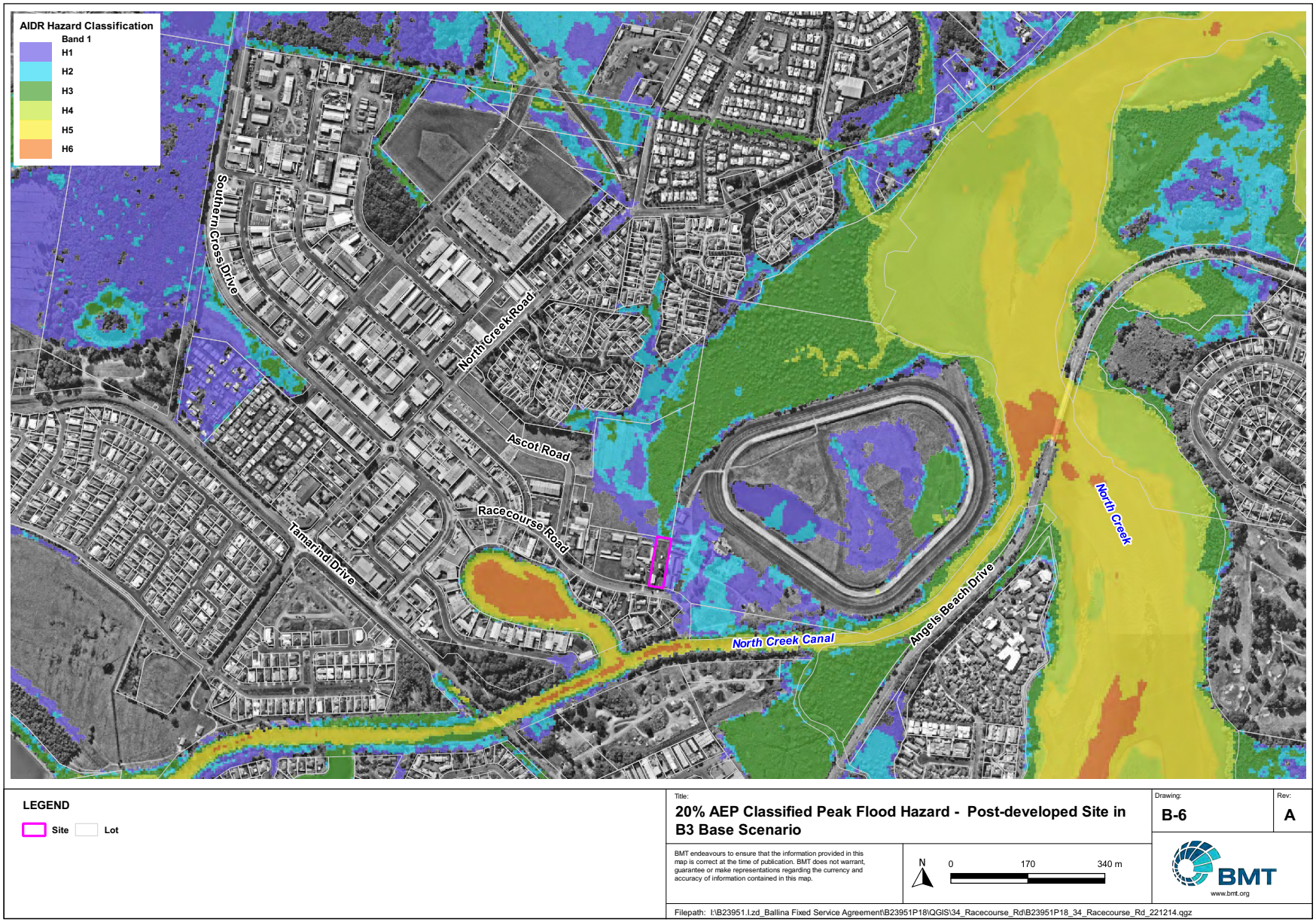

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelsea Beach Drive
LEGEND
Site
Lot
Title:
20% AEP Classified Peak Flood Hazard - Pre-developed Site in B1 Base Scenario
Drawing:
B-1
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

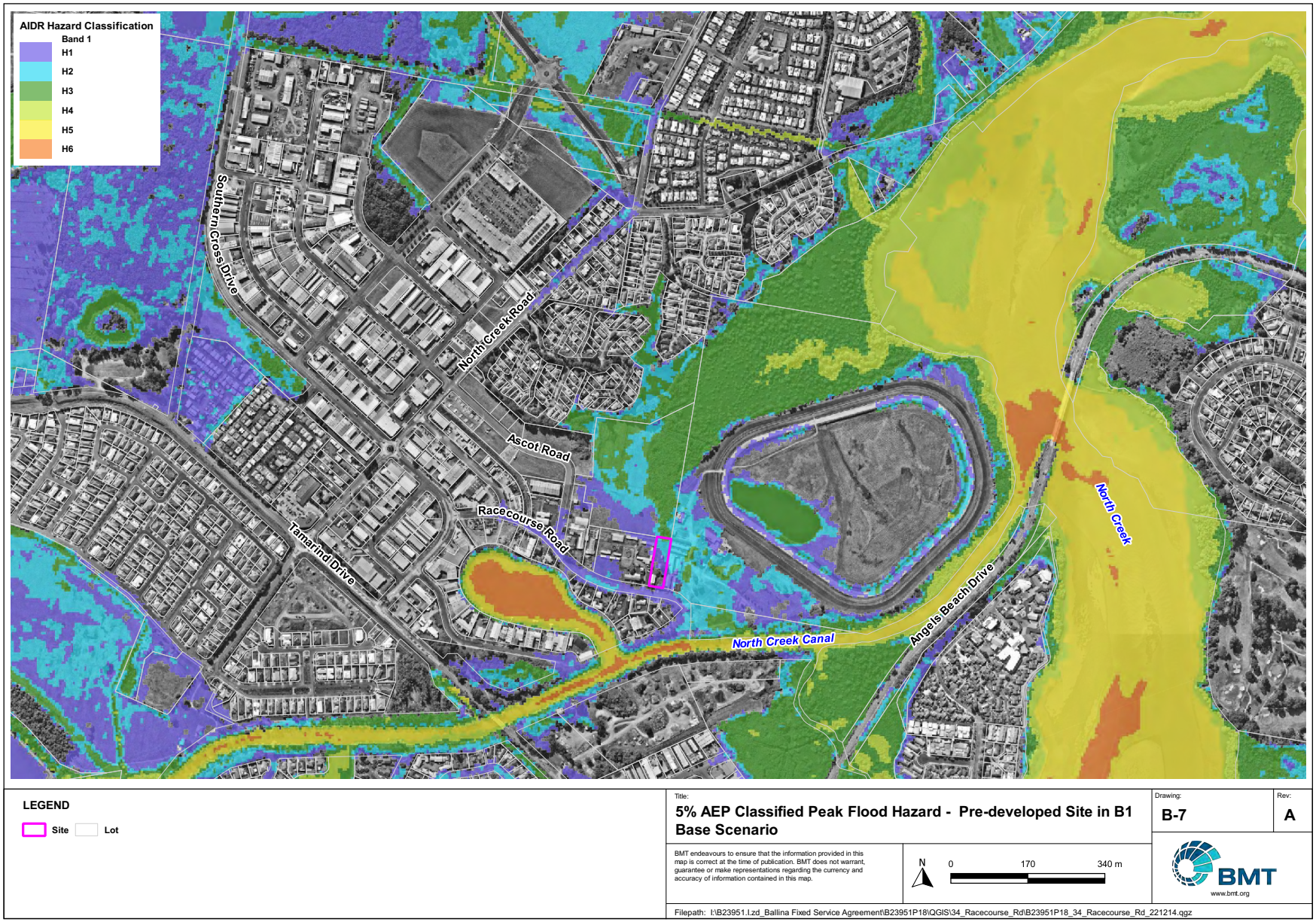

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelsea Beach Drive
LEGEND
Site
Lot
Title:
20% AEP Classified Peak Flood Hazard - Post-developed Site in B1 Base Scenario
Drawing:
B-2
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

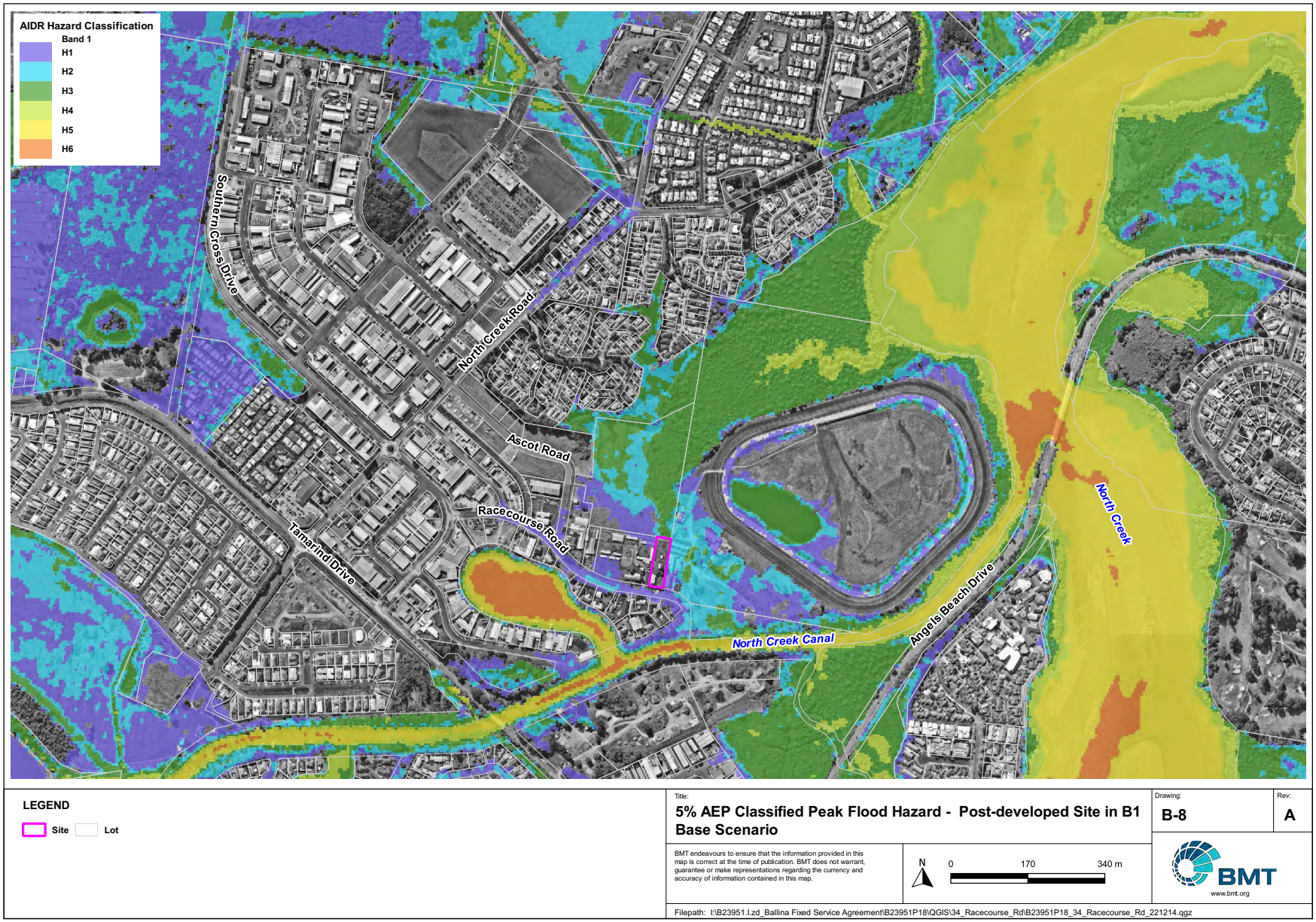

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelsea Beach Drive
LEGEND
Site
Lot
Title:
20% AEP Classified Peak Flood Hazard - Pre-developed Site in B2 Base Scenario
Drawing:
B-3
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

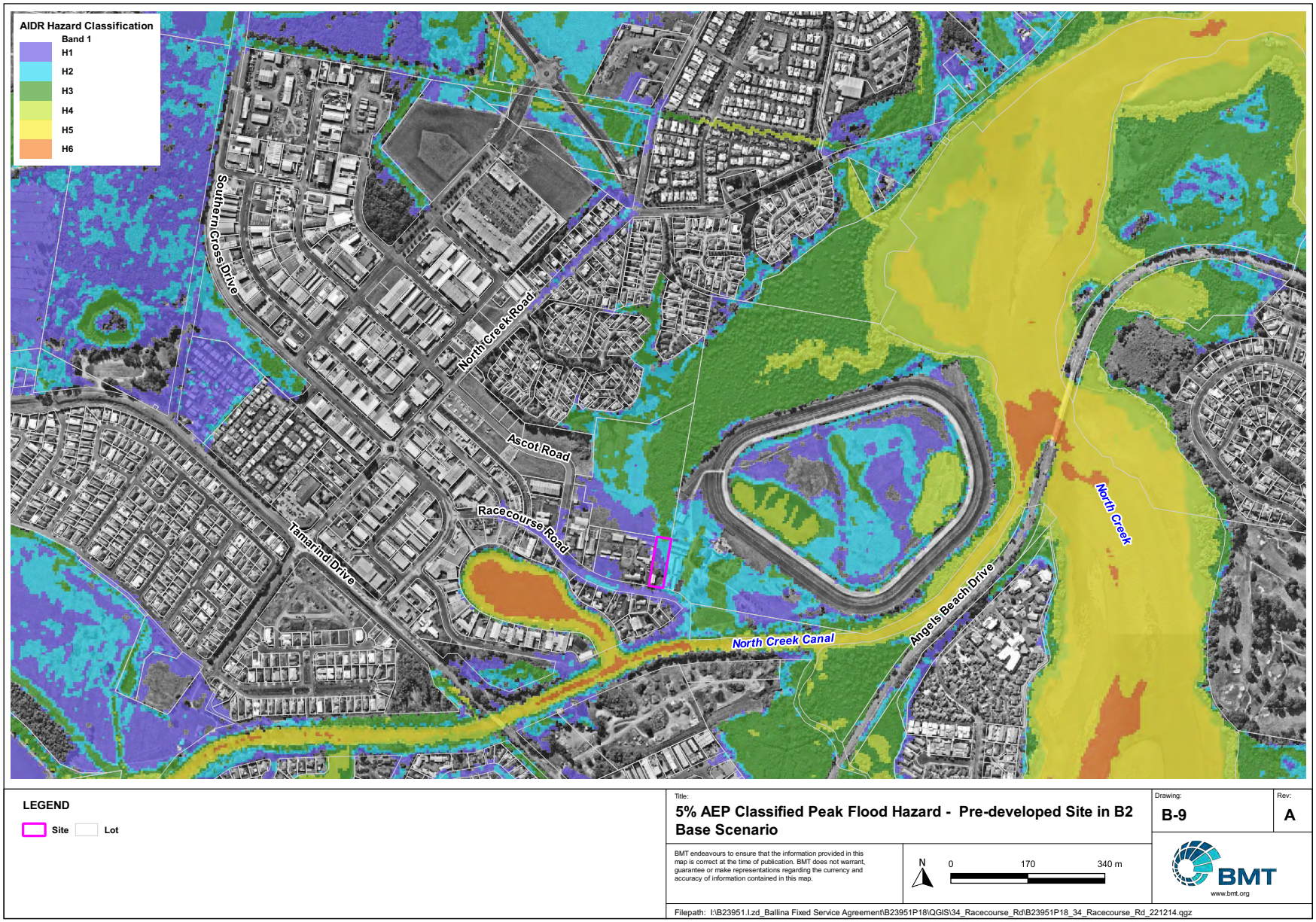

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelsea Beach Drive
LEGEND
Site
Lot
Title:
20% AEP Classified Peak Flood Hazard - Post-developed Site in B2 Base Scenario
Drawing:
B-4
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

