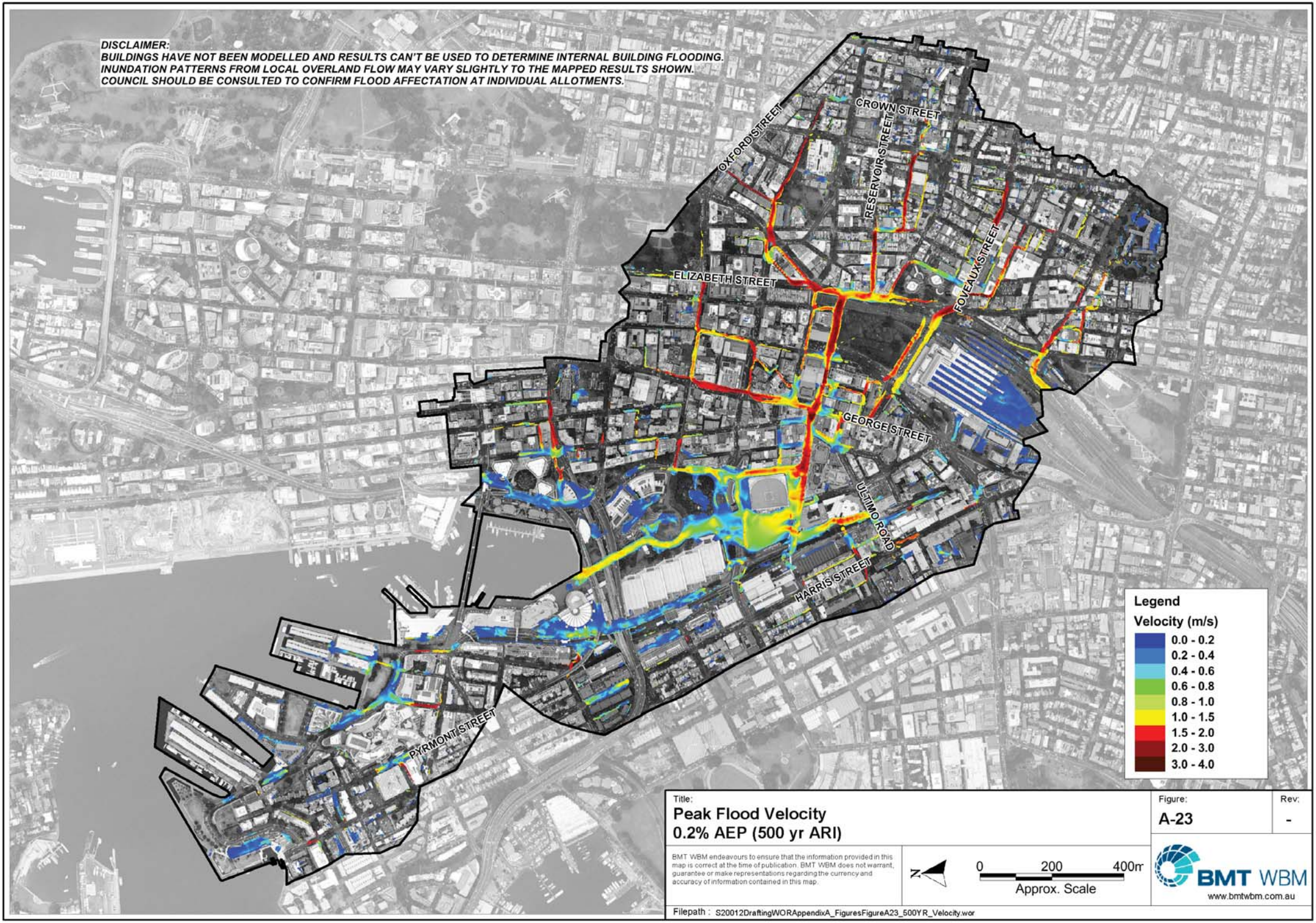
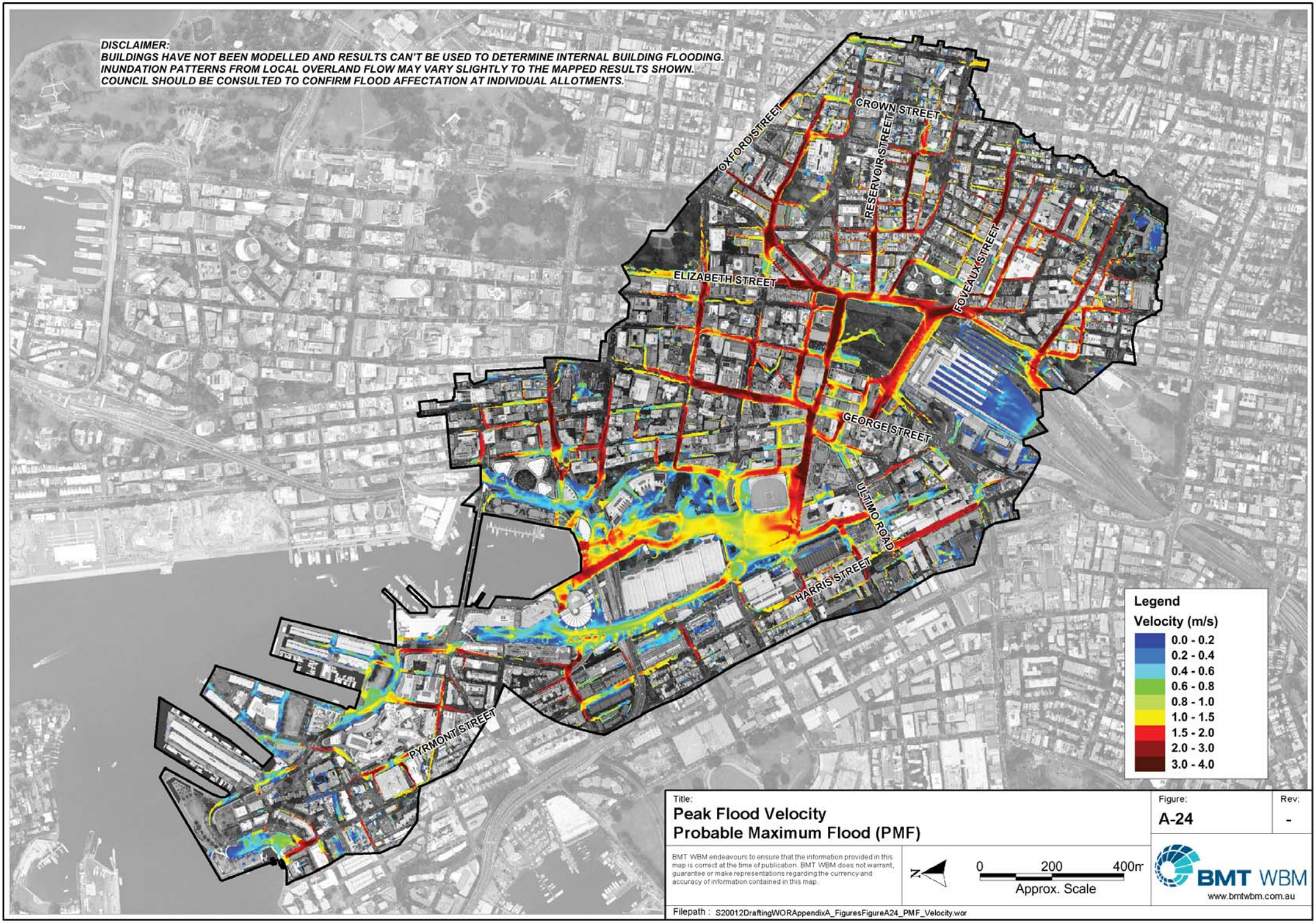
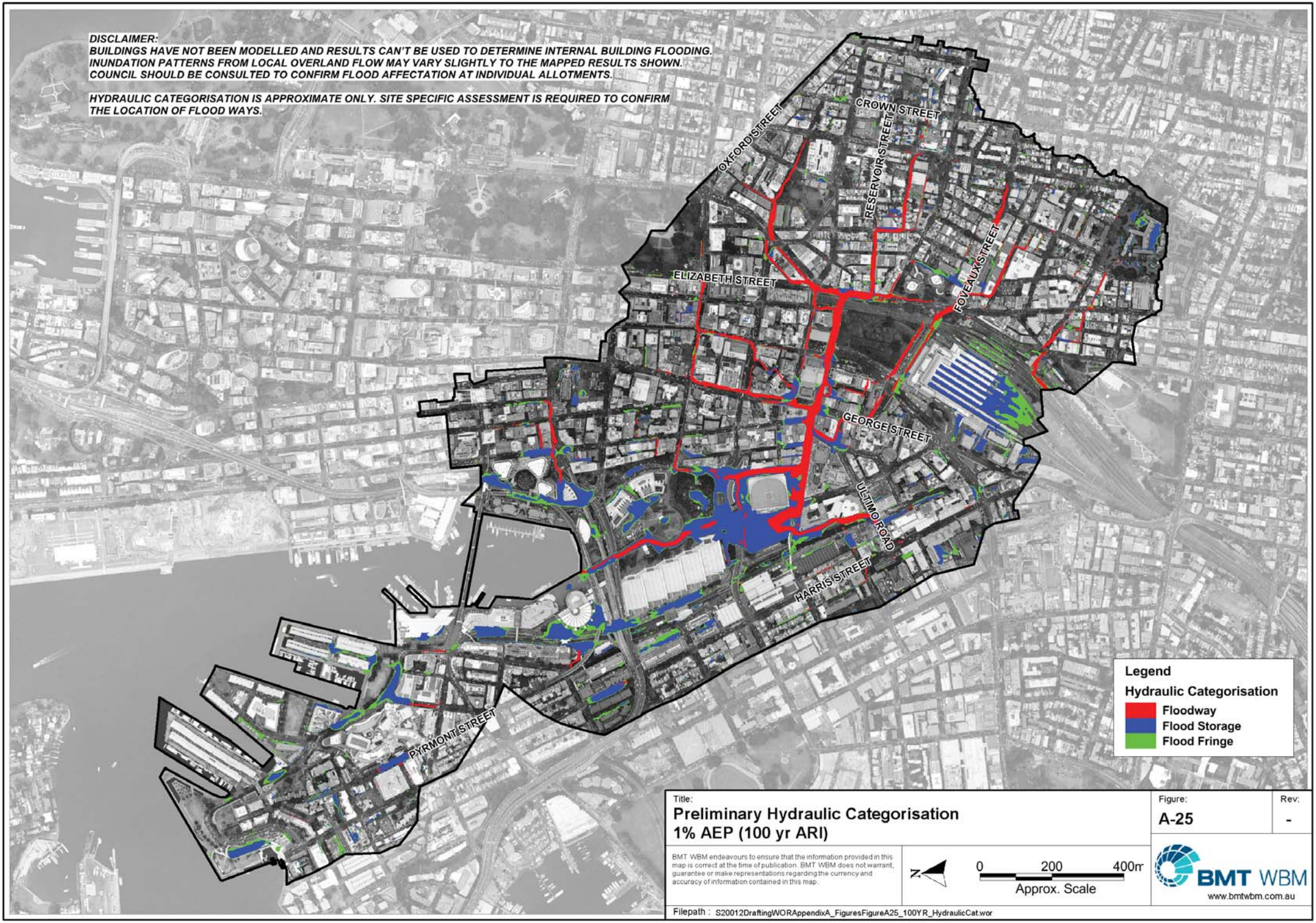
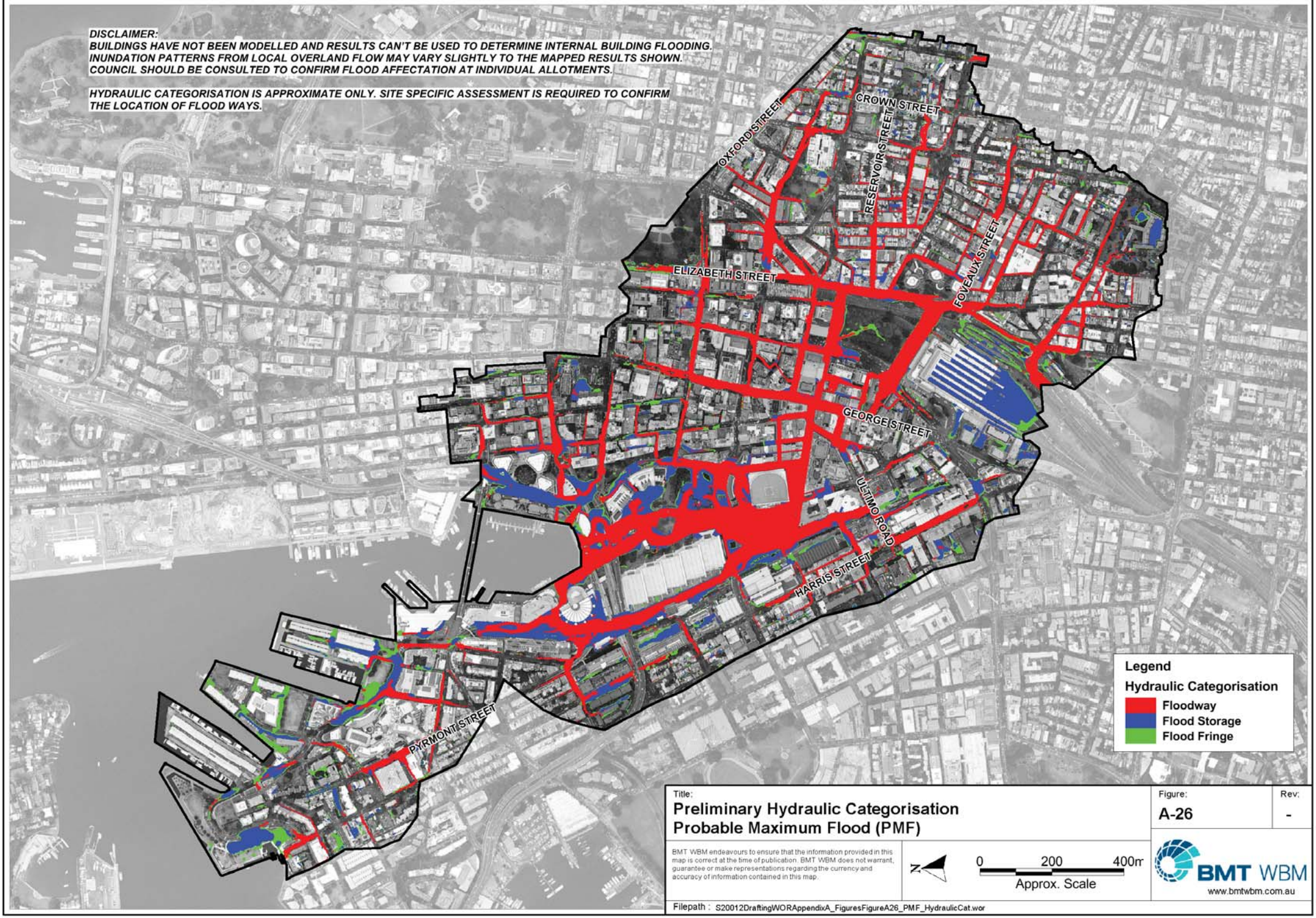
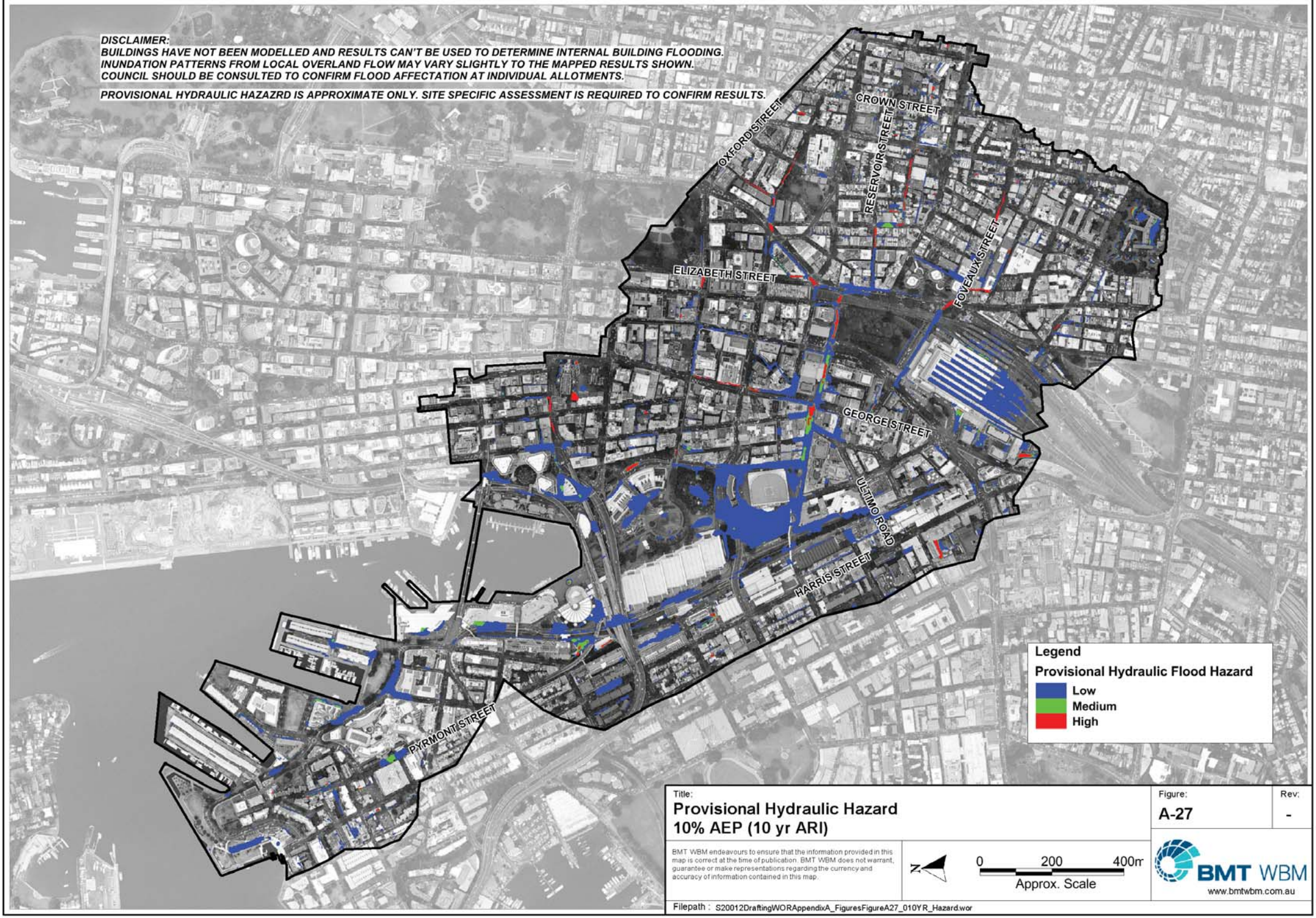
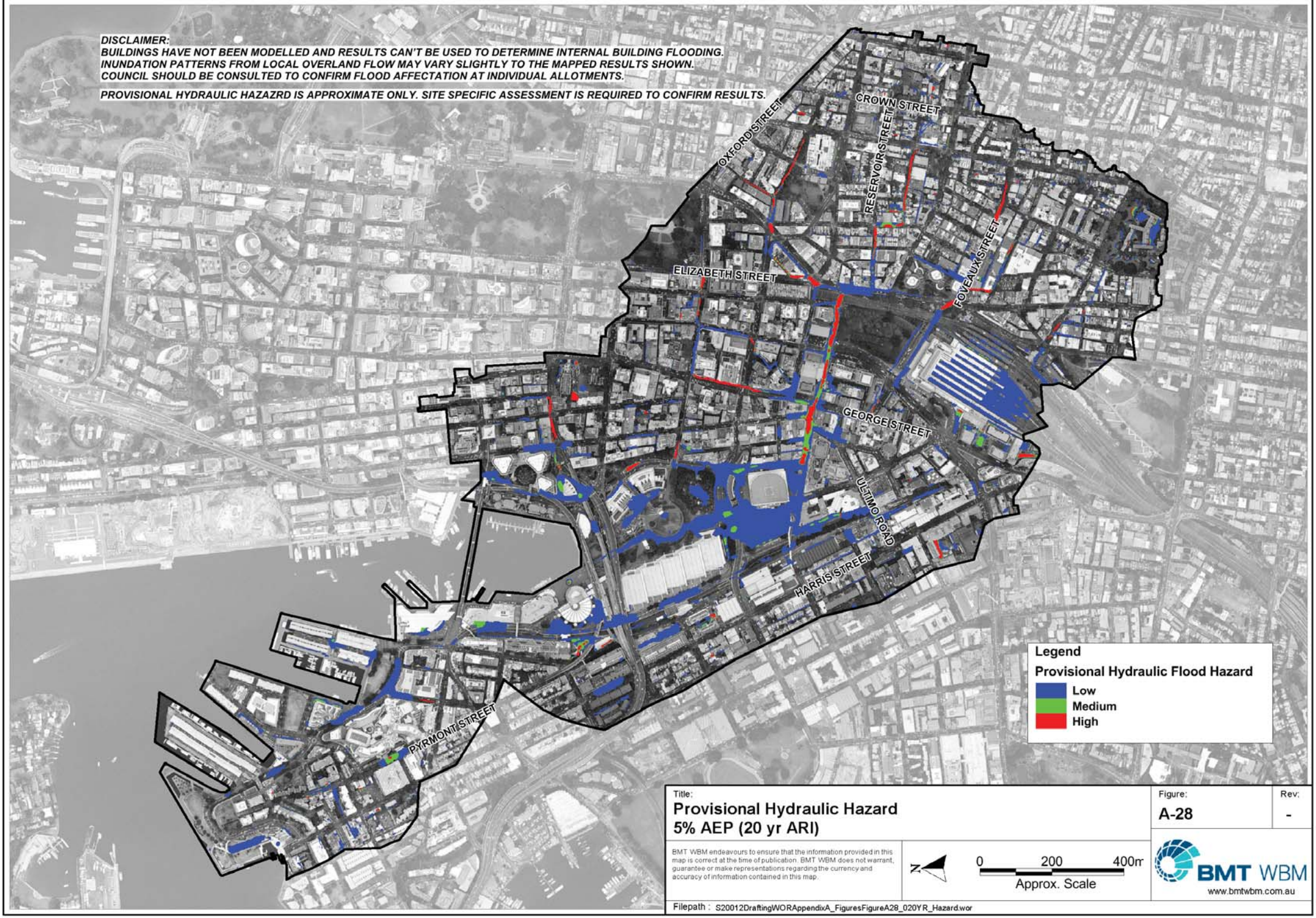

DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
Velocity (m/s)
0.0 - 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.5
1.5 - 2.0
2.0 - 3.0
3.0 - 4.0
Title:
Peak Flood Velocity
0.2% AEP (500 yr ARI)
Figure:
A-23
Rev:
-
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
BMT WBM
www.bmtwbm.com.au
Filepath : S20012DraftingWORAppendixA_FiguresFigureA23_500YR_Velocity.wor

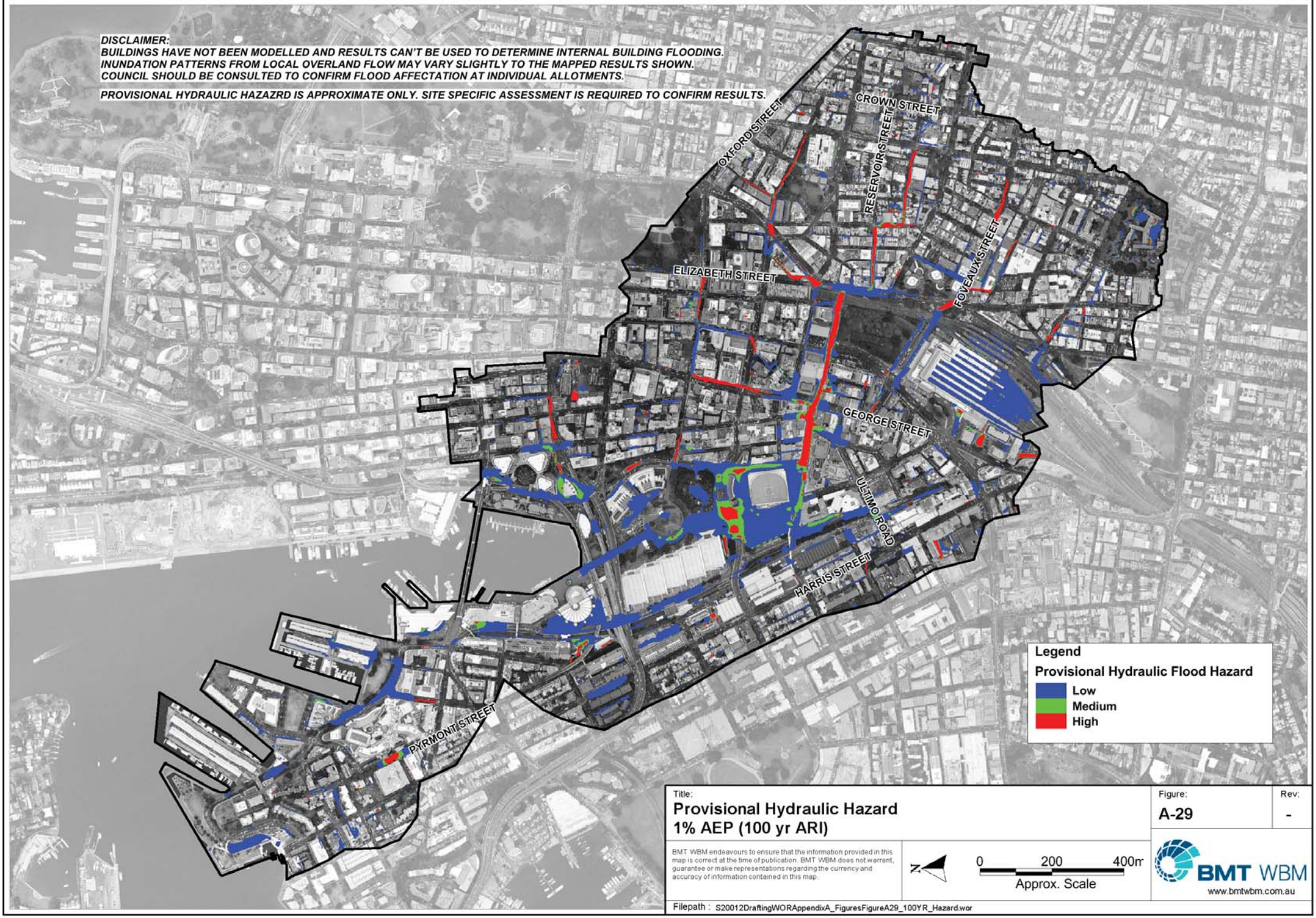

DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
Velocity (m/s)
0.0 - 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0
1.0 - 1.5
1.5 - 2.0
2.0 - 3.0
3.0 - 4.0
Title:
Peak Flood Velocity
Probable Maximum Flood (PMF)
Figure:
A-24
Rev:
-
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
BMT WBM
www.bmtwbm.com.au
Filepath : S20012DraftingWORAppendixA_FiguresFigureA24_PMF_Velocity.wor

