KINGBOROUGH COUNCIL

KINGSTON BEACH FLOOD MITIGATION INVESTIGATION

FINAL REPORT

wma water

NOVEMBER 2021

APPENDIX B. DESIGN FLOOD MAPPING

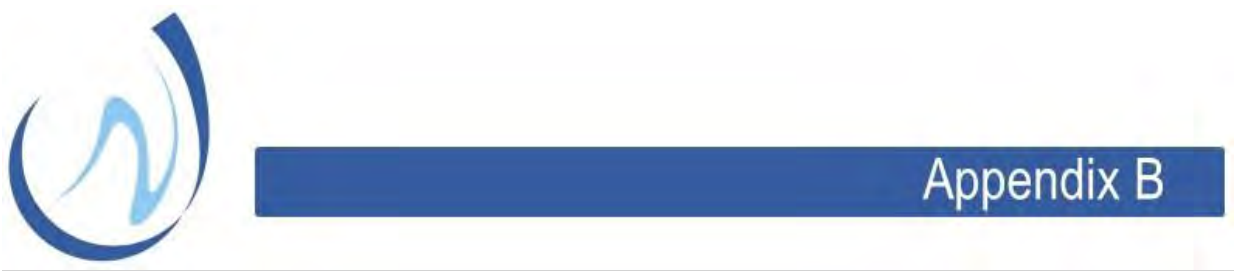

FIGURE B1
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENT FLOOD ENVELOPE
BASELINE

Model Extent
Cadastre
Major Contours (0.2 m)
Minor Contours (0.1 m)
Depth (m)
0.05 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

N

0 100 200 400 600 m

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FIGURE B2
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENT FLOOD ENVELOPE
YEAR 2050

Whitewater Creek
Lower Rivet
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

Model Extent
Cadastre
Major Contours (0.2 m)
Minor Contours (0.1 m)
Depth (m)
0.05 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

N

0 100 200 400 600 m

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FIGURE B3
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENT FLOOD ENVELOPE
YEAR 2100

Whitewater Creek
Lewis River
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

Model Extent
Cadastre
Major Contours (0.2 m)
Minor Contours (0.1 m)

Depth (m)
0.05 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

N

0 100 200 400 600 m

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FIGURE B4
KINGSTON BEACH
PEAK FLOOD VELOCITIES
1% AEP COINCIDENT FLOOD ENVELOPE
BASELINE

Whitewater Creek
Beattie Road
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Velocity (m/s)
< 0.2
0.2 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

0 100 200 400 600 m

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FIGURE B5
KINGSTON BEACH
PEAK FLOOD VELOCITIES
1% AEP COINCIDENT FLOOD ENVELOPE
YEAR 2050

Whitewater Creek
Beach Road
Golf Club
Kingston Beach Golf Club
Kingston Beach
Browns River
Kingston Beach

N

Model Extent
Cadastre
Velocity (m/s)
< 0.2
0.2 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

0 100 200 400 600 m

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FIGURE B6
KINGSTON BEACH
PEAK FLOOD VELOCITIES
1% AEP COINCIDENT FLOOD ENVELOPE
YEAR 2100

Whitewater Creek
Beattie Rivulet
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Velocity (m/s)
< 0.2
0.2 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

0 100 200 400 600
m

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FIGURE B7
KINGSTON BEACH
HYDRAULIC HAZARD
1% AEP COINCIDENT FLOOD ENVELOPE
BASELINE