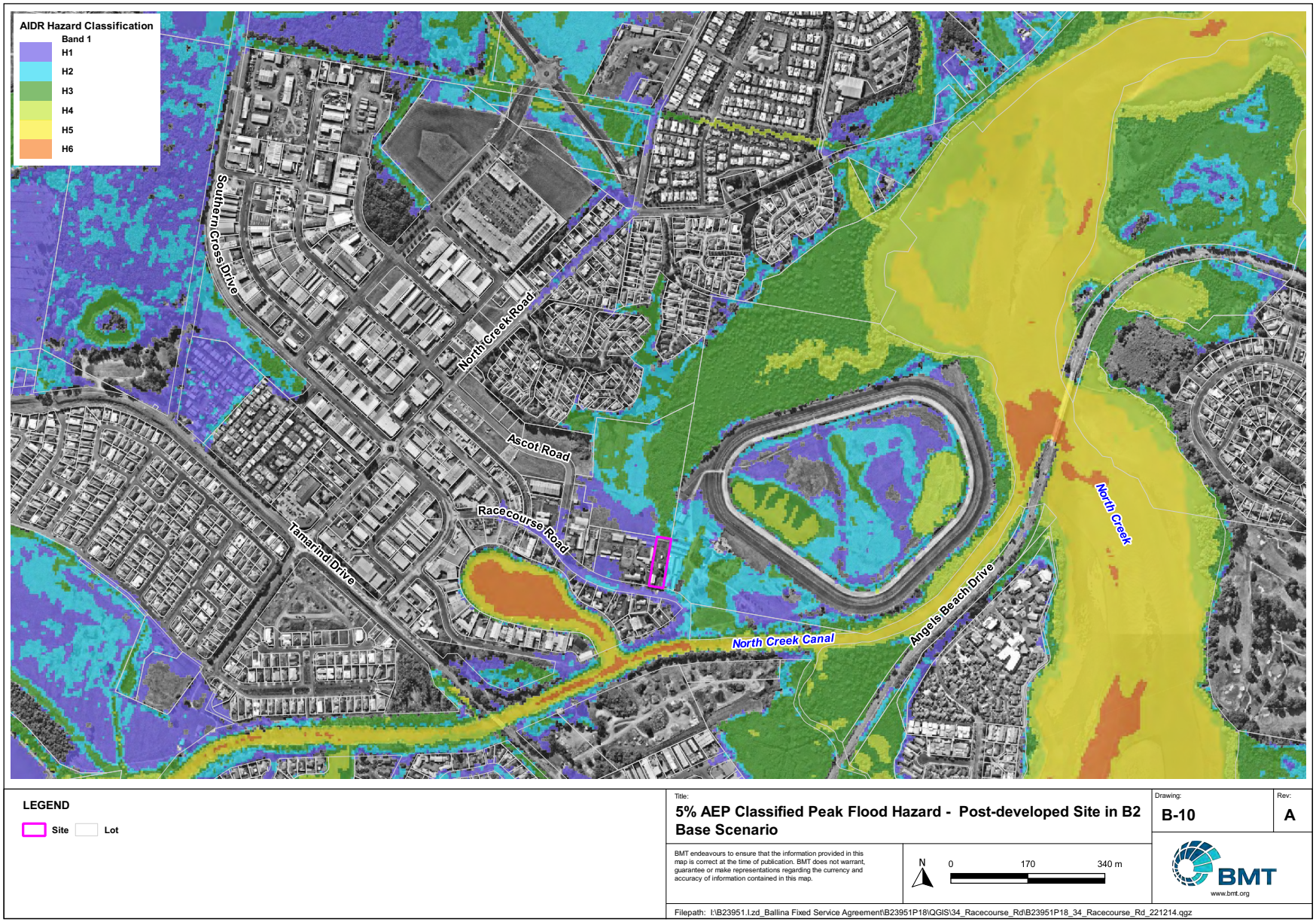

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelsea Beach Drive
LEGEND
Site
Lot
Title:
20% AEP Classified Peak Flood Hazard - Pre-developed Site in B3 Base Scenario
Drawing:
B-5
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

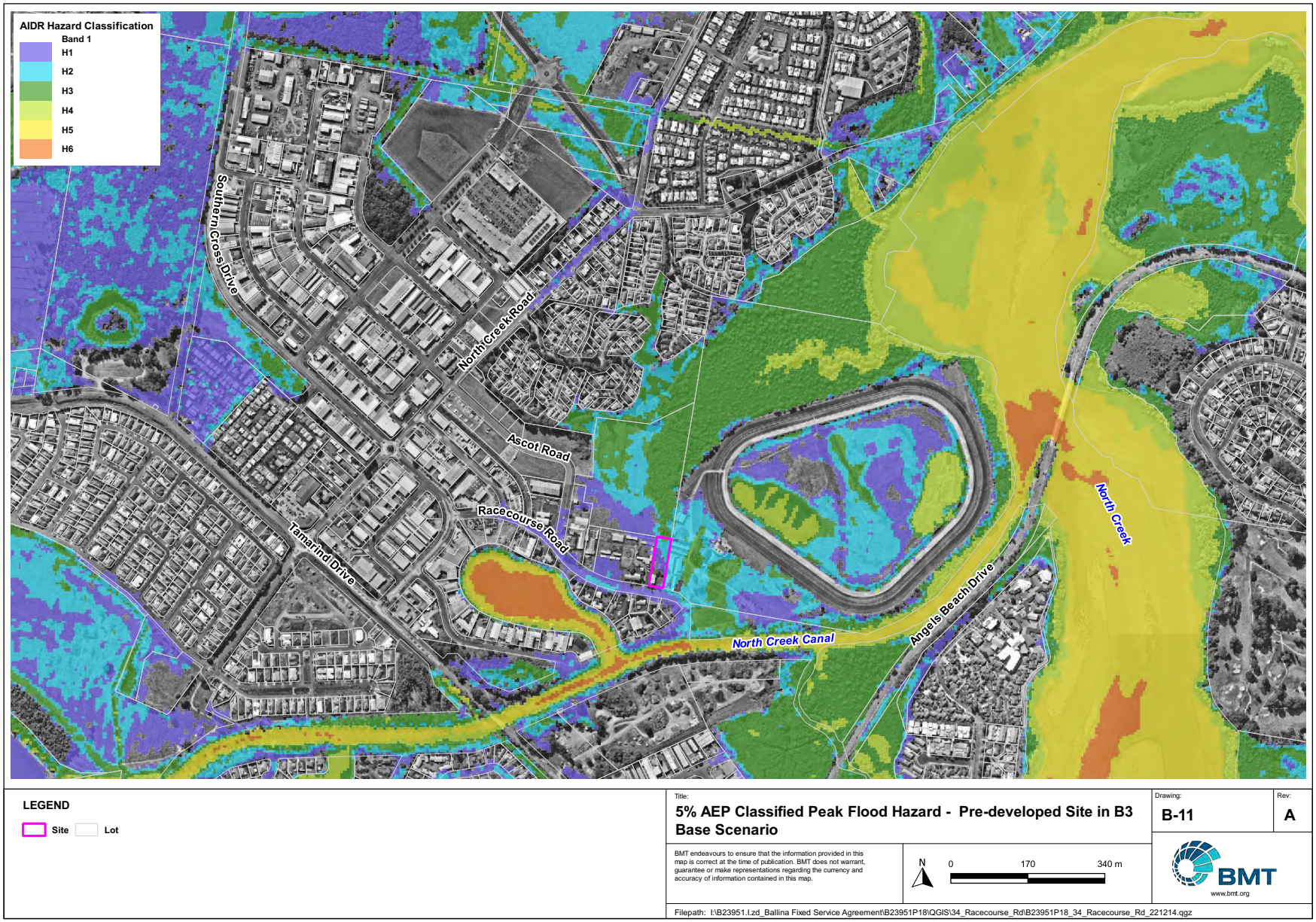

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelis Beach Drive
LEGEND
Site
Lot
Title:
20% AEP Classified Peak Flood Hazard - Post-developed Site in B3 Base Scenario
Drawing:
B-6
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

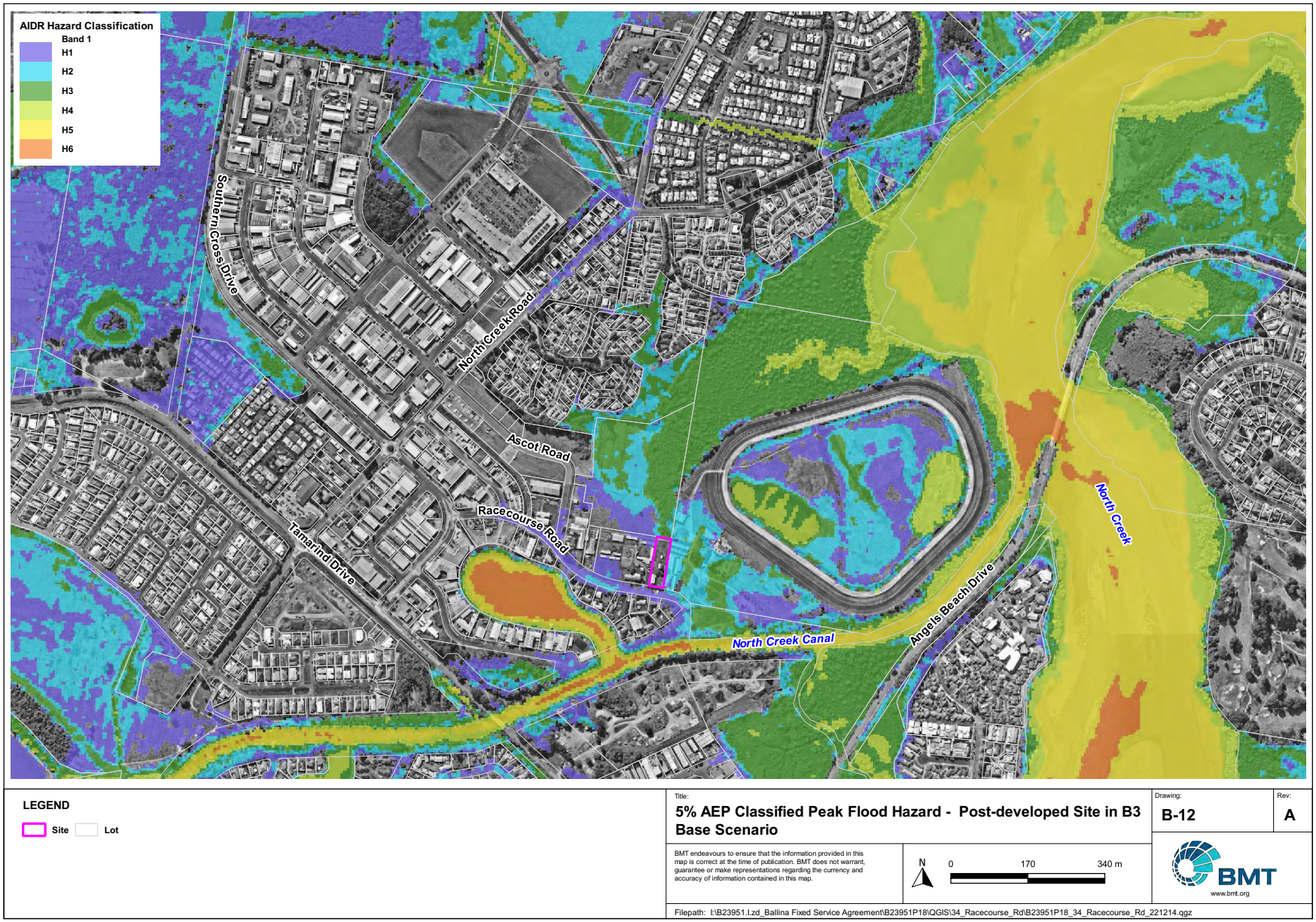

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelis Beach Drive
LEGEND
Site
Lot
Title:
5% AEP Classified Peak Flood Hazard - Pre-developed Site in B1 Base Scenario
Drawing:
B-7
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