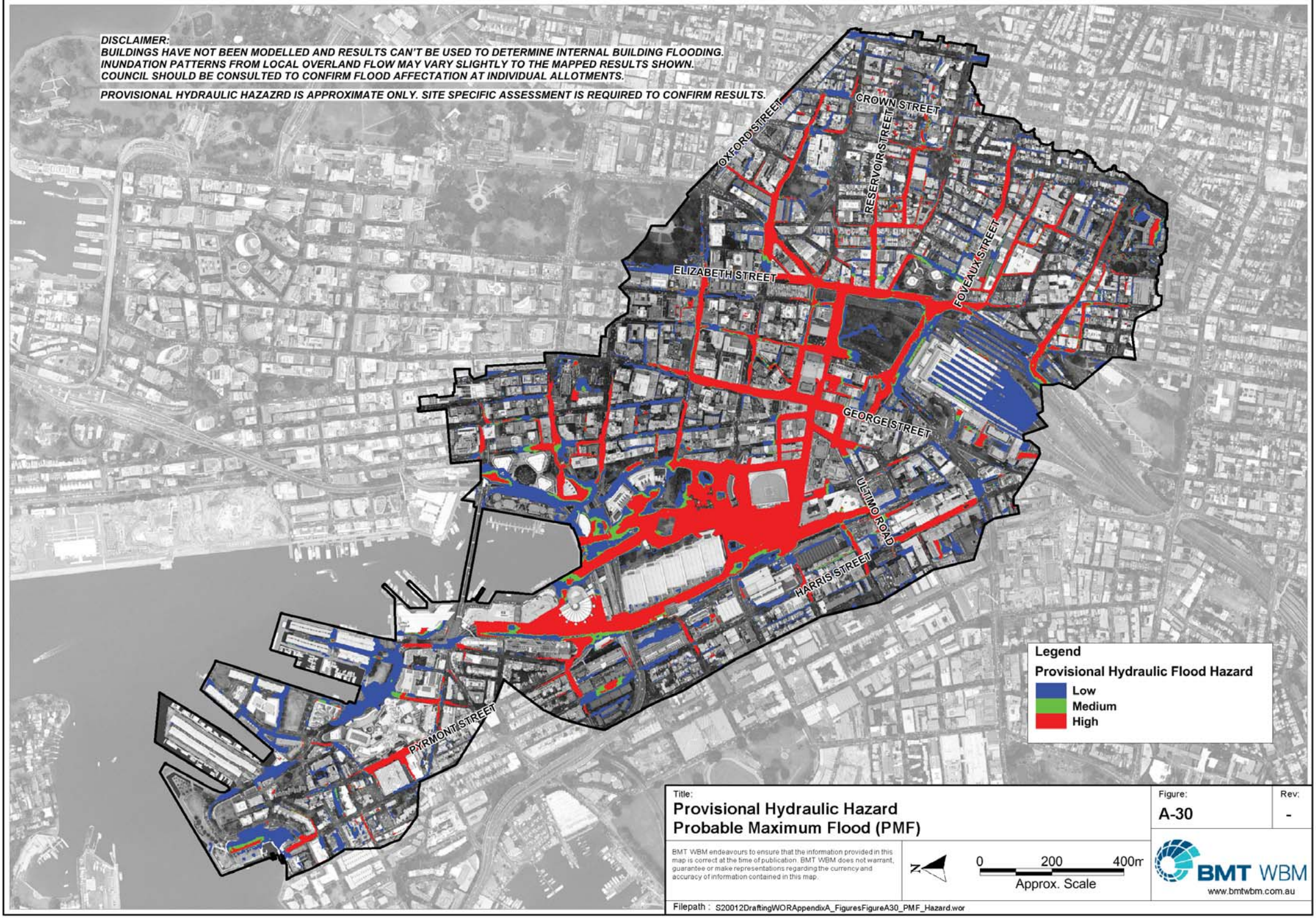

DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
HYDRAULIC CATEGORISATION IS APPROXIMATE ONLY. SITE SPECIFIC ASSESSMENT IS REQUIRED TO CONFIRM THE LOCATION OF FLOOD WAYS.
OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
Hydraulic Categorisation
Floodway
Flood Storage
Flood Fringe
Title:
Preliminary Hydraulic Categorisation
1% AEP (100 yr ARI)
Figure:
A-25
Rev:
-
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
BMT WBM
www.bmtwbm.com.au
Filepath : S20012DraftingWORAppendixA_FiguresFigureA25_100YR_HydraulicCat.wor

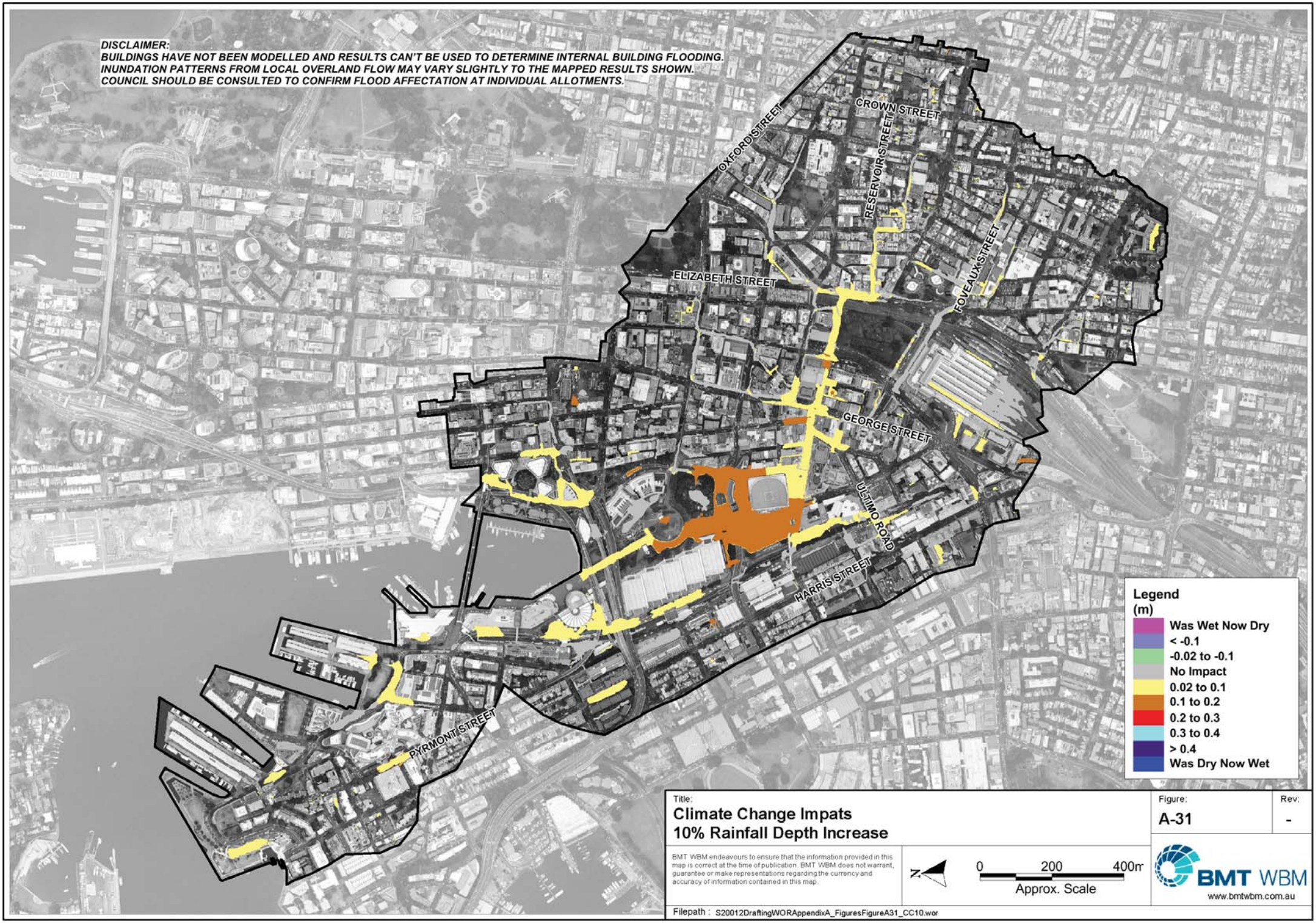

DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
HYDRAULIC CATEGORISATION IS APPROXIMATE ONLY. SITE SPECIFIC ASSESSMENT IS REQUIRED TO CONFIRM THE LOCATION OF FLOOD WAYS.
OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
Hydraulic Categorisation
Floodway
Flood Storage
Flood Fringe
Title:
Preliminary Hydraulic Categorisation
Probable Maximum Flood (PMF)
Figure:
A-26
Rev:
-
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
BMT WBM
www.bmtwbm.com.au
Filepath : S20012DraftingWORAppendixA_FiguresFigureA26_PMF_HydraulicCat.wor

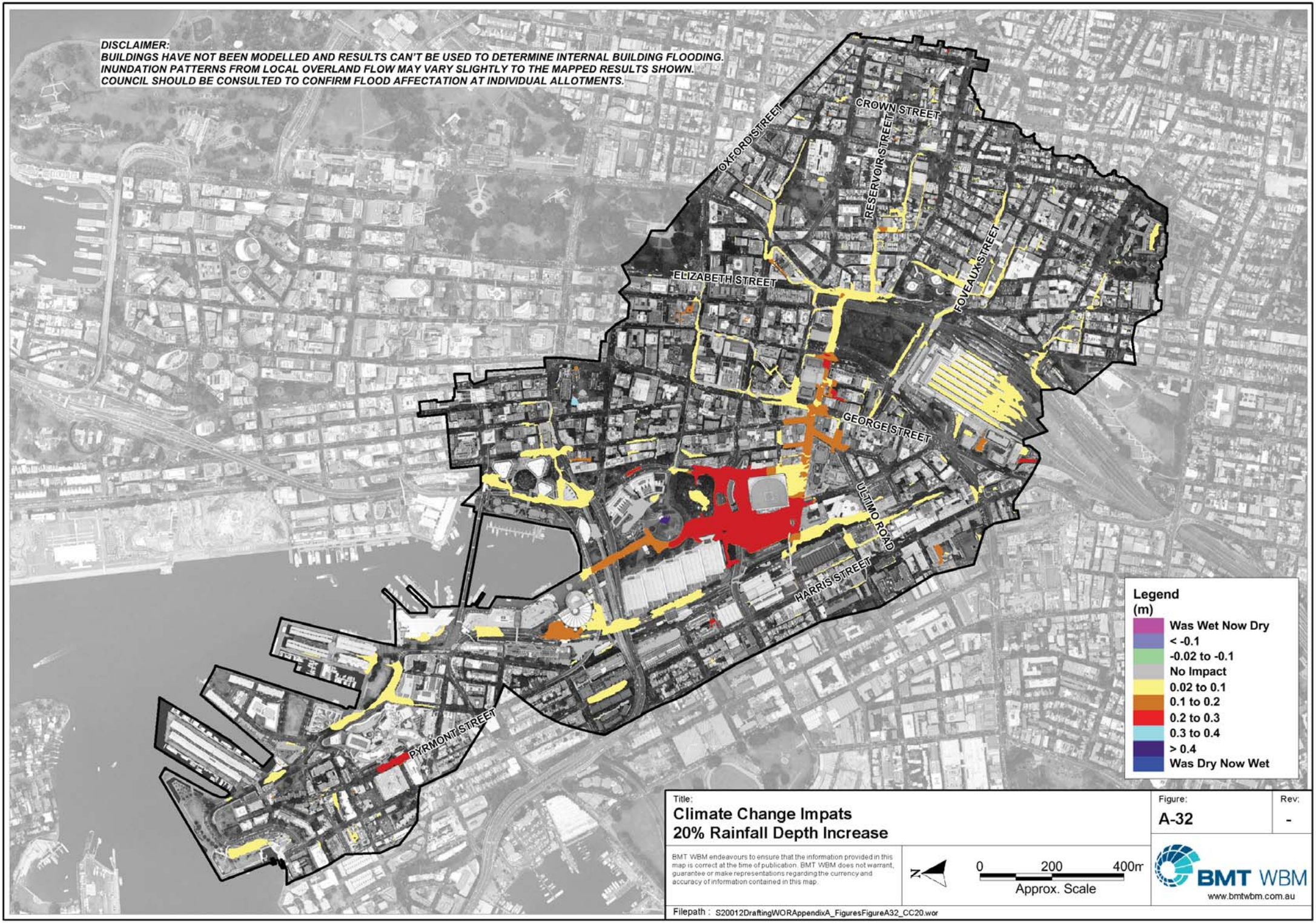

DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
PROVISIONAL HYDRAULIC HAZAZRD IS APPROXIMATE ONLY. SITE SPECIFIC ASSESSMENT IS REQUIRED TO CONFIRM RESULTS.
OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
Provisional Hydraulic Flood Hazard
Low
Medium
High
Title:
Provisional Hydraulic Hazard
10% AEP (10 yr ARI)
Figure:
A-27
Rev:
-
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
BMT WBM
www.bmtwbm.com.au
Filepath : S20012DraftingWORAppendixA_FiguresFigureA27_010YR_Hazard.wor

