

Official Height Standard Change

From 1 July 2024, Auckland Council adopts the official height standard for New Zealand called New Zealand Vertical Datum 2016 (NZVD2016).

This model was carried out prior to the height standard change.

All levels included in this modelling report are in Auckland Vertical Datum 1946 (AUK1946/AVD1946).

Levels in this report can be transformed from Auckland Vertical Datum 1946 into New Zealand Vertical Datum 2016 by applying an offset value of **0.281 m**.

For example:

$$H_{\text{NZVD2016}} = H_{\text{AVD1946}} - \text{Offset Value}$$

A single offset value for the catchment has been taken from the Land Information New Zealand (LINZ) Auckland 1946 to NZVD2016 Conversion Raster therefore this offset should be taken as an approximation only for the catchment.

A more accurate height transformation value can be derived by downloading the conversion raster available on the LINZ website below:

<https://data.linz.govt.nz/layer/103953-auckland-1946-to-nzvd2016-conversion-raster/>

REPORT

Mission Bay

Model Build and System Performance Report

Prepared for:
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1 Introduction

1.1 General

Auckland Council commissioned Tonkin & Taylor (T&T) to carry out a flood hazard assessment of the Mission Bay catchment. The flood hazard assessment is required for Auckland Council (AC) to sustainably manage development and flood hazards in the Mission Bay area. We understand that AC would like to reduce the impact of floods in the Mission Bay area.

This report provides the details of the model build and system performance as part of the hydrological and hydraulic modelling study.

1.2 Study objectives

The following objectives of the project were identified in the Mission Bay FHM & Concept Options Request for Tender (March 2011):

- Update the existing 1D Mouse hydraulic model by updating it to Mike Urban
- Confirm all modelled pipes and manholes asset data are as per the latest GIS updates
- Determine any surveys, floor levels surveys and manhole inspections which need to be undertaken
- Build a 2D surface component from the LiDAR for the complete catchment
- Build a complete Mike Flood model by linking the 1D and 2D model
- Understand and model the interaction between the primary system and the surface model and verify overland flow path and flooding areas.
- Validate the model to historical flood reports and TP108
- Run the model for the 2, 5, 10, 20, 50 and 100 year Average Recurrence Interval (ARI) storm or the existing and future scenarios and extract the results
- Report on the limitations of the data used for the model and report on network and catchment responses to rainfall
- Develop hazard classifications for flooding and overland flow path areas
- Map hazards and produce GIS files for AC's system
- Identify additional floors that may need to be surveyed
- Develop FDA for 2, 5, 10, 20, 50 and 100 year ARI events
- Develop FPA for the future 100 year ARI event
- Develop and model the impacts of improvement options to overcome the 50 year ARI future floor flooding.

1.3 Activities and scope

The modelling specification used for the model build is a combination of the Stormwater Flood Modelling Specification (SFMS) (Auckland Council, November 2011), the 2D Modelling Specification and the ICS Modelling Framework (Metrowater, 2005). The SFMS (November, 2011) superseded the two other documents, although due to the start date of this project (May 2011) there are legacy agreements relating to the previous specifications which remain in the final model. Overall the model is largely consistent with the SFMS (November, 2011).

The purpose of this report is to provide the details of the hydrological and hydraulic model build, and to provide an assessment of the performance of the stormwater system under different design storms.

2 Catchment description

2.1 Location

The Mission Bay catchment is located in Mission Bay, Auckland and is bounded by Tamaki Drive, Kohimarama Road, Kepa Road and Kupe Street (refer to Figure 2-1). The catchment area is 1.68 km².



Figure 2-1 Catchment location

2.2 Topography

The terrain of the Mission Bay catchment is a mixture of steep slopes along the west, south and east boundaries, falling towards the coastline. The south boundary of the catchment along Kepa Road has the highest elevation of up to 60 m RL. The valley floor and areas behind the beach are very flat. Figure 2-2 shows the topography of the catchment.

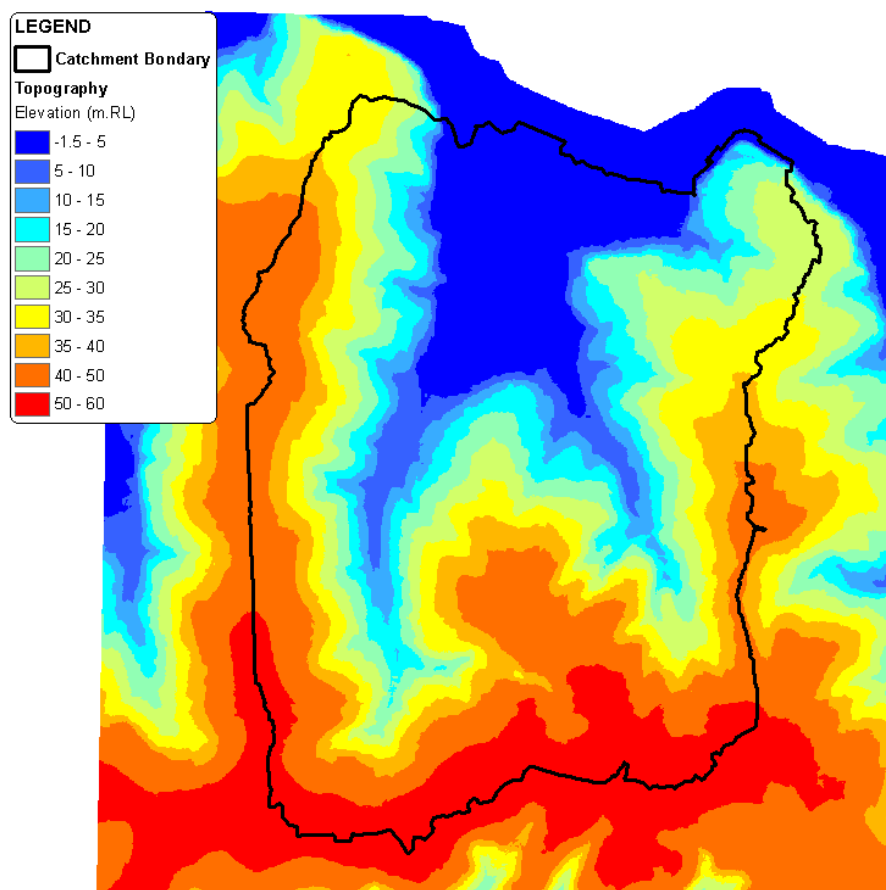


Figure 2-2 Catchment topography

2.3 Geology and soils

The surface catchment geology is a composite of three different soil types, which can be seen in Figure A01, Appendix A:

- Alluvial
- Waitemata
- Isthmus volcanic.

The soil types were provided to T&T from AC. The origins of the information are unclear, although T&T understand that the data set has been widely reviewed and approved for use. T&T assessed the surface geology during site walkovers and also carried out a comparison with subsurface geological maps. The surface geology maps appear to provide a good indication of soil type for use in the hydrological assessment.

2.4 Existing and future land use

The land use zoning for the catchment is identified in Figure A02, Appendix A. The existing development in the Business and Residential zones, has nearly reached the full capacity. The Bastion Point area in the northwest corner of the catchment is a Special Purpose zone, which has not been developed. The existing land use for this area is open grass.

2.5 Stormwater drainage system

The stormwater drainage that has been included in the model for the Mission Bay catchment is shown in Figure A04, Appendix A. Pipe sizes smaller than 300 mm diameter are not shown, since they are not modelled, in accordance with the SFMS.

3 Model build

3.1 Modelling software

The software used to model the Mission Bay Flood Hazard model is shown in Table 3-1.

Table 3-1 Modelling software

Software Type	HEC HMS	Mike 11 by DHI	Mike 21 by DHI	Mike Urban by DHI
Software Version	Version 3.4	Version 2011	Version 2011	Version 2011
Service Pack	n/a	Service Pack 6	Service Pack 6	Service Pack 6
Method used for Runoff	SCS	n/a	n/a	UHM

Two software were used for to model hydrological process (more details provided in Section 3.3):

- i. US Army Core of Engineers HEC-HMS
- ii. Mike Urban.

3.2 Review of existing data

3.2.1 Asset data and catchment data

The following data was provided by AC as part of the project:

- Pipe network
- Manhole network
- Catchment boundary
- LiDAR
- Soil types
- Building footprints
- Impervious surfaces
- Zoning
- Cadastral.

3.2.2 Hydrometric data

There are no rain gauges within the Mission Bay catchment. The closest rain gauge is located at Okahu Bay, approximately 0.5 km to the west of the Mission Bay catchment (see Figure 3-1).

There are no flow gauges in the catchment.



Figure 3-1 Location of Okahu Bay rain gauge

3.2.3 Topographical data

3.2.3.1 Digital elevation model (DEM)

A digital elevation models (DEM) of Mission Bay catchment was provided. The source of the data originated from the LiDAR survey. In urban areas the LiDAR data is stated to have a vertical accuracy of ± 0.25 m with 90% confidence interval.

3.2.3.2 Cross section survey

Figure A04 (Appendix A) shows the location of three open watercourses in the Mission Bay catchment. Figure A04 also shows the locations of cross-section information. The source of the information is cross-section survey carried out by Walker Surveyors in 2011 and 2012.

3.2.3.3 Structures

There are two major structures in the open channel closest to the coast, being the Tamaki Drive culvert crossing, and a foot bridge downstream of Tamaki Drive (refer Figure A03, Appendix A). Both structures were surveyed by Walker Surveyors in 2011. However, the foot bridge was not represented in the model. This is because the lowest underside of the foot bridge is 2.51 m RL, while the downstream coastal boundary condition is 1.39 m RL for existing scenarios and 1.89 m RL for MPD scenarios. Preliminary model runs showed that a water level approaching 2.51 m RL would not be reached under any condition using the specified downstream water levels.

There is another culvert in the open channel along Rukutai Street (refer Figure A03, Appendix A). It was also surveyed by Walker Surveyors in 2011, and was represented in the model.

The Mission Bay Dam was also surveyed by Walker Surveyors in 2011 (refer Figure A03, Appendix A). The dam is located between Comins Crescent and Codrington Crescent. The bathymetry file was modified based on the survey to represent to dam crest and spillway correctly. The inlet and outlet was represented in the model in accordance with the survey.

3.2.4 Operational data

Flood incidents records were provided as part of the documentation from previous reports. There was no additional information provided. The flood incident records are discussed as part of the model validation in Section 4.1.

3.3 Hydrological Model

3.3.1 Method used

In accordance with SFMS, the Soil Conservation Services (SCS) method was used to transform rainfall into runoff. The 24 hour rainfall depths were determined from TP108. The hydrological processes were modelled using the US Army Corp of Engineers model HEC-HMS, and Mike Urban by DHI. The HEC-HMS model was used to model sub-catchments that did not drain to the stormwater reticulation system.

3.3.2 Hydrological model extent

Sub-catchments were defined in accordance with the SFMS, taking into consideration topography, stormwater networks, and other obstructions such as roads. Figure A05 in Appendix A shows the catchment delineation.

The hydrological models are linked to the hydraulic models in three different ways (see Figure 3-2):

- i. Sub-catchments draining directly to open channels, have hydrology modelled in HEC-HMS, with hydrographs applied to the Mike 11 model
- ii. Sub-catchments draining to floodplain without reticulation, have hydrology modelled in HEC-HMS, with hydrograph applied as a point source or series of points sources in Mike 21 model
- iii. Reticulated sub-catchments, have hydrology modelled in Mike Urban, which are linked directly to the Mike Urban hydraulic model.

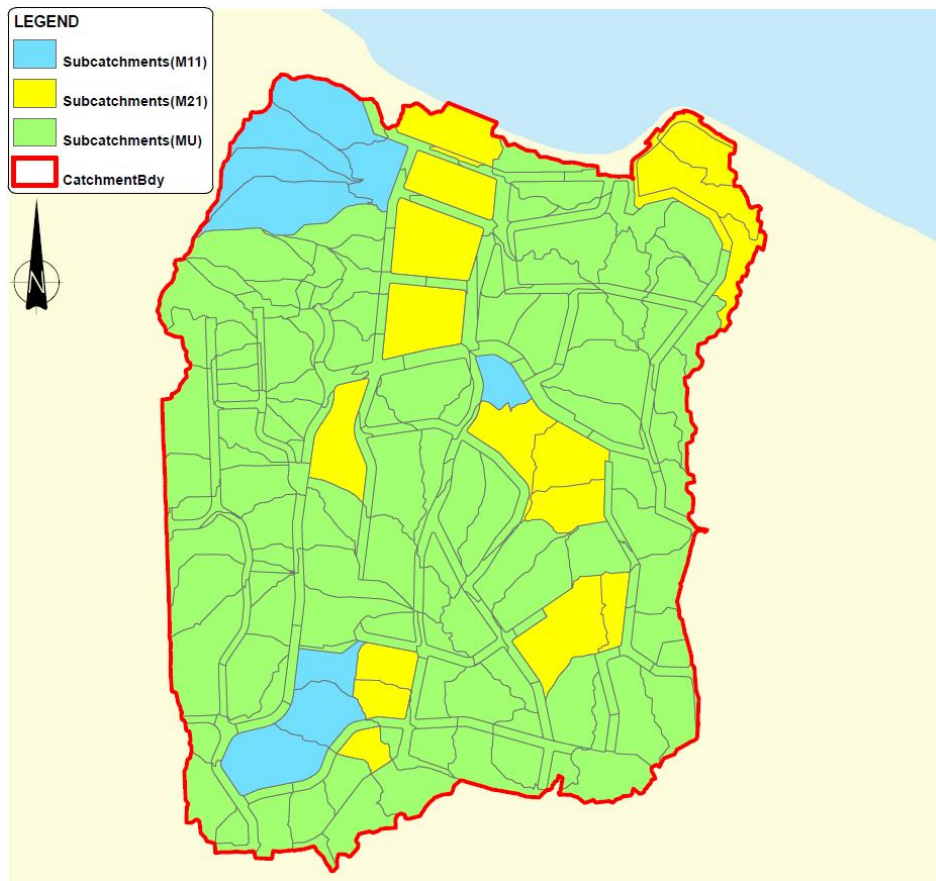


Figure 3-2 Linkage between sub-catchments and modelling software

3.3.3 Hydrological model parameters

There are 220 sub-catchments in total. Sizes vary from 0.07 ha to 2.8 ha. The sub-catchments are shown in Figure A05, Appendix A. Table 3-2 provides a summary of the Mission Bay catchment characteristics.

Table 3-2 Summary of hydrological components

Hydrological Model Components	Values
Number of sub-catchments	220
Range of sub-catchment size (ha)	0.07 to 2.8
SCS curve number for pervious area	61 to 74
SCS curve number for impervious area	98
Initial loss for pervious area (mm)	5
Initial loss for impervious area (mm)	0
Existing development imperviousness %	38 - 68
Maximum probable development imperviousness %	55 - 65 (68)

The pervious area (such as lawns, open spaces) and impervious areas (such as roads, driveways and roofs) for each sub-catchment were calculated separately. The building footprint GIS layer

and impervious areas GIS layer provided by AC were used to determine pervious and impervious areas for each sub-catchment.

The overall existing imperviousness of the Mission Bay catchment is 50% (84 ha pervious, 84 ha impervious). The existing imperviousness for different zones are:

- Residential sub-catchments vary from 38% to 68%
- Special purpose sub-catchments are 65% and 0% (either fully developed or undeveloped)
- Business sub-catchments are 100%
- Road sub-catchments are 100%
- Open space sub-catchments are 0%.

The overall MPD (Maximum Probable Development) imperviousness is 60% (67.2 ha pervious, 100.8 ha impervious). The MPD imperviousness based on AC's Zoning Guidelines for different zones are:

- Residential sub-catchments vary from 55% to 65% depends on the residential category - (comparing to the existing imperviousness the source sub-catchments have already reached and/or exceeded the MPD allowance)
- Special purpose sub-catchments are 65%
- Business sub-catchments are 100%
- Road sub-catchments are 100%
- Open space sub-catchments are 0%.

SCS curve numbers for the sub-catchments varied from 61 to 74 for pervious areas based on their hydrological soil type and land use. A uniform curve number of 98 were used for all impervious areas. Alluvial surface soils are represented by hydrological soil group B; the Waitemata and Isthmus volcanic soil group are represented by hydrological soil group C. Land use for the Mission Bay catchment is limited to lawn, bush and impervious surfaces.

Table 3-3 provides a summary of curve numbers for the hydrological soil groups.

Table 3-3 Summary of hydrological components

	Hydrological soil group	
	B	C
Lawn	61	74
Bush	None in catchment	70
Impervious surface	98	98

Out of 220 sub-catchments, 25 have a time of concentration longer than 10 minutes (up to 12.6 minutes). A time of concentration of less than 10 minutes has been calculated for the remaining 195 sub-catchments, therefore in accordance with TP108 a $T_c = 10$ minutes has been applied.

3.3.4 TP108 validation

A check of peak flows using the TP108 graphical method and the Mike Urban and HEC-HMS model was carried out. The results are shown in Appendix F. The results show that the difference in peak flows between the TP108 graphical method and the Mike Urban and HEC-HMS models is very small; the average difference is 1.0%.

3.3.5 Variation from SFMS

There are no variations from the SFMS for the flood hydrology.

3.4 Hydraulic model

3.4.1 Method used

A comprehensive hydraulic model was developed using DHI's Mike Flood software. The Mike Flood software dynamically couples three hydraulic models so that flows can pass from one model to another. The three models within the Mike Flood model are indicated below:

- In channel flow (Mike 11 model)
- Floodplains and overland flowpaths (Mike 21 model)
- Stormwater reticulation (Mike Urban model).

Cross section surveys of the three open watercourses were carried out by Walker Surveyors to supplement the LiDAR data. The Mike 11 model was created based on the surveyed cross-sections.

The Mike 21 model was built from LiDAR data provided by AC.

The Mike Urban model originates from a model received from AECOM (formerly Maunsell), which was created in 2008 (Maunsell, 2008). The model was constructed to the ICS Modelling framework specification, and therefore T&T updated the stormwater reticulation model to be compliant with the SFMS. The location of assets not surveyed as part of this project, remain in the same locations as the AECOM model.

Figure A04 in Appendix A, shows the modelled network and modelled watercourse, as well as the locations of the cross-section surveys which were undertaken. Please note that the small open channel (with large out of channel conveyance) that is located between Nihill Crescent and Patteson Avenue was modelled in Mike 21, with the agreement of AC.

3.4.2 Hydraulic model extents

All manholes, inlets and outlets lying within the catchment boundary associated with pipes greater than 300 mm diameter have been included in the Mike Urban model.

All open channels and waterways have been included in the Mike 11 model and Mike 21 model.

Table 3-4 provides a summary of the hydraulic model.

Table 3-4 Summary of hydraulic components

Hydraulic Model Components	Values
Total number of stormwater network system nodes (Mike Urban)	338
Total number of stormwater network system links (Mike Urban)	330
Total number of weirs (Mike Urban)	192
Total number of outlets (Mike Urban)	28
Total number of open channels (Mike 11)	3

Note: The 28 outlets are included in the 338 nodes.

3.4.3 Energy loss

3.4.3.1 Energy losses due to surface friction

Manning's roughness coefficients 'n' values were selected to represent energy losses due to surface friction. Manning's roughness values for the Mike 11 model were calculated in accordance with SFMS, by taking surface material, vegetation and channel sinuosity into consideration (shown in Table 3-5).

Table 3-5 Manning's roughness values used in Mike 11 model

Branch	Chainage	Zone	Manning's n used
Mission West	0 - 317	Bed	0.034
Mission West	0 - 317	Banks	0.026
Patterson East	0 - 76.5	Bed	0.039
Patterson East	0 - 76.5	Banks	0.039
Patterson East	76.5 - 111	Bed	0.033
Patterson East	76.5 - 111	Banks	0.026
Rukutai	0 - 75	Bed	0.039
Rukutai	0 - 75	Banks	0.044
Rukutai	115 - 294	Bed	0.039
Rukutai	115 - 294	Banks	0.044
Patterson East	109.5	Culvert	0.018
Rukutai	76	Culvert	0.018
Rukutai	293	Culvert	0.018

The low roughness used for Mission West (0 - 317 m) and Patterson East (76.5 m - 111 m) reflects the concrete banks of the channel.

Manning's roughness values for Mike 21 model were determined from the values identified in Section 5.4.4.1 of SFMS. The values used are shown in Table 3-6.