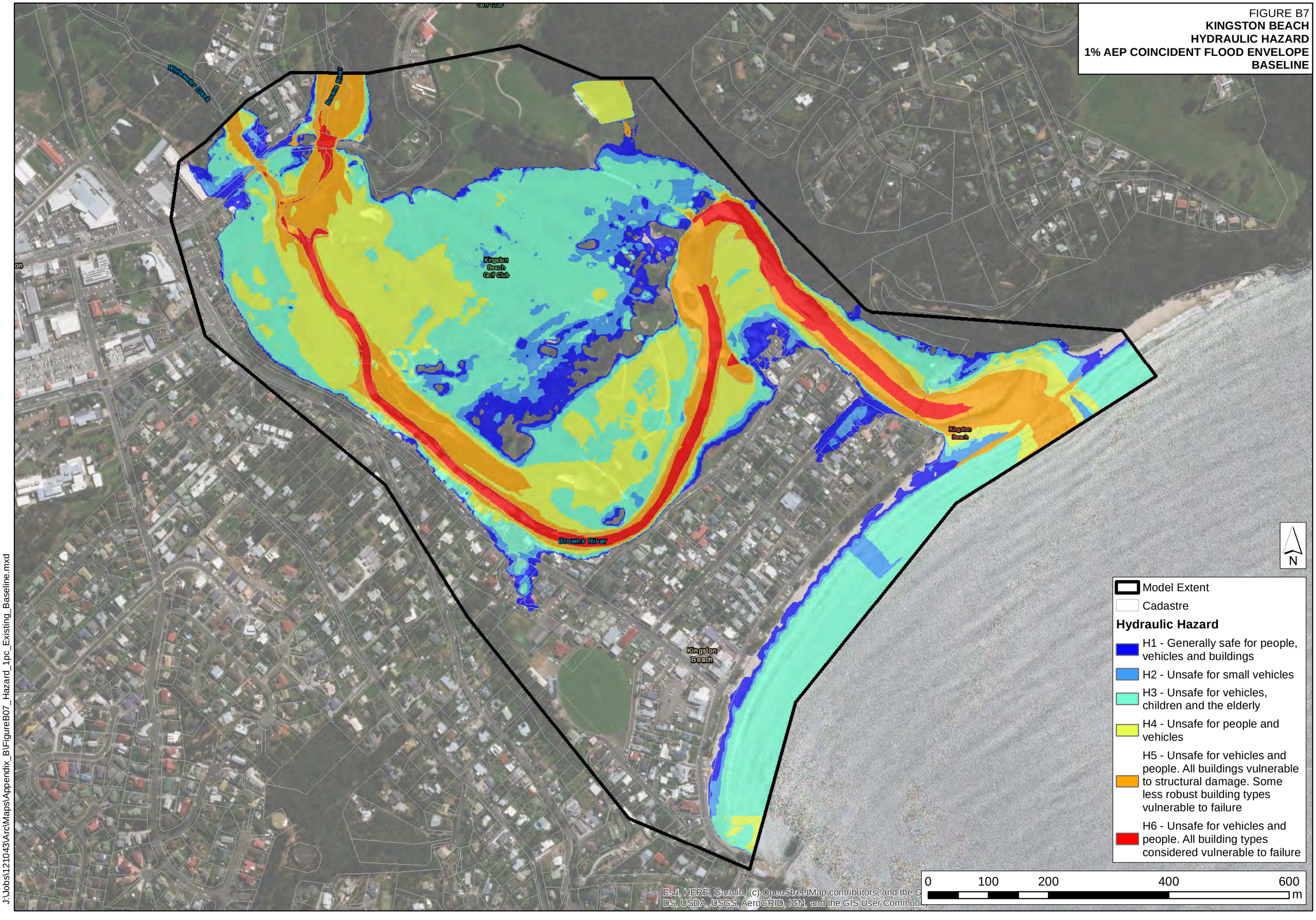

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FIGURE B8
KINGSTON BEACH
HYDRAULIC HAZARD
1% AEP COINCIDENT FLOOD ENVELOPE
YEAR 2050

Whitewater Creek
Bendix Rivet
Golf Club
Kingston Beach Golf Club
Kingston Beach
Browns River
Kingston Beach

N

- Model Extent
- Cadastre

Hydraulic Hazard

- H1 - Generally safe for people, vehicles and buildings
- H2 - Unsafe for small vehicles
- H3 - Unsafe for vehicles, children and the elderly
- H4 - Unsafe for people and vehicles
- H5 - Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust building types vulnerable to failure
- H6 - Unsafe for vehicles and people. All building types considered vulnerable to failure

0 100 200 400 600 m

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FIGURE B9
KINGSTON BEACH
HYDRAULIC HAZARD
1% AEP COINCIDENT FLOOD ENVELOPE
YEAR 2100

Whitewater Creek
Denison Rivulet
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre

Hydraulic Hazard

- H1 - Generally safe for people, vehicles and buildings
- H2 - Unsafe for small vehicles
- H3 - Unsafe for vehicles, children and the elderly
- H4 - Unsafe for people and vehicles
- H5 - Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust building types vulnerable to failure
- H6 - Unsafe for vehicles and people. All building types considered vulnerable to failure

0 100 200 400 600 m

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FIGURE B10
KINGSTON BEACH
HYDRAULIC CATEGORIES
1% AEP COINCIDENT FLOOD ENVELOPE
BASELINE