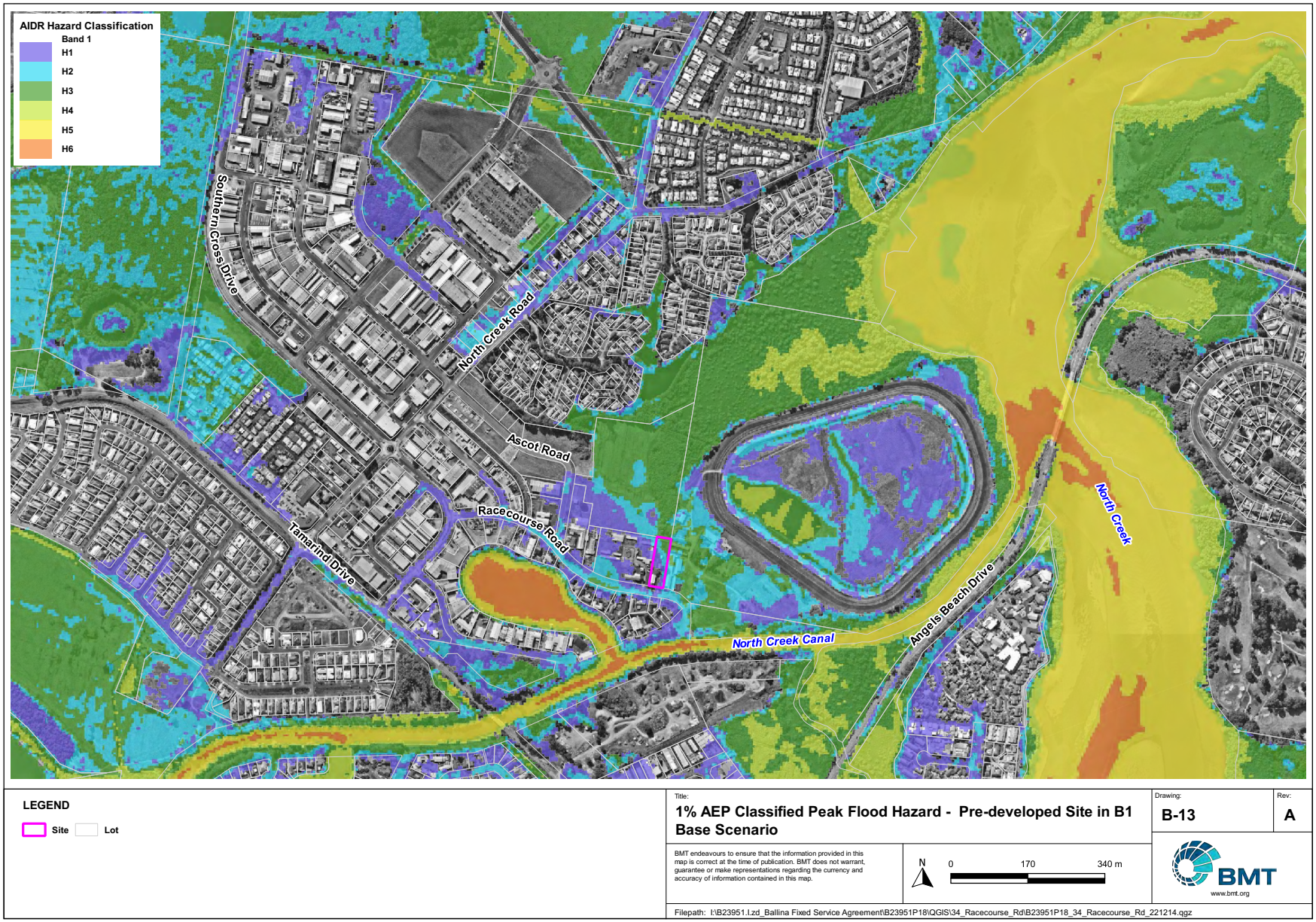

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelis Beach Drive
LEGEND
Site
Lot
Title:
5% AEP Classified Peak Flood Hazard - Post-developed Site in B1 Base Scenario
Drawing:
B-8
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

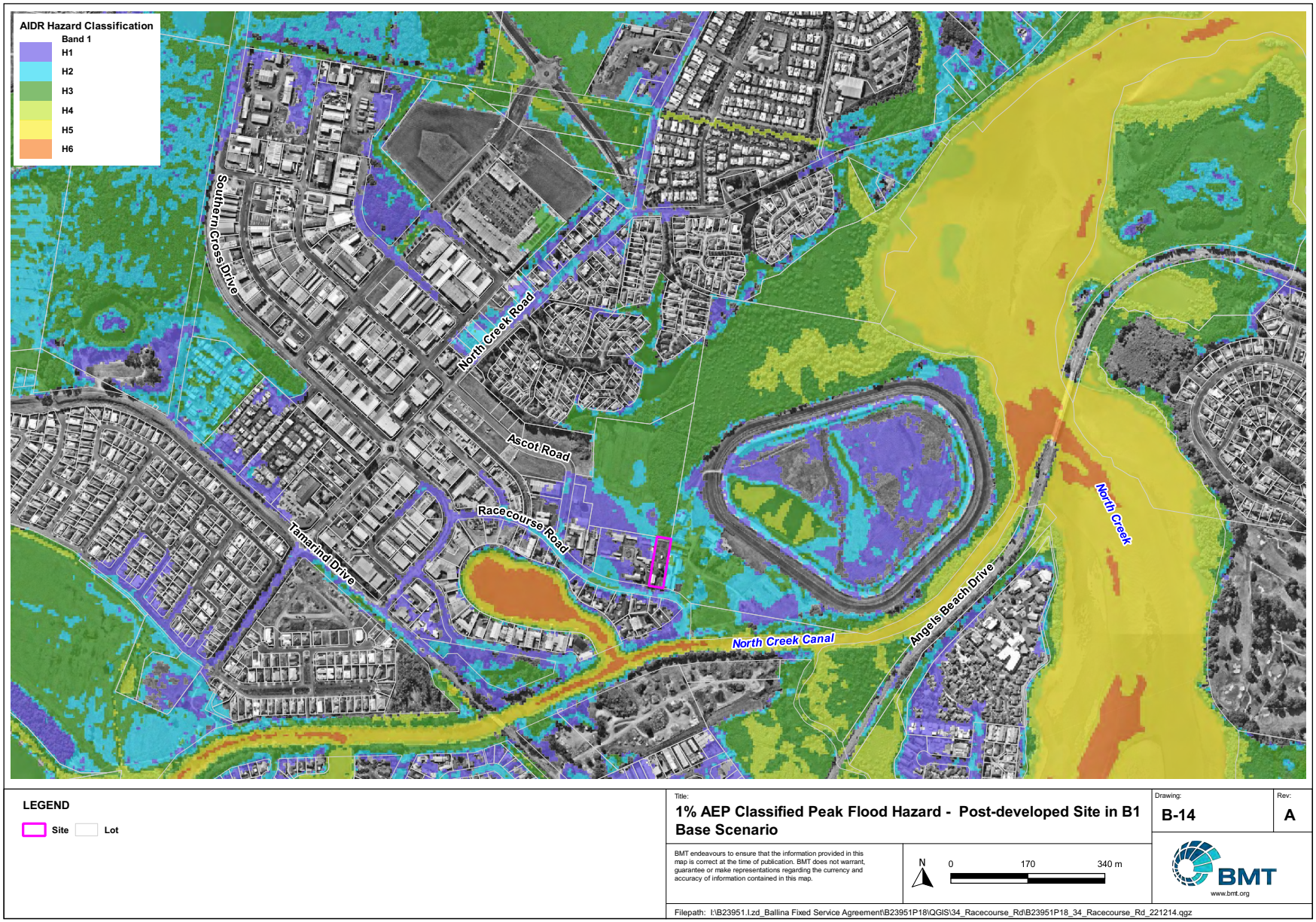

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelsea Beach Drive
LEGEND
Site
Lot
Title:
5% AEP Classified Peak Flood Hazard - Pre-developed Site in B2 Base Scenario
Drawing:
B-9
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

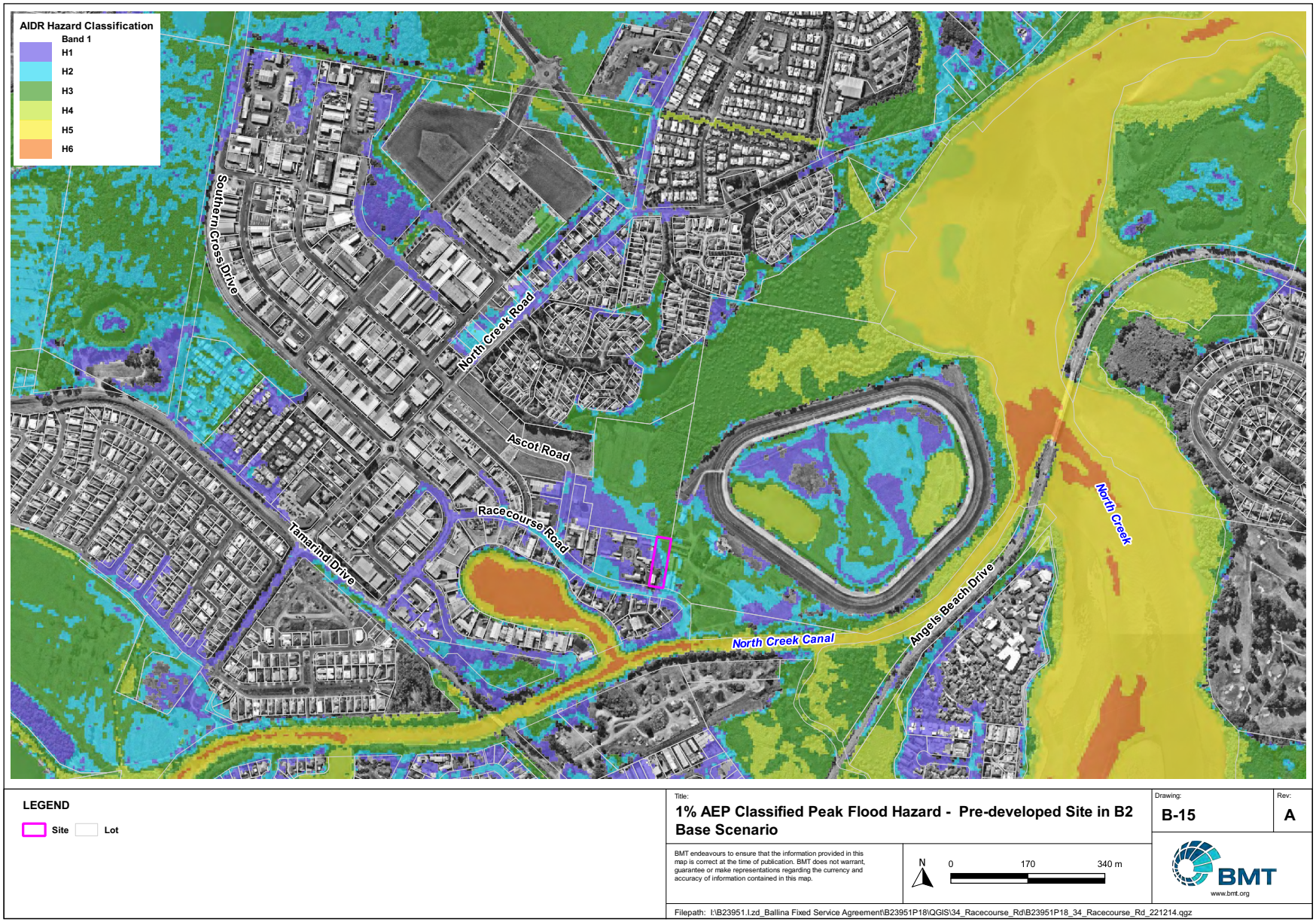

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelsea Beach Drive
LEGEND
Site
Lot
Title:
5% AEP Classified Peak Flood Hazard - Post-developed Site in B2 Base Scenario
Drawing:
B-10
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

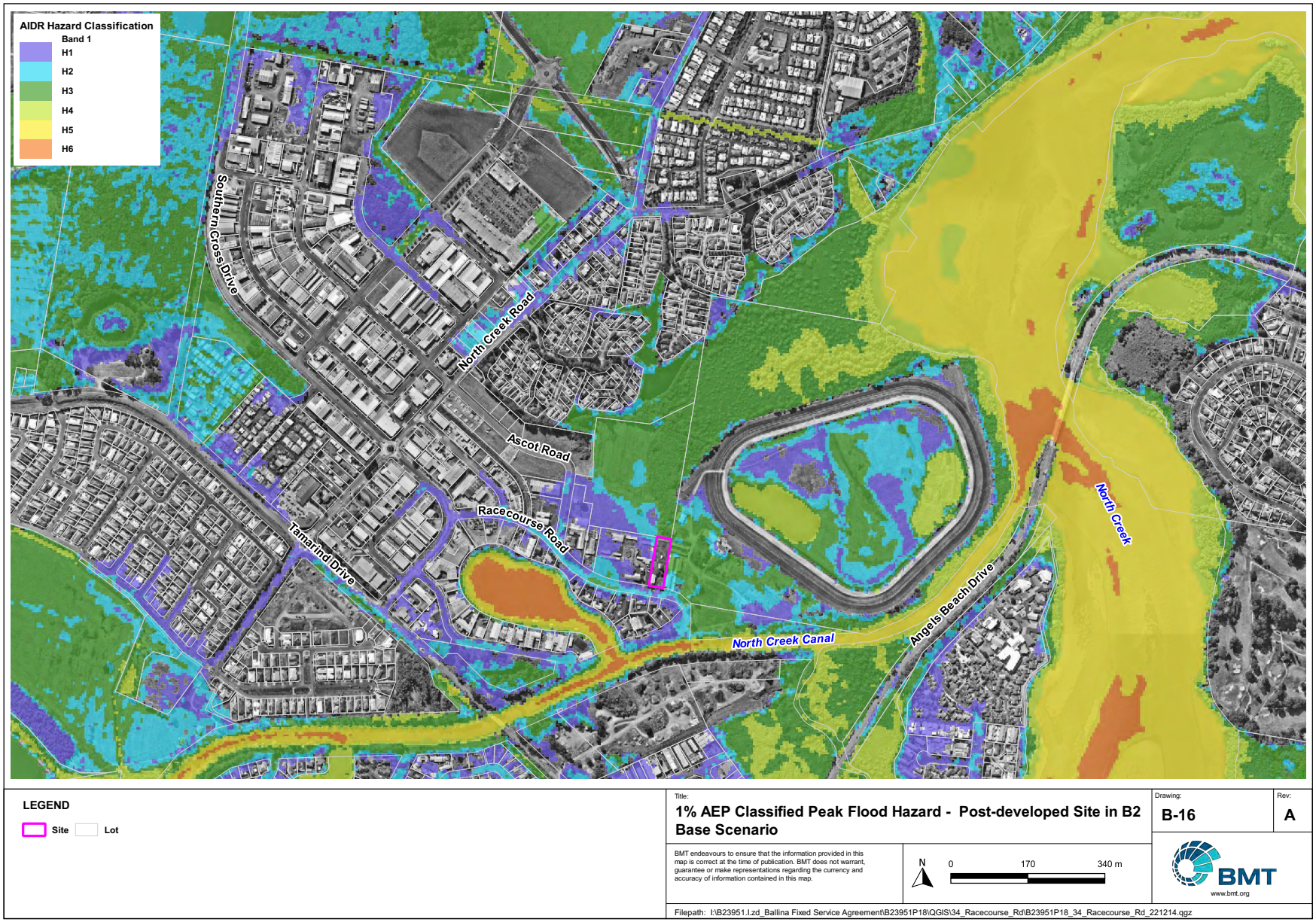

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelsea Beach Drive
LEGEND
Site
Lot
Title:
5% AEP Classified Peak Flood Hazard - Pre-developed Site in B3 Base Scenario
Drawing:
B-11
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