A Manning's n of 0.018 was selected for the culverts in Patterson East branch and Rukutai branch. This Manning's n of 0.018 was used due to the culverts' condition and was a recommended value from AC following an initial review.

Table 3-6 Manning's roughness values used in Mike 21 model

Land use	Manning's n used
Building footprints	0.500
Road	0.012
Rest of catchments	0.100

A Manning's n of 0.013 was selected for all pipes that were modelled in the Mike Urban model.

3.4.3.2 Energy losses due to Turbulence

The flux based eddy viscosity formulation was used in Mike 21 to represent the energy losses due to turbulence in Mike 21 (viscosity = $0.4 \text{ m}^2/\text{s}$).

3.4.3.3 Energy losses at manholes, inlets and outlets

The parameters used in Mike Urban to represent the head losses are listed in Table 3-7.

Table 3-7 Node head loss parameters

Link Type	Mike Urban Node Head Loss Parameter
Manhole Nodes	"Mean Energy Approach" with $K_m = 0.30$ ¹
Culvert Inlet Nodes	Specified QH Relations ²
Culvert Outlet Nodes	"Mouse Classic" with $HLC = 0.50$ ¹

Notes:

1. These values are specified in SFMS

2. A QH relation was developed for each inlet based on the nomographs from the Culvert Manual (Ministry of Works and Development, 1978).

3.4.4 Variation from SFMS

With agreement from AC, a narrow open channel with large out of channel conveyance was modelled in Mike 21. The location of the channel is in between Nihill Crescent and Patteson Avenue.

All other parts of the hydraulic model build were carried out in accordance with the SFMS.

3.5 Linkage between models

3.5.1 Linkage between Mike 11 and Mike 21

Grid cells in Mike 21 along both sides of the open channels were linked with Mike 11 branches. The link type used is "lateral link", the structure method is "cell to cell", the structure type is "weir", and the structure source is "M21".

3.5.2 Linkage between Mike 11 and Mike Urban

For outlets discharging directly into open channels, they were linked by using link type "Mike Urban outlets to Mike 11". For open channels draining into big networks, they were linked by using link type "Mike 11 water level boundary".

3.5.3 Linkage between Mike21 and Mike Urban

Manholes modelled in Mike Urban were divided into two categories: loading nodes and none-loading nodes.

Loading nodes are manholes with sub-catchment hydrographs applied directly to them. The manholes are sealed and were not linked with Mike 21. However, all loading nodes have a uni-directional weir that permits spilling out of the drainage system. The weirs were linked to Mike 21, by using link type: weir to M21.

All other manholes (i.e. non loading nodes) were linked with Mike 21, using link type: weir to M21. The maximum flow into and out of the manhole was determined based on the number of

connected catchpits multiplied by 25 l/s, and the orifice equation was used to calculate inflow based on a circular shape with an area equal to 0.12m² per contributing catchpit.

3.6 Boundary conditions

3.6.1 Rainfall data

The 24 hour rainfall depths for 2 year ARI, 10 year ARI, 20 year ARI, 50 year ARI and 100 year ARI design storms were obtained from the AC TP108's design rainfall isohyets graphs, based on the centroid of the catchment. To incorporate climate change to 2090, the rainfall depth was then increased by respective percentages based on SFMS.

Table 3-8 shows the 24 hour rainfall depths.

Table 3-8 24-hour rainfall depths

Average Recurrence Interval (ARI)	24-hour rainfall depth (mm)	Percentage increase due to Climate Change	24-hour rainfall depth with Climate Change (mm)
2 year	75	9.0%	82
5 year	105	11.3%	117
10 year	125	13.2%	142
20 year	145	15.1%	167
50 year	172	16.8%	201
100 year	192	16.8%	224

A temporal rainfall pattern for design storms without climate change was obtained from AC's TP108. The temporal rainfall pattern for design storms with climate change was obtained from the SFMS. The rainfall hyetographs were generated from the temporal patterns based on respective design rainfall depths.

3.6.2 Point sources

As shown in Figure 3-2, the hydrology and hydraulic reticulation for 192 out of 220 sub-catchments were modelled in Mike Urban. For the rest of 28 sub-catchments, the hydrology was modelled in HEC-HMS, with hydrographs applied to either Mike 11 or Mike 21 model.

For nine of the 28 sub-catchments, the hydrographs from HEC-HMS were applied to Mike 11 model, the chainages of the point sources applied to Mike 11 branches were based on the relative physical locations of the sub-catchments to the open channels.

For 19 of the 28 sub-catchments, the hydrographs were applied to Mike 21 model. For sub-catchments with reasonable steep slopes and distinctive low paths, the hydrographs were applied as point sources directly on to the grid cells at the bottom of the sub-catchment; for sub-catchments that are very flat and/or without distinctive low paths, each hydrograph was divided into 2-4 point sources (based on the size of the sub-catchment), and applied evenly over the sub-catchments.

3.6.3 Tidal data

In accordance with Section 7.1.3 of SFMS, for Waitemata Harbour, a tailwater level of 1.39 m RL was used for existing development scenarios, and 1.89 m RL was used for MPD scenarios.

3.7 Model limitations and assumptions

The model limitations and assumptions are discussed in the following sections.

3.7.1 Hydrological model assumptions

During the modelling process, assumptions were made in order to represent the hydrology. All assumptions specified in SFMS were applied.

The design rainfall events used in the modelling have ARI's of 2, 5, 10, 20, 50 and 100 years. They are from the AC's TP108 as specified by the SFMS. Storms of greater intensity and duration than those modelled, or with a more adverse rainfall profile, may occur and may give rise to greater flooding than modelled.

The MPD imperviousness was based on the land use zoning in the AC District Plan. This excludes areas where impervious coverage limits have already been exceeded. In such areas, the existing impervious is also used for the MPD scenario.

For validation events, it is assumed that the rainfall pattern at the Okahu Bay rain gauge is the same across the entire Mission Bay catchment.

3.7.2 Hydraulic model assumptions

All assumptions specified in SFMS were applied.

AC GIS information was assumed to be correct, unless the desktop review and catchment walkover highlighted uncertainty. Areas of uncertainty were surveyed.

No blockage has been assumed in manholes, pipes, culverts and catchpits in the stormwater system.

No sedimentation has been allowed for in the pipes, i.e. it is assumed that all pipes are capable of performing at full capacity.

No topographical changes, natural or otherwise have been allowed for in the modelling, including but not exclusive to geomorphological changes, volcanic activity and landslides.

The potential for change in asset condition over time is not represented.

Screens, orifice plates, control gates, valves, backflow preventers, choke points and other such obstructions and hydraulic controls are not modelled unless this data has been provided.

The bathymetry for modelling was developed using ground contours which were derived from LiDAR survey data. In urban areas the LiDAR data is stated to have an accuracy of ± 0.25 m with a 90% confidence interval.

For coupling between Mike 11 and Mike 21, where difference in elevation occurs, higher elevation of the two was used to keep flows within the open channel before spilling onto Mike 21 grids

Inlets were modelled as outlets in Mike Urban, with a QH relation assigned to each inlet based on nomographs from Culvert Manual (1978) by Ministry of Works and Development.

No account has been taken of the execution of any operations and maintenance works that may affect system performance (i.e. regular pipe cleaning may indicate a serious deficiency in the network affecting hydraulic conditions).

The asset data that was not captured or verified in the field as part of this project is assumed to be correct.

Tide levels are assumed to be constant during the design storm model runs.

3.8 Quality assurance and quality checks

A number of quality assurance checks were carried out including the following:

- Visual inspection of model results
- Mass balance checks of the 2 year ARI and 100 year ARI MPD scenarios.

Preliminary model results identified a number of locations where instabilities in velocity and depth occurred. In the majority of cases, we were able to remove the instabilities, however in three locations there are minor instabilities in the model. The three locations are shown in Figure 3-3. The effect of the instability on water level and velocity are shown on Figures 3-4 to 3-6 for the three locations. We do not believe that the instabilities affect the system performance assessment, floodplain mapping or flood hazard maps produced by this study.

Mass balance checks were carried out for the 2 year ARI and 100 year ARI MPD scenarios to ensure a continuity error less than 5%. The results indicated that there was a mass balance of 4.5% for the 2 year ARI MPD scenario and 3.3% for the 100 year ARI MPD scenario. The 2 year ARI MPD scenario is slightly higher than we would like, but is still considered acceptable.



Figure 3-3 Locations of instabilities in model

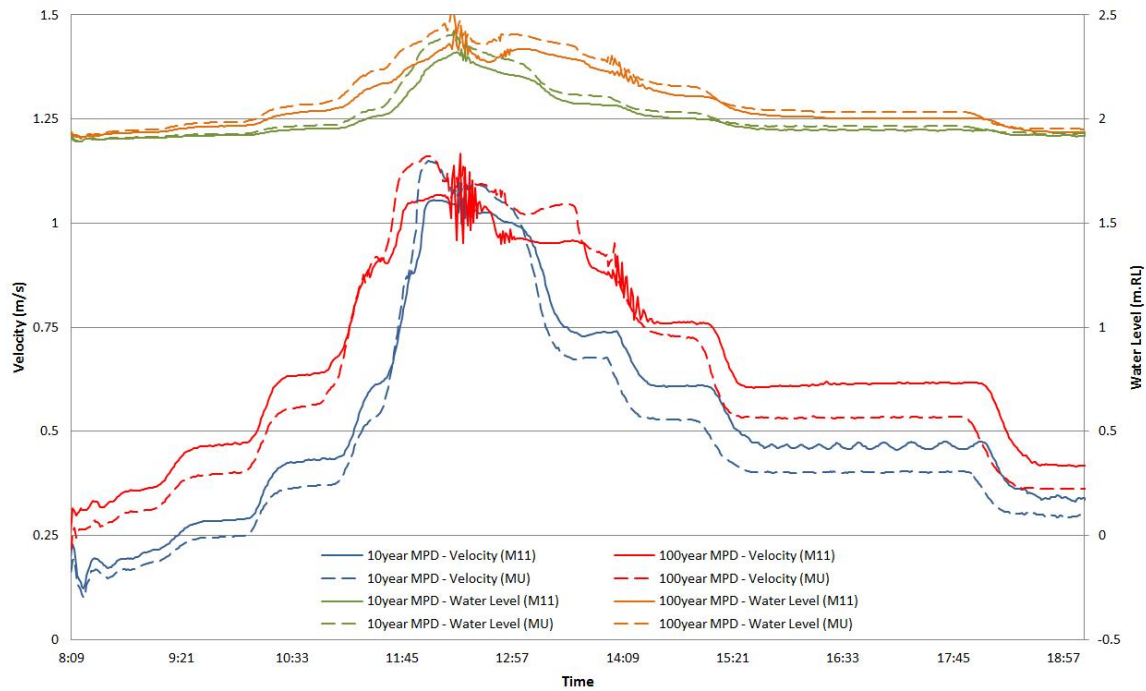


Figure 3-4 Location 1: Velocity and water level model results for 10 year ARI and 100 year ARI MPD scenarios

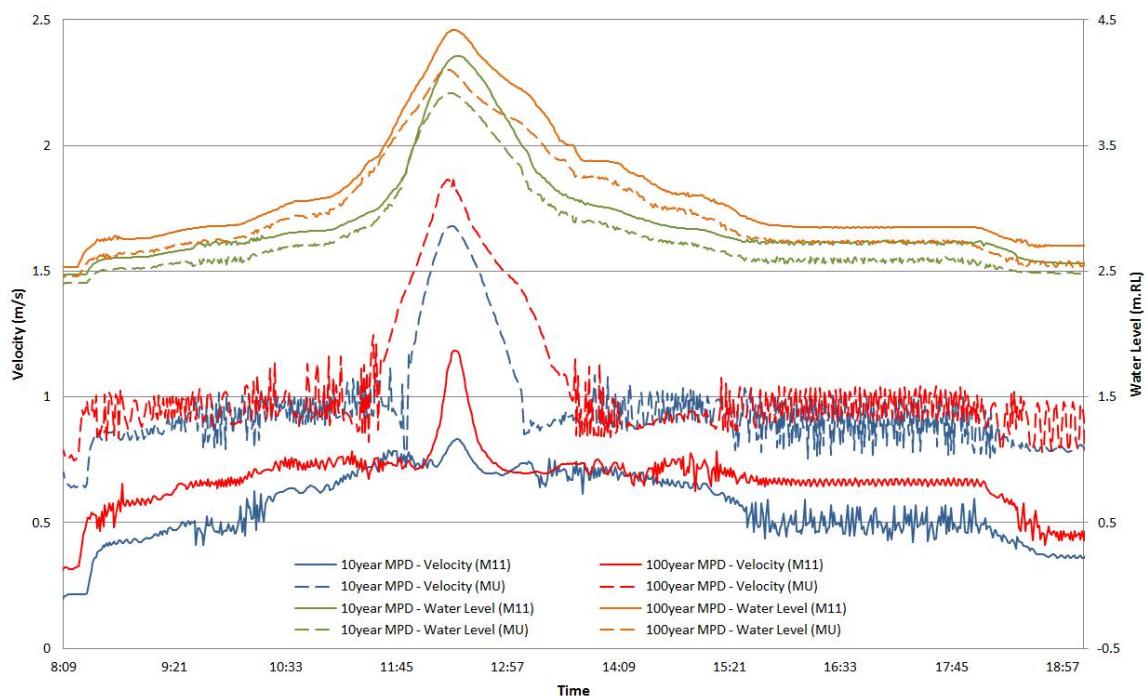


Figure 3-5 Location 2: Velocity and water level model results for 10 year ARI and 100 year ARI MPD scenarios

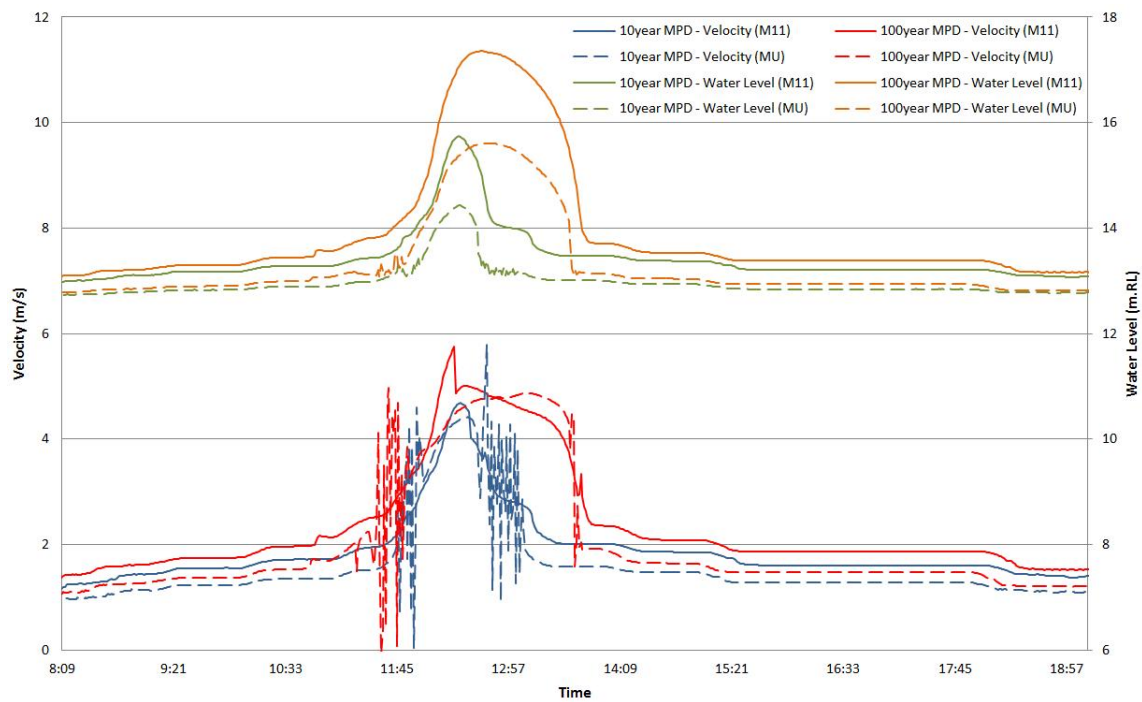


Figure 3-6 Location 3: Velocity and water level model results for 10 year ARI and 100 year ARI MPD scenarios

4 Model validation

4.1 Model historical flood incident validation

Historical flood event validations were carried out, using the same validation events used by the catchment study in 2008 (Maunsell, 2008). Three real rainfall events were simulated using respective rainfall depth record, and the results were compared to the reported flooding incidents from Auckland City's incident database. The three storm events were:

- Event No.1: 02 February 2004
- Event No.2: 18 April 2006
- Event No.3: 25 April 2006.

Rainfall patterns used for validation were obtained from AC at the Okahu Bay rain gauge (Figure 3-1). It was assumed the rainfall pattern at the Okahu Bay rain gauge is the same across the entire Mission Bay catchment.

It was assumed that the stormwater drainage infrastructure represented in the model based on data in 2011/2012 is the same as at the time of the validation events.

The model was run for each storm event and then compared to each of the reported incidents. The model results can be seen in Appendix B.

The model results are compared to the flood incident database in Table 4-1 to 4-3.

Table 4-1 Validation event No.1: 02 February 2004

Incident Location	Incident Type	Incident Description	Model Validation
33 and 35 Nihill Crescent	Wastewater and stormwater overflow	Stormwater blockage and wastewater has flooded back garden of properties. Flooding is also coming from stream at bottom of property.	Reasonable

The model reproduced localised flooding at the 33 and 35 Nihill Crescent properties, but not to the buildings. The effect of blockage (as referred to in the Incident Description) was not represented and may make the flooded areas worse than the results shown in the model.

The model also suggests that there would have been additional areas of flooding, particularly around the road corridor at Tagalad Road and Marau Crescent. The model results suggest that the majority of residential area flooding may have occurred in between Tamaki Drive and Marau Crescent, however there are no records of this on the flood incident database.

Table 4-2 Validation event No.2: 18 April 2006

Incident Location	Incident Type	Incident Description	Model Validation	Comment
20 Dudley Road	Section flooded	Stormwater line blocked. Water and debris flowing on to section.	n/a	Flooding was caused by blockage. Model does not show stormwater network to be under capacity at this location.
Corner of Godden Crescent and Patterson Avenue	Manhole surcharge	No details available from incident database.	Reasonable	Model does show manhole surcharge. Shallow flooding identified from model.

The model has not reproduced the flooding at 20 Dudley Road since the flooding was caused by blockage, which is not represented by the model.

The model shows that there was manhole surcharge at the corner of Godden Crescent and Patterson Avenue for this event. The flooding caused minor and very localised flooding around the manhole so it would be unlikely to trigger a flood incident register entry. There are no further details available from the incident database to compare the model results.

Table 4-3 Validation event No.3: 25 April 2006

Incident Location	Incident Type	Incident Description	Model Validation	Comment
55 Atkin Avenue	Section flooded	Flooding water has caused sewerage to overflow onto property.	Uncertain	Model does not show flooding of section. Sewerage not modelled. Insufficient information to investigate further.

There is insufficient information recorded by the flood incident database to determine how well the model represents the flooding scenario. The model does not represent wastewater. There is no flooding shown at 55 Atkin Avenue from the 25 April 2006 validation event.

5 System performance assessment

The system performance identified the level of performance provided by the stormwater system. The system performance consists of the following aspects:

- The capacity of the existing stormwater drainage system
- An assessment of the level of service provided compared to the desired level of service, and the identification of network sections that do not provide the necessary level of service
- Floodplain, flood hazard and flood sensitive area mapping to identify significant flood hazard areas and habitable floors at risk of flooding
- Design flows and water levels for nominated design storm events and land use development/future rainfall scenarios.

The following sub sections are discussed in accordance with the template provided by the Appendix F of the SFMS, noting that there are some repeats with previous sections.

5.1 Model scenarios and simulations

5.1.1 Design storm model scenarios

For design storm scenarios, see Section 3.6.1.

5.1.2 Land use development model scenarios

Both ED (existing development) and MPD (Maximum Probable Development) are modelled, for details, see Section 3.3.3.

5.1.3 Tailwater level model scenarios

For tailwater scenarios, see Section 3.6.3.

5.1.4 Simulation matrix

Twelve scenarios are modelled, as shown in Table 5-1. Six for ED and six for MPD, all MPD scenarios are modelled with rainfall conditions that are adjusted by Climate Change.