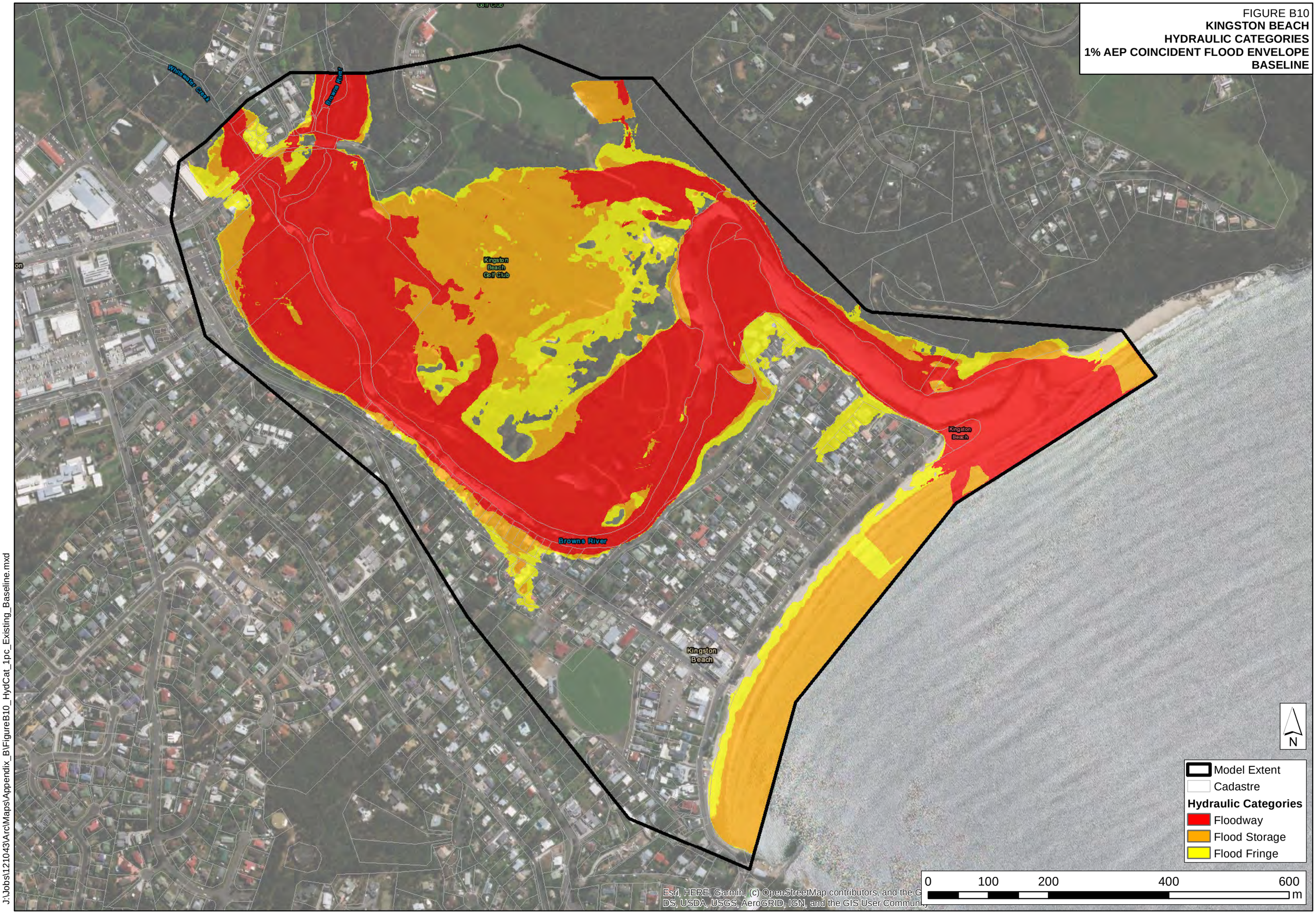

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FIGURE B11
KINGSTON BEACH
HYDRAULIC CATEGORIES
1% AEP COINCIDENT FLOOD ENVELOPE
YEAR 2050

Whitewater Creek
Bowls Rivulet
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Hydraulic Categories
Floodway
Flood Storage
Flood Fringe

0 100 200 400 600 m

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the G
DS, USDA, USGS, AeroGRID, IGN, and the GIS User Communi

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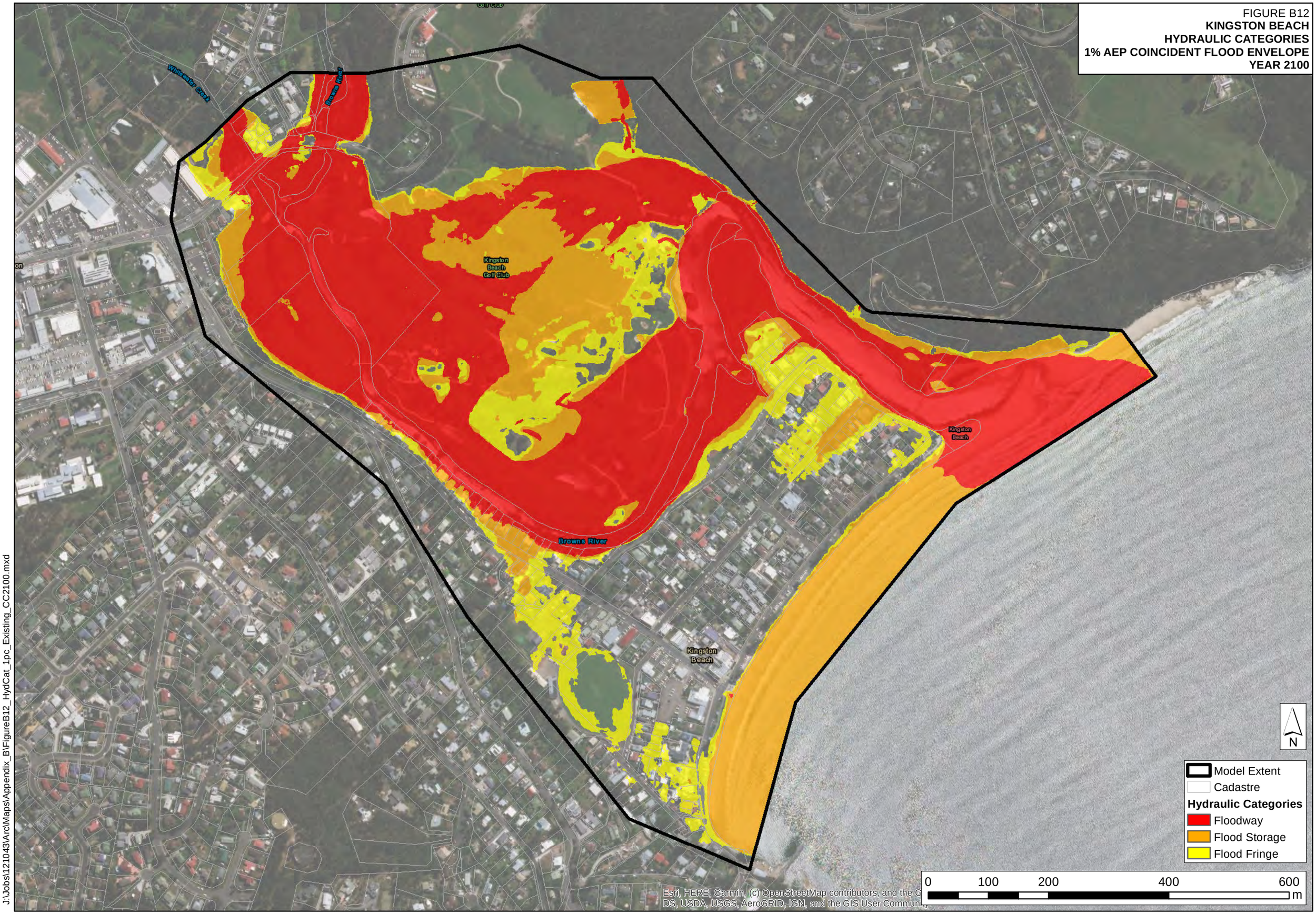
FIGURE B12
KINGSTON BEACH
HYDRAULIC CATEGORIES
1% AEP COINCIDENT FLOOD ENVELOPE
YEAR 2100