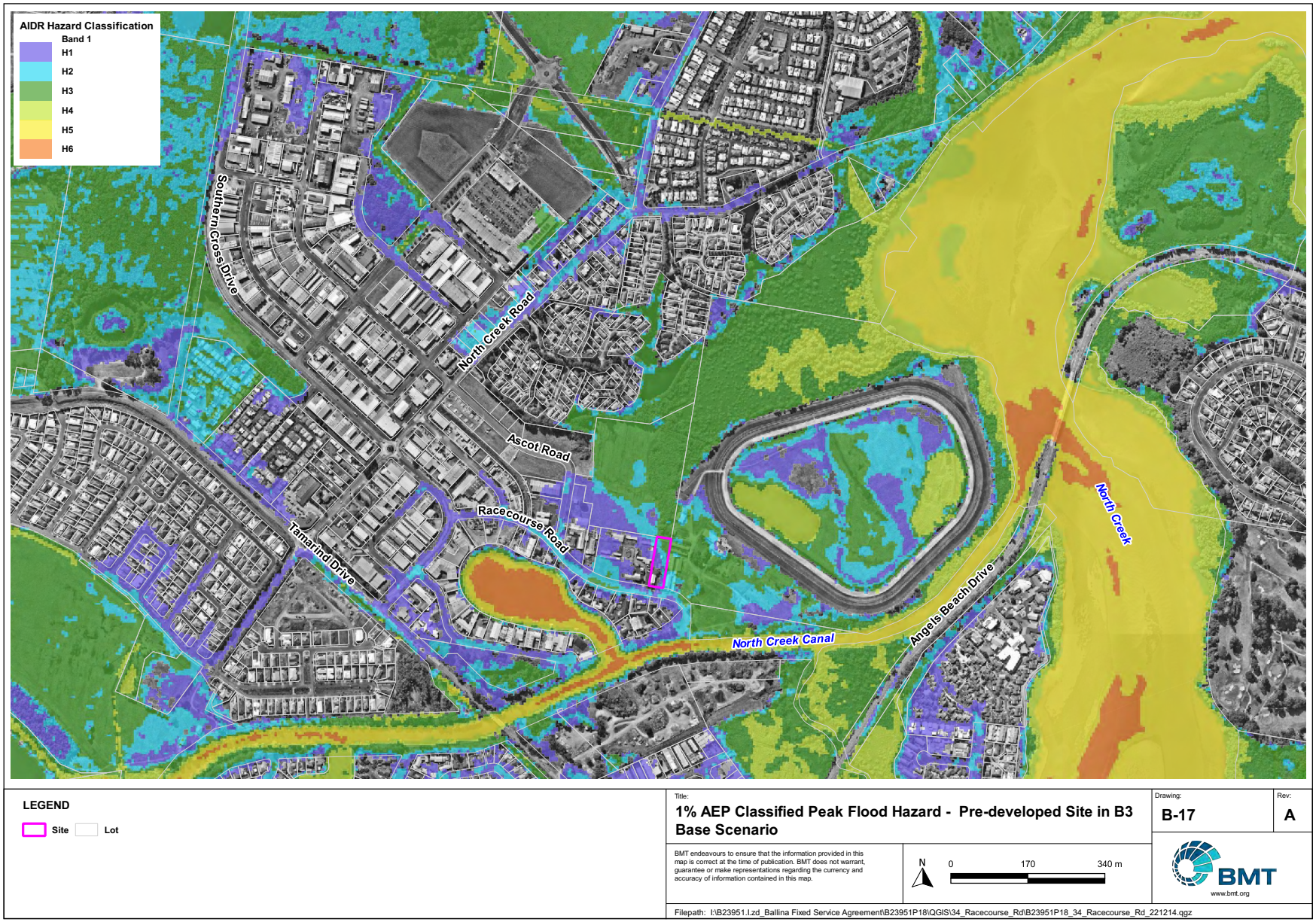

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelis Beach Drive
LEGEND
Site
Lot
Title:
5% AEP Classified Peak Flood Hazard - Post-developed Site in B3 Base Scenario
Drawing:
B-12
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

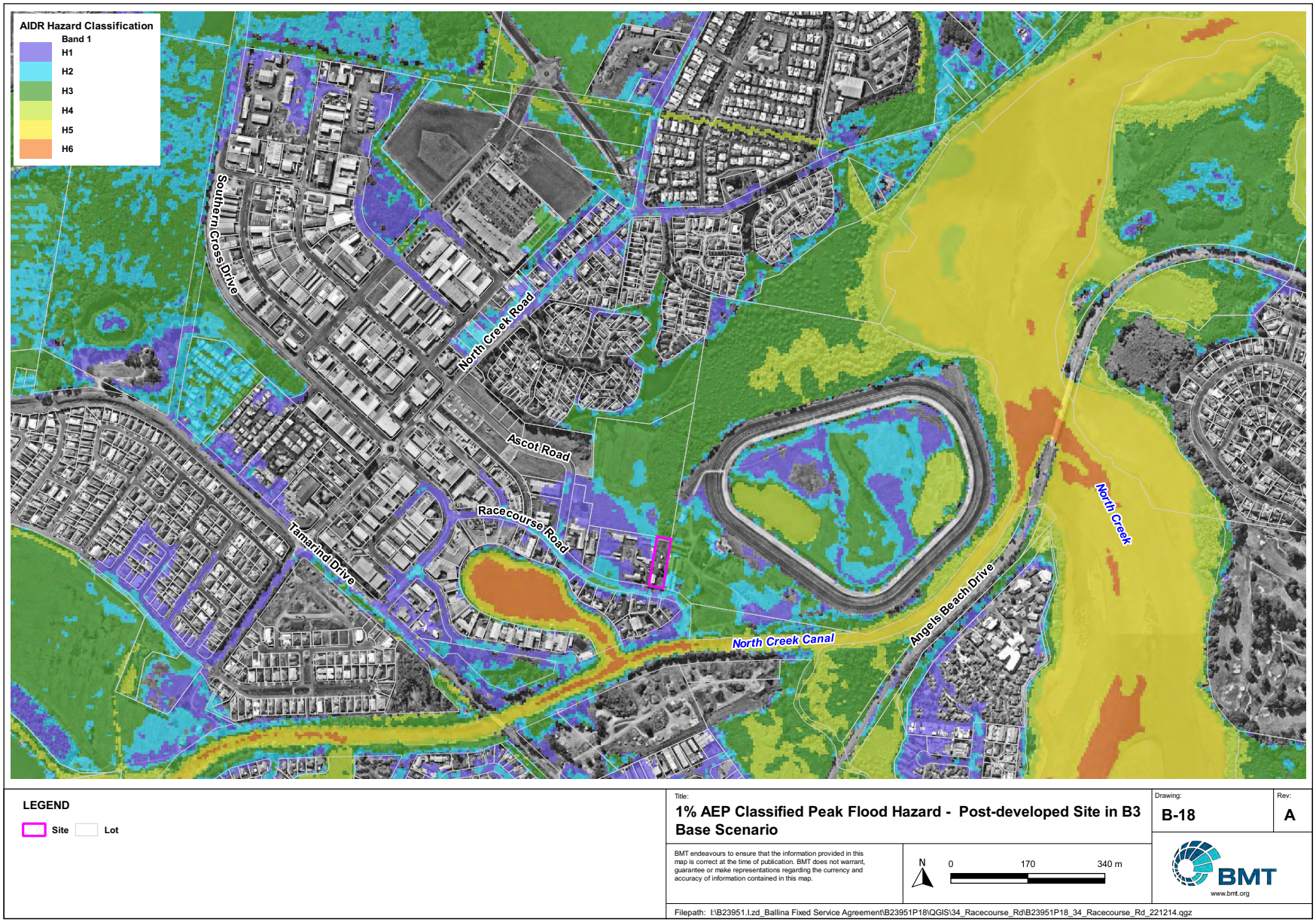

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelis Beach Drive
LEGEND
Site
Lot
Title:
1% AEP Classified Peak Flood Hazard - Pre-developed Site in B1 Base Scenario
Drawing:
B-13
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

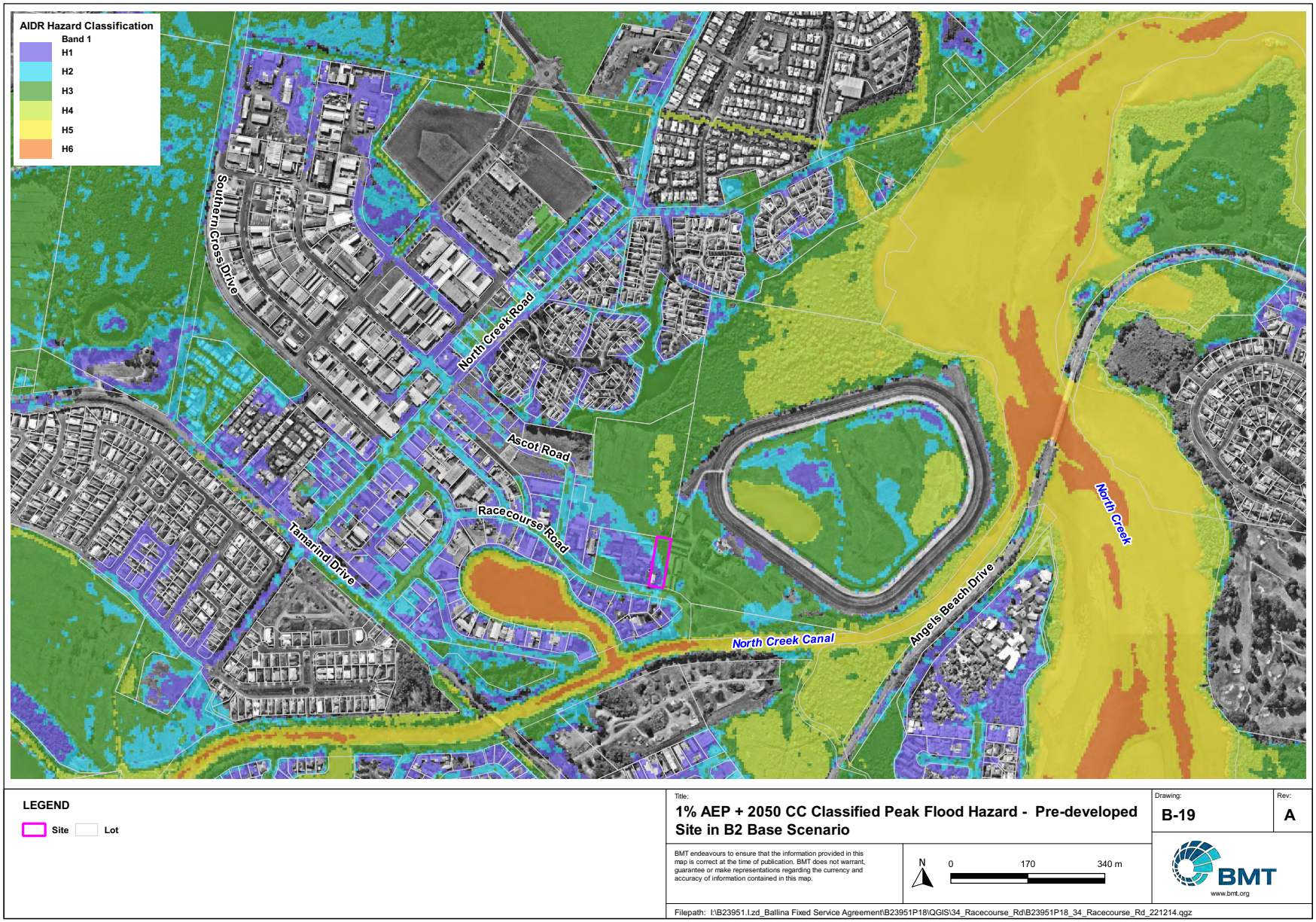

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelis Beach Drive
LEGEND
Site
Lot
Title:
1% AEP Classified Peak Flood Hazard - Post-developed Site in B1 Base Scenario
Drawing:
B-14
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

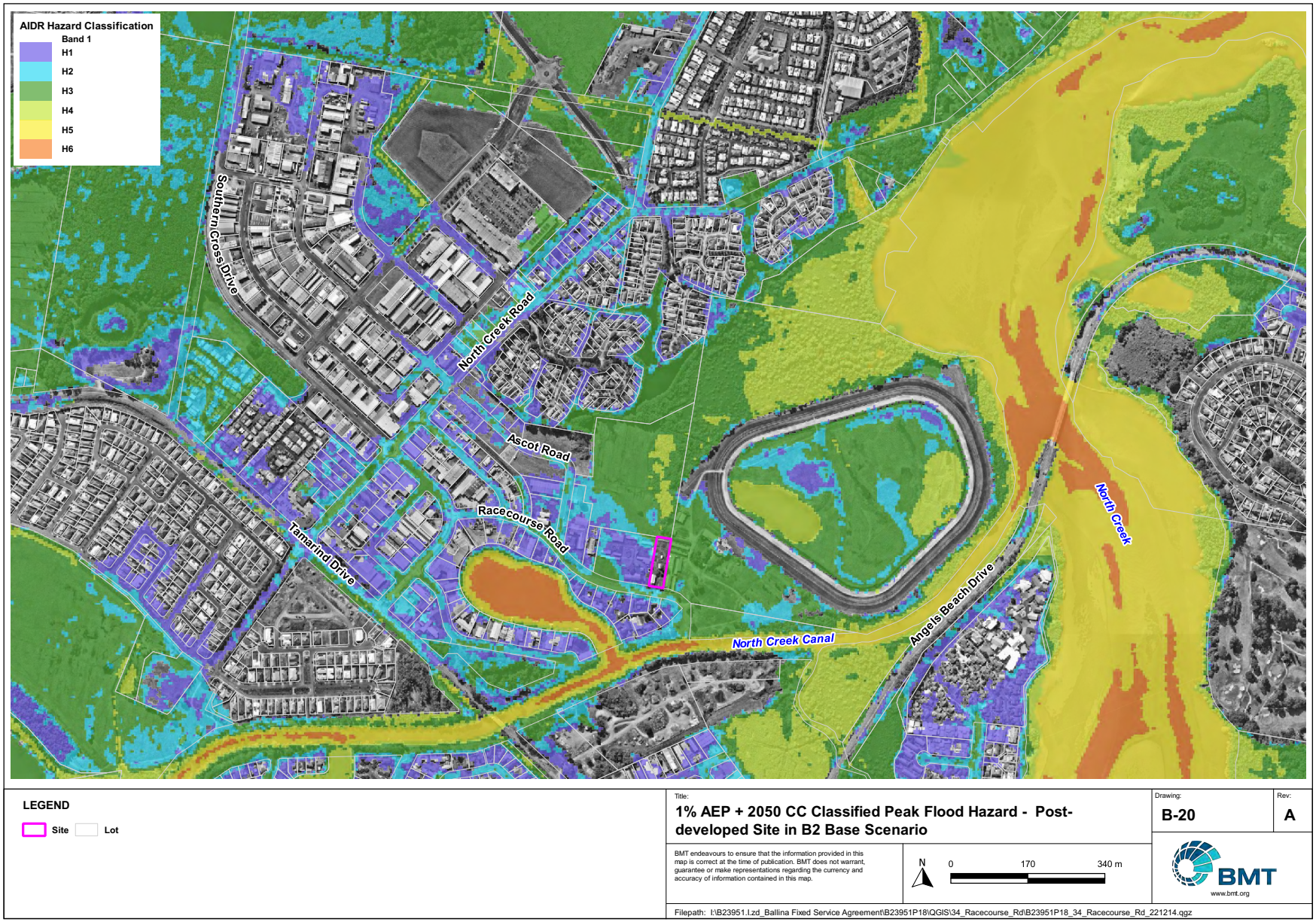

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelis Beach Drive
LEGEND
Site
Lot
Title:
1% AEP Classified Peak Flood Hazard - Pre-developed Site in B2 Base Scenario
Drawing:
B-15
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