Table 5-1 Simulation matrix

Simulation	Land Use	Design Storm Event	Boundary	
			Rainfall	Tide Level for 2100 (m RL)
1	ED	2 year ARI	Existing 2 year	1.39
2	MPD	2 year ARI	Future 2 year	1.89
3	ED	5 year ARI	Existing 5 year	1.39
4	MPD	5 year ARI	Future 5 year	1.89
5	ED	10 year ARI	Existing 10 year	1.39
6	MPD	10 year ARI	Future 10 year	1.89
7	ED	20 year ARI	Existing 20 year	1.39
8	MPD	20 year ARI	Future 20 year	1.89
9	ED	50 year ARI	Existing 50 year	1.39
10	MPD	50 year ARI	Future 50 year	1.89
11	ED	100 year ARI	Existing 100 year	1.39
12	MPD	100 year ARI	Future 100 year	1.89

The peak water levels for the scenarios are shown in Appendix G. The node locations are shown in Appendix A, and the open channel water level locations are shown on the floodplain maps in Appendix D. Peak flows for the scenarios can be seen in Appendix G and Appendix H respectively. The peak flows are shown on the cross sections shown in the floodplain maps in Appendix D.

5.2 Water balance of the catchment

The water balance of rainfall volume versus catchment runoff is compared in Table 5-2.

Table 5-2 Summary of water balance of the catchment

Model Scenario	Catchment Rainfall Volume (m ³)	Catchment Runoff Volume (m ³)	Catchment Runoff Volume in %
2 year ED	126,000	84,102	67%
5 year ED	176,400	128,100	73%
10 year ED	210,000	158,499	75%
20 year ED	243,600	188,728	77%
50 year ED	288,960	230,526	80%
100 year ED	322,560	262,011	81%
2 year MPD	137,760	95,711	69%
5 year MPD	196,560	147,331	75%
10 year MPD	238,560	184,420	77%
20 year MPD	280,560	223,400	80%
50 year MPD	337,680	276,388	82%
100 year MPD	376,320	313,085	83%

5.3 Capacity of the existing primary pipe system

Table 5-3 summarises the performance of the existing stormwater pipe system for the different modelled scenarios.

Figures C01 and C02 in Appendix C provide thematic maps for the system performance assessment for ED and MPD scenarios respectively¹.

¹ There are a number of pipes (16 in total) that were removed from the system performance assessment that are located upstream of hydrological loading nodes, and therefore have zero flow for all scenarios. The pipes remain as a remnant of the previous ICS model and were not removed as part of the change in modelling specification from ICS Modelling Framework to SFMS (November 2011). The storage capacity of these pipes is considered negligible and the results are not significantly affected.

Table 5-3 Summary of the performance of the existing stormwater pipe system

Capacity Assessment Basis	Flow condition	Scenario	Percentage of Total Number of Pipes with Capacity					
			> 2yr ARI	> 5yr ARI	> 10yr ARI	> 20yr ARI	> 50yr ARI	> 100yr ARI
Maximum pipe flow compared to pipe full flow capacity	Free full flow	ED	85%	77%	74%	73%	72%	72%
		MPD	83%	76%	74%	72%	71%	70%
Pipe downstream maximum depth compared to pipe diameter or height	Backwater effect	ED	35%	26%	23%	20%	19%	16%
		MPD	31%	22%	19%	17%	15%	11%
Total pipe capacity considering full flow and back water effect		ED	31%	23%	20%	18%	17%	15%
		MPD	27%	20%	18%	16%	14%	11%

5.4 Capacity of the existing culverts and bridges

Table 5-4 summarises the performance of the twin concrete box culverts under Tamaki Drive (which could also be considered a bridge). We note that the footbridge downstream of Tamaki Drive was not modelled (as discussed in Section 3.2.3.3).

Table 5-4 Summary of capacity and design flow for culverts and pipe inlets

ID	Culvert Location	Culvert ID	Culvert Size	Culvert Capacity (m ³ /s)		10 year Flow (m ³ /s)		100 year Flow (m ³ /s)		10-Year Capacity Available
				Full Flow	Inlet Control	ED	MPD	ED	MPD	
1	29 Tamaki Drive	NZ7622	Irregular	--	30	8.4	9.0	9.4	10.0	Yes
2	41 Rukutai Street	NJ0590	900 mm	3.4	1	2.6	3.1	4.1	4.8	No*
3	27b Nihill Crescent	NA0486	Irregular	4.4	2.9	4.8	5.5	7.4	9	No
4	55 Atkin Avenue	NJ0800	600 mm	1.1	0.4	2.1	3.2	5.8	7.7	No

* The requirement to pass 10 year flows with a headwater level at the upstream culvert soffit cannot be met. However 10 year ARI MPD flows can be passed with an elevated headwater level.

5.5 Floodplain Mapping

Floodplain maps for the ED and MPD scenario were generated in accordance with the SFMS. The maps can be seen in Appendix D) and show the following:

- 100 year ARI MPD with Climate Change floodplains, where overland flow is greater than $2 \text{ m}^3/\text{s}$, and ponding areas with depth greater 300 mm and area greater than 500 m^2
- 10 year ARI MPD with Climate Change floodplains, with same qualities above
- Flood sensitive area, which the 100 year ARI MPD with Climate Change floodplains + 500 mm freeboard
- Major overland flow paths, where the overland flow is greater than $0.5 \text{ m}^3/\text{s}$ and less than $2 \text{ m}^3/\text{s}$, during a 100 year ARI MPD with Climate Change event
- Minor overland flow paths, where the overland flow is greater than $0 \text{ m}^3/\text{s}$ and less than $0.5 \text{ m}^3/\text{s}$, during a 100 year ARI MPD with Climate Change event.

5.6 Flood Hazard Mapping

The flood hazard maps for the existing stormwater drainage for the 100 year ARI ED and MPD scenarios are shown in Appendix E.

The flood maps show flood hazard classifications for each scenario. The flood hazard classification is based on SFMS, where:

- i. Potential Hazard, $0.05 \text{ m} < \text{depth} < 0.1 \text{ m}$
- ii. Minor Hazard, $0.1 \text{ m} \leq \text{depth} < 0.3 \text{ m}$, and $\text{velocity} < 2.0 \text{ m/s}$
- iii. Significant Hazard, $\text{depth} \geq 0.3 \text{ m}$, and $\text{depth} \geq 0.1 \text{ m}$ and $\text{velocity} \geq 2.0 \text{ m/s}$.

6 Flood damage assessment

The Flood Damage Assessment (FDA) was undertaken in accordance with Metrowater's FDA Guideline Report (November 2008)². There were 316 buildings that were surveyed for the purposes of the FDA in 2012 and 2014. The 316 buildings comprise:

- 286 residential buildings
 - 182 buildings surveyed in 2012
 - 104 buildings surveyed in 2014
- 30 commercial buildings
 - Surveyed 2014.

Six potentially flood prone properties were not included in the FDA for the following reasons:

- 37 Tamaki Drive and 53 Tamaki Drive were under construction
- No access to the following addresses (9B Patteson Avenue, 121 Patteson Avenue, 29A Palmer Crescent and 69 Kurahaupo Street).

The Metrowater FDA Guideline Report (November 2008) assesses damages based on 2008 fragility functions. T&T has not made any adjustments to the 2008 fragility functions to account for changes in valuation due to inflation, land values or building values for example.

6.1 Results

The surveyed floor levels and maximum flood level within the building footprint are shown in Appendix I³.

The FDA results are based on 2008 residential damage curves and commercial damage curves for retail business buildings.

Figure 6-1 shows the Expected Annual Flood Damage Curves for the 2, 5, 10, 20, 50 and 100 year ARI rainfall events for ED and MPD scenarios.

² A T&T report to Auckland Council (Flood Damage Assessment Methodology, July 2014, ref 29574) highlights the likely overestimation of flood damage due to the use of a TP108 hyetograph. Essentially the TP108 hyetograph assumes that the critical storm duration occurs at all locations in the catchment, which is highly unlikely in reality.

³ Note that not all buildings flood or have flood levels associate with the property. However to document the complete record of floor levels, all building surveys are included in the Appendix.

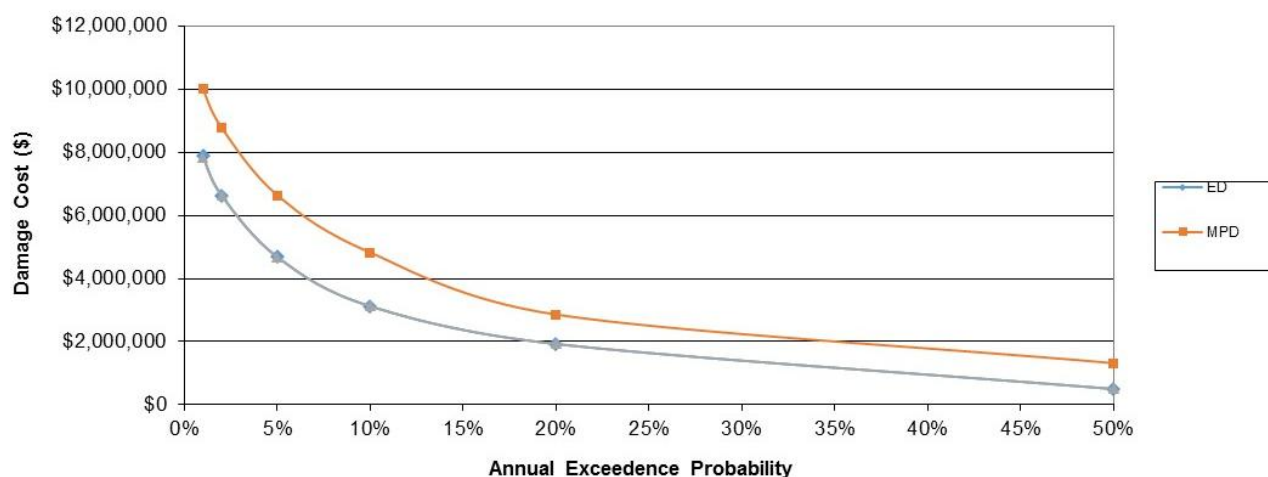


Figure 6-1 Expected Annual Flood Damage Curves for ED and MPD

Table 6-1 and Table 6-2 show the detailed flood damage values for each scenario in terms of residential and commercial buildings. The number of buildings represents the number of buildings damaged (i.e. flood levels greater than 0.5 m below floor level).

Table 6-1 Summary of flood damage for all ED design storm events

	Residential		Commercial		Total Damage	
Return Period	Values (\$)	No. of Buildings	Values (\$)	No. of Buildings	Values (\$)	No. of Buildings
2 year	498,016	18	0	0	498,016	18
5 year	1,925,181	54	0	0	1,925,181	54
10 year	3,121,582	70	0	0	3,121,582	70
20 year	4,676,936	92	6,918	2	4,683,854	94
50 year	6,625,028	148	13,927	3	6,638,955	151
100 year	7,835,609	153	51,658	6	7,887,267	159

Table 6-2 Summary of flood damage for all MPD design storm events

	Residential		Commercial		Total Damage	
Return Period	Values (\$)	No. of Buildings	Values (\$)	No. of Buildings	Values (\$)	No. of Buildings
2 year	1,315,948	28	0	0	1,315,948	28
5 year	2,858,857	66	0	0	2,858,857	66
10 year	4,817,411	93	6,692	2	4,824,103	95
20 year	6,623,158	125	16,145	3	6,639,303	128
50 year	8,659,854	149	124,331	7	8,784,186	156
100 year	9,823,390	153	189,812	8	10,013,202	161

Table 6-2 identifies that there is damage associated with the 2 year ARI design storm event, therefore it is likely that there is additional damage associated with storm events of greater frequency than 2 year ARI that have not been accounted for. This would cause the AAD to increase further using the Metrowater methodology (refer Note 3).

The Average Annual Damage (AAD) and Net Present Value (NPV) were calculated as per Metrowater's FDA Guidelines, using a 50 year design period and 8% discounting rate for both scenarios. The result of the AAD assessment and NPV calculation are shown in Table 6-3.

Table 6-3 Average Annual Damage

Scenario	Average Annual Damage	Net Present Value (50 year period)
ED	\$ 1,132,300	\$ 13,851,500
MPD	\$ 1,722,425	\$ 21,071,000

7 Conclusions and recommendations

The flood hazard mapping for the Mission Bay catchment has been completed by updating a previous 1D Mouse model to Mike Urban and “coupling” the model to a 2D floodplain and overland flowpath model (Mike 21) and a watercourse model (Mike 11).

As part of the model upgrade a number of topographic surveys and asset surveys have been carried out. A floor level survey was also carried out to supplement previously surveyed floor levels to support the flood damage assessment.

Confidence in the models ability to represent surface runoff was developed by validating the model to historical flood records and to compare results from the design storm approach with the AC TP108 approach. It should be noted that there was only limited model validation data available, therefore ongoing validation and/or calibration should continue as additional information becomes available.

The model was used to assess the hydrological and hydraulic response to the 2, 5, 10, 20, 50 and 100 year ARI design storms for both existing development and maximum probable development (MPD). The MPD scenario was assessed for a scenario that includes climate change. Floodplain mapping and flood hazard mapping was carried out in accordance with the SFMS (Auckland Council, November 2011) and a System Performance Assessment was also carried out.

The estimated Average Annual Damage for the existing development scenario is approximately \$1.1 million with a net present value of approximately \$13.9 million. For the MPD scenario, the AAD increases to approximately \$1.7 million with a net present value of approximately \$21.1 million.

8 References

Maunsell, 2008. Mission Bay Flood Hazard Mapping Report. Report prepared for Auckland Council. [Maunsell is now called Aecom]

Auckland Council, 1999. Guidelines for stormwater runoff modelling in the Auckland Region, Technical Publication (TP) 108.

Auckland Council, 2011. Stormwater Flood Modelling Specifications (SFMS).

Ministry of Works and Development, 1978. Culvert Manual.

9 Applicability

This report has been prepared for the benefit of Auckland Council with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose without our prior review and agreement.

Tonkin & Taylor Ltd

Environmental and Engineering Consultants

Report prepared by:

Authorised for Tonkin & Taylor Ltd by:



Edison Fan
Water Engineer



Tim Fisher
Project Director

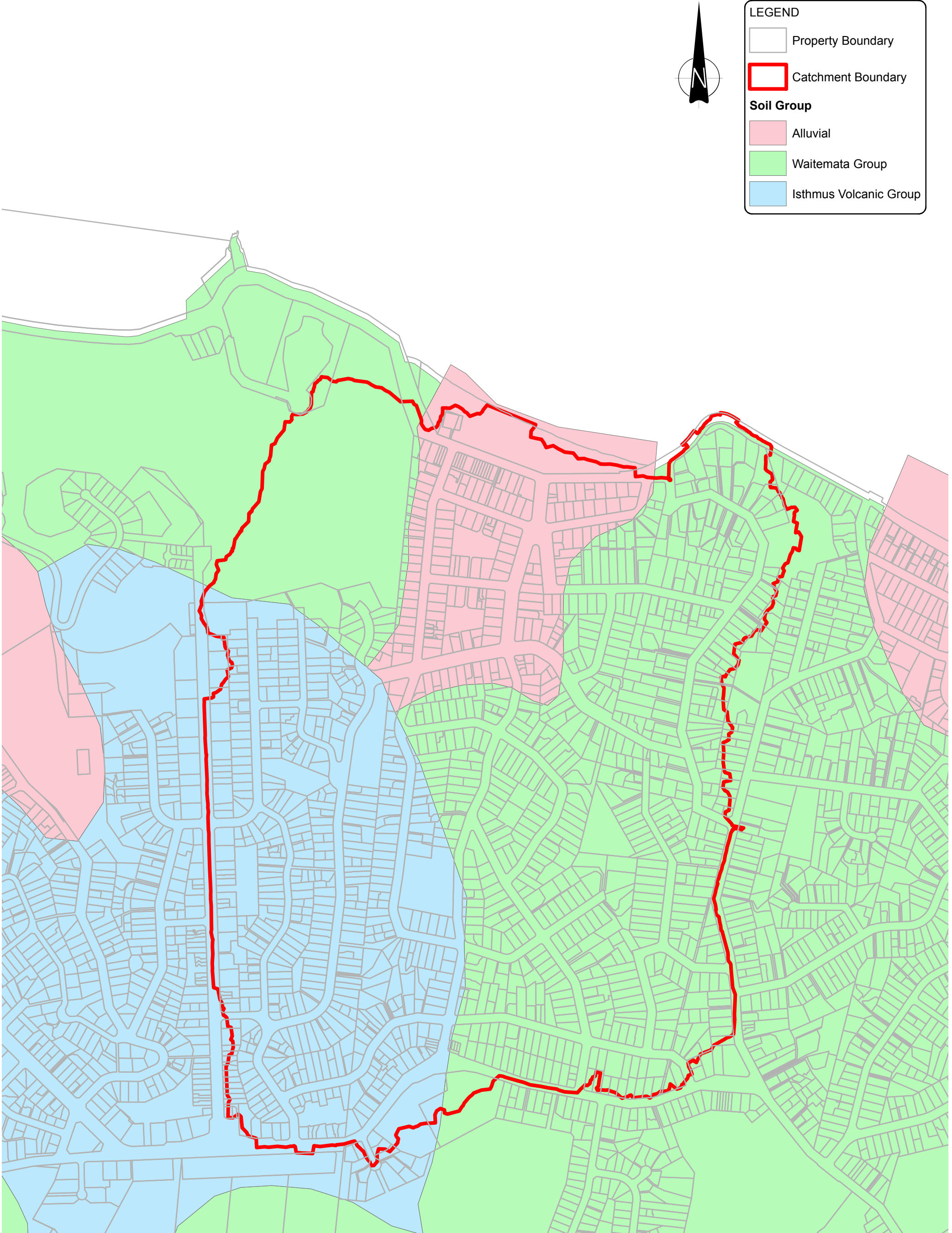


Jon Rix
Senior Water Resources Consultant

EHTF

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Appendix A: Figures



Notes: Hydrological soil group map sourced from Auckland Council.
Property boundary sourced from Terralink International
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A3 SCALE 1:7,500
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PROJECT No. 27840.100		

AUCKLAND COUNCIL
MISSION BAY
Catchment Soil Group Plan

FIGURE No. Figure A01

Rev. 0



Notes: Land use map sourced from Auckland Council.
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A3 SCALE 1:7,500

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AUCKLAND COUNCIL MISSION BAY Catchment Land Use Plan	
FIGURE No. Figure A02	Rev. 0



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AUCKLAND COUNCIL
MISSION BAY
Model Schematisation

FIGURE No. Figure A03

Rev. 0

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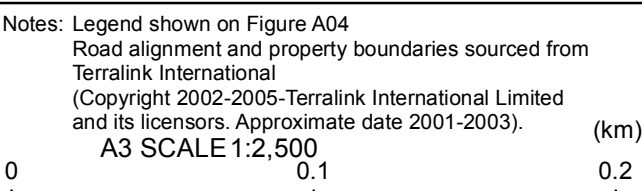
AUCKLAND COUNCIL
MISSION BAY
Asset Data