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APPENDIX C. MITIGATION ASSESSMENT FLOOD MAPPING

FIGURE C1
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION A BASELINE

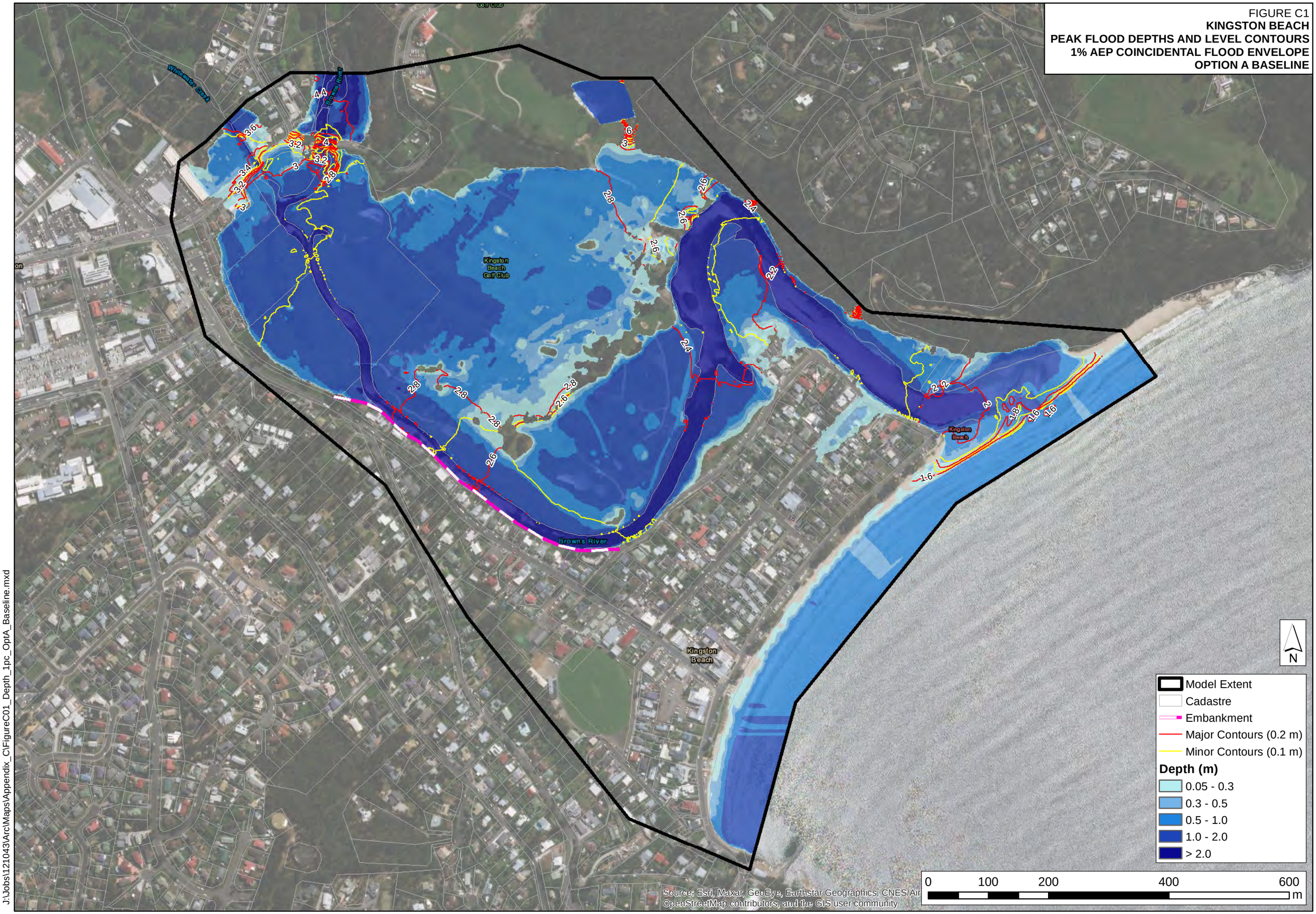

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FIGURE C2
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION A YEAR 2050