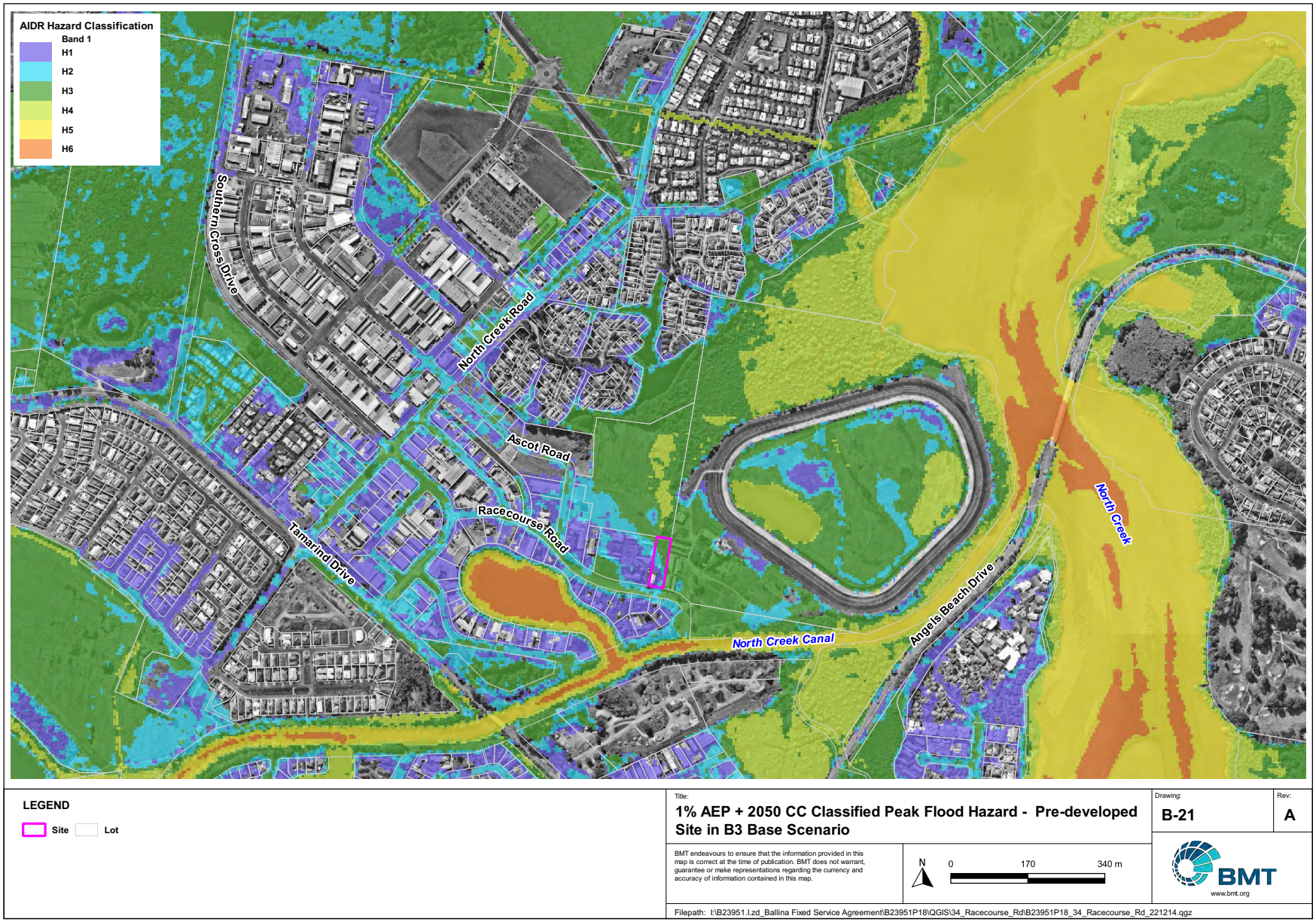

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelsea Beach Drive
LEGEND
Site
Lot
Title:
1% AEP Classified Peak Flood Hazard - Post-developed Site in B2 Base Scenario
Drawing:
B-16
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

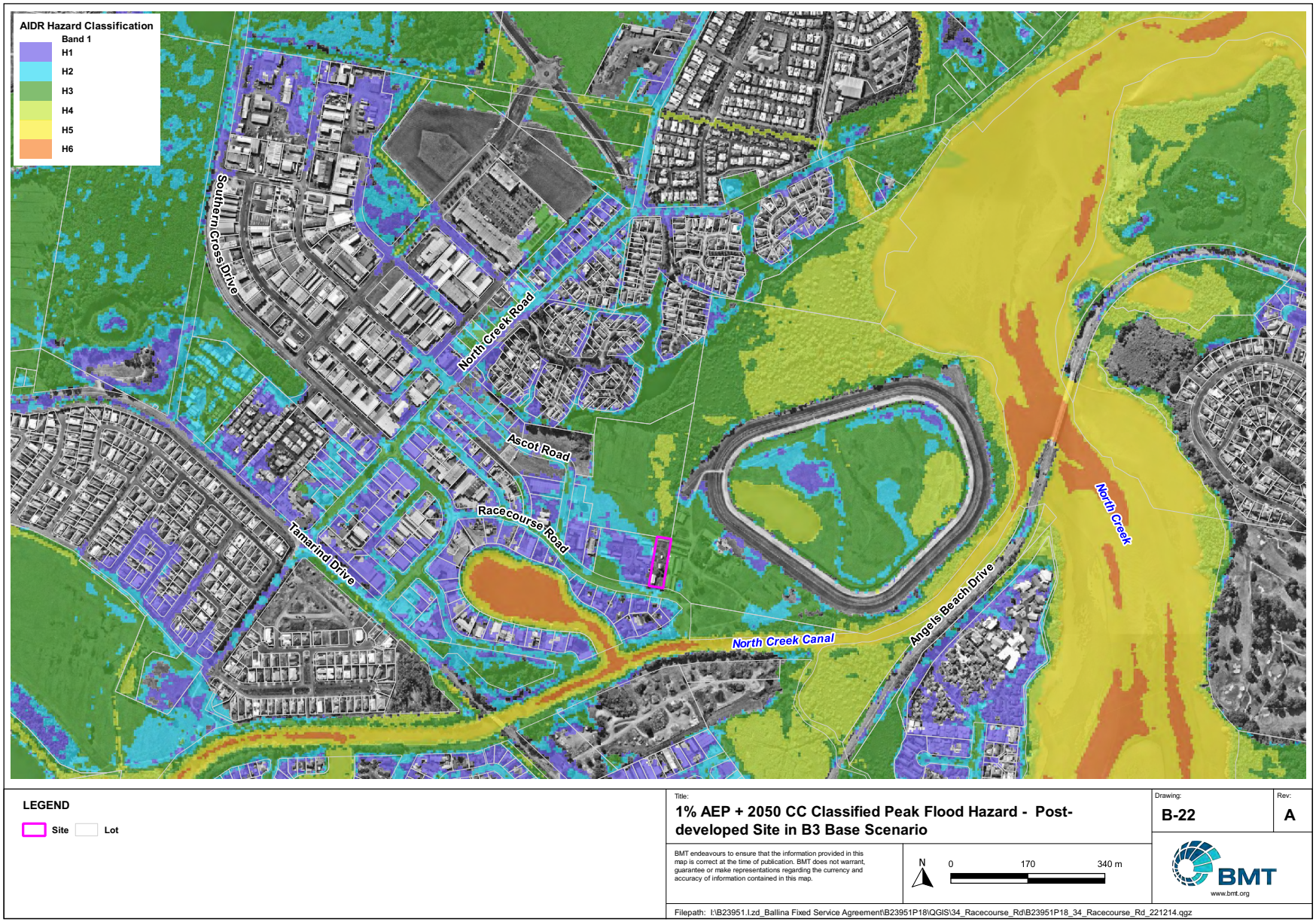

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelis Beach Drive
LEGEND
Site
Lot
Title:
1% AEP Classified Peak Flood Hazard - Pre-developed Site in B3 Base Scenario
Drawing:
B-17
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

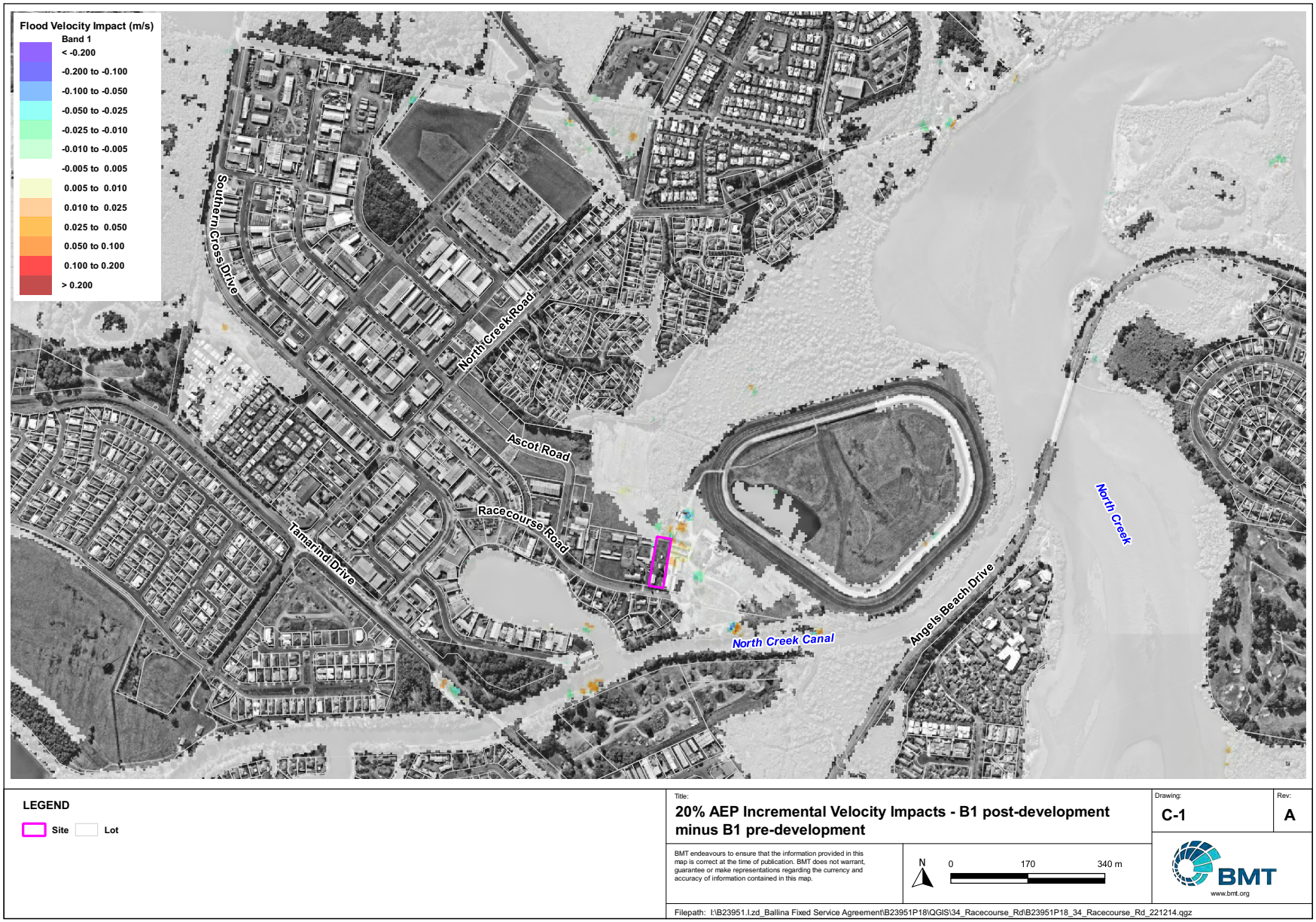

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelis Beach Drive
LEGEND
Site
Lot
Title:
1% AEP Classified Peak Flood Hazard - Post-developed Site in B3 Base Scenario
Drawing:
B-18
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