FIGURE No. **Figure A04**

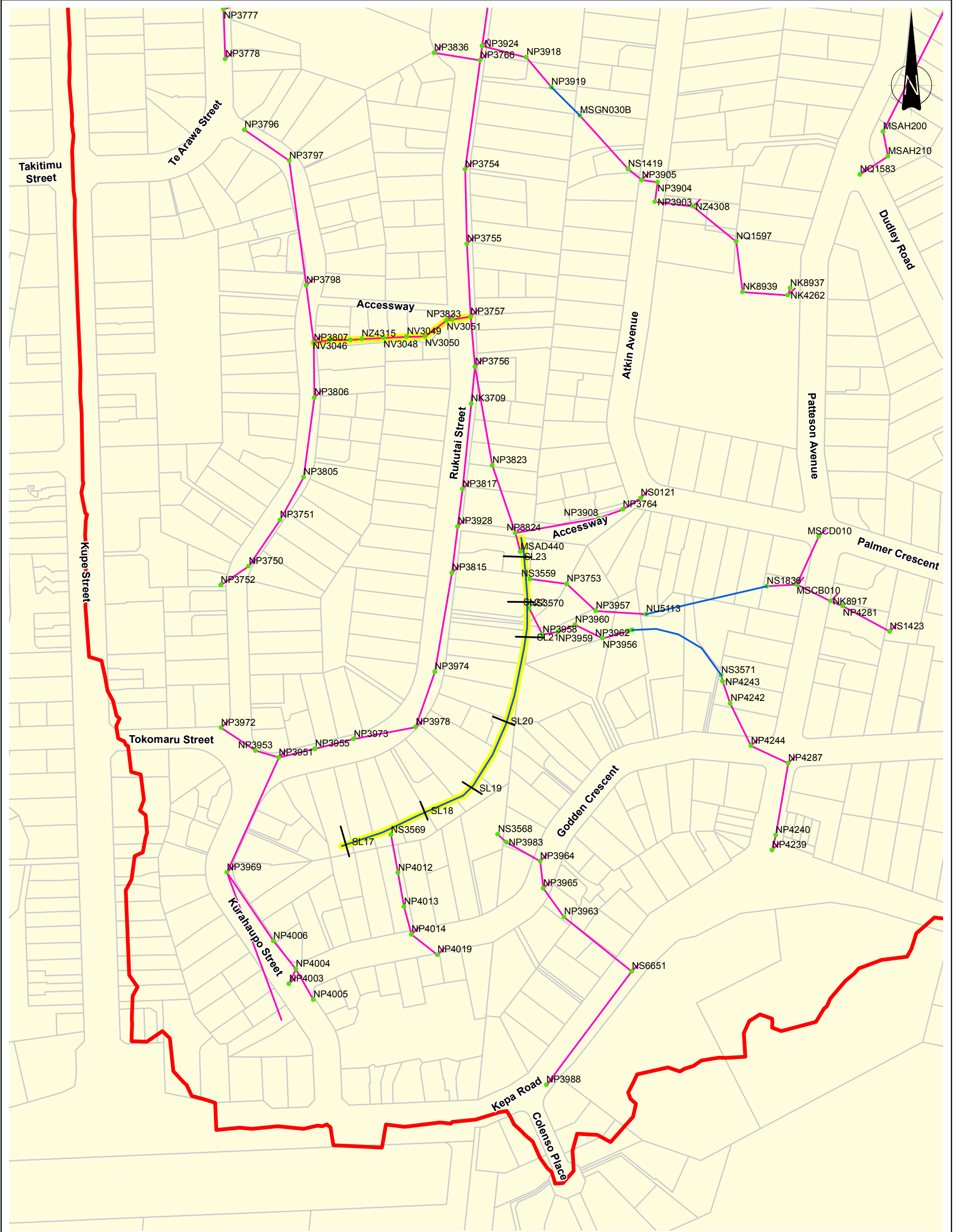
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FIGURE No.	Figure A04.1	Rev.	0
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FIGURE No.	Figure A04.2	



Notes: Legend shown on Figure A04
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A3 SCALE 1:2,500

(km)

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MISSION BAY
Asset Data

FIGURE No. Figure A04.3

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Notes: Legend shown on Figure A04
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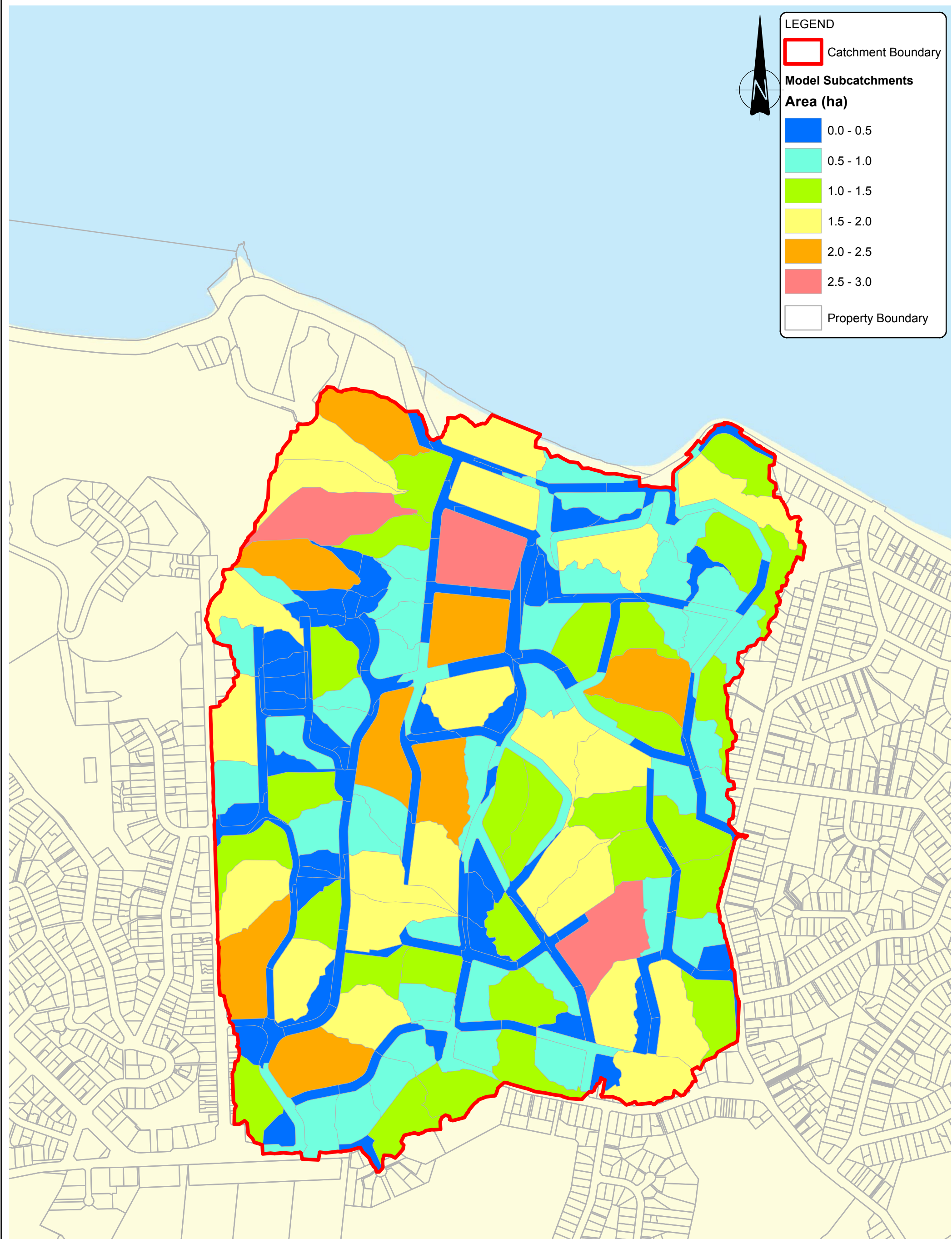
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FIGURE No. Figure A04.4

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A3 SCALE 1:7,500

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AUCKLAND COUNCIL MISSION BAY Subcatchment Plan

FIGURE No. Figure A05

Rev. 0

Appendix B: Model validation

LEGEND

Modelled Pipe Network

Catchment Boundary

Property Boundary

Flood Depth
(m)

0.05 - 0.1

0.1 - 0.2

0.2 - 0.3

0.3 - 0.4

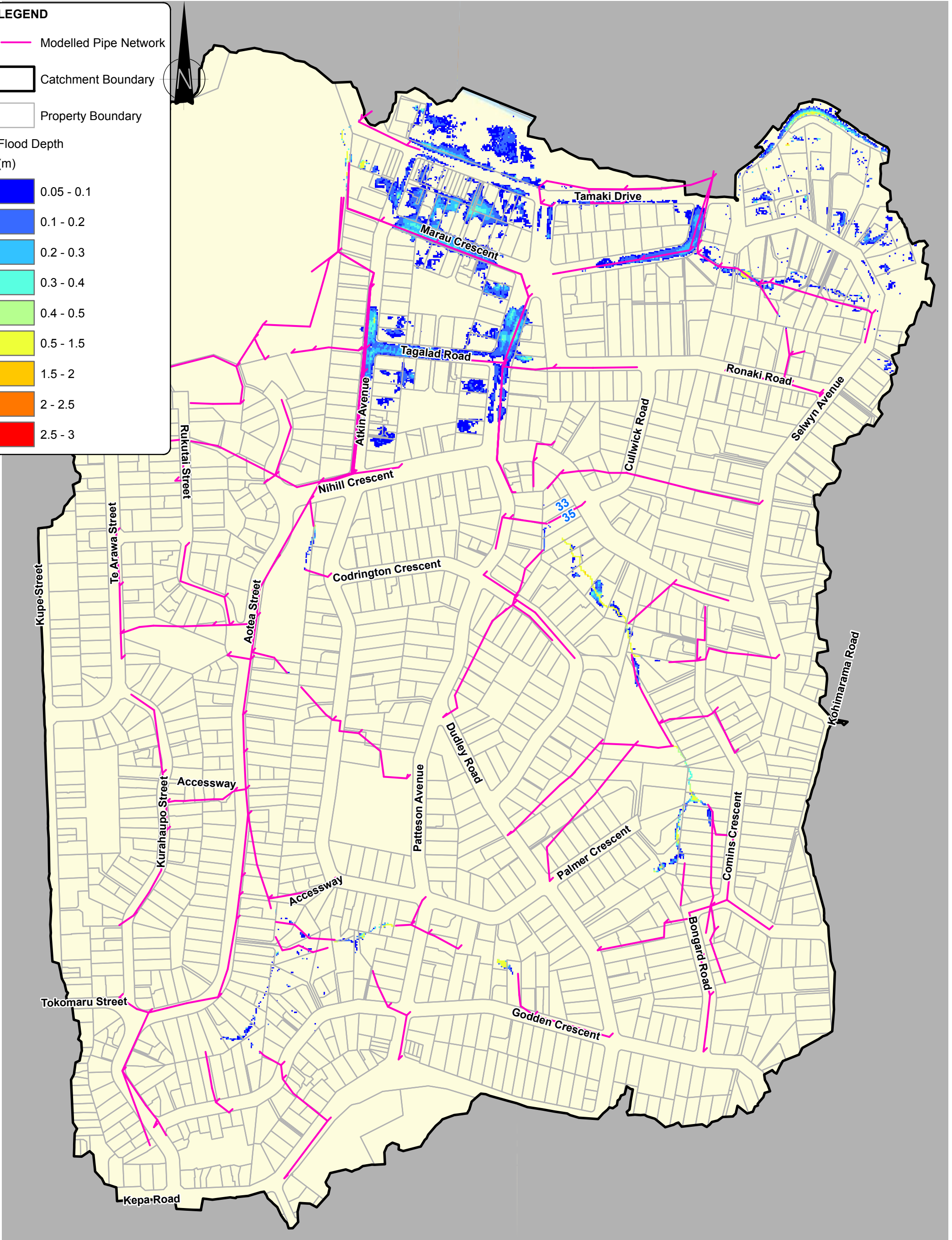
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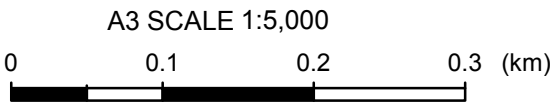
1.5 - 2

2 - 2.5

2.5 - 3



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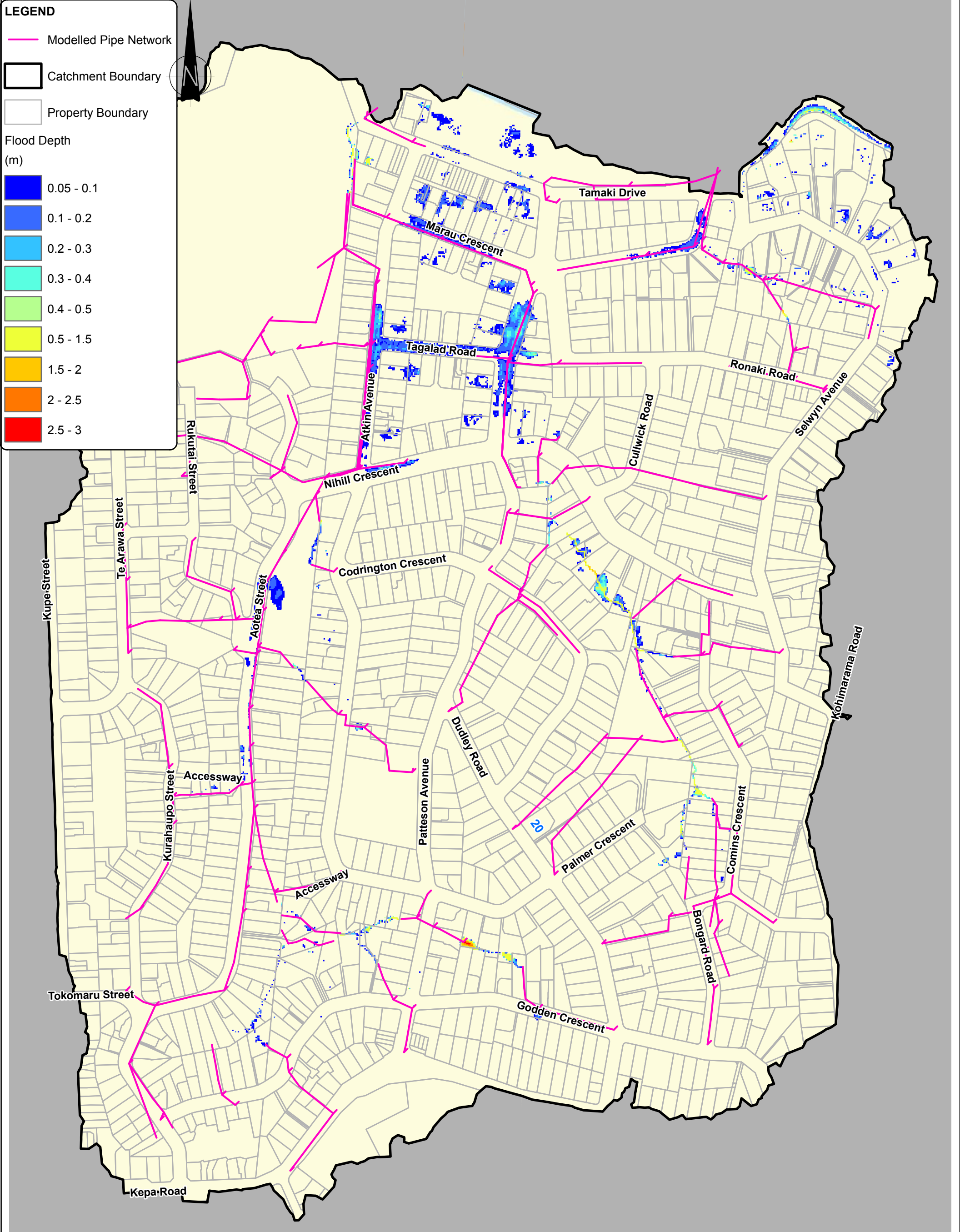


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AUCKLAND COUNCIL MISSION BAY Maximum Flood Depth Validation Event 02Feb2004		
FIGURE No.	Figure B01	Rev. 0



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A3 SCALE 1:5,000

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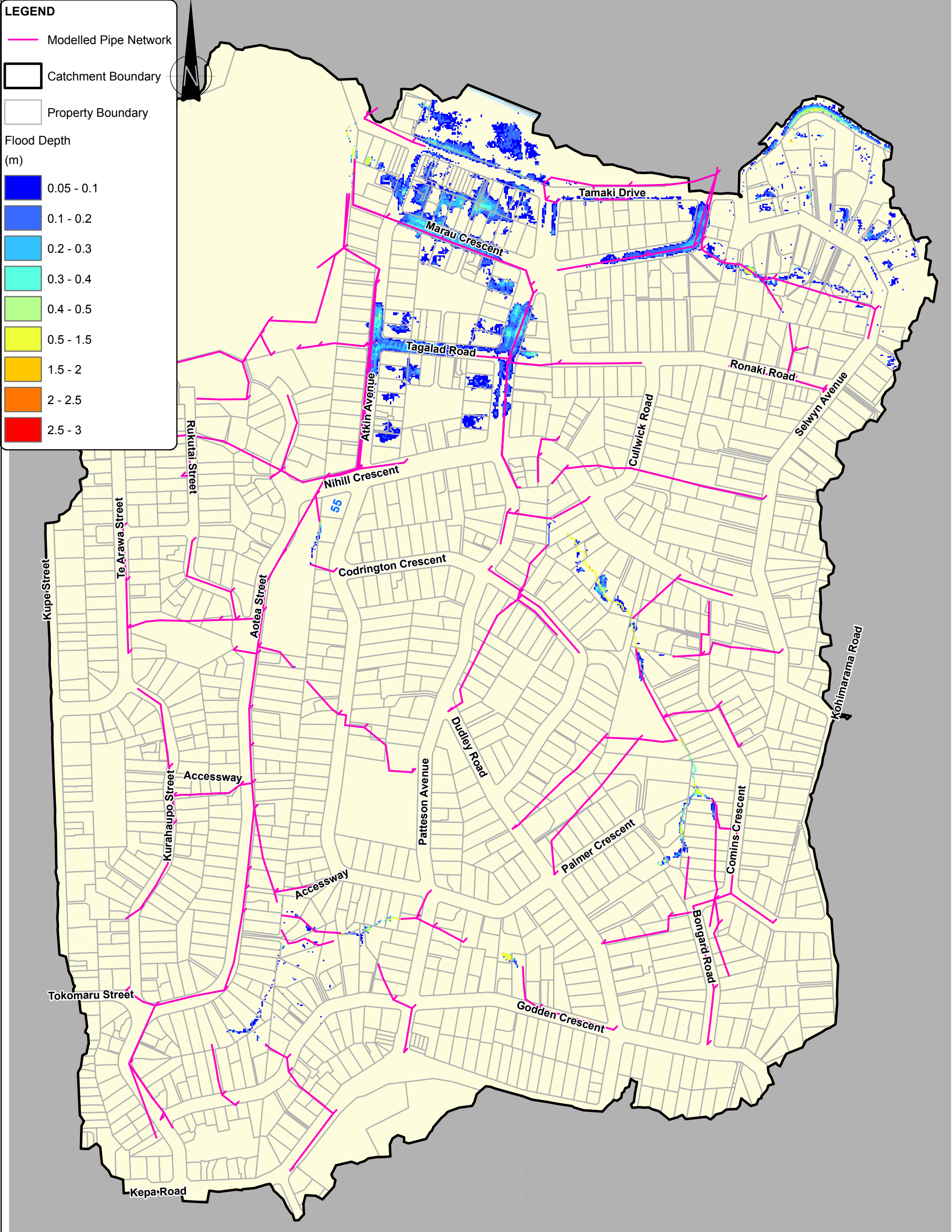
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SCALE (AT A3 SIZE)		
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FIGURE No. Figure B02

AUCKLAND COUNCIL
MISSION BAY
Maximum Flood Depth
Validation Event 18Apr2006

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A3 SCALE 1:5,000

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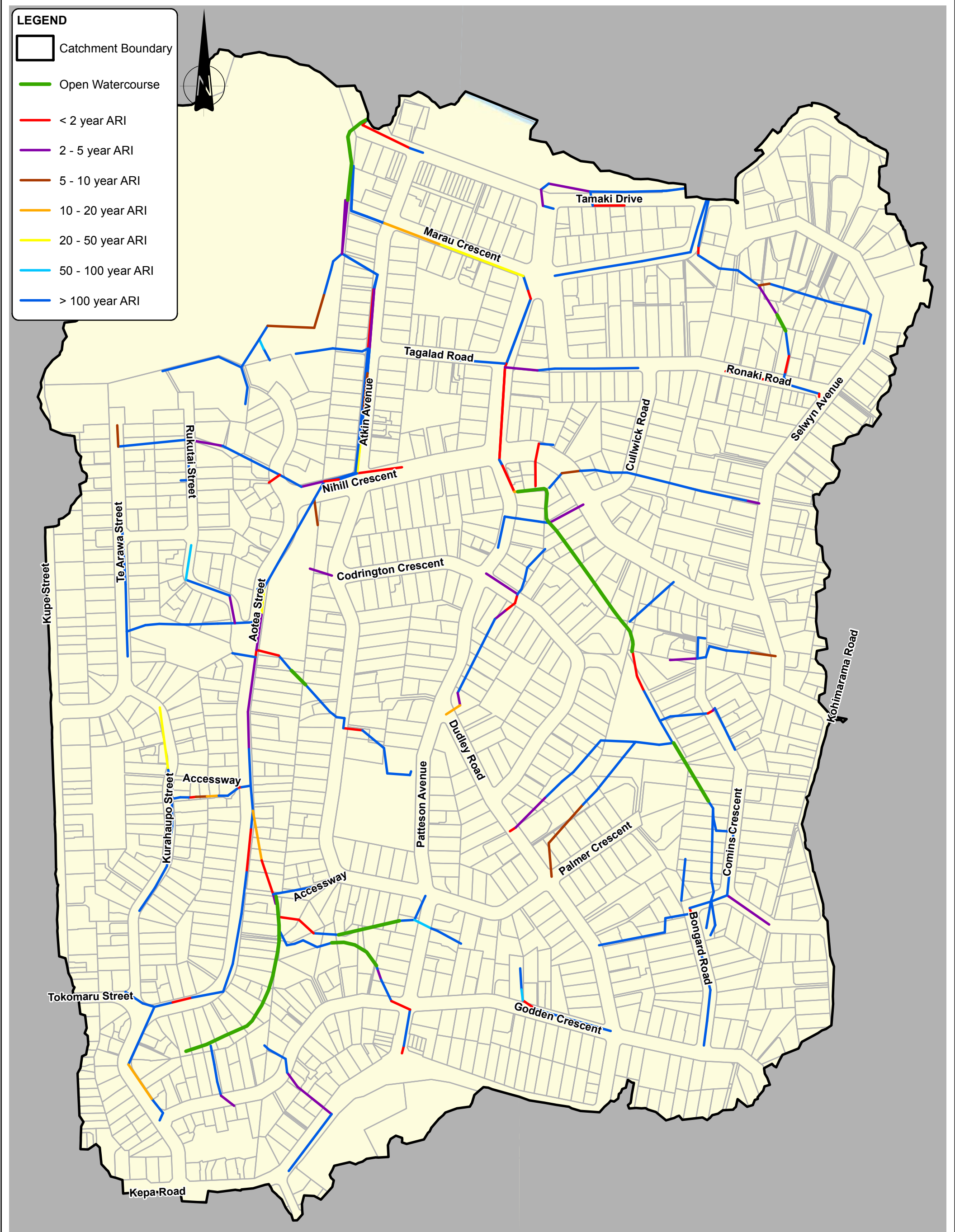
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FIGURE No. Figure B03