Whitewater Creek
Lower Rivet
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Embankment
Major Contours (0.2 m)
Minor Contours (0.1 m)

Depth (m)
0.05 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\Arc\Maps\Appendix_C\FigureC02_Depth_1pc_OptA_2050.mxd

FIGURE C3
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION A YEAR 2100

Whitewater Creek
Lewis Rivet
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

- Model Extent
- Cadastre
- Embankment
- Major Contours (0.2 m)
- Minor Contours (0.1 m)

Depth (m)
- 0.05 - 0.3
- 0.3 - 0.5
- 0.5 - 1.0
- 1.0 - 2.0
- > 2.0

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC03_Depth_1pc_OptA_2100.mxd

FIGURE C4
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION A VS EXISTING BASELINE

Whitewater Creek
Bowls Rivet
Golf Club
Kingston Beach Golf Club
Kingston Beach
Browns River
Kingston Beach

N

Model Extent
Cadastre
Embankment
Impact (m)
< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC04_Impact_1pc_OptA_vs_Baseline.mxd

FIGURE C5
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION A VS EXISTING YEAR 2050

Whitewater Creek
Bowtie Rivet
Kingston Beach Golf Club
Kingston Beach
Browns River
Kingston Beach

N

Model Extent
Cadastre
Embankment
Impact (m)
< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC05_Impact_1pc_OptA_vs_2050.mxd

FIGURE C6
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION A VS EXISTING YEAR 2100

Whitewater Creek
Bowtie Rivet
Golf Club
Kingston Beach Golf Club
Kingston Beach
Browns River
Kingston Beach

N

Model Extent
Cadastre
Embankment
Impact (m)
< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\Arc\Maps\Appendix_C\FigureC06_Impact_1pc_OptA_vs_2100.mxd

FIGURE C7
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION B BASELINE

Whitewater Creek
Browns River
Golf Club
Kingston Beach Golf Club
Kingston Beach
Browns River
Kingston Beach

N

Model Extent
Cadastre
Embankment
Major Contours (0.2 m)
Minor Contours (0.1 m)
Depth (m)
0.05 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC07_Depth_1pc_OptB_Baseline.mxd

FIGURE C8
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION B YEAR 2050

Whitewater Creek
Lower River
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Embankment
Major Contours (0.2 m)
Minor Contours (0.1 m)

Depth (m)
0.05 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC08_Depth_1pc_OptB_2050.mxd

FIGURE C9
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION B YEAR 2100

Whitewater Creek
Lewis River
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

Model Extent
Cadastre
Embankment
Major Contours (0.2 m)
Minor Contours (0.1 m)

Depth (m)
0.05 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

N

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\Arc\Maps\Appendix_C\FigureC09_Depth_1pc_OptB_2100.mxd

FIGURE C10
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION B VS EXISTING BASELINE

Whitewater Creek
Bowls Rivet
Golf Club
Kingston Beach Golf Club
Kingston Beach
Browns River
Kingston Beach

N

Model Extent
Cadastre
Embankment

Impact (m)

< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\Arc\Maps\Appendix_C\FigureC10_Impact_1pc_OptB_vs_Baseline.mxd

FIGURE C11
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION B VS EXISTING YEAR 2050

Whitewater Creek
Bowls Rivet
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Embankment

Impact (m)

< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\Arc\Maps\Appendix_C\FigureC11_Impact_1pc_OptB_vs_2050.mxd

FIGURE C12
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION B VS EXISTING YEAR 2100

Whitewater Creek
Bowls Rivet
Kingston Beach Golf Club
Kingston Beach
Browns River
Kingston Beach

N

Model Extent
Cadastre
Embankment

Impact (m)

< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\Arc\Maps\Appendix_C\FigureC12_Impact_1pc_OptB_vs_2100.mxd

FIGURE C13
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION C BASELINE

Whitewater Creek
Lower Browns River
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Embankment
Major Contours (0.2 m)
Minor Contours (0.1 m)

Depth (m)
0.05 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, OpenStreetMap contributors, and the GIS user community

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FIGURE C14
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION C YEAR 2050

Whitewater Creek
Browns River
Golf Club
Kingston Beach Golf Club
Kingston Beach
Kingston Beach
Kingston Beach
Browns River

N

- Model Extent
- Cadastre
- Embankment
- Major Contours (0.2 m)
- Minor Contours (0.1 m)