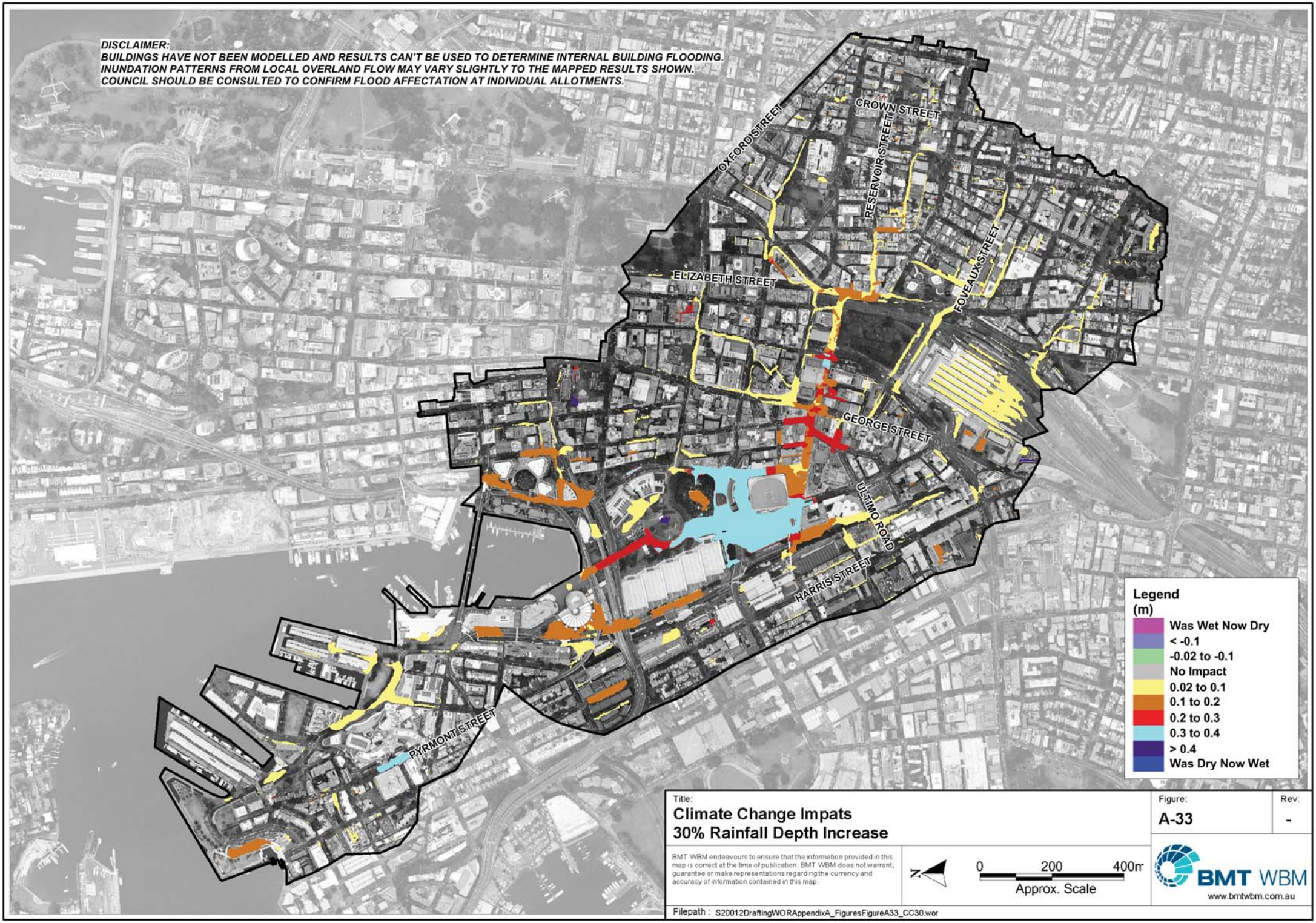

DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
PROVISIONAL HYDRAULIC HAZAZRD IS APPROXIMATE ONLY. SITE SPECIFIC ASSESSMENT IS REQUIRED TO CONFIRM RESULTS.
OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
Provisional Hydraulic Flood Hazard
Low
Medium
High
Title:
Provisional Hydraulic Hazard
5% AEP (20 yr ARI)
Figure:
A-28
Rev:
-
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
BMT WBM
www.bmtwbm.com.au
Filepath : S20012DraftingWORAppendixA_FiguresFigureA28_020YR_Hazard.wor

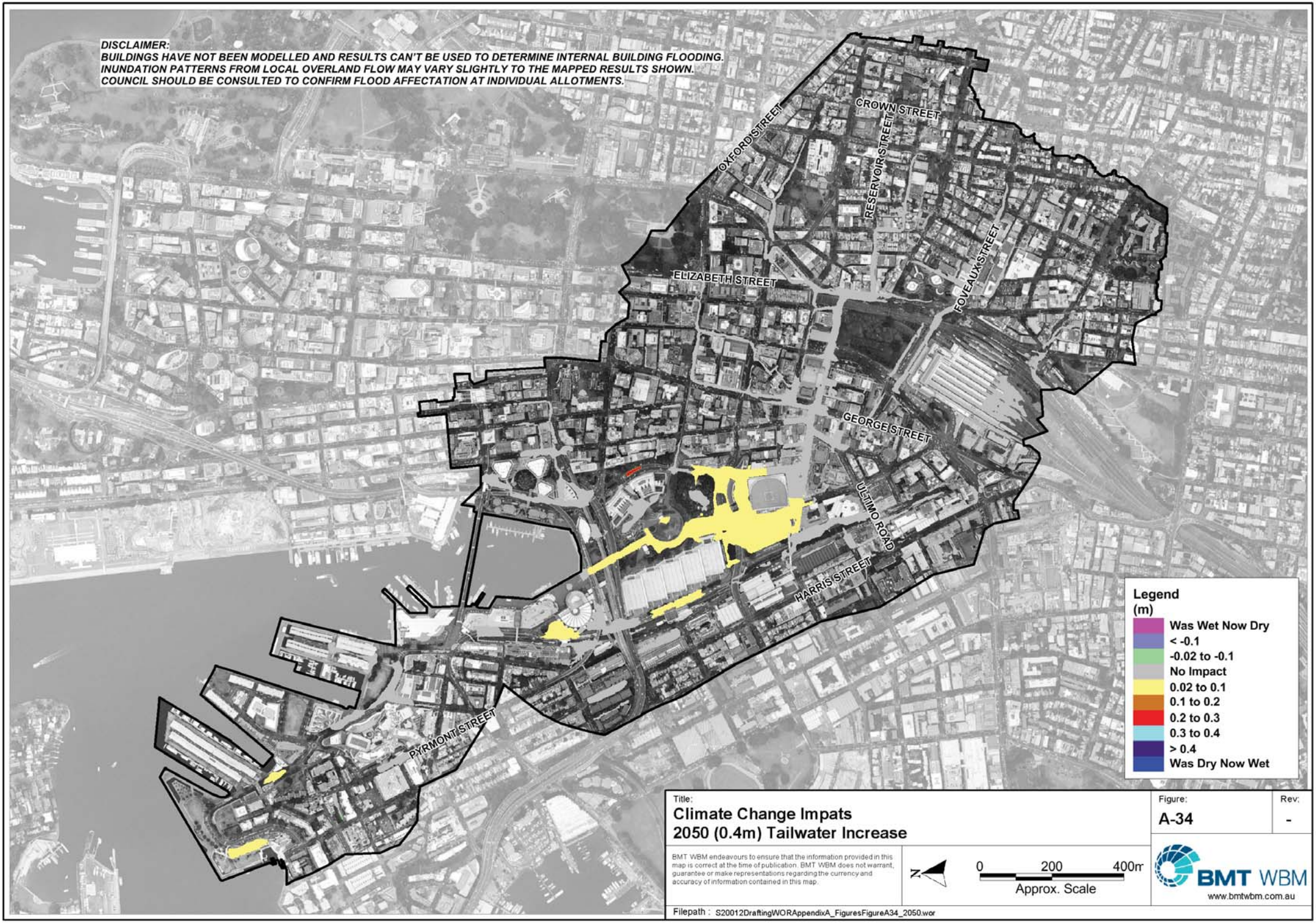

DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
PROVISIONAL HYDRAULIC HAZAZRD IS APPROXIMATE ONLY. SITE SPECIFIC ASSESSMENT IS REQUIRED TO CONFIRM RESULTS.
OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
Provisional Hydraulic Flood Hazard
Low
Medium
High
Title:
Provisional Hydraulic Hazard
1% AEP (100 yr ARI)
Figure:
A-29
Rev:
-
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
BMT WBM
www.bmtwbm.com.au
Filepath : S20012DraftingWORAppendixA_FiguresFigureA29_100YR_Hazard.wor

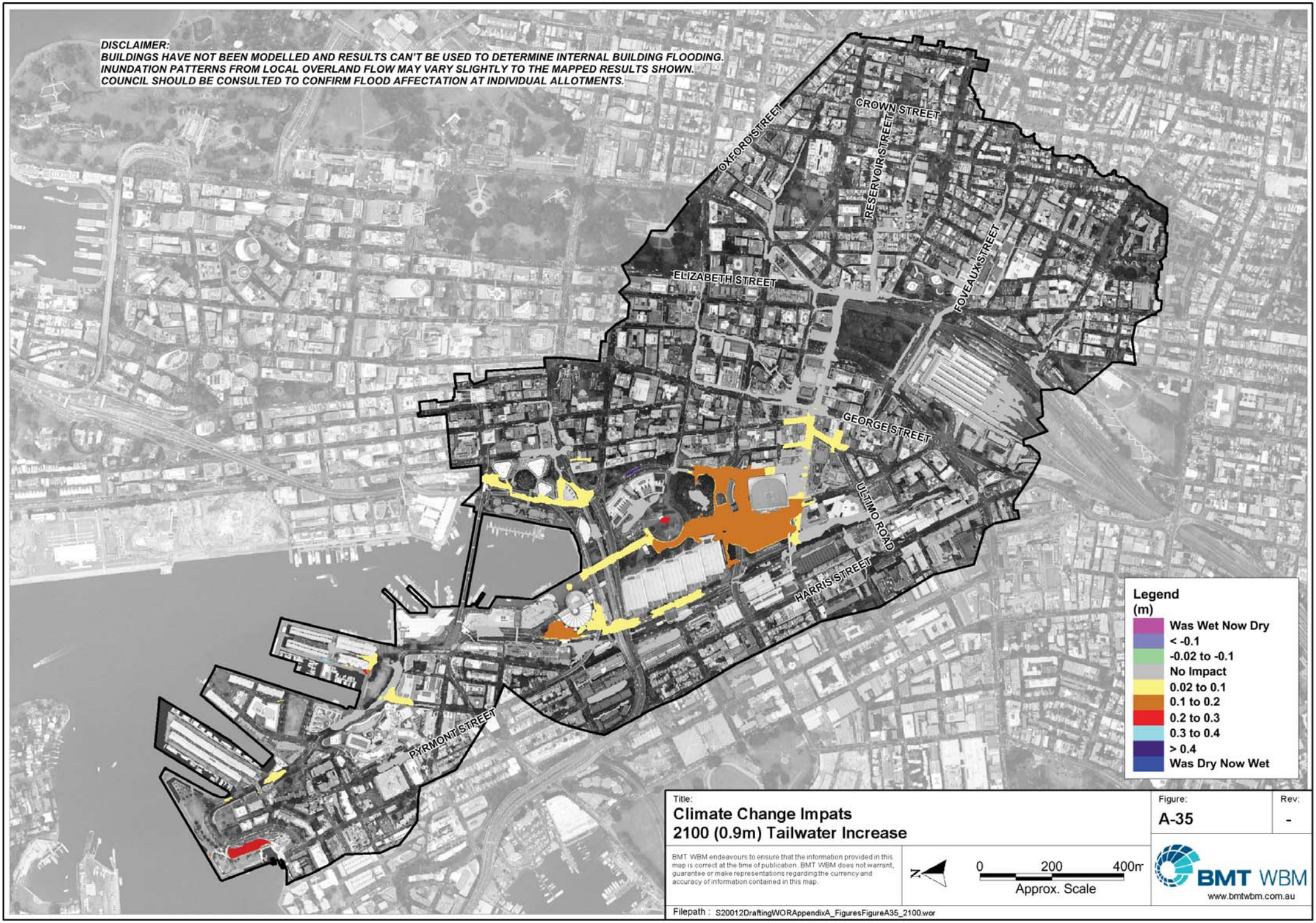

DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
PROVISIONAL HYDRAULIC HAZAZRD IS APPROXIMATE ONLY. SITE SPECIFIC ASSESSMENT IS REQUIRED TO CONFIRM RESULTS.
OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
Provisional Hydraulic Flood Hazard
Low
Medium
High
Title:
Provisional Hydraulic Hazard
Probable Maximum Flood (PMF)
Figure:
A-30
Rev:
-
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
BMT WBM
www.bmtwbm.com.au
Filepath : S20012DraftingWORAppendixA_FiguresFigureA30_PMF_Hazard.wor

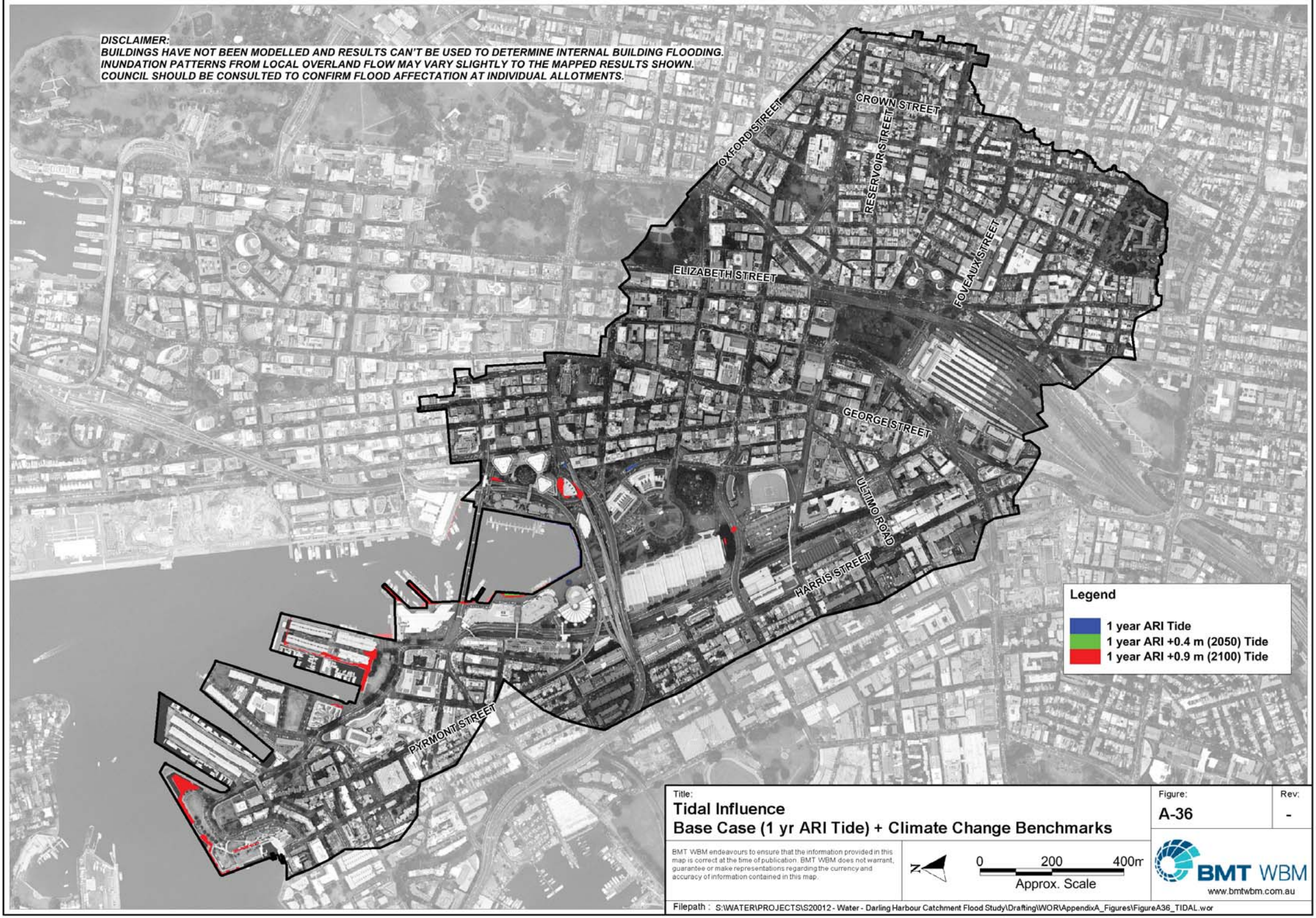

DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
(m)
Was Wet Now Dry
< -0.1
-0.02 to -0.1
No Impact
0.02 to 0.1
0.1 to 0.2
0.2 to 0.3
0.3 to 0.4
> 0.4
Was Dry Now Wet
Title:
Climate Change Impats
10% Rainfall Depth Increase
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
Figure:
A-31
Rev:
-
BMT WBM
www.bmtwbm.com.au
Filepath : S20012DraftingWORAppendixA_FiguresFigureA31_CC10.wor