AUCKLAND COUNCIL
MISSION BAY
Maximum Flood Depth
Validation Event 25Apr2006

Rev. 0

Appendix C: System Performance Assessment



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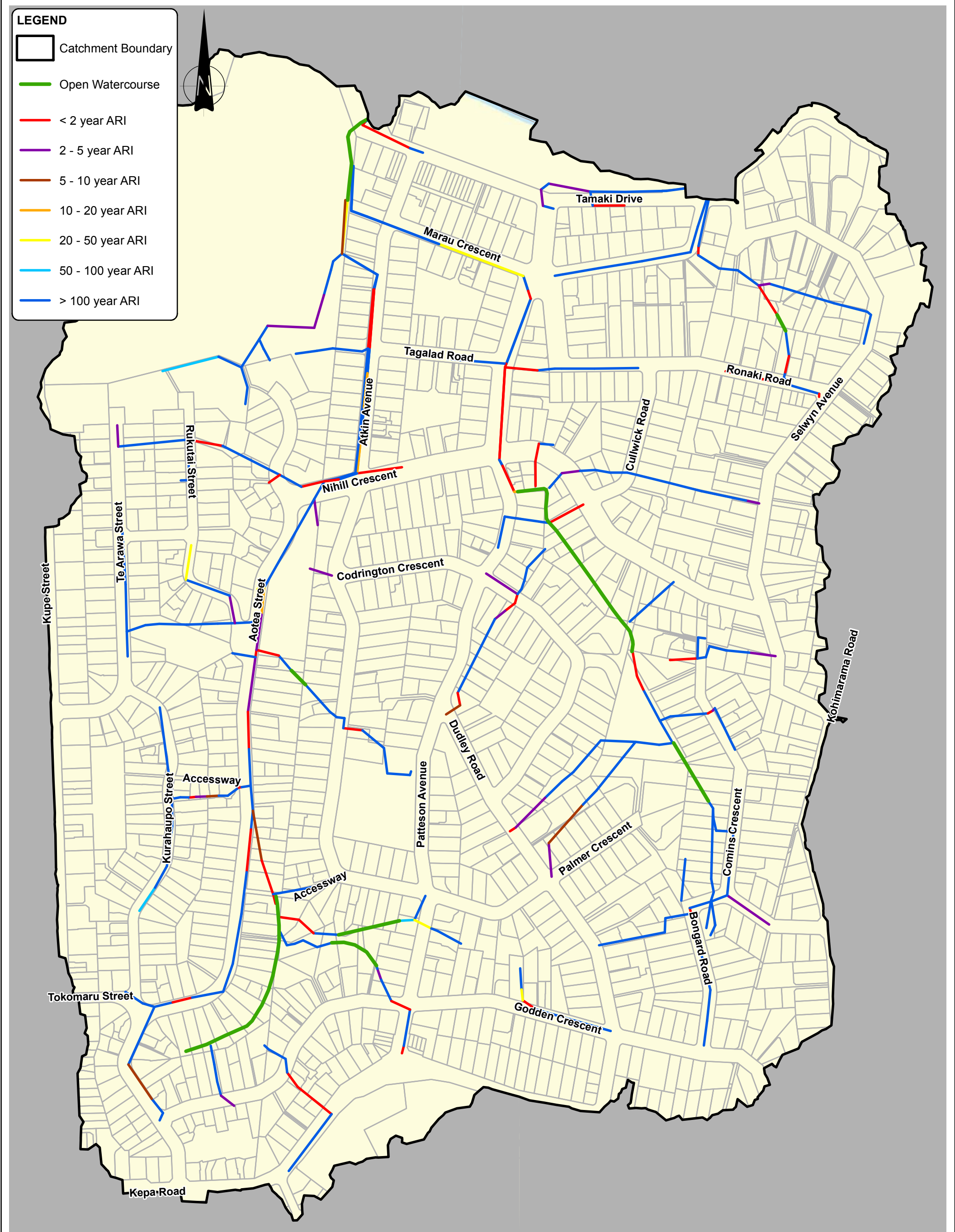
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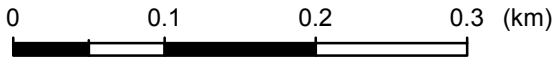
AUCKLAND COUNCIL
MISSION BAY
System Performance Assessment
Pipe Capacity (ED) - Free Full Flow Condition
FIGURE No. Figure C01

Rev.
0



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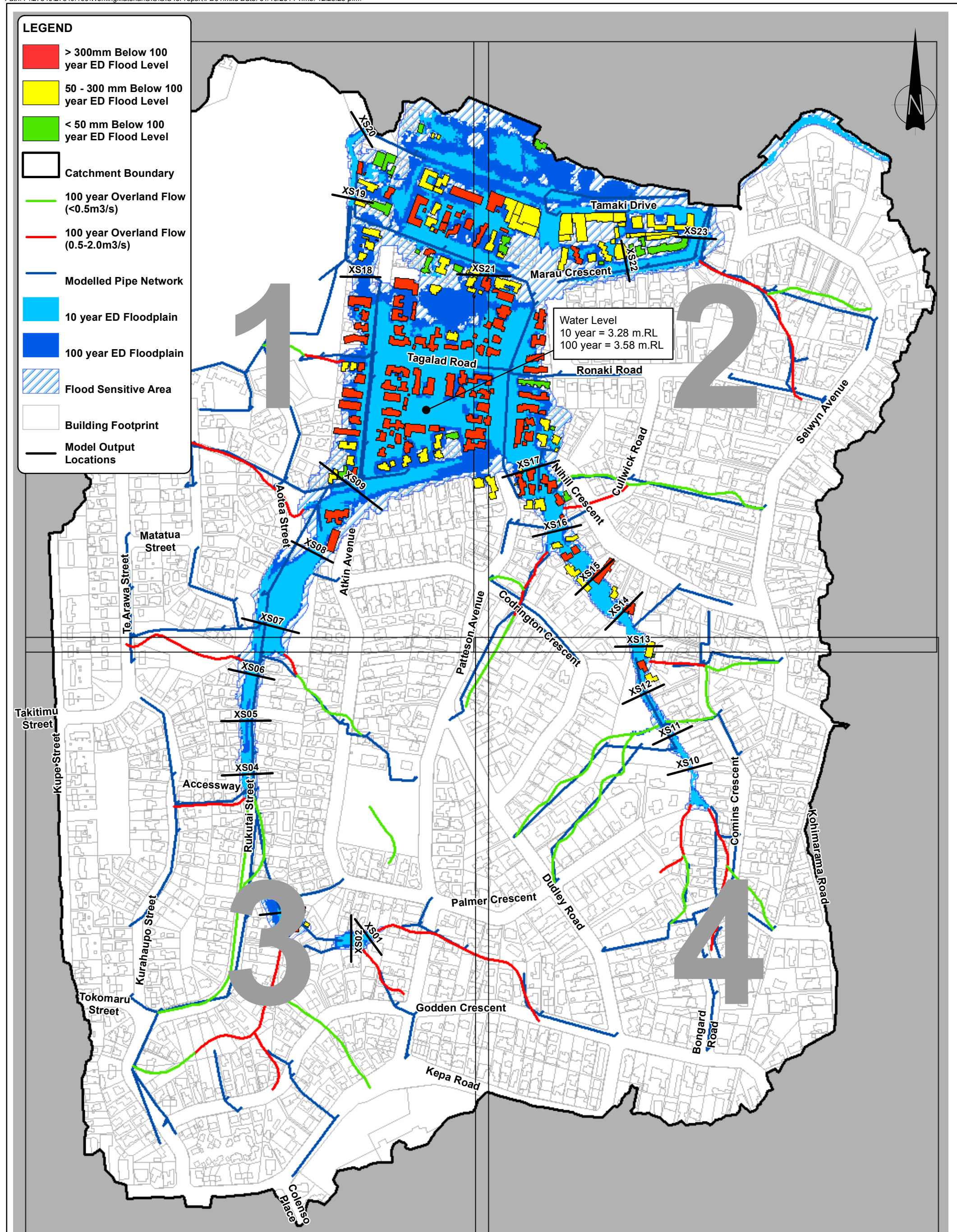


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SCALE (AT A3 SIZE)	1:5,000	
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AUCKLAND COUNCIL		
MISSION BAY		
System Performance Assessment		
Pipe Capacity (MPD) - Free Full Flow Condition		
FIGURE No.	Figure C02	
Rev.	0	

Appendix D: Floodplain Mapping



Notes: Legend relates to Figures D01.1 to D01.4
Road alignment and property boundaries sourced from Terralink International (Copyright 2002-2005-Terralink International Limited and its licensors. Approximate date 2001-2003).

A3 SCALE 1:5,000

0 0.1 0.2 0.3 (km)

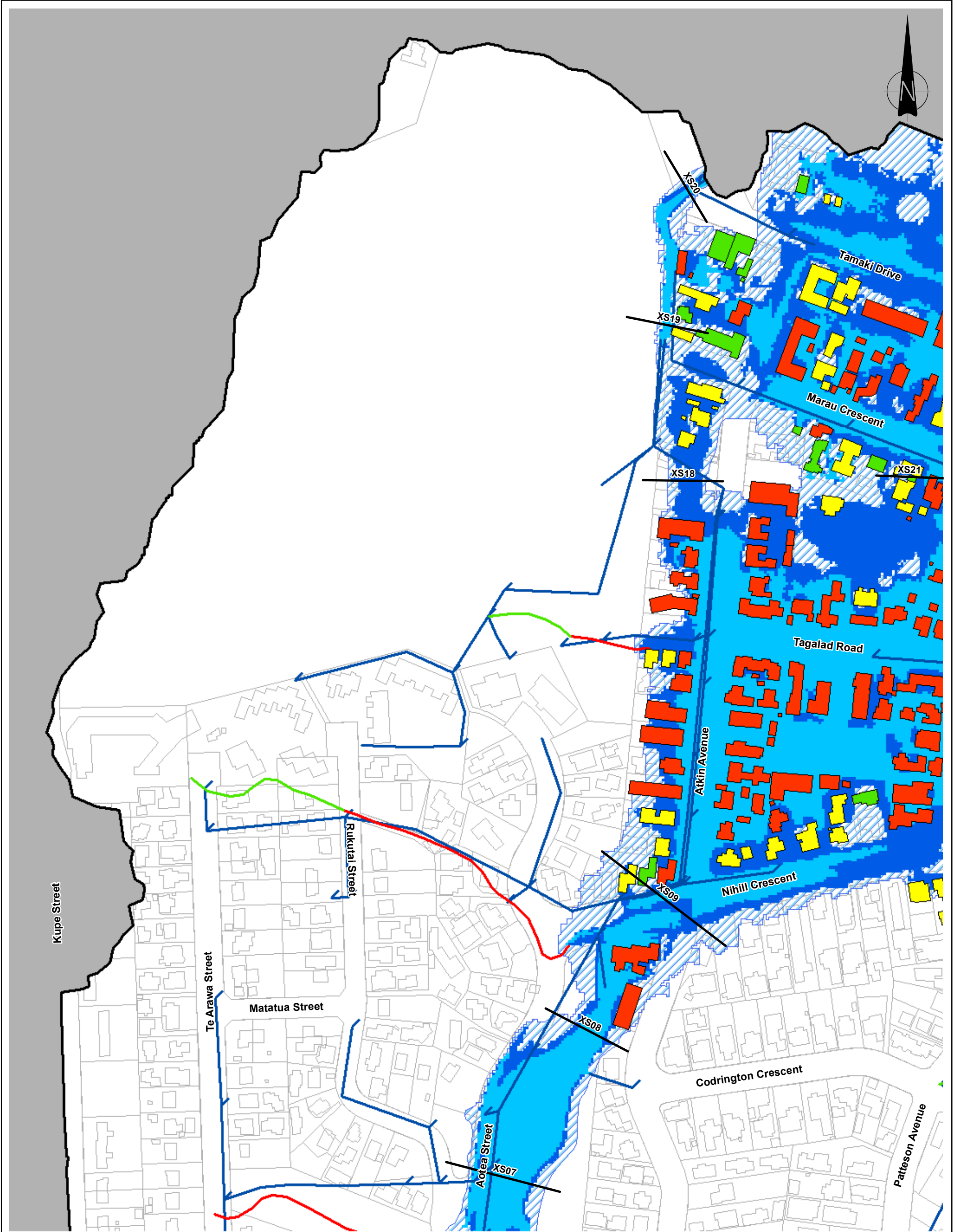
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APPROVED		
ARCFILE		
FD01.mxd		
SCALE (AT A3 SIZE)		
1:5,000		
PROJECT No.		
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Floodplain Map (ED Scenario)

FIGURE No. Figure D01

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Notes: Legend shown on Figure D01
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A3 SCALE 1:2,500
0 0.1 0.2 (km)

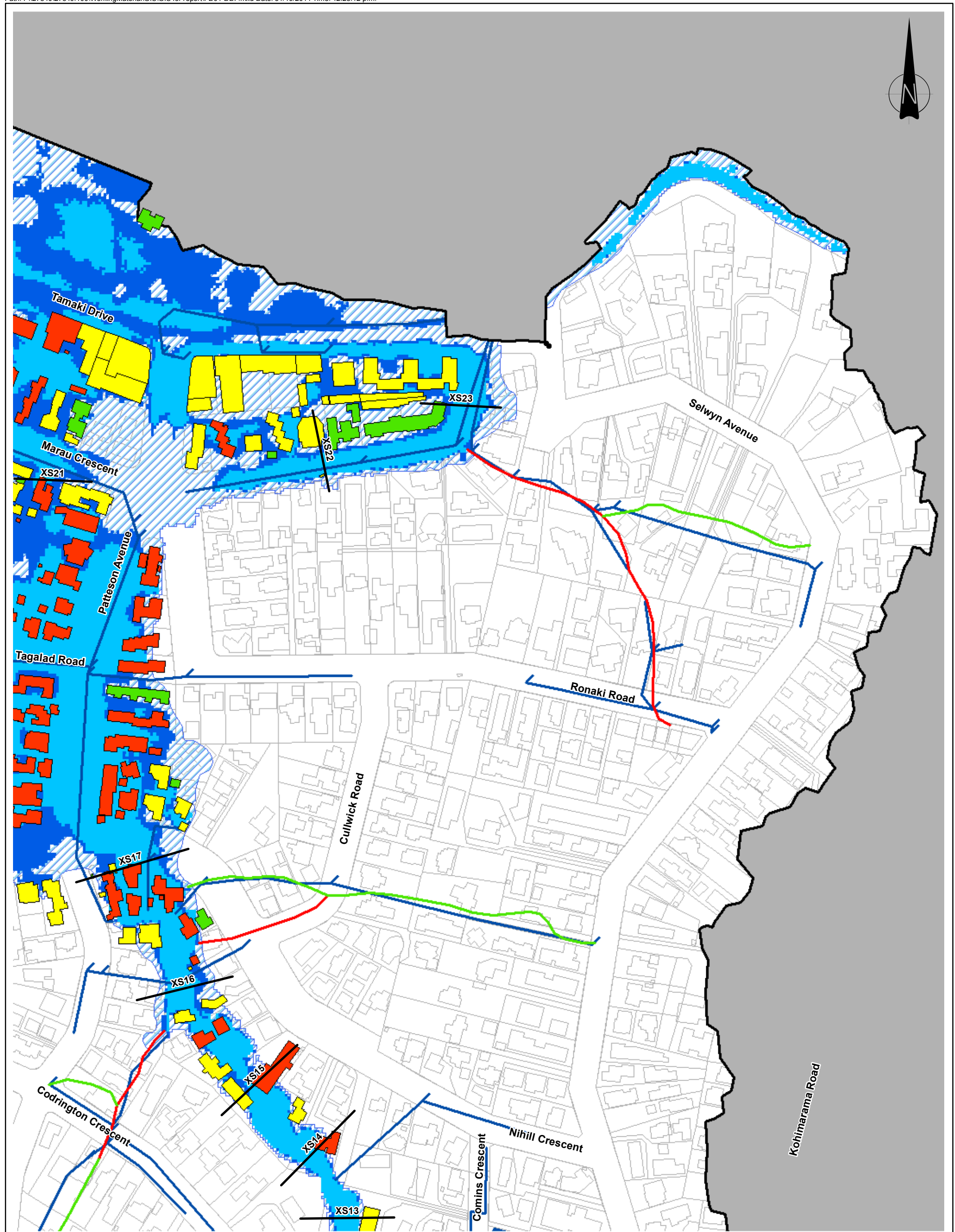
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Floodplain Map (ED Scenario)

FIGURE No. Figure D01.1

Rev. 0



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A3 SCALE 1:2,500 (km)
0 0.1 0.2

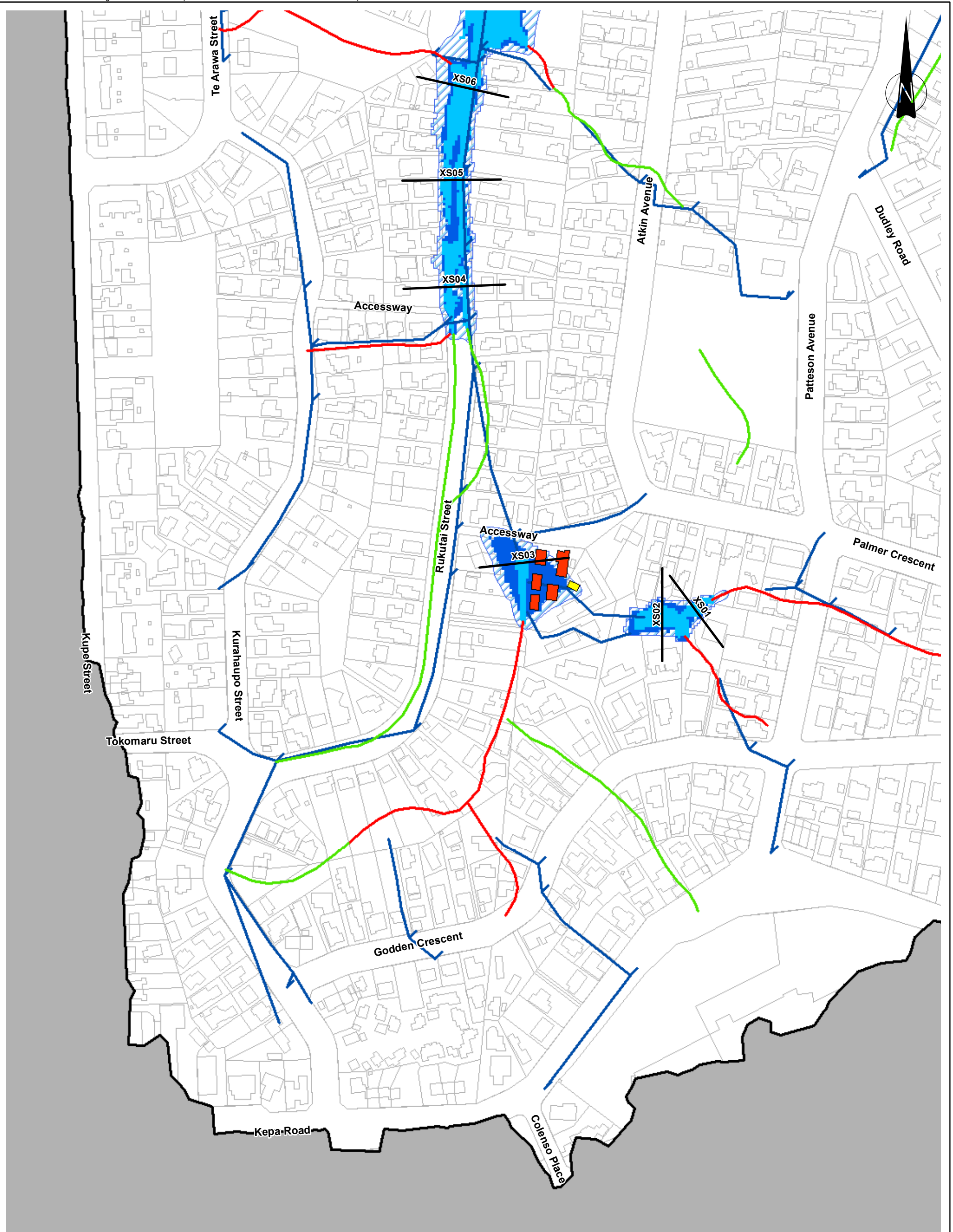
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Floodplain Map (ED Scenario)