Depth (m)

- 0.05 - 0.3
- 0.3 - 0.5
- 0.5 - 1.0
- 1.0 - 2.0
- > 2.0

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC14_Depth_1pc_OptC_2050.mxd

FIGURE C15
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION C YEAR 2100

Whitewater Creek
Lewis Rivet
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

- Model Extent
- Cadastre
- Embankment
- Major Contours (0.2 m)
- Minor Contours (0.1 m)

Depth (m)
- 0.05 - 0.3
- 0.3 - 0.5
- 0.5 - 1.0
- 1.0 - 2.0
- > 2.0

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC15_Depth_1pc_OptC_2100.mxd

FIGURE C16
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION C VS EXISTING BASELINE

Whitewater Creek
Bowls Rivet
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Embankment
Impact (m)
< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

J:\Jobs\121043\Arc\Maps\Appendix_C\FigureC16_Impact_1pc_OptC_vs_Baseline.mxd

FIGURE C17
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION C VS EXISTING YEAR 2050

Whitewater Creek
Bowls Rd
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Embankment
Impact (m)
< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC17_Impact_1pc_OptC_vs_2050.mxd

FIGURE C18
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION C VS EXISTING YEAR 2100

Whitewater Creek
Bowls Rd
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Embankment
Impact (m)
< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC18_Impact_1pc_OptC_vs_2100.mxd

FIGURE C19
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION D BASELINE

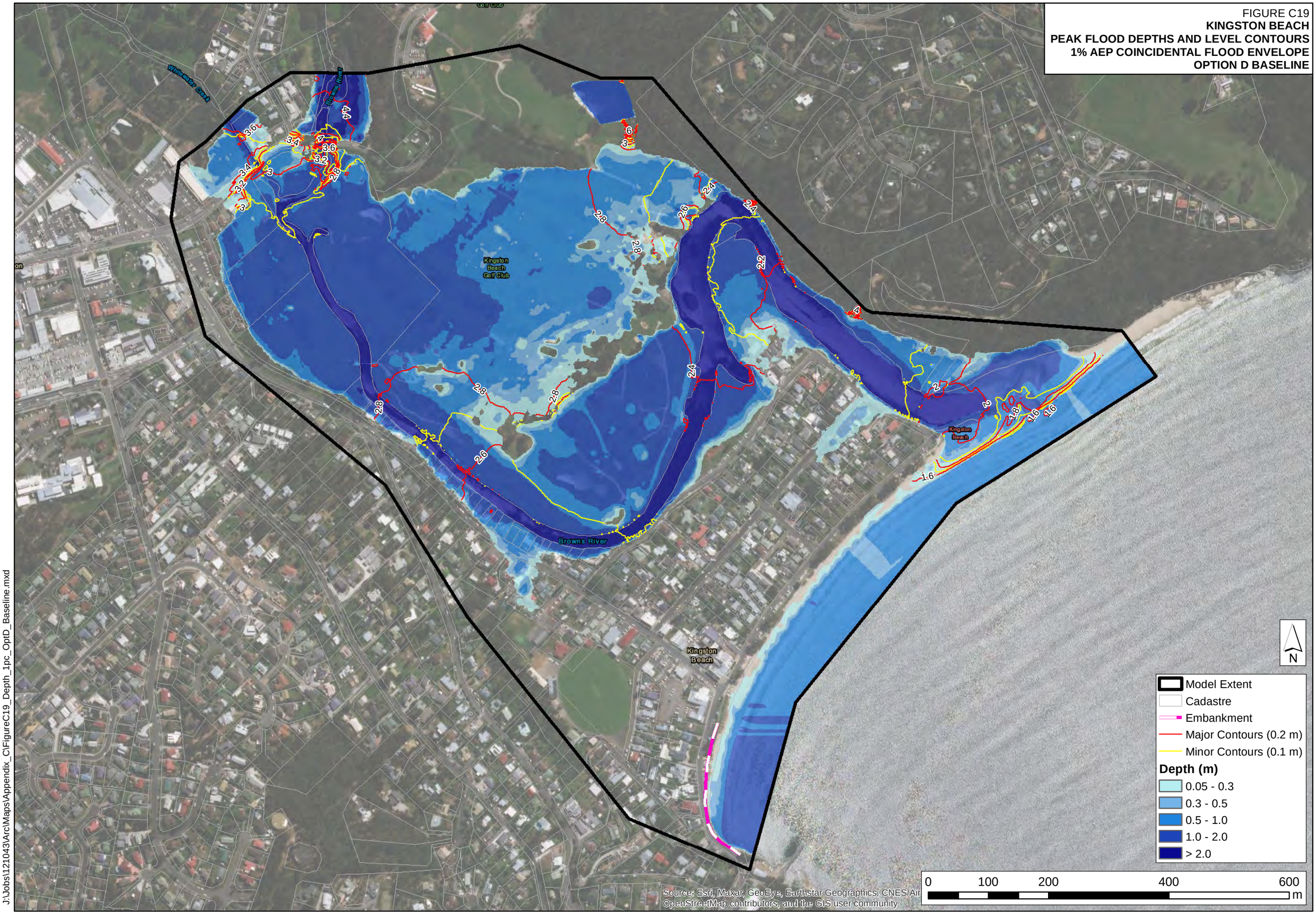

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FIGURE C20
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION D YEAR 2050