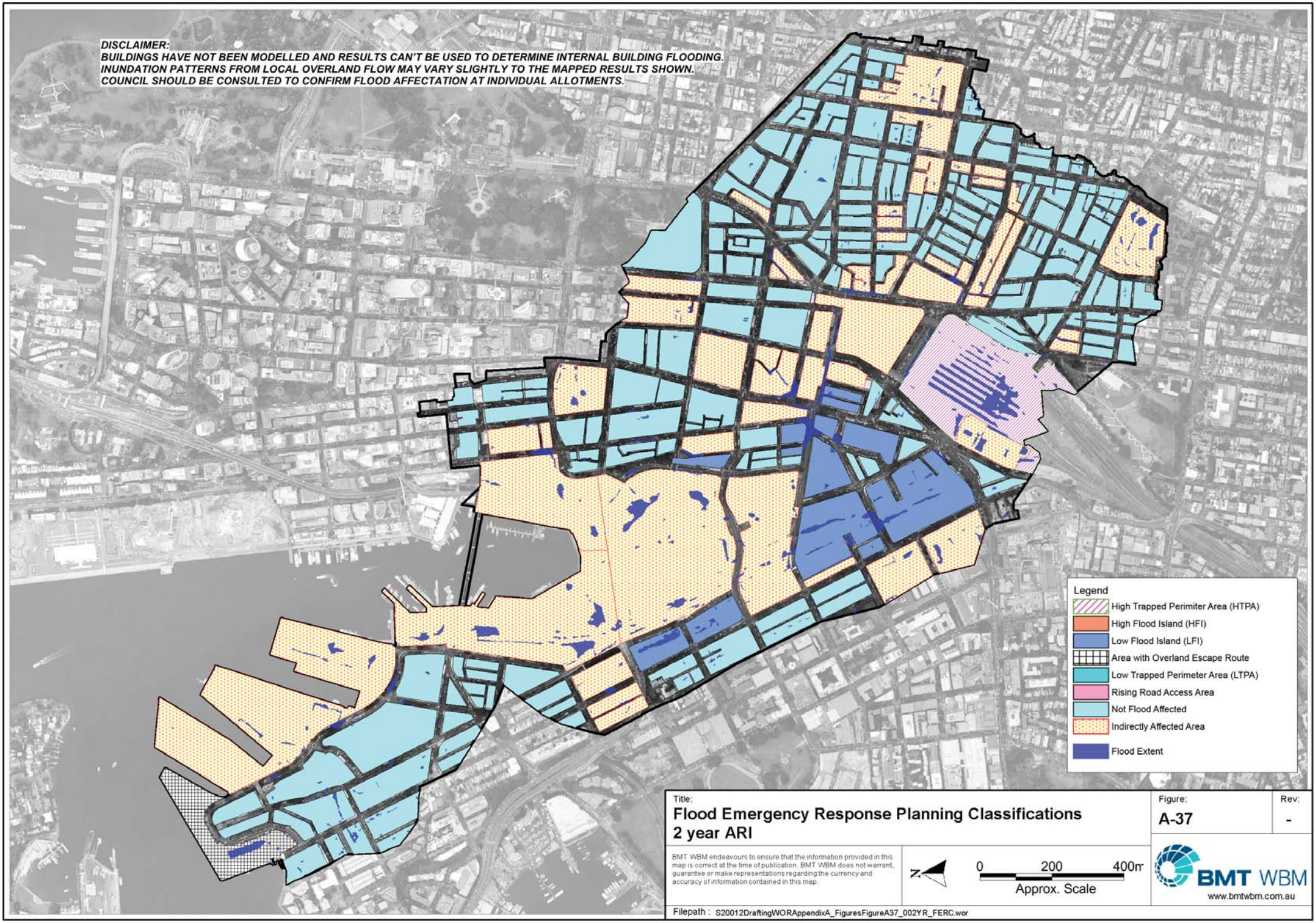

DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
(m)
Was Wet Now Dry
< -0.1
-0.02 to -0.1
No Impact
0.02 to 0.1
0.1 to 0.2
0.2 to 0.3
0.3 to 0.4
> 0.4
Was Dry Now Wet
Title:
Climate Change Impats
20% Rainfall Depth Increase
Figure:
A-32
Rev:
-
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
BMT WBM
www.bmtwbm.com.au
Filepath : S20012DraftingWORAppendixA_FiguresFigureA32_CC20.wor

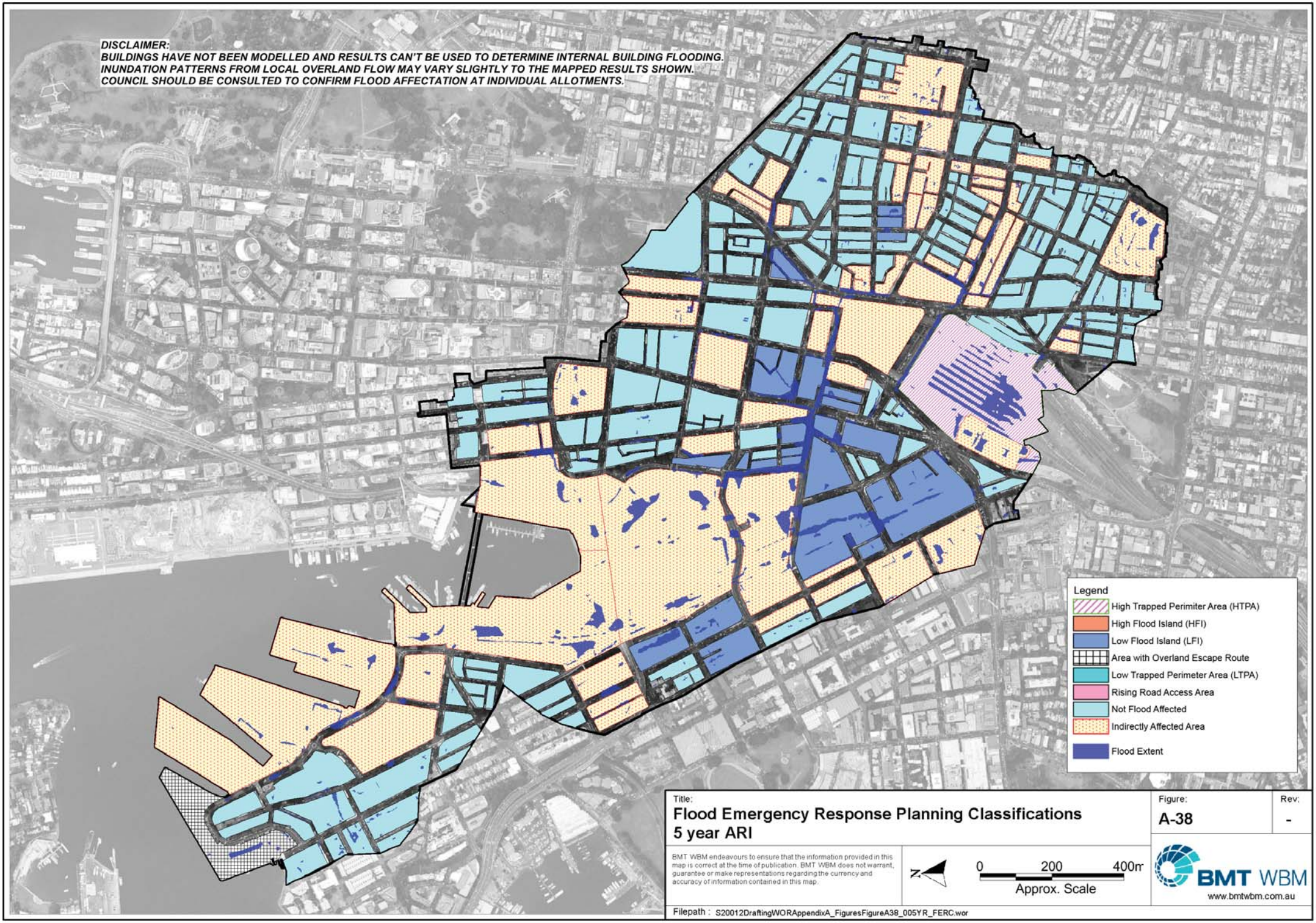

DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
(m)
Was Wet Now Dry
< -0.1
-0.02 to -0.1
No Impact
0.02 to 0.1
0.1 to 0.2
0.2 to 0.3
0.3 to 0.4
> 0.4
Was Dry Now Wet
Title:
Climate Change Impats
30% Rainfall Depth Increase
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
Figure:
A-33
Rev:
-
BMT WBM
www.bmtwbm.com.au
Filepath : S20012DraftingWORAppendixA_FiguresFigureA33_CC30.wor


DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
(m)
Was Wet Now Dry
< -0.1
-0.02 to -0.1
No Impact
0.02 to 0.1
0.1 to 0.2
0.2 to 0.3
0.3 to 0.4
> 0.4
Was Dry Now Wet
Title:
Climate Change Impats
2050 (0.4m) Tailwater Increase
Figure:
A-34
Rev:
-
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
BMT WBM
www.bmtwbm.com.au
Filepath : S20012DraftingWORAppendixA_FiguresFigureA34_2050.wor


DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
(m)
Was Wet Now Dry
< -0.1
-0.02 to -0.1
No Impact
0.02 to 0.1
0.1 to 0.2
0.2 to 0.3
0.3 to 0.4
> 0.4
Was Dry Now Wet
Title:
Climate Change Impats
2100 (0.9m) Tailwater Increase
Figure:
A-35
Rev:
-
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
BMT WBM
www.bmtwbm.com.au
Filepath : S20012DraftingWORAppendixA_FiguresFigureA35_2100.wor


DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
1 year ARI Tide
1 year ARI +0.4 m (2050) Tide
1 year ARI +0.9 m (2100) Tide
Title:
Tidal Influence
Base Case (1 yr ARI Tide) + Climate Change Benchmarks
Figure:
A-36
Rev:
-
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
BMT WBM
www.bmtwbm.com.au
Filepath : S:\WATER\PROJECTS\S20012 - Water - Darling Harbour Catchment Flood Study\Drafting\WOR\AppendixA_Figures\FigureA36_TIDAL.wor


DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
Legend
High Trapped Perimiter Area (HTPA)
High Flood Island (HFI)
Low Flood Island (LFI)
Area with Overland Escape Route
Low Trapped Perimeter Area (LTPA)
Rising Road Access Area
Not Flood Affected
Indirectly Affected Area
Flood Extent
Title:
Flood Emergency Response Planning Classifications
2 year ARI
Figure:
A-37
Rev:
-
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.
N
0
200
400m
Approx. Scale
BMT WBM
www.bmtwbm.com.au
Filepath : S20012DraftingWORAppendixA_FiguresFigureA37_002YR_FERC.wor


DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
Legend
High Trapped Perimiter Area (HTPA)
High Flood Island (HFI)
Low Flood Island (LFI)
Area with Overland Escape Route
Low Trapped Perimeter Area (LTPA)
Rising Road Access Area
Not Flood Affected
Indirectly Affected Area
Flood Extent
Title:
Flood Emergency Response Planning Classifications
5 year ARI
Figure:
A-38
Rev:
-
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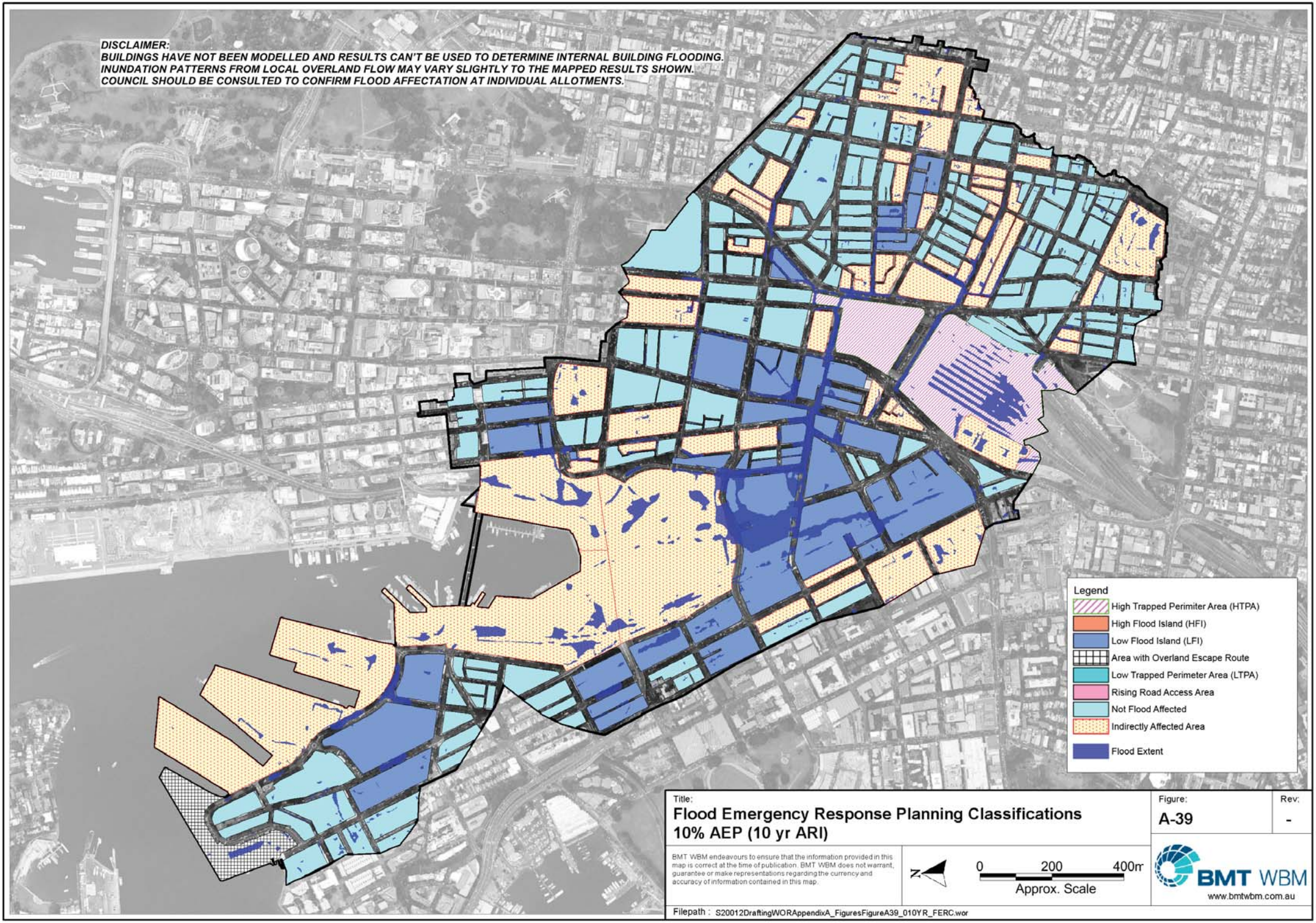
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Legend
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Low Flood Island (LFI)
Area with Overland Escape Route
Low Trapped Perimeter Area (LTPA)
Rising Road Access Area
Not Flood Affected
Indirectly Affected Area
Flood Extent
Title:
Flood Emergency Response Planning Classifications
10% AEP (10 yr ARI)
Figure:
A-39
Rev:
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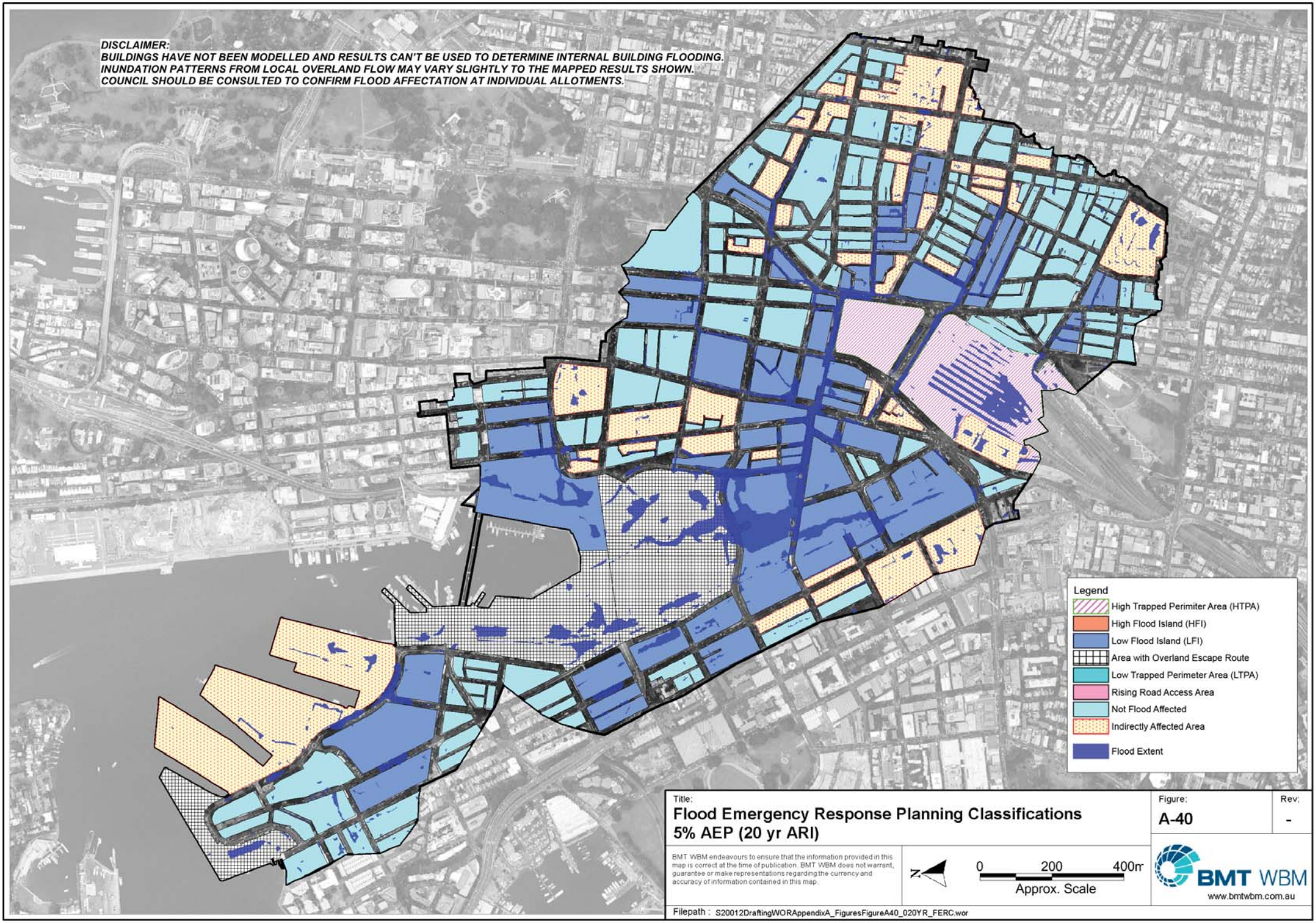
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Legend
High Trapped Perimiter Area (HTPA)
High Flood Island (HFI)
Low Flood Island (LFI)
Area with Overland Escape Route
Low Trapped Perimeter Area (LTPA)
Rising Road Access Area
Not Flood Affected
Indirectly Affected Area
Flood Extent
Title:
Flood Emergency Response Planning Classifications
5% AEP (20 yr ARI)
Figure:
A-40
Rev:
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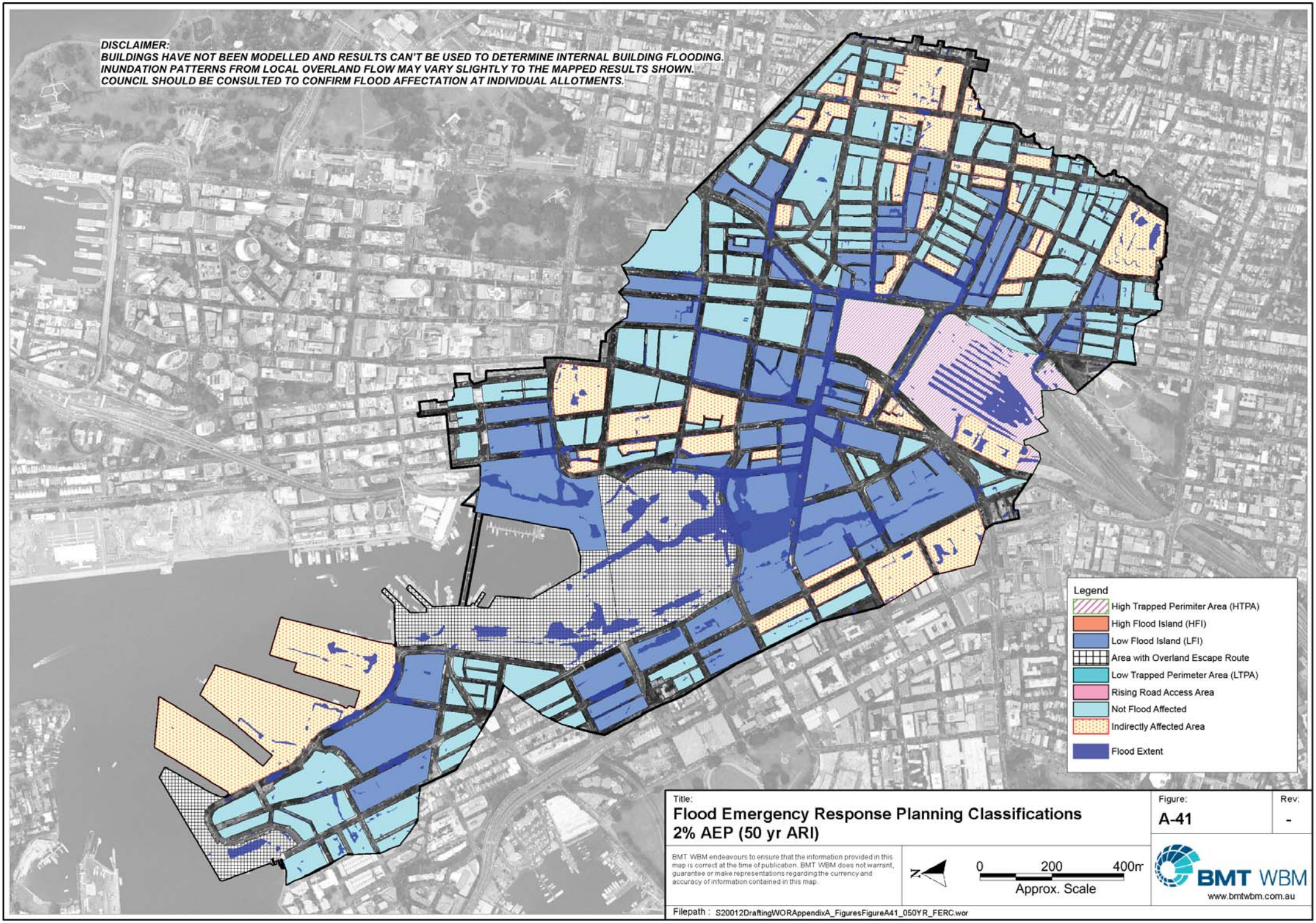
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INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
Legend
High Trapped Perimiter Area (HTPA)
High Flood Island (HFI)
Low Flood Island (LFI)
Area with Overland Escape Route
Low Trapped Perimeter Area (LTPA)
Rising Road Access Area
Not Flood Affected
Indirectly Affected Area
Flood Extent
Title:
Flood Emergency Response Planning Classifications
2% AEP (50 yr ARI)
Figure:
A-41
Rev:
-
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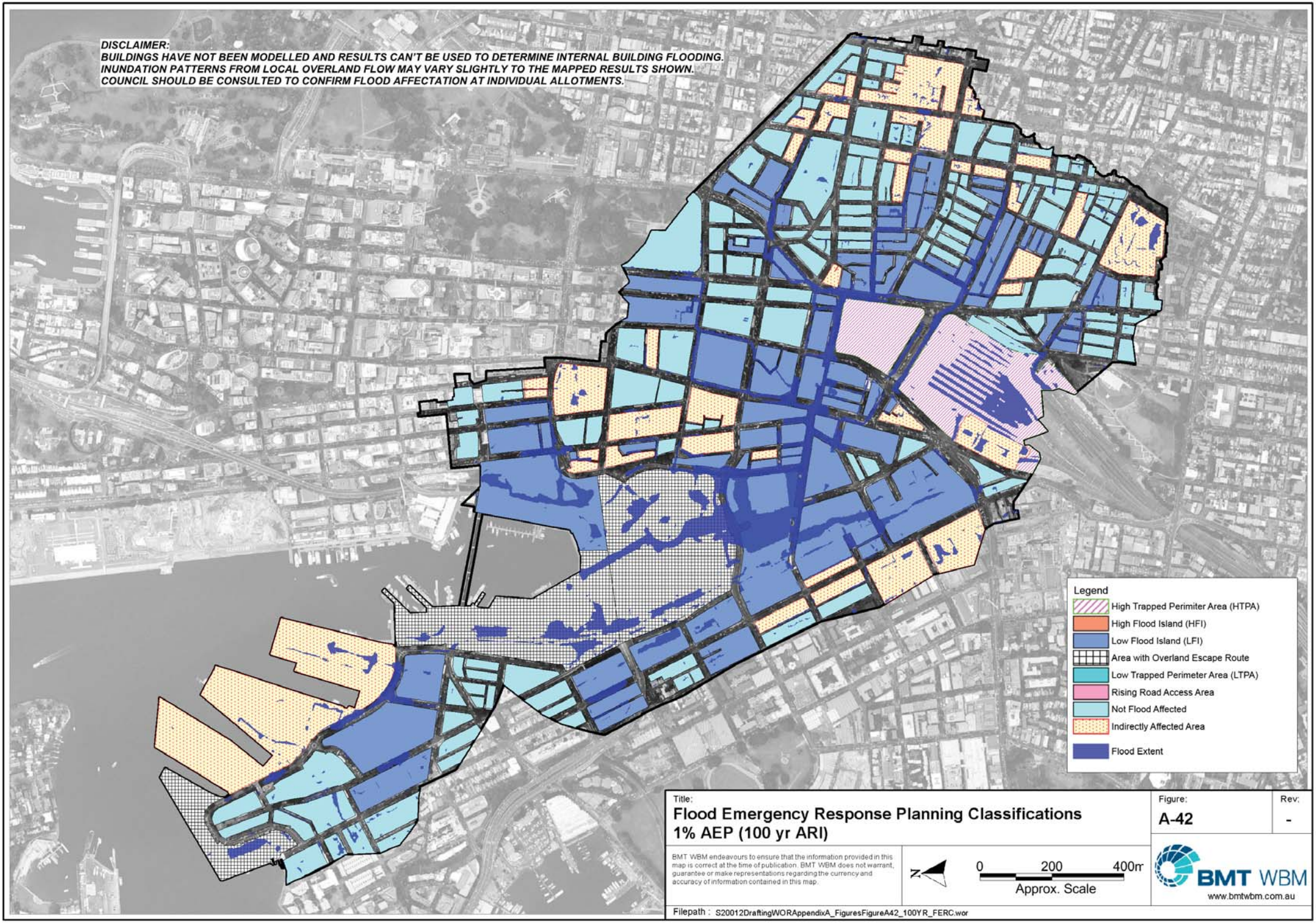
DISCLAIMER:
BUILDINGS HAVE NOT BEEN MODELLED AND RESULTS CAN'T BE USED TO DETERMINE INTERNAL BUILDING FLOODING.
INUNDATION PATTERNS FROM LOCAL OVERLAND FLOW MAY VARY SLIGHTLY TO THE MAPPED RESULTS SHOWN.
COUNCIL SHOULD BE CONSULTED TO CONFIRM FLOOD AFFECTATION AT INDIVIDUAL ALLOTMENTS.
Legend
High Trapped Perimiter Area (HTPA)
High Flood Island (HFI)
Low Flood Island (LFI)
Area with Overland Escape Route
Low Trapped Perimeter Area (LTPA)
Rising Road Access Area
Not Flood Affected
Indirectly Affected Area
Flood Extent
Title:
Flood Emergency Response Planning Classifications
1% AEP (100 yr ARI)
Figure:
A-42
Rev:
-
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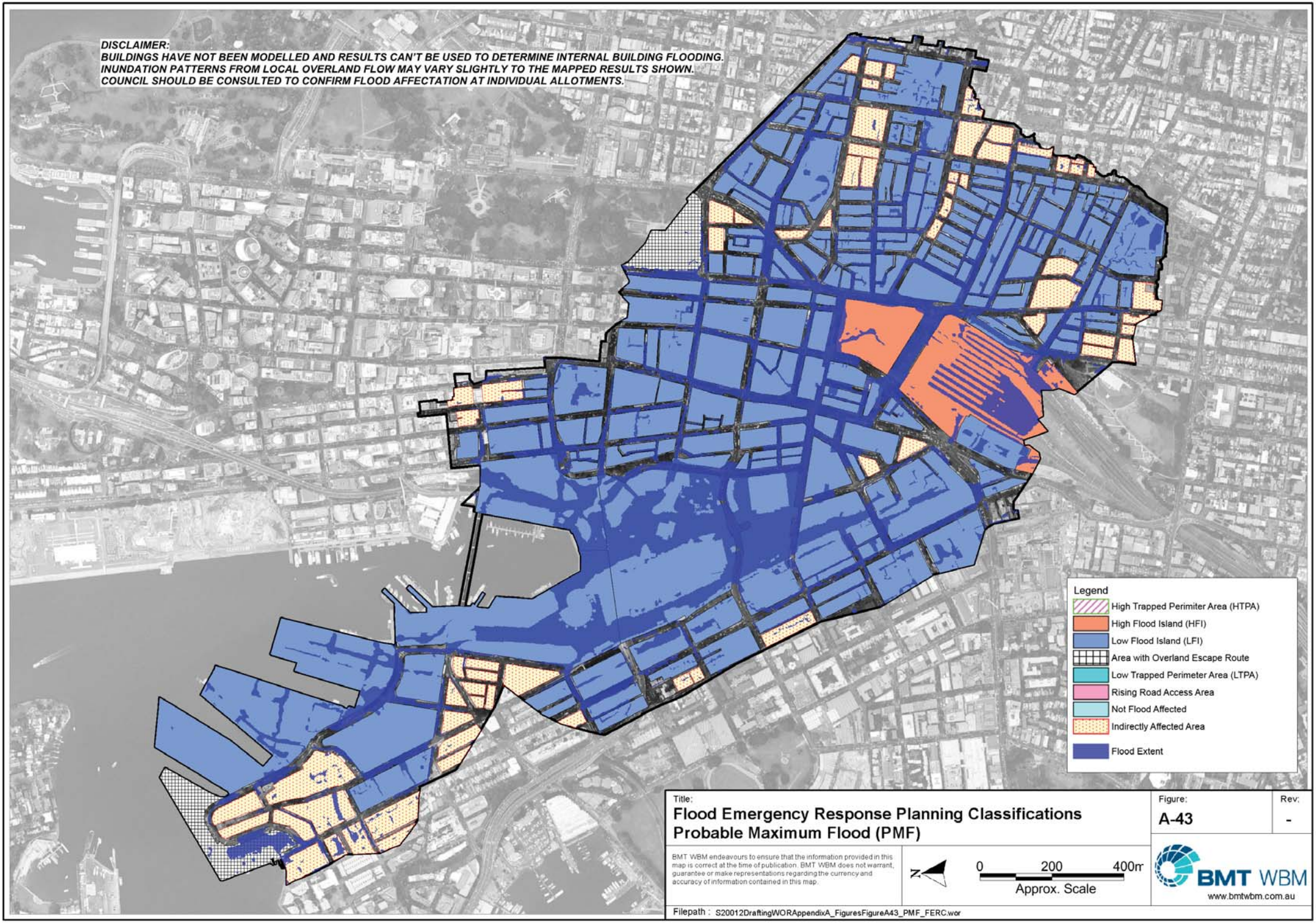
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Legend
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High Flood Island (HFI)
Low Flood Island (LFI)
Area with Overland Escape Route
Low Trapped Perimeter Area (LTPA)
Rising Road Access Area
Not Flood Affected
Indirectly Affected Area
Flood Extent
Title:
Flood Emergency Response Planning Classifications
Probable Maximum Flood (PMF)
Figure:
A-43
Rev:
-
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APPENDIX B: HISTORICAL NEWSPAPER ARTICLE REVIEW