FIGURE No. Figure D01.2

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A3 SCALE 1:2,500
 0 0.1 0.2 (km)

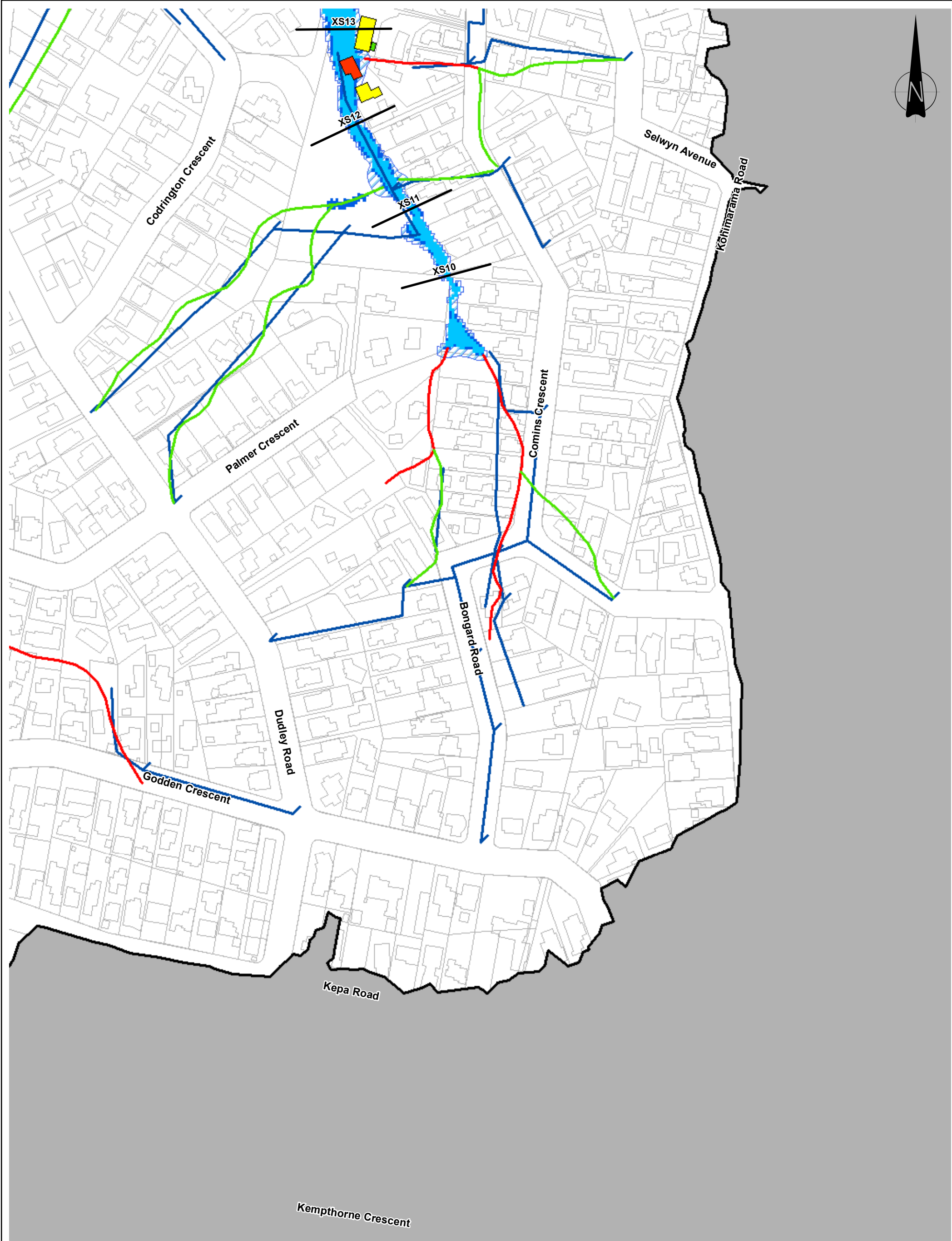
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AUCKLAND COUNCIL MISSION BAY Floodplain Map (ED Scenario)

FIGURE No. Figure D01.3

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Notes: Legend shown on Figure D01
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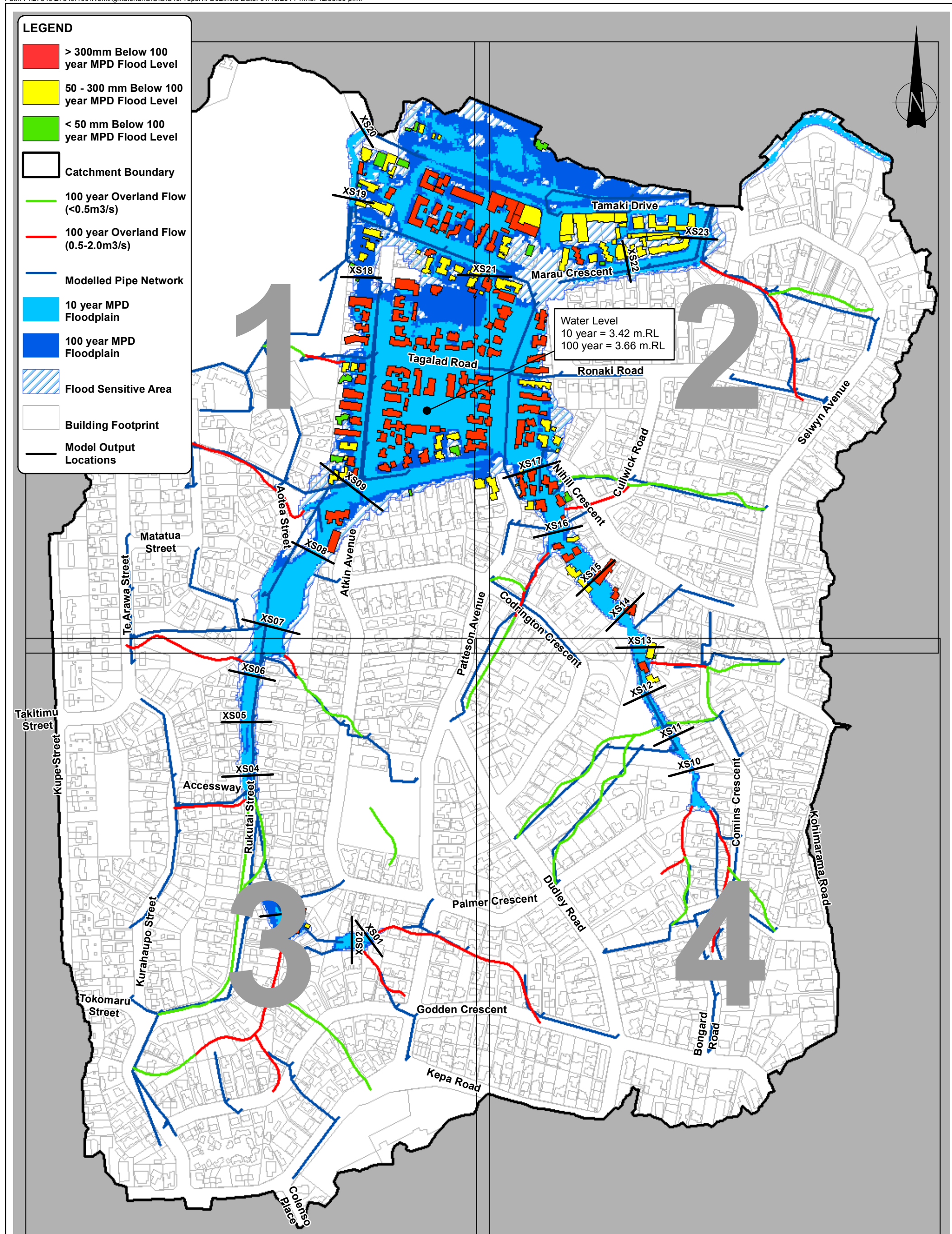
A3 SCALE 1:2,500

0 0.1 0.2 (km)

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FIGURE No.	Figure D01.4	Rev. 0



Notes: Legend relates to Figures D02.1 to D02.4
Road alignment and property boundaries sourced from Terralink International
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A3 SCALE 1:5,000
0 0.1 0.2 0.3 (km)

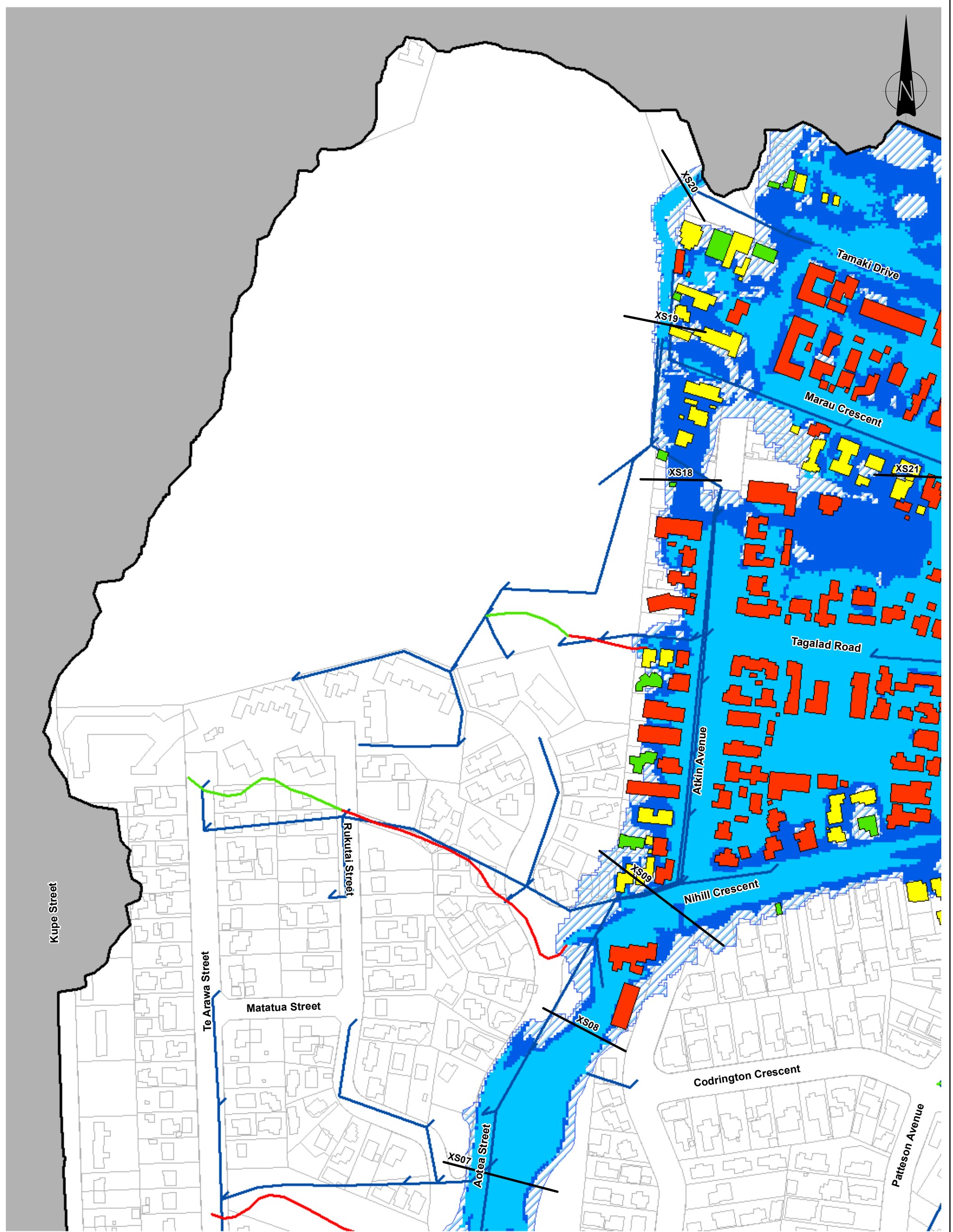
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Floodplain Map (MPD Scenario)

FIGURE No. Figure D02

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A3 SCALE 1:2,500
0 0.1 0.2 (km)

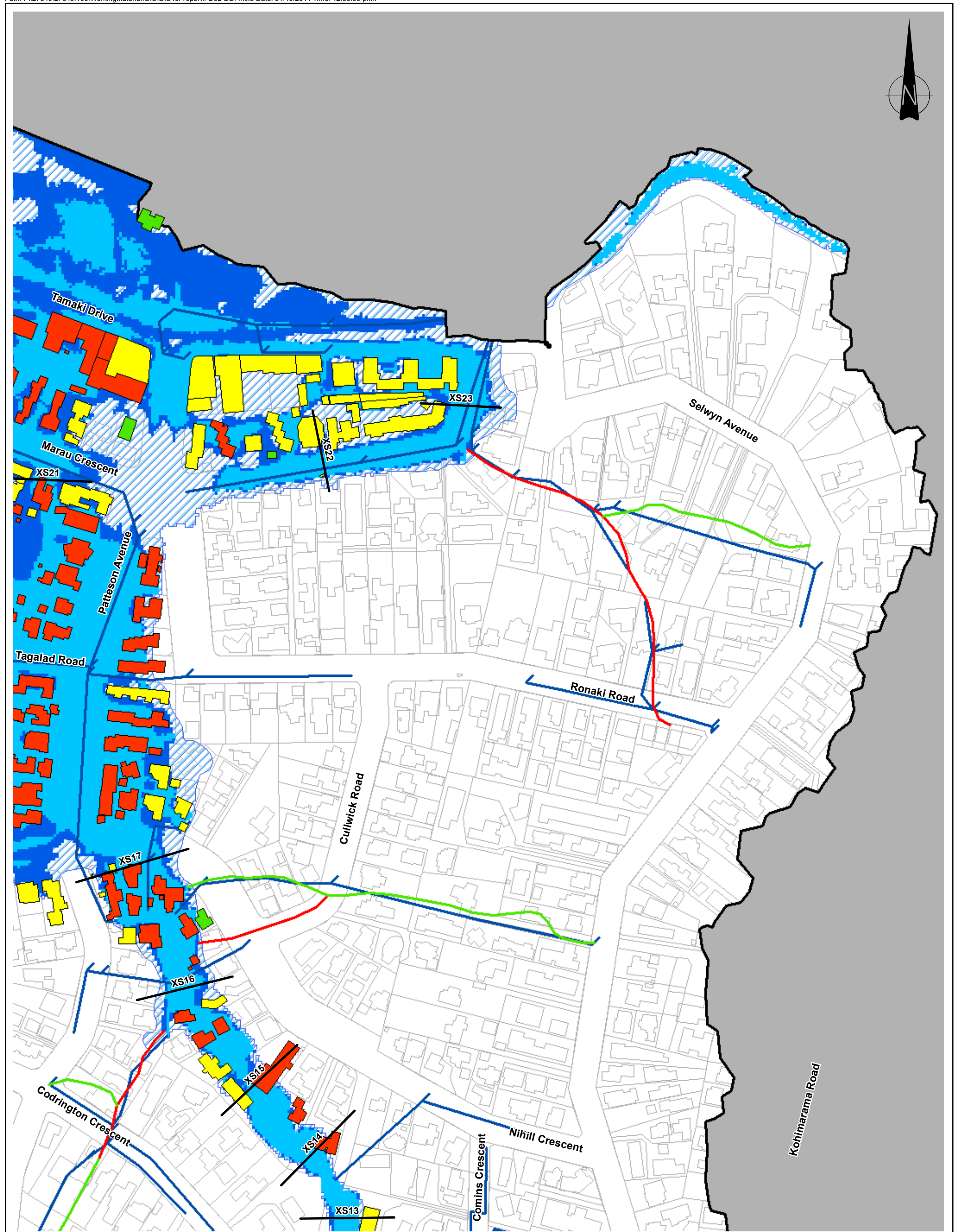
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Floodplain Map (MPD Scenario)

FIGURE No. Figure D02.1

Rev. 0



Notes: Legend shown on Figure D02
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A3 SCALE 1:2,500
 0 0.1 0.2 (km)

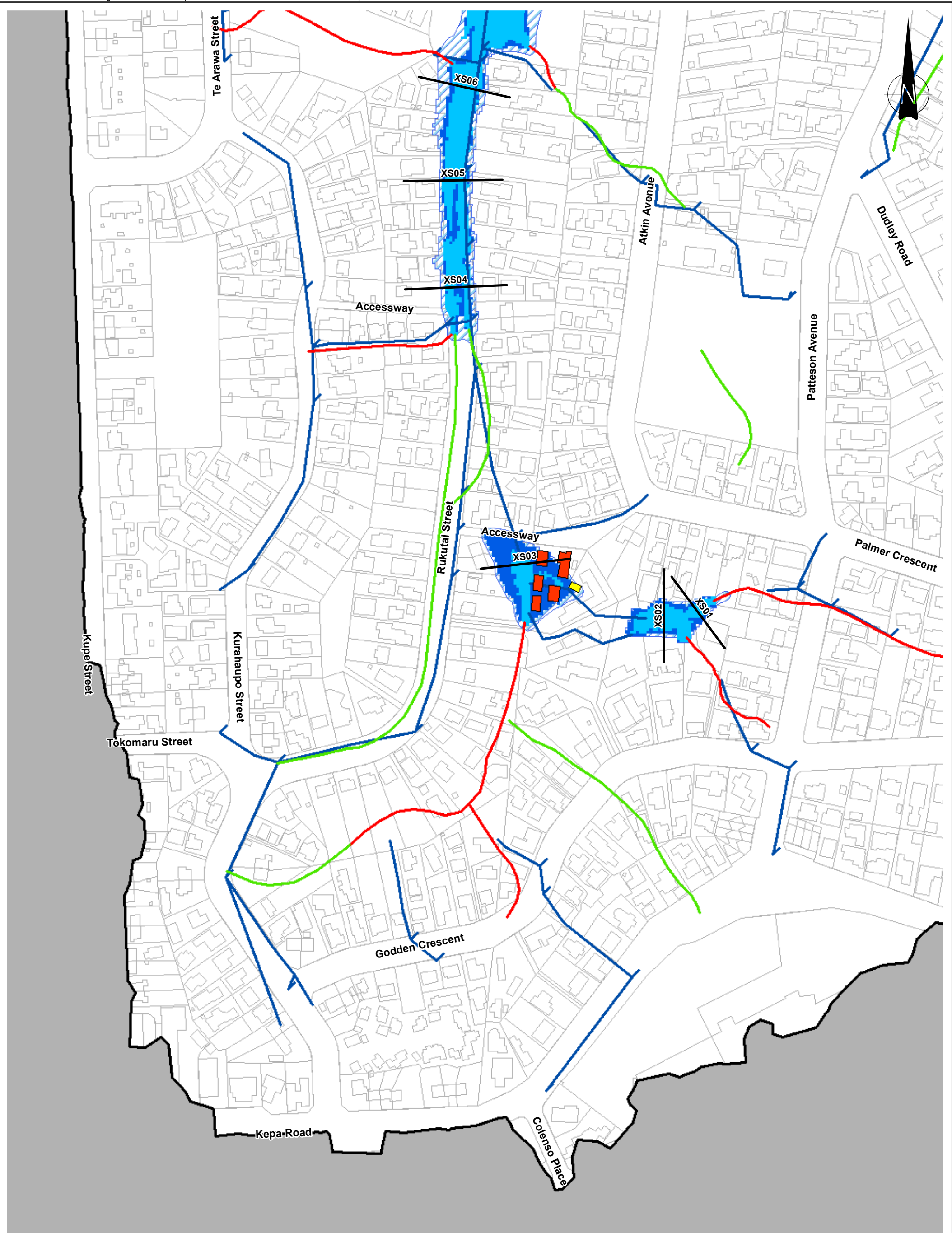
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AUCKLAND COUNCIL MISSION BAY Floodplain Map (MPD Scenario)