Whitewater Creek
Lowes Rivet
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Embankment
Major Contours (0.2 m)
Minor Contours (0.1 m)

Depth (m)
0.05 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

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FIGURE C21
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION D YEAR 2100

Whitewater Creek
Lewis River
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

4.6 3.6 3.4 3.2 4 4.4 3.8 3.2 3 3 3 3 3 3 3 7 3 2.8 2.8 4 4 2.6 2.8 2.8 2.8 2.8

N

Model Extent
Cadastre
Embankment
Major Contours (0.2 m)
Minor Contours (0.1 m)

Depth (m)
0.05 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
OpenStreetMap contributors, and the GIS user community

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FIGURE C22
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION D VS EXISTING BASELINE

Whitewater Creek
Bowls Rivet
Golf Club
Kingston Beach Golf Club
Kingston Beach
Browns River
Kingston Beach

N

Model Extent
Cadastre
Embankment
Impact (m)
< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
OpenStreetMap contributors, and the GIS user community

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FIGURE C23
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION D VS EXISTING YEAR 2050

Whitewater Creek
Bowls Rd
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Embankment

Impact (m)

< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\Arc\Maps\Appendix_C\FigureC23_Impact_1pc_OptD_vs_2050.mxd

FIGURE C24
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION D VS EXISTING YEAR 2100

Whitewater Creek
Bowls Rd
Golf Club
Kingston Beach Golf Club
Kingston Beach
Browns River
Kingston Beach

N

Model Extent
Cadastre
Embankment

Impact (m)

< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC24_Impact_1pc_OptD_vs_2100.mxd

FIGURE C25
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION ACD BASELINE

Whitewater Creek
Browns River
Golf Club
Kingston Beach Golf Club
Kingston Beach
Kingston Beach
Browns River
4.4
3.6
3.4
3.2
3
2.8
2.6
2.4
2.2
2
1.8
1.6

N

Model Extent
Cadastre
Embankment
Major Contours (0.2 m)
Minor Contours (0.1 m)
Depth (m)
0.05 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC25_Depth_1pc_OptA_OptC_OptD_Baseline.mxd

FIGURE C26
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION ACD YEAR 2050

Whitewater Creek
Lowes Rivet
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

- Model Extent
- Cadastre
- Embankment
- Major Contours (0.2 m)
- Minor Contours (0.1 m)

Depth (m)
- 0.05 - 0.3
- 0.3 - 0.5
- 0.5 - 1.0
- 1.0 - 2.0
- > 2.0

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC26_Depth_1pc_OptA_OptC_OptD_2050.mxd

FIGURE C27
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION ACD YEAR 2100

Whitewater Creek
Lake Rivel
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

- Model Extent
- Cadastre
- Embankment
- Major Contours (0.2 m)
- Minor Contours (0.1 m)

Depth (m)
- 0.05 - 0.3
- 0.3 - 0.5
- 0.5 - 1.0
- 1.0 - 2.0
- > 2.0

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, OpenStreetMap contributors, and the GIS user community

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FIGURE C28
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION ACD VS EXISTING BASELINE