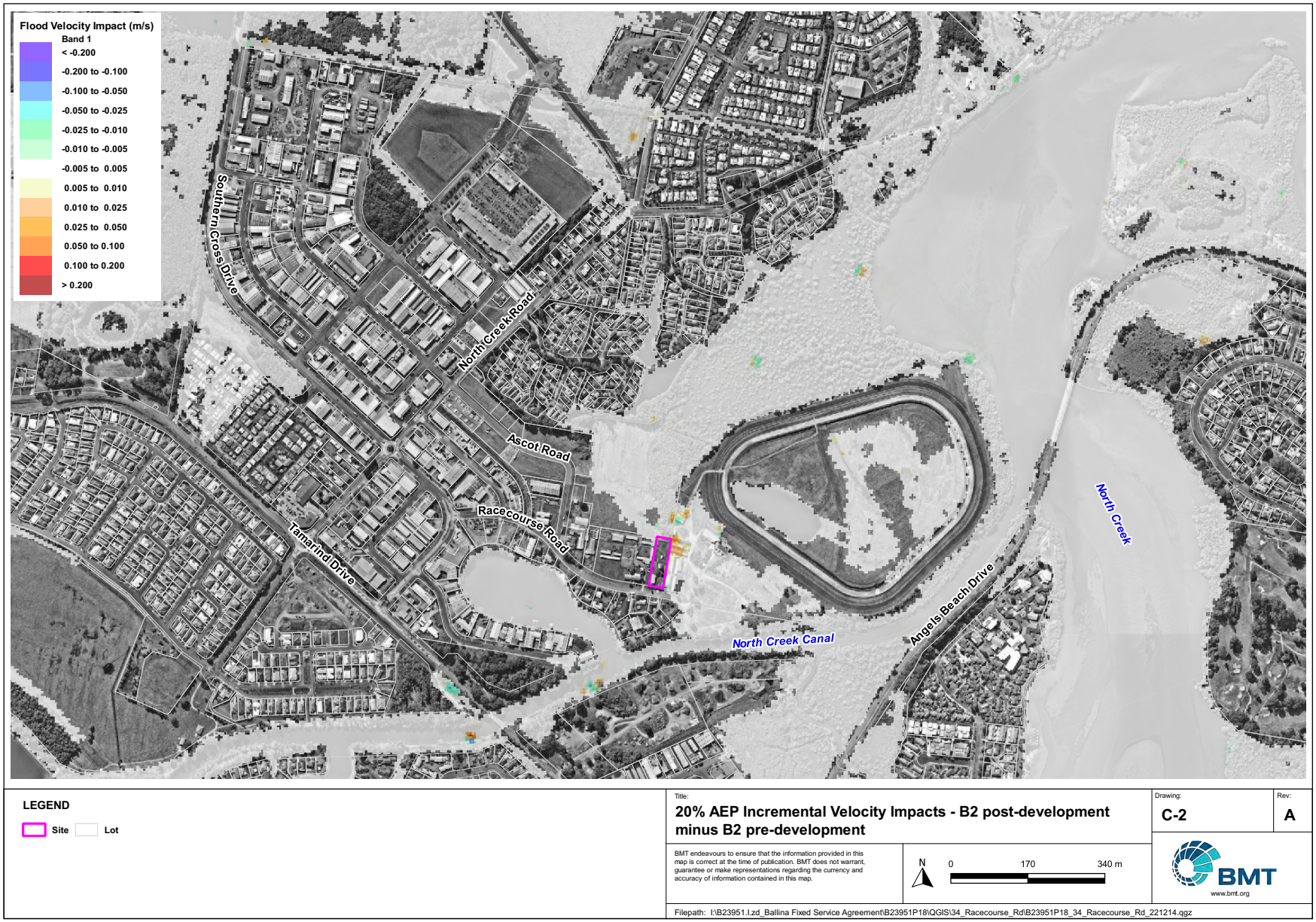

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelis Beach Drive
LEGEND
Site
Lot
Title:
1% AEP + 2050 CC Classified Peak Flood Hazard - Pre-developed Site in B2 Base Scenario
Drawing:
B-19
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

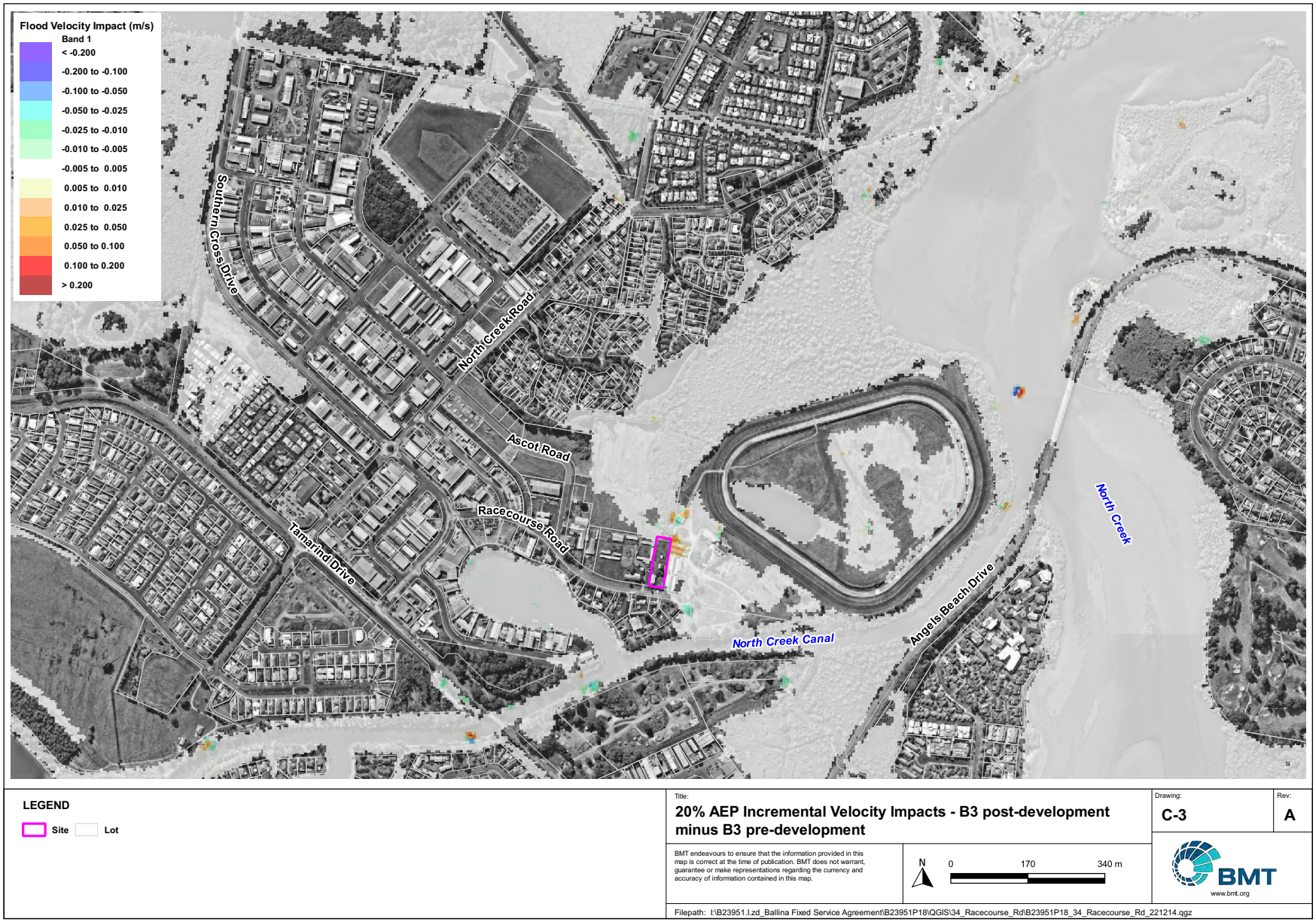

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelis Beach Drive
LEGEND
Site
Lot
Title:
1% AEP + 2050 CC Classified Peak Flood Hazard - Post-developed Site in B2 Base Scenario
Drawing:
B-20
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

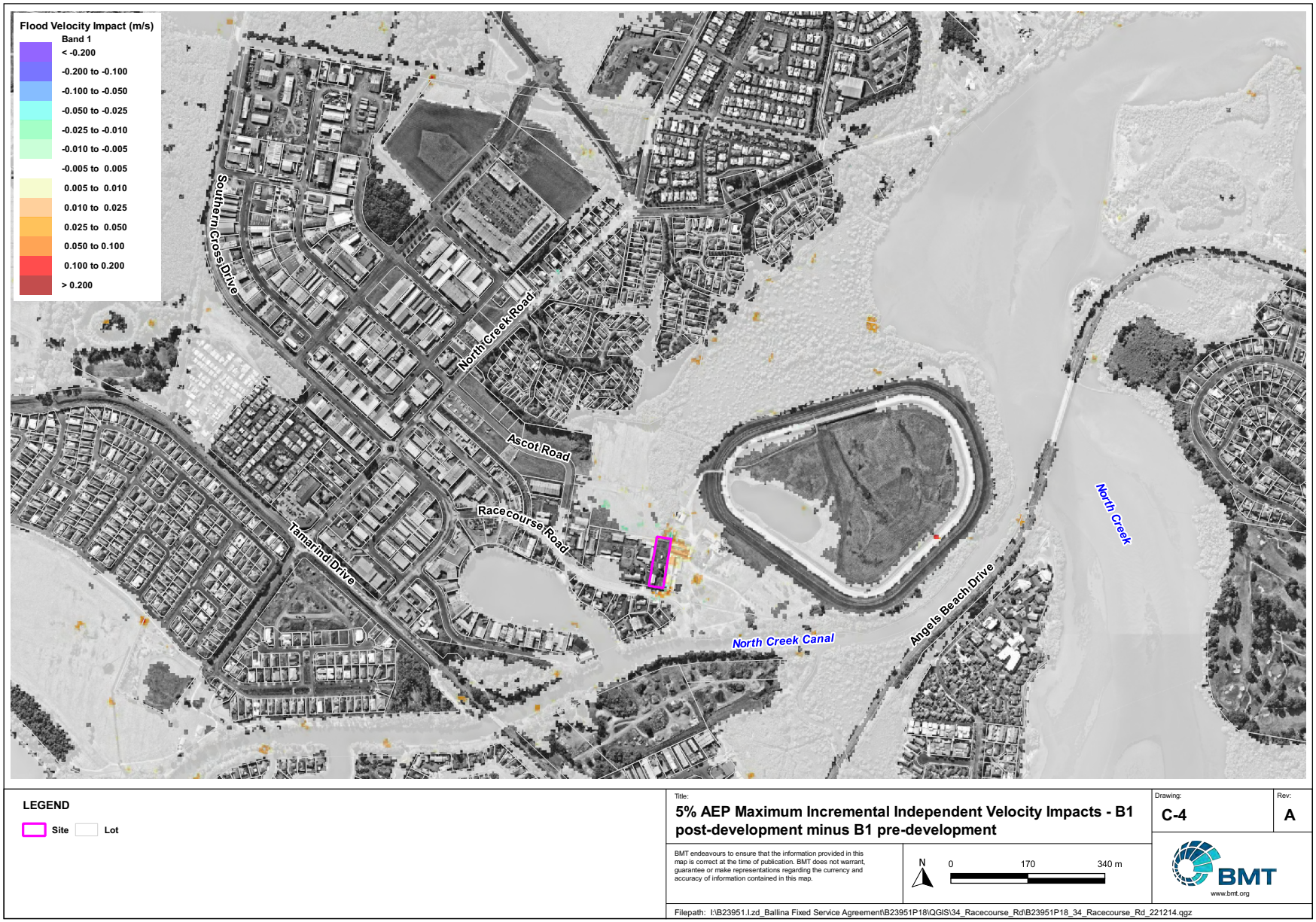

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelis Beach Drive
LEGEND
Site
Lot
Title:
1% AEP + 2050 CC Classified Peak Flood Hazard - Pre-developed Site in B3 Base Scenario
Drawing:
B-21
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

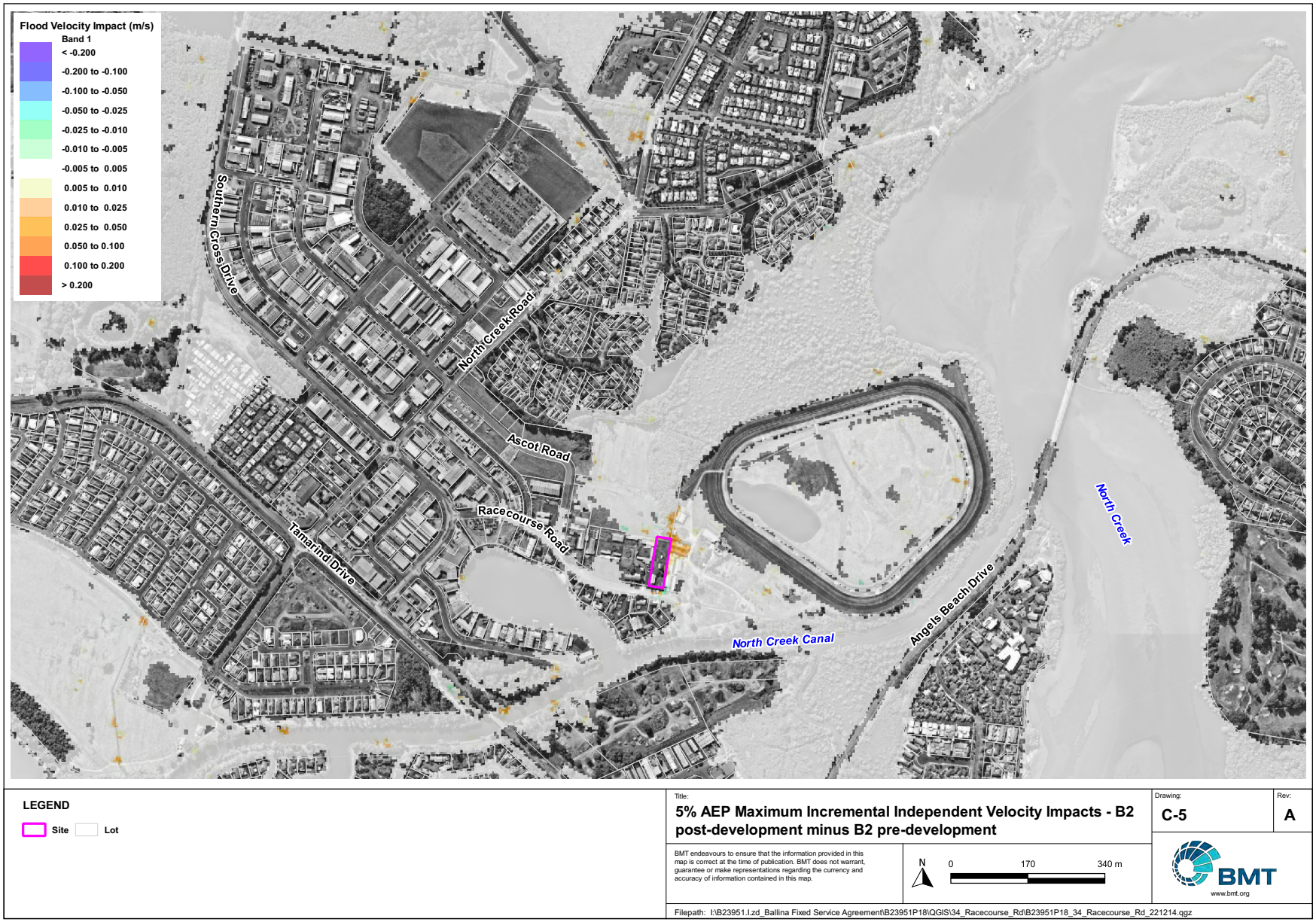

AIDR Hazard Classification
Band 1
H1
H2
H3
H4
H5
H6
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angelis Beach Drive
LEGEND
Site
Lot
Title:
1% AEP + 2050 CC Classified Peak Flood Hazard - Post-developed Site in B3 Base Scenario
Drawing:
B-22
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