FIGURE No. Figure D02.2

Rev. 0



Notes: Legend shown on Figure D02
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A3 SCALE 1:2,500
0 0.1 0.2 (km)

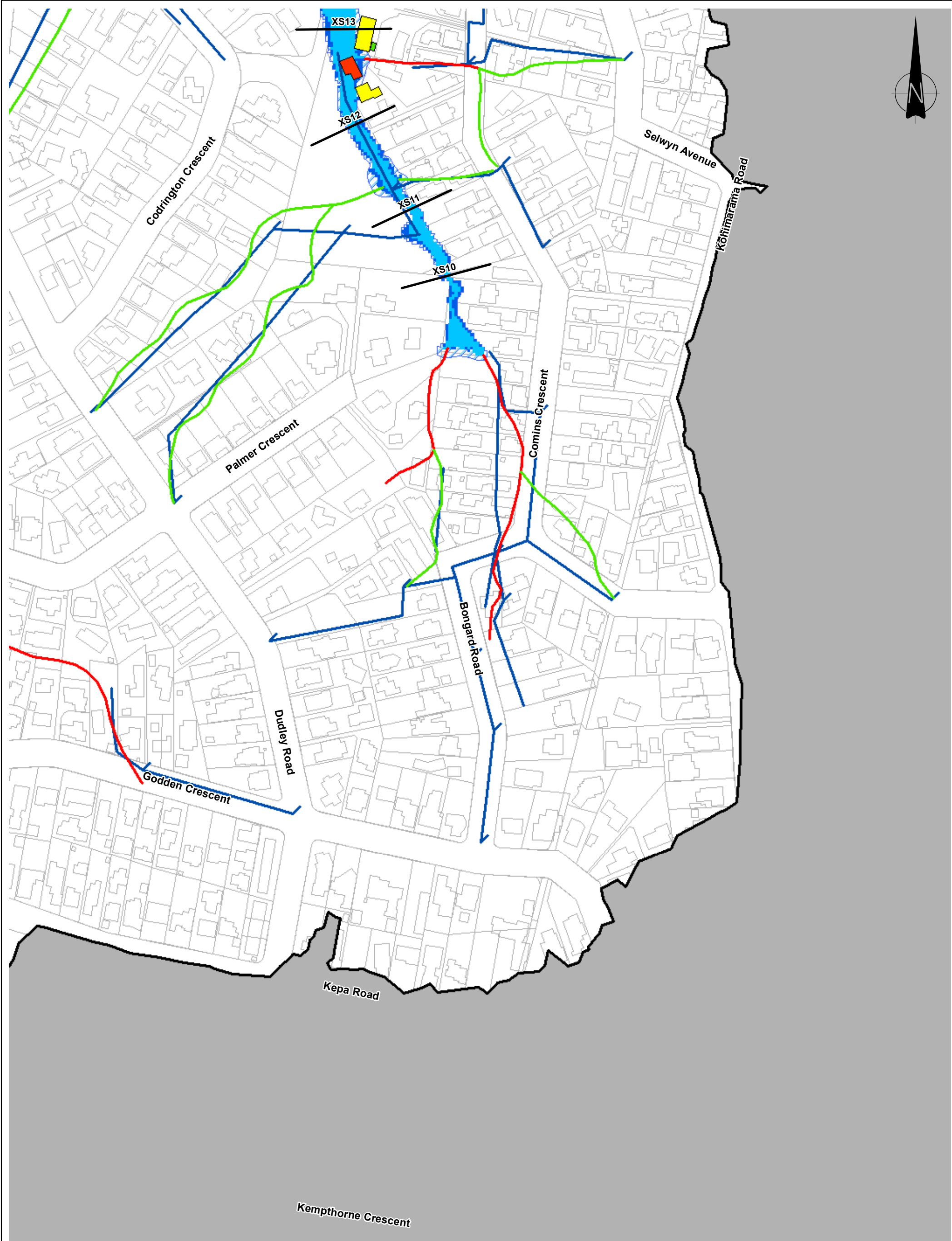
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Floodplain Map (MPD Scenario)

FIGURE No. Figure D02.3

Rev. 0



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A3 SCALE 1:2,500

0 0.1 0.2 (km)

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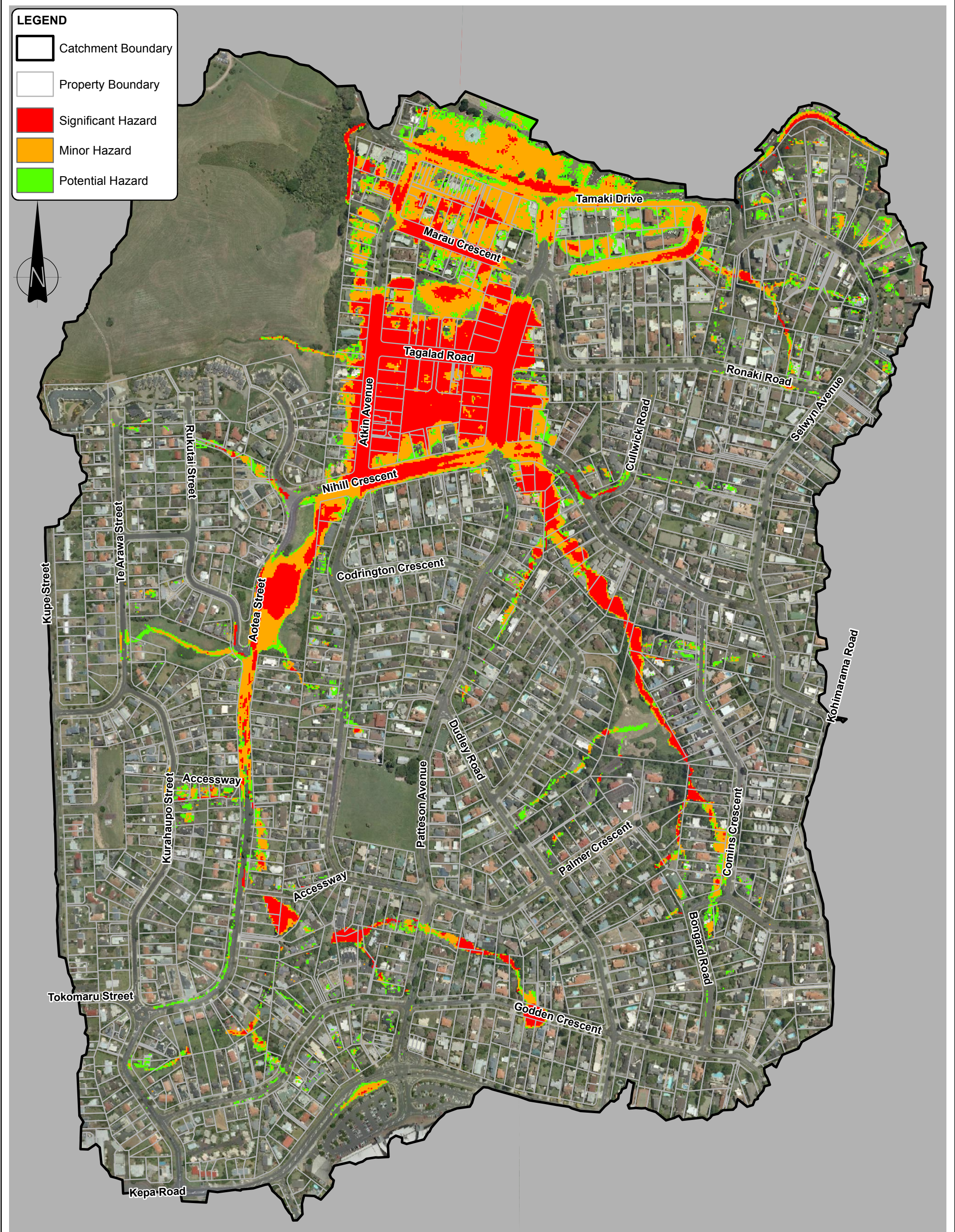
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ARCFILE FD02-DDP.mxd SCALE (AT A3 SIZE) 1:2,500		
PROJECT No. 27840.100		

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Floodplain Map (MPD Scenario)

FIGURE No. Figure D02.4

Rev. 0

Appendix E: Flood Hazard Map



Notes: Topo map sourced from Terralink International
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A3 SCALE 1:5,000

0 0.1 0.2 0.3 (km)

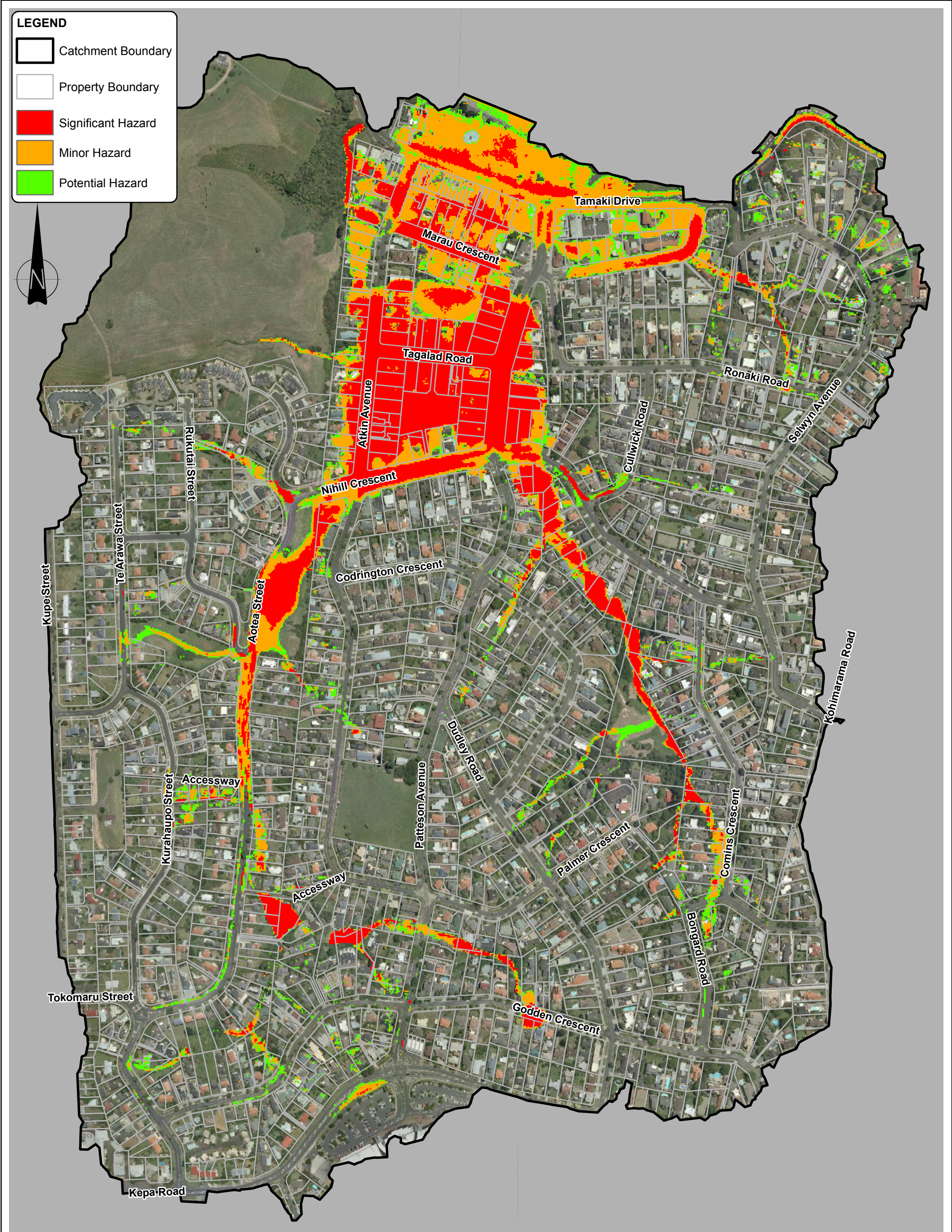
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SCALE (AT A3 SIZE)	1:5,000	
PROJECT No.	27840.100	

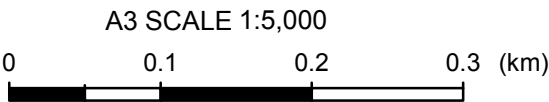
AUCKLAND COUNCIL
MISSION BAY
Flood Hazard Classification
100year ARI ED

FIGURE No. Figure E01

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ARCFILE	FE02.mxd	
SCALE (AT A3 SIZE)	1:5,000	
PROJECT No.	27840.100	

AUCKLAND COUNCIL
MISSION BAY
Flood Hazard Classification
100year ARI MPD

FIGURE No. Figure E02

Rev. 0

Appendix F: TP108 validation for 100 year ARI MPD
Scenario

	Area	Curve Number	Initial Abstraction	24hr Rainfall depth	Time of concentration	TP 108 peak flow rate	Mike Urban peak flow rate	Difference
TP108 notation	A	CN	IA	P ₂₄	T _c	q _p	q _p	
Units	ha		mm	mm	Hrs	m ³ /s		
MIS_MHMIS001_Imp	0.277	98	0	192	0.17	0.088	0.088	0.40%
MIS_MHMIS001_Per	0.098	74	5	192	0.17	0.024	0.023	2.80%
MIS_MHMIS002_1_Imp	0.388	98	0	192	0.17	0.124	0.123	0.60%
MIS_MHMIS002_1_Per	0.239	74	5	192	0.17	0.058	0.057	1.20%
MIS_MHMIS002_2_Imp	0.781	98	0	192	0.17	0.249	0.247	0.80%
MIS_MHMIS002_2_Per	0.479	74	5	192	0.17	0.116	0.114	1.40%
MIS_MHMIS003_1_Imp	0.081	98	0	192	0.17	0.026	0.026	-0.70%
MIS_MHMIS003_1_Per	0.034	74	5	192	0.17	0.008	0.008	2.60%
MIS_MHMIS003_2_Imp	0.525	98	0	192	0.17	0.167	0.166	0.90%
MIS_MHMIS003_2_Per	0.326	74	5	192	0.17	0.079	0.078	0.90%
MIS_MHMIS004_1_Imp	0.315	98	0	192	0.17	0.1	0.1	0.40%
MIS_MHMIS004_1_Per	0.21	74	5	192	0.17	0.051	0.05	1.40%
MIS_MHMIS004_2_Imp	0.207	98	0	192	0.17	0.066	0.066	0.00%
MIS_MHMIS004_2_Per	0.089	74	5	192	0.17	0.021	0.021	2.30%
MIS_MHMIS005_Imp	0.176	98	0	192	0.17	0.056	0.056	0.20%
MIS_MHMIS005_Per	0.078	74	5	192	0.17	0.019	0.019	-0.90%
MIS_MSAA020_Imp	0.08	98	0	192	0.17	0.026	0.025	2.00%
MIS_MSAA020_Per	0.138	74	5	192	0.17	0.033	0.033	0.90%
MIS_MSAA080_Imp	0.232	98	0	192	0.17	0.074	0.073	1.30%
MIS_MSAA080_Per	0.075	74	5	192	0.17	0.018	0.018	0.60%
MIS_MSAA090_Imp	0.187	98	0	192	0.17	0.06	0.059	1.10%
MIS_MSAA090_Per	0.372	70	5	192	0.17	0.083	0.083	0.40%
MIS_MSAA106_Imp	0.387	98	0	192	0.17	0.123	0.123	0.30%
MIS_MSAA106_Per	0.258	74	5	192	0.17	0.062	0.061	2.10%
MIS_MSAG035_Imp	0.123	98	0	192	0.17	0.039	0.039	0.60%
MIS_MSAG035_Per	0.066	74	5	192	0.17	0.016	0.016	-0.50%
MIS_MSAG036_Imp	0.192	98	0	192	0.17	0.061	0.061	0.40%
MIS_MSAG036_Per	0.065	74	5	192	0.17	0.016	0.015	4.60%
MIS_MSAG038_Imp	0.137	98	0	192	0.17	0.044	0.043	1.60%
MIS_MSAG038_Per	0.036	74	5	192	0.17	0.009	0.009	-3.50%
MIS_MSAG050_Imp	0.432	98	0	192	0.17	0.138	0.137	0.60%

MIS_MSAG050_Per	0.193	74	5	192	0.17	0.047	0.046	1.30%
MIS_MSAH040_1_Imp	0.511	98	0	192	0.17	0.163	0.162	0.60%
MIS_MSAH040_1_Per	0.286	74	5	192	0.17	0.069	0.068	1.50%
MIS_MSAH040_2_Imp	0.162	98	0	192	0.17	0.052	0.051	1.30%
MIS_MSAH040_2_Per	0.149	74	5	192	0.17	0.036	0.036	-0.10%
MIS_MSAH040_3_Imp	0.115	98	0	192	0.17	0.037	0.036	1.90%
MIS_MSAH040_3_Per	0.15	74	5	192	0.17	0.036	0.036	0.60%
MIS_MSAH070_Imp	0.284	98	0	192	0.17	0.091	0.09	0.60%
MIS_MSAH070_Per	0.174	74	5	192	0.17	0.042	0.042	0.00%
MIS_MSAH180_Imp	0.785	98	0	192	0.17	0.25	0.249	0.50%
MIS_MSAH180_Per	0.642	74	5	192	0.17	0.155	0.153	1.30%
MIS_MSAH230_1_Imp	0.255	98	0	192	0.17	0.081	0.081	0.40%
MIS_MSAH230_1_Per	0.208	74	5	192	0.17	0.05	0.05	0.40%
MIS_MSAH230_2_Imp	0.44	98	0	192	0.17	0.14	0.139	0.90%
MIS_MSAH230_2_Per	0.187	74	5	192	0.17	0.045	0.045	0.30%
MIS_MSAR055_1_Imp	0.261	98	0	192	0.17	0.083	0.083	0.30%
MIS_MSAR055_1_Per	0.115	74	5	192	0.17	0.028	0.027	2.80%
MIS_MSAR055_2_Imp	0.308	98	0	192	0.17	0.098	0.097	1.30%
MIS_MSAR055_2_Per	0.238	74	5	192	0.17	0.057	0.057	0.80%
MIS_MSBJ020_Imp	1.09	98	0	192	0.17	0.348	0.345	0.70%
MIS_MSBJ020_Per	0.734	74	5	192	0.17	0.177	0.175	1.20%
MIS_MSBJ030_Imp	0.61	98	0	192	0.17	0.195	0.193	0.80%
MIS_MSBJ030_Per	0.336	74	5	192	0.17	0.081	0.08	1.40%
MIS_MSBJ050_Imp	0.205	98	0	192	0.17	0.065	0.065	0.60%
MIS_MSBJ050_Per	0.168	74	5	192	0.17	0.041	0.04	1.40%
MIS_MSBJ010_Imp	0.454	98	0	192	0.17	0.145	0.144	0.50%
MIS_MSBJ010_Per	0.303	74	5	192	0.17	0.073	0.072	1.60%
MIS_MSBL020_Imp	0.081	98	0	192	0.17	0.026	0.026	-0.70%
MIS_MSBL020_Per	0.061	61	5	192	0.17	0.011	0.011	2.90%
MIS_MSBL030_Imp	0.38	98	0	192	0.17	0.121	0.12	1.00%
MIS_MSBL030_Per	0.168	74	5	192	0.17	0.041	0.04	1.40%
MIS_MSBL040_Imp	0.163	98	0	192	0.17	0.052	0.052	0.00%
MIS_MSBL040_Per	0.092	74	5	192	0.17	0.022	0.022	0.90%
MIS_MSBL060-1_Imp	0.386	98	0	192	0.17	0.123	0.122	0.90%
MIS_MSBL060-1_Per	1.122	74	5	192	0.17	0.271	0.267	1.40%
MIS_MSCA110_Imp	1.107	98	0	192	0.17	0.353	0.351	0.60%
MIS_MSCA110_Per	0.256	74	5	192	0.17	0.062	0.061	1.30%