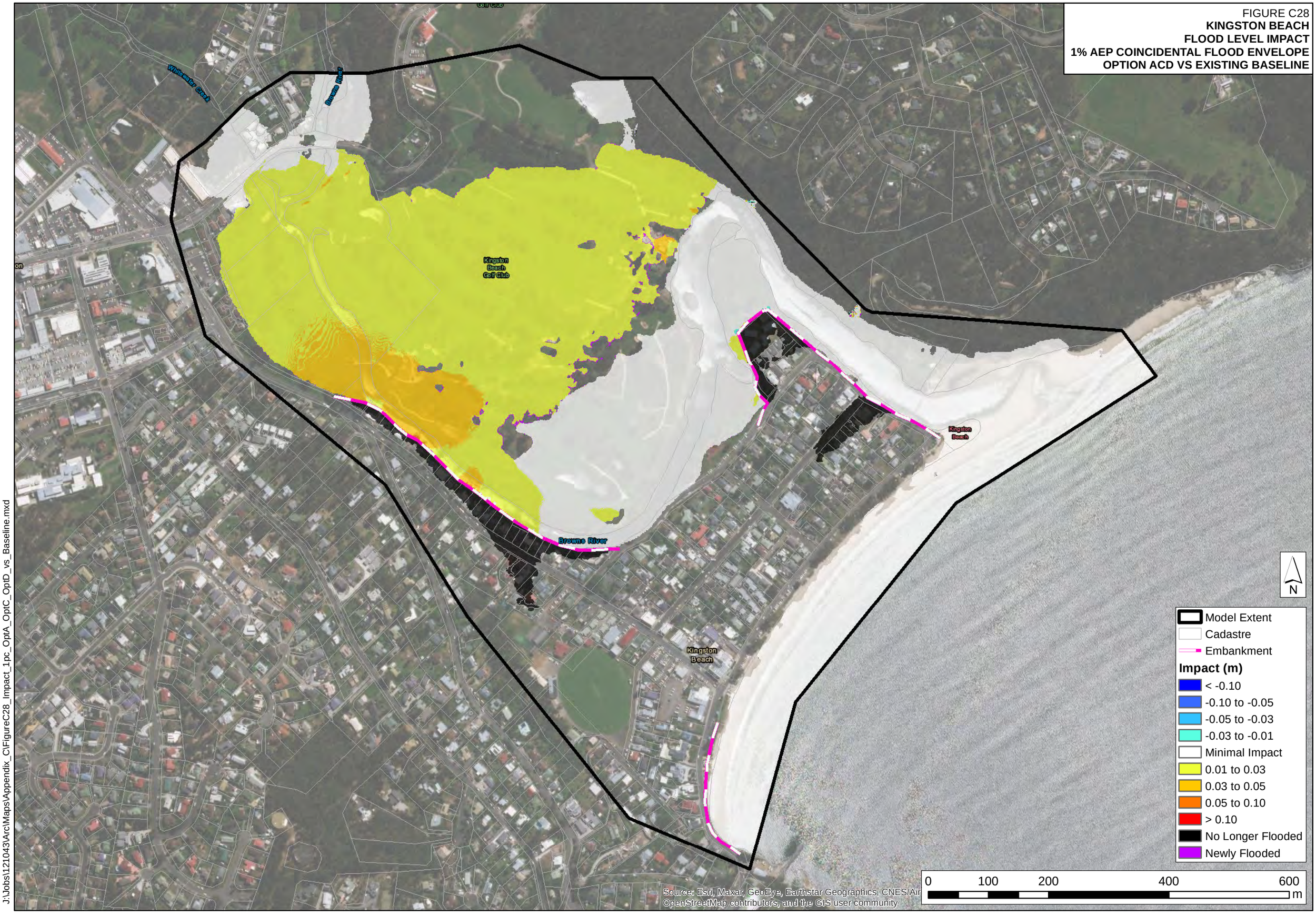

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FIGURE C29
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION ACD VS EXISTING YEAR 2050

Whitewater Creek
Bowls Rivet
Golf Club
Kingston Beach Golf Club
Kingston Beach
Browns River
Kingston Beach

N

Model Extent
Cadastre
Embankment
Impact (m)
< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
OpenStreetMap contributors, and the GIS user community

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FIGURE C30
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION ACD VS EXISTING YEAR 2100

Whitewater Creek
Bendix Road
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Embankment

Impact (m)

< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC30_Impact_1pc_OptA_OptC_OptD_vs_2100.mxd

FIGURE C31
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION BCD BASELINE

Whitewater Creek
Browns River
Golf Club
Kingston Beach Golf Club
Kingston Beach
Browns River
Kingston Beach

N

Model Extent
Cadastre
Embankment
Major Contours (0.2 m)
Minor Contours (0.1 m)

Depth (m)
0.05 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, OpenStreetMap contributors, and the GIS user community

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FIGURE C32
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION BCD YEAR 2050

Whitewater Creek
Tomaree Rivet
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

Model Extent
Cadastre
Embankment
Major Contours (0.2 m)
Minor Contours (0.1 m)

Depth (m)
0.05 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

N

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

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FIGURE C33
KINGSTON BEACH
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION BCD YEAR 2100

Whitewater Creek
Lake River
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

Model Extent
Cadastre
Embankment
Major Contours (0.2 m)
Minor Contours (0.1 m)

Depth (m)
0.05 - 0.3
0.3 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2.0

N

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, OpenStreetMap contributors, and the GIS user community

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FIGURE C34
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION BCD VS EXISTING BASELINE

Whitewater Creek
Bowls Rivet
Golf Club
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Embankment
Impact (m)
< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
OpenStreetMap contributors, and the GIS user community

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FIGURE C35
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION BCD VS EXISTING YEAR 2050

Whitewater Creek
Bowls Rivet
Kingston Beach Golf Club
Browns River
Kingston Beach
Kingston Beach

N

Model Extent
Cadastre
Embankment
Impact (m)
< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC35_Impact_1pc_OptB_OptC_OptD_vs_2050.mxd

FIGURE C36
KINGSTON BEACH
FLOOD LEVEL IMPACT
1% AEP COINCIDENTAL FLOOD ENVELOPE
OPTION BCD VS EXISTING YEAR 2100

Whitewater Creek
Bowls Rd
Golf Club
Kingston Beach Golf Club
Kingston Beach
Browns River
Kingston Beach

N

Model Extent
Cadastre
Embankment
Impact (m)
< -0.10
-0.10 to -0.05
-0.05 to -0.03
-0.03 to -0.01
Minimal Impact
0.01 to 0.03
0.03 to 0.05
0.05 to 0.10
> 0.10
No Longer Flooded
Newly Flooded

0 100 200 400 600 m

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Air
OpenStreetMap contributors, and the GIS user community

J:\Jobs\121043\ArcMaps\Appendix_C\FigureC36_Impact_1pc_OptB_OptC_OptD_vs_2100.mxd