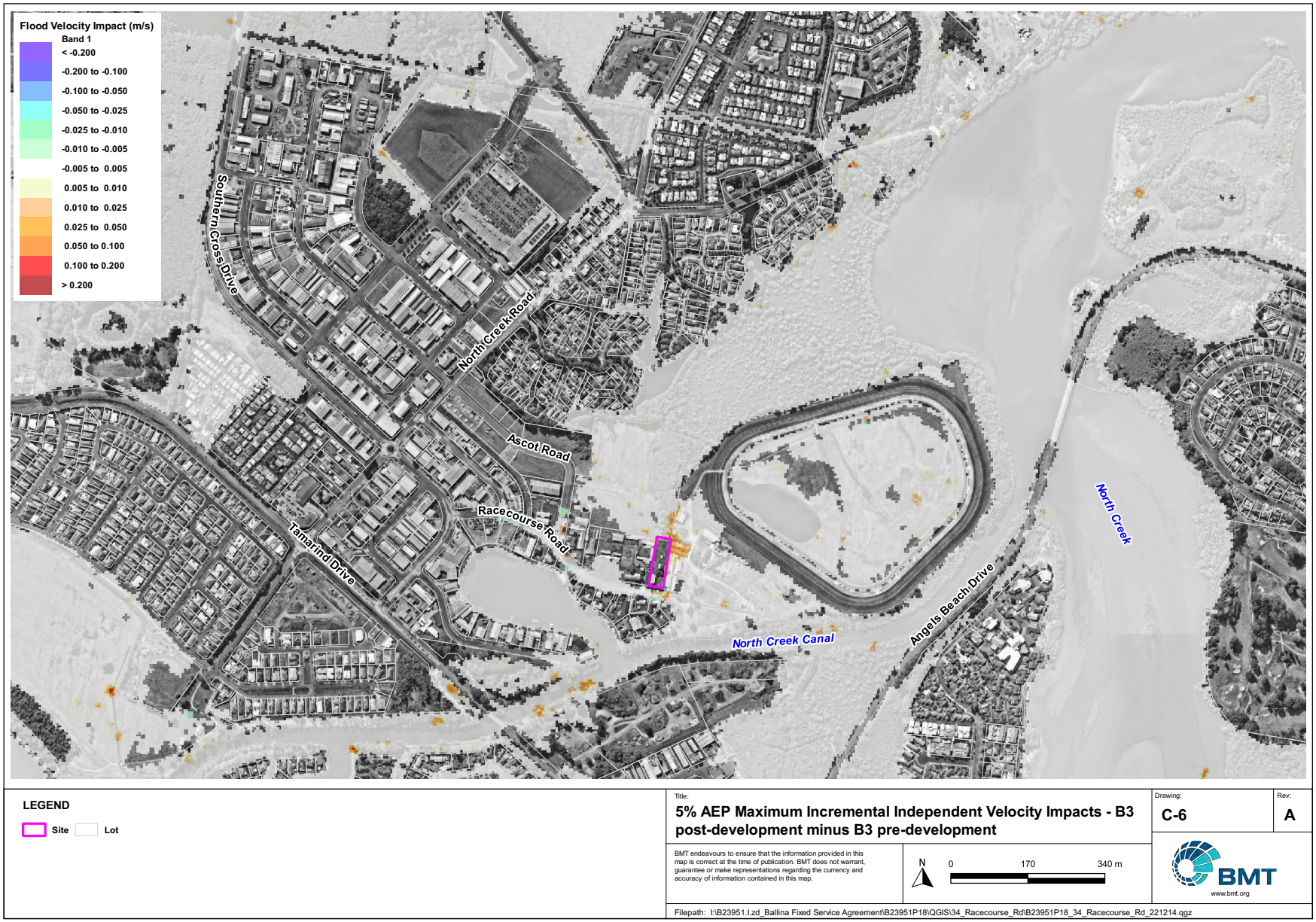

Flood Velocity Impact (m/s)
Band 1
< -0.200
-0.200 to -0.100
-0.100 to -0.050
-0.050 to -0.025
-0.025 to -0.010
-0.010 to -0.005
-0.005 to 0.005
0.005 to 0.010
0.010 to 0.025
0.025 to 0.050
0.050 to 0.100
0.100 to 0.200
> 0.200
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
20% AEP Incremental Velocity Impacts - B1 post-development minus B1 pre-development
Drawing:
C-1
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

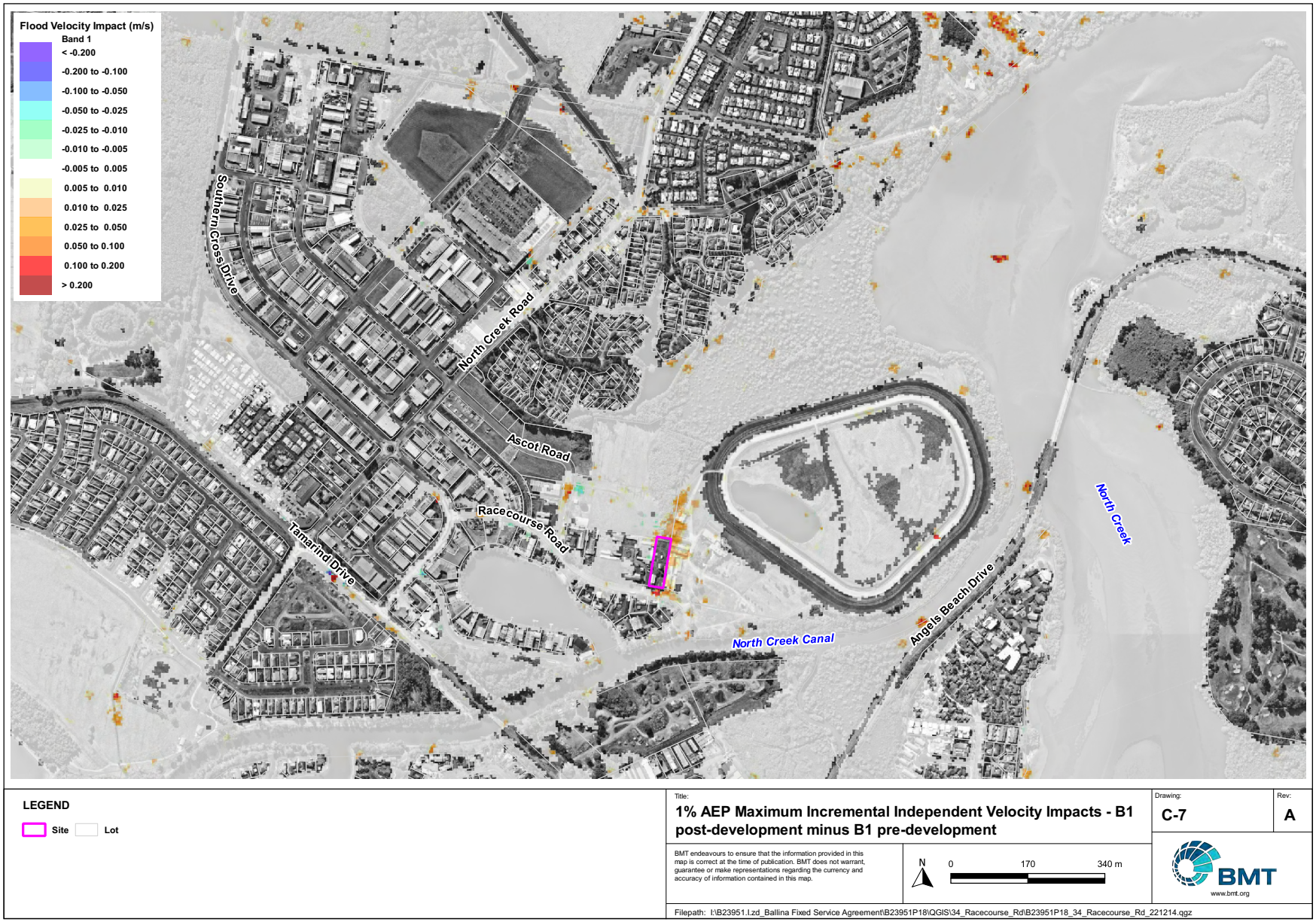

Flood Velocity Impact (m/s)
Band 1
< -0.200
-0.200 to -0.100
-0.100 to -0.050
-0.050 to -0.025
-0.025 to -0.010
-0.010 to -0.005
-0.005 to 0.005
0.005 to 0.010
0.010 to 0.025
0.025 to 0.050
0.050 to 0.100
0.100 to 0.200
> 0.200
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
20% AEP Incremental Velocity Impacts - B2 post-development minus B2 pre-development
Drawing:
C-2
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

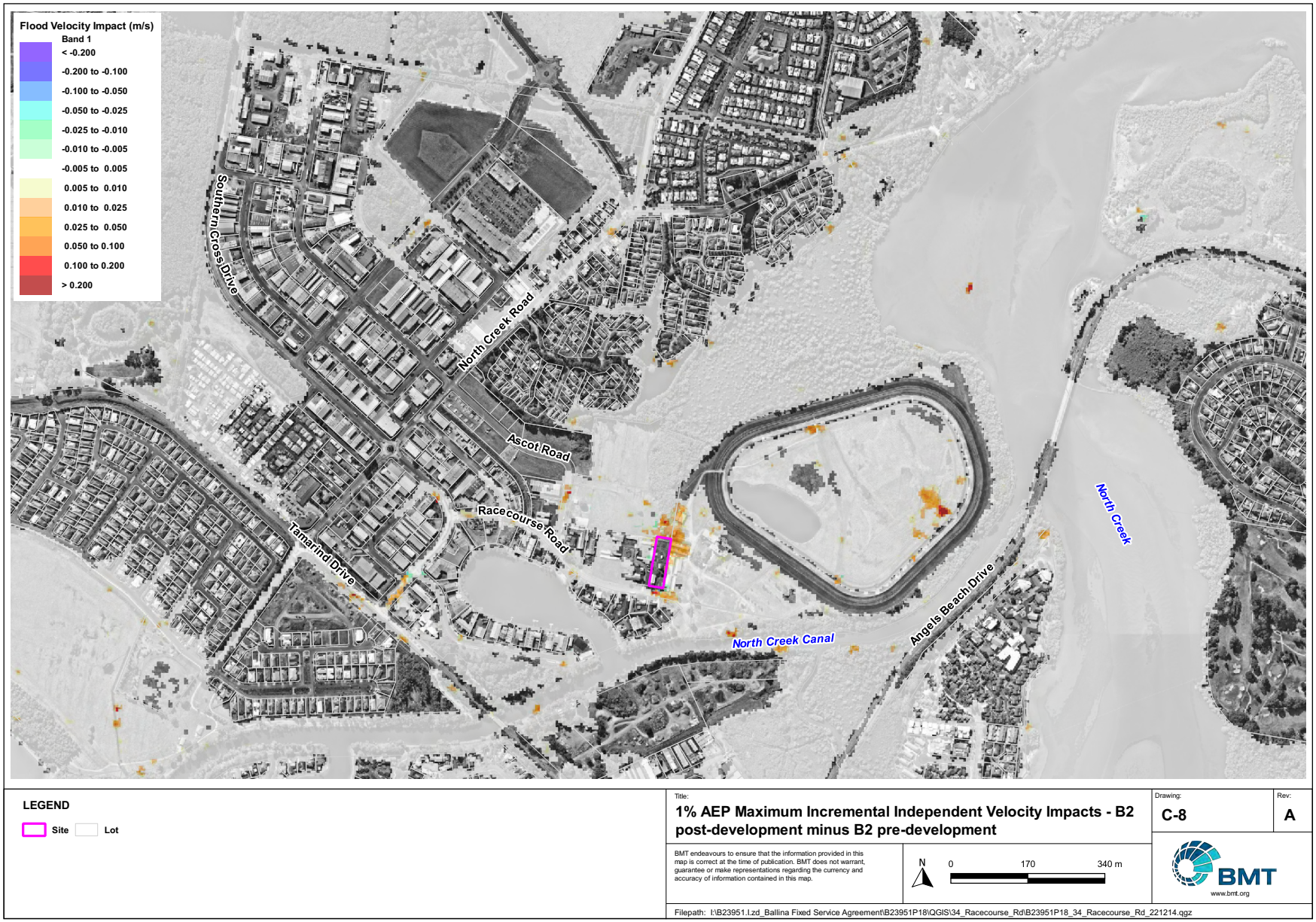

Flood Velocity Impact (m/s)
Band 1
< -0.200
-0.200 to -0.100
-0.100 to -0.050
-0.050 to -0.025
-0.025 to -0.010
-0.010 to -0.005
-0.005 to 0.005
0.005 to 0.010
0.010 to 0.025
0.025 to 0.050
0.050 to 0.100
0.100 to 0.200
> 0.200
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
20% AEP Incremental Velocity Impacts - B3 post-development minus B3 pre-development
Drawing:
C-3
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