Trove (trove.nla.gov.au) is an online resource of historical newspaper articles and is provided by the National Library of Australia. Trove was a primary resource for this study in determining historic flood behaviour for model verification. This appendix provides key exerts from historic publications describing flood behaviour in the Darling Harbour and City Area catchment study areas.

Border Watch (Mount Gambier, SA) - Thursday 24 April 1947 p9 Article.

Sydney was literally swamped on Tuesday (22/04/1947) when more than for inches of rain fell between dawn and dusk.

In one hour, 180 points fell in Sydney. It was Sydney's third damaging storm within a week.

In other parts of the city, especially at Circular Quay, workers had to wade through water more than a foot deep.

Barrier Miner (Broken Hill, NSW) - Saturday 21 March 1914 p4 Article.

A severe lightning storm followed by a tremendous downpour of rain was experienced in the city last night (20/03/1914).

The main streets were flooded. Circular Quay, shortly before midnight, being between three and four feet under water.

Traffic in the streets was seriously affected, in Pitt Street in particular.

Evening News (Sydney, NSW) - Thursday 1 August 1878.

We venture to say that the oldest inhabitant of Sydney will tax his memory in vain to find a parallel for the rainstorm that fell in Sydney today. In less than a quarter of an hour from the commencement of what we call nothing less else than a deluge, a boat might have been pulled along Pitt Street from Market Street to King Street, and in King Street from Pitt Street to George Street.

Market Street from Elizabeth Street to Pitt Street was flooded by the rush of storm water from Hyde Park.

Evening News (Sydney, NSW) - Thursday 4 October 1877.

Flood waters rushed in large volumes down Park and Market Streets, flooding the sewers in George and Pitt Streets. So great was the rush of water of water that the pathways in Pitt Street were covered for some time.

The Advertiser (Adelaide, SA) - Saturday 2 March 1912.

As a result of the torrential rain which occurred in the city yesterday (01/03/1912) afternoon considerable damage was done in Pitt Street and the lower parts of George Street and Haymarket by floodwaters.

At Haymarket the water was 4 feet high in some premises.

Kalgoorlie Miner (WA) - Tuesday 11 March 1913

Amongst the places in the city which suffered most through the storm was the drapery establishment of McCathie, Ltd., in Pitt Street.

Goulburn Evening Penny Post (NSW) – Monday 31 January 1938

In Pitt Street many basements were under water.

In one hour, from 6.30 am, 250 points were registered at the official registry and it is the highest number of points on the meteorological records.

Examiner (Launceston, Tas) - Thursday 16 June 1949.

Advocate (Burnie, Tas) - Thursday 16 June 1949.

Both references report:

Sydney, Wednesday (15/06/49) – The heaviest June rain in Sydney for more than half a century.

For the 24 hours ended 9am, 477 points of rain were registered.

As hundreds sought shelter from the rain, a serious crush occurred, and people were forced out in the rain and into water 9 inches deep.

All traffic was halted at the corner of Liverpool and Elizabeth Streets, where a huge lake had formed.

Morning Bulletin (Rockhampton, Qld) - Thursday 16 June 1949.

Townsville Daily Bulletin (Qld) - Thursday 16 June 1949

Both references report:

Between 8am and 9am (15/06/19), 267 points fell.

A tram was derailed when storm waters ripped up the rail in Pitt Street.

City streets were flooded to depths of up to 5 ft. The deepest flood in low-lying city streets was in Ultimo Road near Broadway where flood waters surged 5 ft deep.

The Argus (Melbourne, Vic) – Thursday 16 June 1949.

Water cascading from Hyde Park (on 15/06/49) stopped another line of trams in Elizabeth Street.

The Brisbane Courier (Qld) – Wednesday 5 April 1905.

Concerning the causes which lead to the floods in the neighbourhood of Darling Harbour on Saturday last:

Firstly a high tide at Darling Harbour prevented the escape of the flood waters, and caused them to back up the sewers.

APPENDIX C: COMMUNITY CONSULTATION

The primary mode of community consultation was the delivery of Community Questionnaire. A copy of each of the 6 pages of this questionnaire is provided.

Sydney CBD and Darling Harbour Catchments Flood Study

CITY OF SYDNEY 2030

Sydney 2030 Green Global Connected

The City of Sydney is preparing a flood study for the Sydney CBD and Darling Harbour areas and we would like your help.

The study will tell us about the type of flooding issues in the catchment and help us better plan for and manage any flood risks.

Good management of flood risks can help reduce damage and improve social and economic opportunities.

city of villages

To access the questionnaire online visit

cityofsydney.nsw.gov.au

CITY OF SYDNEY 2030

Management of land

Under the NSW Government Flood Prone Land Policy, management of flood prone land is, primarily, the responsibility of councils.

The policy specifies a staged process (see stages 1 – 5).

The City will follow this process in order to manage the floodplain in your area.

Stages 1 – 5

1. The Data Collection
2. **Flood Study (current)**
3. Floodplain Risk Management Study
4. Floodplain Risk Management Plan
5. Implementation of Plan

Objectives

- Investigate historical flooding in the catchment areas.
- Develop a computer simulation of flooding that can be used to predict the size and extent of future floods.
- Provide the City with the necessary information to make effective investments in flood management in the future.

For further information please contact

BMT WBM Pty Ltd
Simon Kovacevic
Phone: 02 8987 2900
Email: sydflood@bmtwbm.com.au

City of Sydney
Shah Alam
Phone: 02 9288 5925
Email: salam@cityofsydney.nsw.gov.au

Study area and flooding issues

The Sydney CBD and Darling Harbour catchments include the suburbs of Millers Point, Dawes Point, The Rocks, Sydney, Pyrmont, Ultimo, Haymarket and Surry Hills.

The overall catchment areas total about 506 hectares lying within the City of Sydney Local Government Area. Land uses within the catchments include residential, commercial and industrial properties as well as parklands.

In the past, flooding in the Sydney CBD and Darling Harbour catchments has caused property damage and posed a hazard to people close to the main drainage channels or drainage paths.

Flooding may also occur along natural depressions and near stormwater pits.

The City is trying to measure and understand the extent of these types of flooding within the Sydney CBD and Darling Harbour.

The Flood Study

The Sydney CBD and Darling Harbour Catchments Flood Study will be based on historical data and includes a computer simulation that represents flooding in your area.

Information from the study will help future planning in the City of Sydney LGA.

After the Flood Study, a Floodplain Risk Management Study and Plan will be prepared. This will investigate specific flood management solutions.

Can you please help us?

We want your comments about previous flood experiences.

The local knowledge of residents and business operators and any personal experiences of flooding are an important source of information. We are especially interested in historical records of flooding such as photographs, flood marks or observations that residents may have.

This information will help the City better understand how floods happen in the catchments and lead to better management of flood hazards.

Please complete the questionnaire and return it in the reply paid envelope, or complete it online (preferred) at cityofsydney.nsw.gov.au

Floodplain Management Committee

A Floodplain Management Committee has been established and we are seeking representatives of your community for these catchments. Meetings will be held quarterly and will be about one to two hours long. The committee will oversee the floodplain management process and help with reviews.

The Flood Study is due for completion in June 2014.

The community will be invited to view and comment on the draft study when it is placed on public exhibition.

Sydney2030/Green/Global/Connected

Sydney CBD and Darling Harbour Catchments Flood Study

Community questionnaire

The City of Sydney is carrying out a flood study for the Sydney CBD and Darling Harbour catchments. Your local knowledge of the catchment and personal experiences of flooding will help us to undertake this flood study.

We appreciate you taking the time to assist us.

1

Your details

The purpose of the Flood Study is to identify the nature of flooding in your catchment area to enable the City to better understand, plan and manage the potential flood risk. We may contact you to discuss some of the information that you provide.