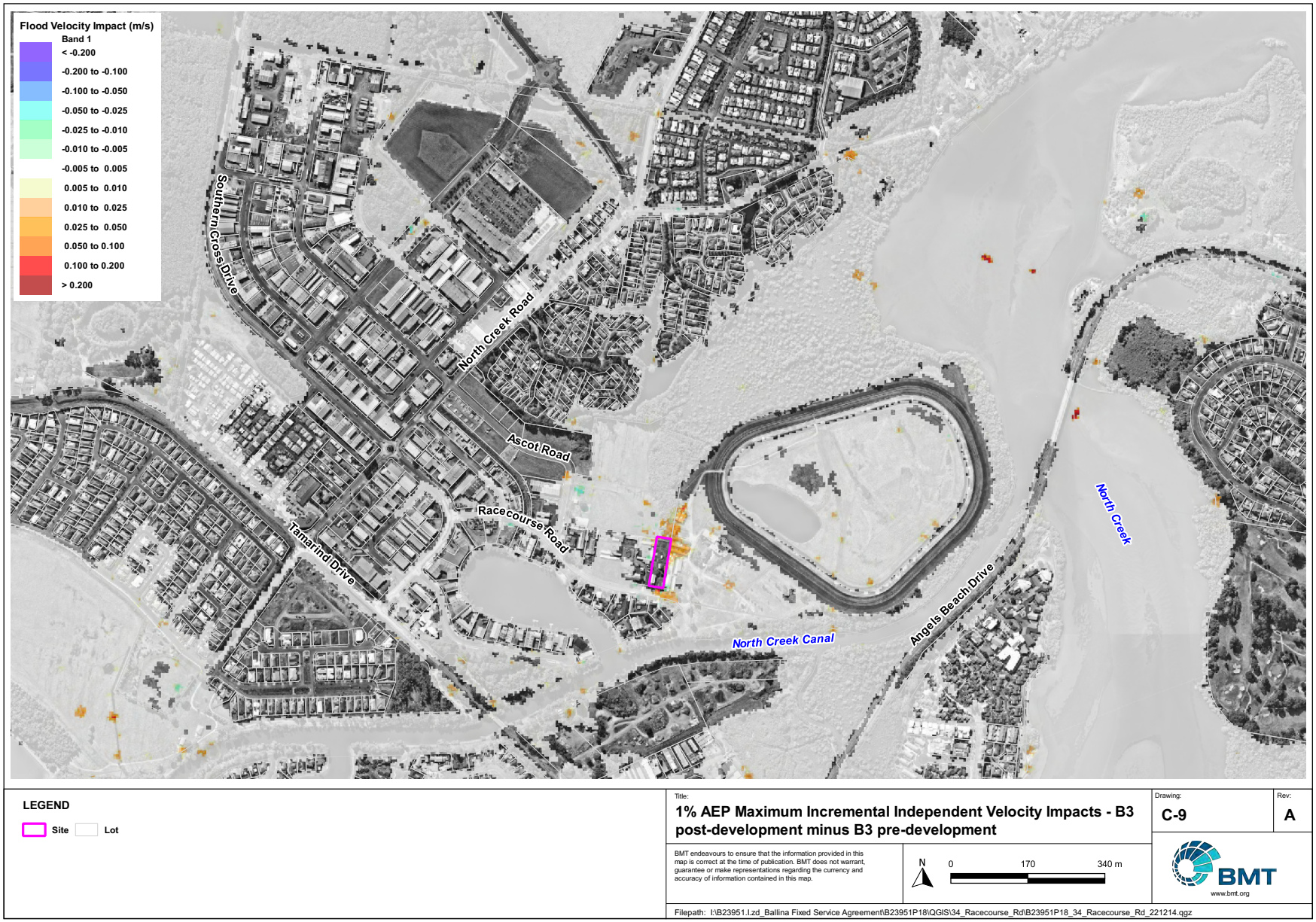

Flood Velocity Impact (m/s)
Band 1
< -0.200
-0.200 to -0.100
-0.100 to -0.050
-0.050 to -0.025
-0.025 to -0.010
-0.010 to -0.005
-0.005 to 0.005
0.005 to 0.010
0.010 to 0.025
0.025 to 0.050
0.050 to 0.100
0.100 to 0.200
> 0.200
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
5% AEP Maximum Incremental Independent Velocity Impacts - B1 post-development minus B1 pre-development
Drawing:
C-4
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

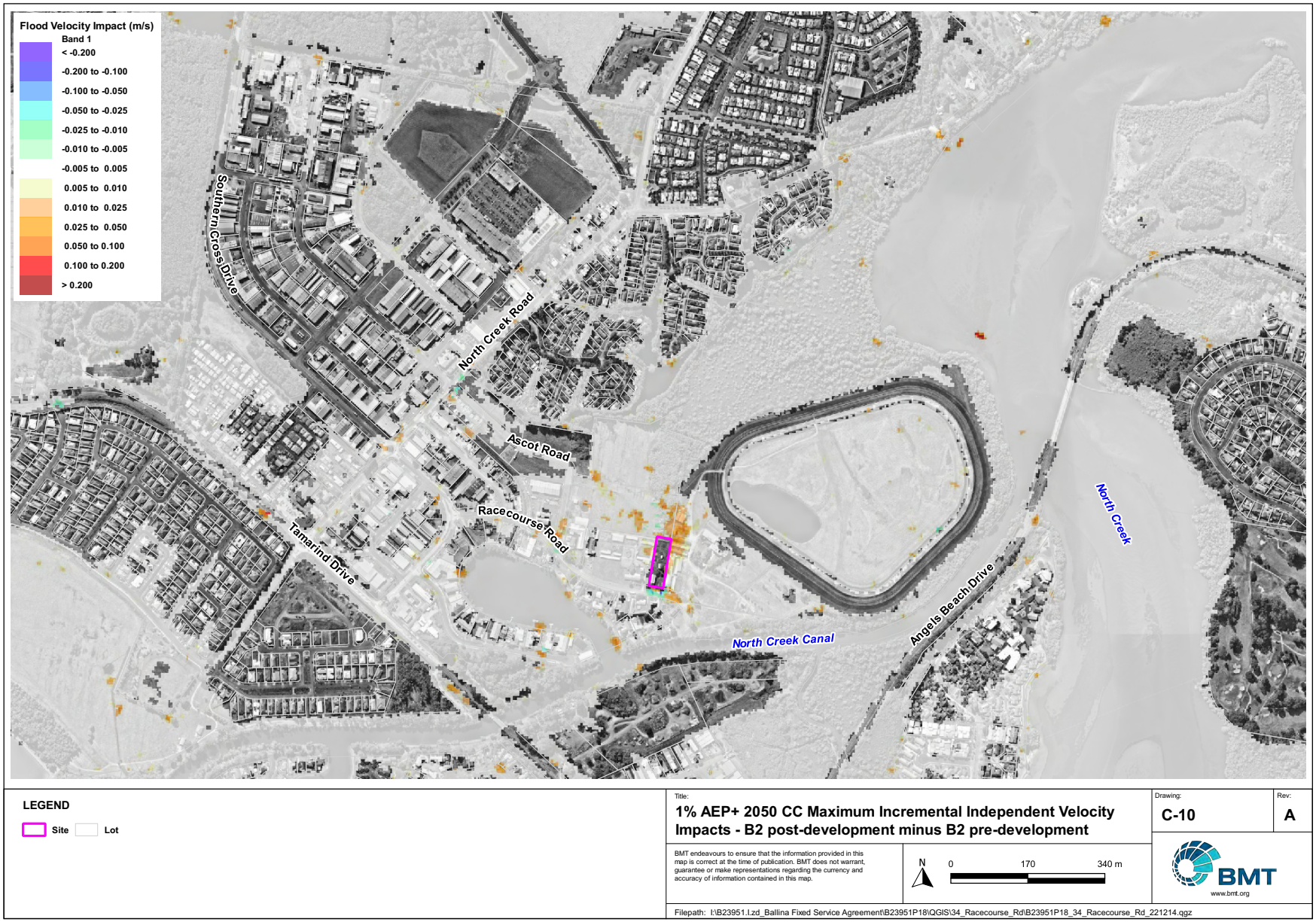

Flood Velocity Impact (m/s)
Band 1
< -0.200
-0.200 to -0.100
-0.100 to -0.050
-0.050 to -0.025
-0.025 to -0.010
-0.010 to -0.005
-0.005 to 0.005
0.005 to 0.010
0.010 to 0.025
0.025 to 0.050
0.050 to 0.100
0.100 to 0.200
> 0.200
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
5% AEP Maximum Incremental Independent Velocity Impacts - B2 post-development minus B2 pre-development
Drawing:
C-5
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz

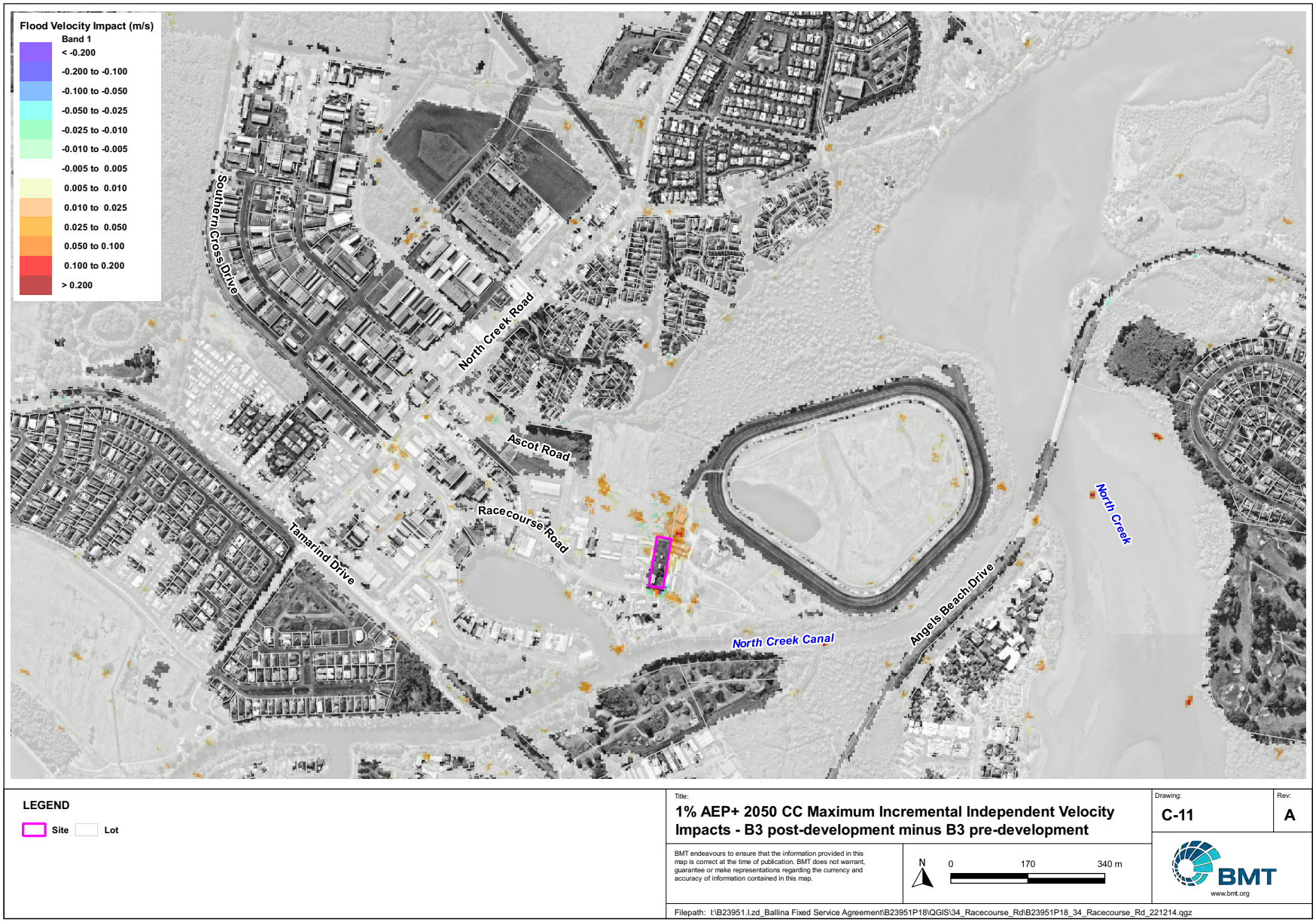

Flood Velocity Impact (m/s)
Band 1
< -0.200
-0.200 to -0.100
-0.100 to -0.050
-0.050 to -0.025
-0.025 to -0.010
-0.010 to -0.005
-0.005 to 0.005
0.005 to 0.010
0.010 to 0.025
0.025 to 0.050
0.050 to 0.100
0.100 to 0.200
> 0.200
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
5% AEP Maximum Incremental Independent Velocity Impacts - B3 post-development minus B3 pre-development
Drawing:
C-6
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz


Flood Velocity Impact (m/s)
Band 1
< -0.200
-0.200 to -0.100
-0.100 to -0.050
-0.050 to -0.025
-0.025 to -0.010
-0.010 to -0.005
-0.005 to 0.005
0.005 to 0.010
0.010 to 0.025
0.025 to 0.050
0.050 to 0.100
0.100 to 0.200
> 0.200
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
Angels Beach Drive
North Creek Canal
LEGEND
Site
Lot
Title:
1% AEP Maximum Incremental Independent Velocity Impacts - B1 post-development minus B1 pre-development
Drawing:
C-7
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz


Flood Velocity Impact (m/s)
Band 1
< -0.200
-0.200 to -0.100
-0.100 to -0.050
-0.050 to -0.025
-0.025 to -0.010
-0.010 to -0.005
-0.005 to 0.005
0.005 to 0.010
0.010 to 0.025
0.025 to 0.050
0.050 to 0.100
0.100 to 0.200
> 0.200
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
1% AEP Maximum Incremental Independent Velocity Impacts - B2 post-development minus B2 pre-development
Drawing:
C-8
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz


Flood Velocity Impact (m/s)
Band 1
< -0.200
-0.200 to -0.100
-0.100 to -0.050
-0.050 to -0.025
-0.025 to -0.010
-0.010 to -0.005
-0.005 to 0.005
0.005 to 0.010
0.010 to 0.025
0.025 to 0.050
0.050 to 0.100
0.100 to 0.200
> 0.200
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
1% AEP Maximum Incremental Independent Velocity Impacts - B3 post-development minus B3 pre-development
Drawing:
C-9
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz


Flood Velocity Impact (m/s)
Band 1
< -0.200
-0.200 to -0.100
-0.100 to -0.050
-0.050 to -0.025
-0.025 to -0.010
-0.010 to -0.005
-0.005 to 0.005
0.005 to 0.010
0.010 to 0.025
0.025 to 0.050
0.050 to 0.100
0.100 to 0.200
> 0.200
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
North Creek Canal
Angels Beach Drive
LEGEND
Site
Lot
Title:
1% AEP+ 2050 CC Maximum Incremental Independent Velocity Impacts - B2 post-development minus B2 pre-development
Drawing:
C-10
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz


Flood Velocity Impact (m/s)
Band 1
< -0.200
-0.200 to -0.100
-0.100 to -0.050
-0.050 to -0.025
-0.025 to -0.010
-0.010 to -0.005
-0.005 to 0.005
0.005 to 0.010
0.010 to 0.025
0.025 to 0.050
0.050 to 0.100
0.100 to 0.200
> 0.200
Southern Cross Drive
North Creek Road
Ascot Road
Racecourse Road
Tamarind Drive
North Creek
Angels Beach Drive
North Creek Canal
LEGEND
Site
Lot
Title:
1% AEP+ 2050 CC Maximum Incremental Independent Velocity Impacts - B3 post-development minus B3 pre-development
Drawing:
C-11
Rev:
A
BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
170
340 m
BMT
www.bmt.org
Filepath: I:\B23951.l.zd_Ballina Fixed Service Agreement\B23951P18\QGIS\34_Racecourse_Rd\B23951P18_34_Racecourse_Rd_221214.qgz