Name: .....

Address: .....

Email: .....

Contact Phone Number: .....

2

How long have you lived at the above address?

Months: ..... Years: .....

3

Are you aware of stormwater flooding from streets or channels in your catchment? (Please tick one)

☐ Aware ☐ Some Knowledge ☐ Not Aware

4

Have you ever been inconvenienced by uncontrolled floodwater/stormwater from streets or channels in this area?

☐ Yes ☐ No

If yes, please give more details in the space provided on the next page.

4 continued

How has uncontrolled floodwater/stormwater inconvenienced you?

☐ Daily routine was affected (e.g. it was difficult to get to work) .....

☐ Safety was threatened .....

☐ Access to property was affected (e.g. driveways or roads flooded) .....

☐ Property and/or its contents were damaged .....

☐ Business was unable to operate during the flooded period .....

☐ Other (please specify) .....

Can you remember when this happened?

☐ Yes

☐ No

Date: ..... Time: .....

5

Has your home or other property been flooded because of uncontrolled floodwater/stormwater from streets or channels in this area?

☐ Yes ☐ No

If yes, where was your property flooded, and when did it happen? (You may tick more than one)

☐ Frontyard or backyard .....

☐ Garage or shed .....

☐ Residential (below floor level) .....

☐ Residential (above floor level) .....

☐ Commercial (e.g. shops, above floor level) .....

☐ Commercial (below floor level) .....

☐ Industrial (e.g. factories) .....

☐ Other (please give details) .....

.....

.....

6

Have you experienced flooding on your street?

☐ Yes - across one or both lanes of traffic .....

☐ Yes - minor along gutters .....

☐ No

If yes, does this occur regularly, i.e. several times a year?

☐ Yes ☐ No

7

If you have experienced flooding, what other areas have you seen flooded?

☐ Residential or commercial

Address: ..... Description: .....

☐ Roads or footpaths

Address: ..... Description: .....

☐ Parks

Address: ..... Description: .....

☐ Other (give details)

Address: ..... Description: .....

8

Did you notice any culverts, drains and/or stormwater inlets that were blocked during the flooding?

☐ Yes ☐ No

If yes, please provide details where possible:

☐ Partially blocked ☐ Fully blocked

What was causing the blockage? .....

9

Do you have any evidence of past floods (e.g. photos, video footage, watermarks on walls or posts)?

☐ Yes ☐ No

If yes, please provide more information:

.....

.....

.....

.....

10

Do you have any more information you think might help the study?

.....

.....

.....

.....

11

Are you interested in taking part in the floodplain risk management committee? The committee will oversee the floodplain risk management process. Meetings will occur quarterly and will take 1-2 hours at a time.

☐ Yes ☐ No

If yes, please provide your contact details in Question 1 for our staff to contact you.

Thank you for providing this information. Please remember to place all pages in the reply paid envelope and send to BMT WBM Pty Ltd by 21 June 2013. A representative from BMT WBM may contact you in the near future to discuss your response.

If you are willing to share photographs and video of flooding with the study team, these can be returned with this form or emailed to SydFlood@bmtwbm.com.au

Privacy notice The information obtained from the Sydney CBD and Darling Harbour Catchments Flood Study questionnaire will be used by staff at the City of Sydney and BMT WBM only. Supply of this information is voluntary. Access to, or correction of information should be addressed to the promoter (see over). The information will be stored on Council's file for the duration of the project.

APPENDIX D: PIT INLET CURVES

Figure D-1 Pit Inlet Capacity Curves for Selected Nominal Lintel Lengths (Lintel only)

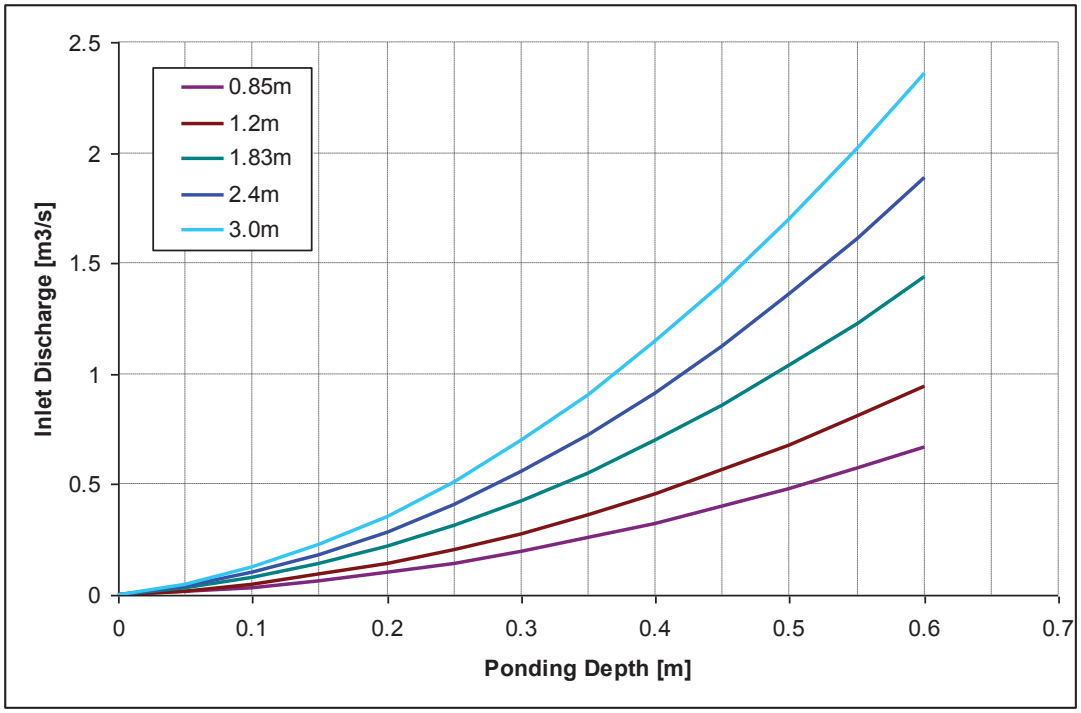
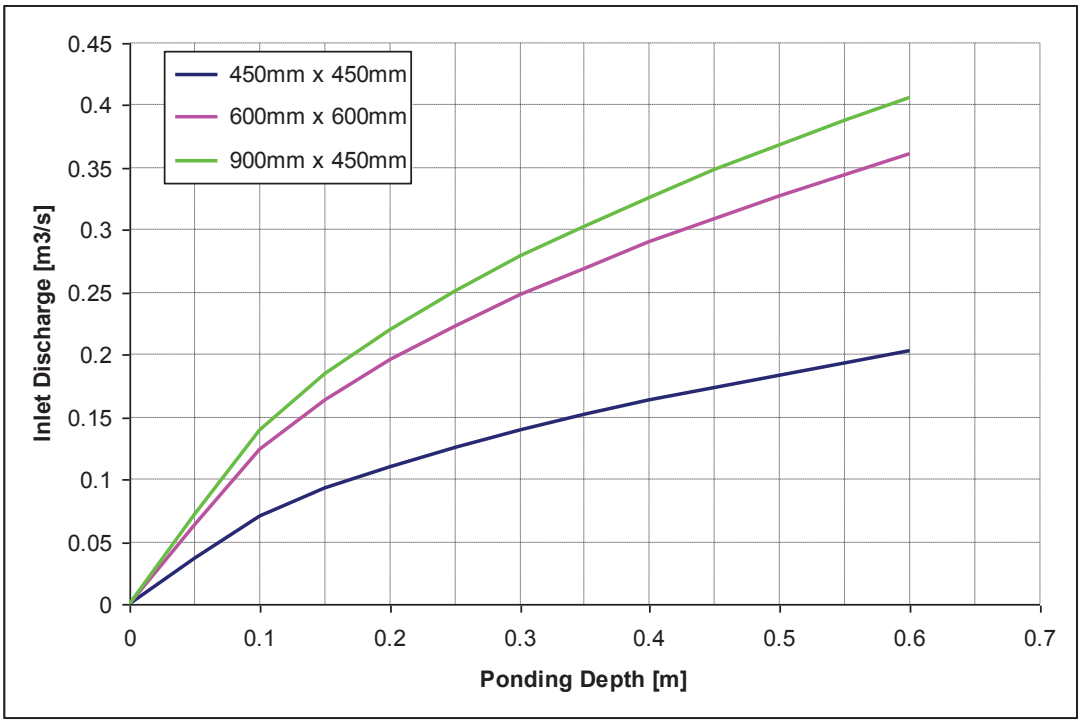


Figure D-2 Pit Inlet Capacity Curves for Selected Grate Dimensions (Grate Only)



APPENDIX E: SUPERCRITICAL FLOW AND CONJUGATE DEPTHS

Supercritical flow is a flow whose velocity is greater than the wave velocity. Supercritical flow regimes are characterised as flow with the dimensionless Froude number being greater than 1.

Due to the very steep flow paths in the catchment with low hydraulic roughness, the potential for supercritical flow paths is great.

In regards to the Flood Study deliverables, the implications of supercritical flow paths is the modelled water level may underestimate the maximum potential flood level. If a supercritical flow path, hits an obstruction it may create a hydraulic jump which will change the flow regime to subcritical.

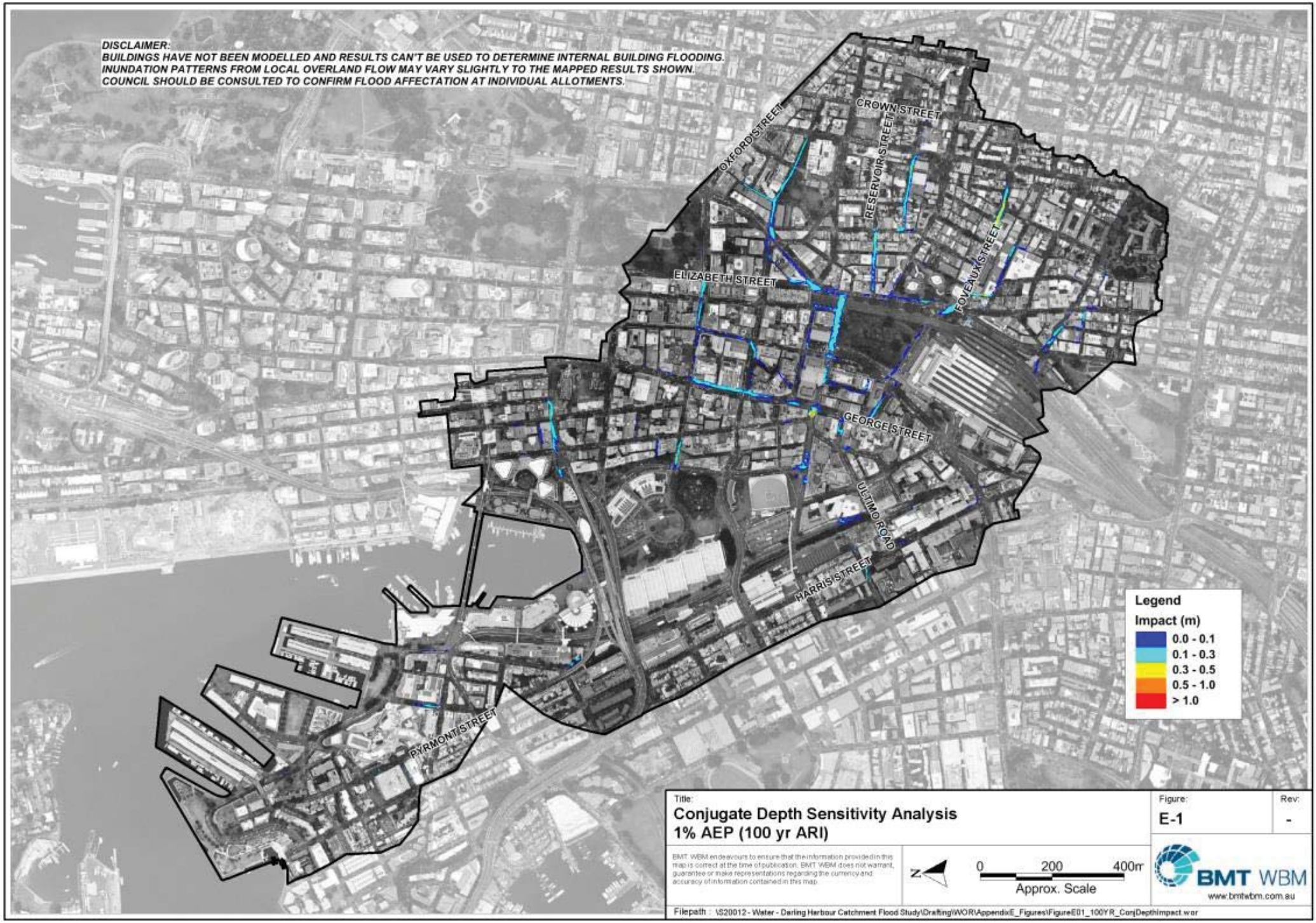
When a hydraulic jump occurs, momentum is preserved however energy losses result.

To determine the sensitivity to mapping water level results from supercritical flow regimes, the 'conjugate depth' for supercritical flow was calculated. The conjugate depth is the water depth which would result if a hydraulic jump formed resulting in a change from supercritical to subcritical flow.

Calculations undertaken used peak Froude and peak Depth gridded results which may not have occurred at the same time. For this reason, the results can be considered conservative.

Figure E 1 shows the difference in peak water level for the 1% AEP design event compared to the conjugate depths of the 1% AEP event. As shown the conjugate depths rarely exceed the design depths by more than 0.3 m.

If required, the subsequent Floodplain Risk Management Plan and Study can further purse the implications of supercritical flow.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OXFORD STREET
CROWN STREET
RESERVOIR STREET
FOVEAUX STREET
ELIZABETH STREET
GEORGE STREET
ULTIMO ROAD
HARRIS STREET
PYRMONT STREET
Legend
Impact (m)
0.0 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1.0
> 1.0
Title:
Conjugate Depth Sensitivity Analysis
1% AEP (100 yr ARI)
Figure:
E-1
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