MIS_MSCB010_Imp	0.292	98	0	192	0.17	0.093	0.093	0.10%
MIS_MSCB010_Per	0.148	74	5	192	0.17	0.036	0.035	2.00%
MIS_MSCB030_Imp	0.868	98	0	192	0.17	0.277	0.275	0.70%
MIS_MSCB030_Per	0.579	74	5	192	0.17	0.14	0.138	1.30%
MIS_MSCD010_1_Imp	0.189	98	0	192	0.17	0.06	0.06	0.40%
MIS_MSCD010_1_Per	0.154	74	5	192	0.17	0.037	0.037	0.40%
MIS_MSCD010_2_Imp	0.228	98	0	192	0.17	0.073	0.072	1.00%
MIS_MSCD010_2_Per	0.108	74	5	192	0.17	0.026	0.026	0.20%
MIS_MSCS010_Imp	0.176	98	0	192	0.17	0.056	0.056	0.20%
MIS_MSCS010_Per	0.12	74	5	192	0.17	0.029	0.028	3.40%
MIS_MSCS030_Imp	0.79	98	0	192	0.17	0.252	0.25	0.80%
MIS_MSCS030_Per	0.646	74	5	192	0.17	0.156	0.154	1.20%
MIS_MSCT020_Imp	0.079	98	0	192	0.17	0.025	0.025	0.80%
MIS_MSCT020_Per	0.063	74	5	192	0.17	0.015	0.015	1.40%
MIS_MSEB010_1_Imp	0.194	98	0	192	0.17	0.062	0.061	1.40%
MIS_MSEB010_1_Per	0.084	74	5	192	0.17	0.02	0.02	1.40%
MIS_MSEB010_2_Imp	0.462	98	0	192	0.17	0.147	0.146	0.90%
MIS_MSEB010_2_Per	0.214	74	5	192	0.17	0.052	0.051	1.30%
MIS_MSFA020_1_Imp	0.168	98	0	192	0.17	0.054	0.053	1.10%
MIS_MSFA020_1_Per	0.058	74	5	192	0.17	0.014	0.014	0.00%
MIS_MSFA020_2_Imp	0.295	98	0	192	0.17	0.094	0.093	1.20%
MIS_MSFA020_2_Per	0.195	74	5	192	0.17	0.047	0.046	2.30%
MIS_MSFD040_Imp	0.829	98	0	192	0.17	0.264	0.262	0.90%
MIS_MSFD040_Per	0.678	74	5	192	0.17	0.164	0.162	1.00%
MIS_MSFJ003_Imp	0.178	98	0	192	0.17	0.057	0.056	1.40%
MIS_MSFJ003_Per	0.083	74	5	192	0.17	0.02	0.02	0.20%
MIS_MSFR020_1_Imp	0.292	98	0	192	0.17	0.093	0.092	1.20%
MIS_MSFR020_1_Per	0.121	74	5	192	0.17	0.029	0.029	0.70%
MIS_MSFR020_2_Imp	0.149	98	0	192	0.17	0.048	0.047	1.10%
MIS_MSFR020_2_Per	0.057	74	5	192	0.17	0.014	0.014	-1.70%
MIS_MSFR020_3_Imp	1.274	98	0	192	0.17	0.406	0.403	0.80%
MIS_MSFR020_3_Per	0.803	74	5	192	0.17	0.194	0.191	1.50%
MIS_MSGC020_1_Imp	0.694	98	0	192	0.17	0.221	0.22	0.60%
MIS_MSGC020_1_Per	0.347	74	5	192	0.17	0.084	0.083	0.90%
MIS_MSGC020_2_Imp	0.246	98	0	192	0.17	0.078	0.078	0.60%
MIS_MSGC020_2_Per	0.119	74	5	192	0.17	0.029	0.028	2.60%
MIS_MSGC020_3_Imp	1.264	98	0	192	0.17	0.403	0.4	0.80%

MIS_MSGC020_3_Per	1.021	74	5	192	0.17	0.246	0.243	1.40%
MIS_NK2905_1_Imp	0.383	98	0	192	0.17	0.122	0.121	0.90%
MIS_NK2905_1_Per	0.162	74	5	192	0.17	0.039	0.038	2.90%
MIS_NK2905_2_Imp	0.161	98	0	192	0.17	0.051	0.051	0.70%
MIS_NK2905_2_Per	0.047	74	5	192	0.17	0.011	0.011	3.10%
MIS_NK4275_Imp	0.214	98	0	192	0.17	0.068	0.068	0.40%
MIS_NK4275_Per	0.129	74	5	192	0.17	0.031	0.031	0.40%
MIS_NK8901_Imp	0.535	98	0	192	0.17	0.171	0.169	0.90%
MIS_NK8901_Per	0.291	74	5	192	0.17	0.07	0.069	1.80%
MIS_NK8917_Imp	0.482	98	0	192	0.17	0.154	0.153	0.50%
MIS_NK8917_Per	0.321	74	5	192	0.17	0.077	0.077	0.60%
MIS_NK8947_Imp	0.552	98	0	192	0.17	0.176	0.175	0.60%
MIS_NK8947_Per	0.451	74	5	192	0.17	0.109	0.108	0.80%
MIS_NK8953_Imp	0.968	98	0	192	0.17	0.309	0.306	0.90%
MIS_NK8953_Per	0.792	74	5	192	0.17	0.191	0.189	1.10%
MIS_NK8964_Imp	0.1	98	0	192	0.17	0.032	0.032	-0.30%
MIS_NK8964_Per	0.055	74	5	192	0.17	0.013	0.013	2.10%
MIS_NK8974_Imp	0.236	98	0	192	0.17	0.075	0.075	0.30%
MIS_NK8974_Per	0.114	74	5	192	0.17	0.028	0.027	1.90%
MIS_NK9012_Imp	0.68	98	0	192	0.17	0.217	0.215	0.90%
MIS_NK9012_Per	0.556	74	5	192	0.17	0.134	0.132	1.70%
MIS_NK9019_Imp	0.856	61	0	192	0.17	0.166	0.163	1.80%
MIS_NK9019_Per	0.57	74	5	192	0.17	0.138	0.136	1.10%
MIS_NK9023_Imp	0.932	98	0	192	0.17	0.297	0.295	0.70%
MIS_NK9023_Per	0.763	74	5	192	0.17	0.184	0.182	1.20%
MIS_NK9037_Imp	0.879	98	0	192	0.17	0.28	0.278	0.80%
MIS_NK9037_Per	0.796	74	5	192	0.17	0.192	0.19	1.10%
MIS_NK9049_1_Imp	0.257	98	0	192	0.17	0.082	0.081	1.20%
MIS_NK9049_1_Per	0.028	74	5	192	0.17	0.007	0.007	-3.50%
MIS_NK9049_2_Imp	0.491	98	0	192	0.17	0.157	0.155	1.00%
MIS_NK9049_2_Per	0.327	74	5	192	0.17	0.079	0.078	1.20%
MIS_NK9066_Imp	0.82	98	0	192	0.17	0.261	0.26	0.60%
MIS_NK9066_Per	0.671	74	5	192	0.17	0.162	0.16	1.20%
MIS_NK9072_Imp	0.199	98	0	192	0.17	0.063	0.063	0.70%
MIS_NK9072_Per	0.138	74	5	192	0.17	0.033	0.033	0.90%
MIS_NK9073_Imp	0.352	98	0	192	0.17	0.112	0.112	0.20%
MIS_NK9073_Per	0.147	74	5	192	0.17	0.035	0.035	1.40%

MIS_NK9083_1_Imp	0.312	98	0	192	0.17	0.099	0.099	0.50%
MIS_NK9083_1_Per	0.129	74	5	192	0.17	0.031	0.031	0.40%
MIS_NK9083_2_Imp	1.151	98	0	192	0.17	0.367	0.364	0.80%
MIS_NK9083_2_Per	0.722	74	5	192	0.17	0.174	0.172	1.30%
MIS_NK9095_1_Imp	0.132	98	0	192	0.17	0.042	0.042	0.20%
MIS_NK9095_1_Per	0.043	74	5	192	0.17	0.01	0.01	3.80%
MIS_NK9095_2_Imp	0.23	98	0	192	0.17	0.073	0.073	0.50%
MIS_NK9095_2_Per	0.108	74	5	192	0.17	0.026	0.026	0.20%
MIS_NK9095_3_Imp	0.773	98	0	192	0.17	0.246	0.245	0.60%
MIS_NK9095_3_Per	0.486	74	5	192	0.17	0.117	0.116	1.10%
MIS_NK9095_4_Imp	0.532	98	0	192	0.17	0.17	0.168	1.00%
MIS_NK9095_4_Per	0.355	74	5	192	0.17	0.086	0.085	0.80%
MIS_NK9232_1_Imp	0.273	98	0	192	0.17	0.087	0.086	1.20%
MIS_NK9232_1_Per	0.073	74	5	192	0.17	0.018	0.017	3.60%
MIS_NK9232_2_Imp	0.345	98	0	192	0.17	0.11	0.109	0.90%
MIS_NK9232_2_Per	0.268	74	5	192	0.17	0.065	0.064	1.10%
MIS_NK9233_1_Imp	0.22	98	0	192	0.17	0.07	0.07	0.20%
MIS_NK9233_1_Per	0.056	74	5	192	0.17	0.014	0.013	4.00%
MIS_NK9233_2_Imp	0.218	98	0	192	0.17	0.07	0.069	0.70%
MIS_NK9233_2_Per	0.146	74	5	192	0.17	0.035	0.035	0.70%
MIS_NK9233_3_Imp	0.78	98	0	192	0.17	0.249	0.247	0.70%
MIS_NK9233_3_Per	0.639	74	5	192	0.17	0.154	0.152	1.50%
MIS_NK9234_Imp	0.074	98	0	192	0.17	0.024	0.023	2.60%
MIS_NK9234_Per	0.013	74	5	192	0.17	0.003	0.003	4.60%
MIS_NK9260_1_Imp	0.236	98	0	192	0.17	0.075	0.075	0.30%
MIS_NK9260_1_Per	0.069	74	5	192	0.17	0.017	0.016	4.10%
MIS_NK9260_2_Imp	0.389	98	0	192	0.17	0.124	0.123	0.80%
MIS_NK9260_2_Per	0.215	74	5	192	0.17	0.052	0.051	1.70%
MIS_NL9747_Imp	0.384	98	0	192	0.17	0.122	0.122	0.40%
MIS_NL9747_Per	0.018	74	5	192	0.17	0.004	0.004	8.60%
MIS_NL9749_Imp	0.35	98	0	192	0.17	0.112	0.111	0.50%
MIS_NL9749_Per	0.072	74	5	192	0.17	0.017	0.017	2.20%
MIS_NL9753_Imp	0.246	98	0	192	0.17	0.078	0.078	0.60%
MIS_NL9753_Per	0.486	61	5	192	0.17	0.09	0.09	0.20%
MIS_NL9760_Imp	0.615	98	0	192	0.17	0.196	0.195	0.60%
MIS_NL9760_Per	0.342	61	5	192	0.17	0.063	0.064	-0.90%
MIS_NL9775_Imp	0.133	98	0	192	0.17	0.042	0.042	1.00%

MIS_NL9775_Per	0.045	74	5	192	0.17	0.011	0.011	-1.30%
MIS_NL9777_Imp	0.226	98	0	192	0.17	0.072	0.072	0.10%
MIS_NL9777_Per	0.151	61	5	192	0.17	0.028	0.028	0.00%
MIS_NL9778A_dummy_Imp	0.336	98	0	192	0.17	0.107	0.106	1.10%
MIS_NL9778A_dummy_Per	0.07	74	5	192	0.17	0.017	0.017	-0.60%
MIS_NL9787_Imp	0.549	98	0	192	0.17	0.175	0.174	0.60%
MIS_NL9787_Per	0.406	74	5	192	0.17	0.098	0.097	1.00%
MIS_NL9804_Imp	0.22	98	0	192	0.17	0.07	0.07	0.20%
MIS_NL9804_Per	0.091	74	5	192	0.17	0.022	0.022	-0.20%
MIS_NL9810_Imp	0.686	98	0	192	0.17	0.219	0.217	0.80%
MIS_NL9810_Per	0.129	61	5	192	0.17	0.024	0.024	-0.30%
MIS_NL9811_Imp	0.292	98	0	192	0.17	0.093	0.092	1.20%
MIS_NL9811_Per	0.001	74	5	192	0.17	0	0	0.00%
MIS_NL9816_Imp	0.348	98	0	192	0.17	0.111	0.11	0.90%
MIS_NL9816_Per	0.136	61	5	192	0.17	0.025	0.025	0.90%
MIS_NL9817_Imp	0.496	98	0	192	0.17	0.158	0.157	0.70%
MIS_NL9817_Per	0.056	74	5	192	0.17	0.014	0.013	4.00%
MIS_NL9853_Imp	0.202	98	0	192	0.17	0.064	0.064	0.60%
MIS_NL9853_Per	0.065	74	5	192	0.17	0.016	0.015	4.60%
MIS_NL9858_1_Imp	0.445	98	0	192	0.17	0.142	0.141	0.60%
MIS_NL9858_1_Per	0.141	74	5	192	0.17	0.034	0.033	3.10%
MIS_NL9858_2_Imp	0.422	98	0	192	0.17	0.135	0.133	1.20%
MIS_NL9858_2_Per	0.263	74	5	192	0.17	0.063	0.063	0.70%
MIS_NL9871_Imp	0.775	98	0	192	0.17	0.247	0.246	0.50%
MIS_NL9871_Per	0.634	74	5	192	0.17	0.153	0.151	1.30%
MIS_NL9880_Imp	0.533	98	0	192	0.17	0.17	0.169	0.60%
MIS_NL9880_Per	0.249	74	5	192	0.17	0.06	0.059	1.90%
MIS_NL9881_Imp	0.643	98	0	192	0.17	0.205	0.204	0.50%
MIS_NL9881_Per	0.455	74	5	192	0.17	0.11	0.108	1.70%
MIS_Node_21_Imp	0.11	98	0	192	0.17	0.035	0.035	0.20%
MIS_Node_21_Per	0.059	74	5	192	0.17	0.014	0.014	1.70%
MIS_NP3687_Imp	0.243	98	0	192	0.17	0.077	0.077	0.60%
MIS_NP3687_Per	0.131	74	5	192	0.17	0.032	0.031	2.00%
MIS_NP3696_Imp	0	98	0	192	0.17	0	0	0.00%
MIS_NP3696_Per	0.51	70	5	192	0.17	0.114	0.113	1.10%
MIS_NP3698_Imp	0.259	98	0	192	0.17	0.083	0.082	0.70%
MIS_NP3698_Per	0.211	74	5	192	0.17	0.051	0.05	1.80%

MIS_NP3708_Imp	0.126	98	0	192	0.17	0.04	0.04	0.40%
MIS_NP3708_Per	0.068	74	5	192	0.17	0.016	0.016	2.60%
MIS_NP3709_Imp	0	98	0	192	0.17	0	0	0.00%
MIS_NP3709_Per	0.485	70	5	192	0.17	0.109	0.108	0.50%
MIS_NP3712_Imp	0.107	98	0	192	0.17	0.034	0.034	0.40%
MIS_NP3712_Per	0.542	70	5	192	0.17	0.121	0.12	1.10%
MIS_NP3750_Imp	0.135	98	0	192	0.17	0.043	0.043	0.10%
MIS_NP3750_Per	0.034	74	5	192	0.17	0.008	0.008	2.60%
MIS_NP3754_Imp	0.616	98	0	192	0.17	0.196	0.195	0.70%
MIS_NP3754_Per	0.378	74	5	192	0.17	0.091	0.09	1.40%
MIS_NP3755_1_Imp	0.206	98	0	192	0.17	0.066	0.065	1.10%
MIS_NP3755_1_Per	0.138	74	5	192	0.17	0.033	0.033	0.90%
MIS_NP3755_2_Imp	0.215	98	0	192	0.17	0.069	0.068	0.80%
MIS_NP3755_2_Per	0.067	74	5	192	0.17	0.016	0.016	1.10%
MIS_NP3755_3_Imp	0.827	98	0	192	0.17	0.264	0.262	0.70%
MIS_NP3755_3_Per	0.677	74	5	192	0.17	0.163	0.161	1.50%
MIS_NP3756_Imp	0.825	98	0	192	0.17	0.263	0.261	0.80%
MIS_NP3756_Per	0.827	74	5	192	0.17	0.2	0.197	1.30%
MIS_NP3757_Imp	0.089	98	0	192	0.17	0.028	0.028	1.40%
MIS_NP3757_Per	0.06	74	5	192	0.17	0.014	0.014	3.40%
MIS_NP3765_Imp	0.334	98	0	192	0.17	0.107	0.106	0.50%
MIS_NP3765_Per	0.222	74	5	192	0.17	0.054	0.053	1.10%
MIS_NP3766_1_Imp	0.223	98	0	192	0.17	0.071	0.071	0.20%
MIS_NP3766_1_Per	0.064	74	5	192	0.17	0.015	0.015	3.00%
MIS_NP3766_2_Imp	0.494	98	0	192	0.17	0.158	0.156	1.00%
MIS_NP3766_2_Per	0.331	74	5	192	0.17	0.08	0.079	1.10%
MIS_NP3767_Imp	0	98	0	192	0.17	0	0	0.00%
MIS_NP3767_Per	0.106	74	5	192	0.17	0.026	0.025	2.30%
MIS_NP3769_Imp	0.185	98	0	192	0.17	0.059	0.058	1.70%
MIS_NP3769_Per	0.15	74	5	192	0.17	0.036	0.036	0.60%
MIS_NP3772_Imp	0.25	98	0	192	0.17	0.08	0.079	0.90%
MIS_NP3772_Per	0.133	74	5	192	0.17	0.032	0.032	0.30%
MIS_NP3773_Imp	0.478	98	0	192	0.17	0.152	0.151	0.90%
MIS_NP3773_Per	0.319	74	5	192	0.17	0.077	0.076	1.30%
MIS_NP3777_1_Imp	0.312	98	0	192	0.17	0.099	0.099	0.50%
MIS_NP3777_1_Per	0.145	74	5	192	0.17	0.035	0.035	0.00%
MIS_NP3777_2_Imp	0.586	98	0	192	0.17	0.187	0.186	0.50%

MIS_NP3777_2_Per	0.391	74	5	192	0.17	0.094	0.093	1.50%
MIS_NP3778_1_Imp	0.242	98	0	192	0.17	0.077	0.076	1.50%
MIS_NP3778_1_Per	0.115	74	5	192	0.17	0.028	0.027	2.80%
MIS_NP3778_2_Imp	0.205	98	0	192	0.17	0.065	0.065	0.60%
MIS_NP3778_2_Per	0.137	74	5	192	0.17	0.033	0.033	0.20%
MIS_NP3779_Imp	0.958	98	0	192	0.17	0.305	0.303	0.80%
MIS_NP3779_Per	0.639	74	5	192	0.17	0.154	0.152	1.50%
MIS_NP3780_Imp	0.062	98	0	192	0.17	0.02	0.02	-1.10%
MIS_NP3780_Per	0.033	74	5	192	0.17	0.008	0.008	-0.50%
MIS_NP3789_Imp	0.137	98	0	192	0.17	0.044	0.043	1.60%
MIS_NP3789_Per	0.066	74	5	192	0.17	0.016	0.016	-0.50%
MIS_NP3798_Imp	0.787	98	0	192	0.17	0.251	0.249	0.80%
MIS_NP3798_Per	0.525	74	5	192	0.17	0.127	0.125	1.40%
MIS_NP3806_Imp	1.496	98	0	192	0.17	0.477	0.474	0.60%
MIS_NP3806_Per	0.998	74	5	192	0.17	0.241	0.238	1.20%
MIS_NP3807_1_Imp	0.241	98	0	192	0.17	0.077	0.076	1.10%
MIS_NP3807_1_Per	0.063	74	5	192	0.17	0.015	0.015	1.40%
MIS_NP3807_2_Imp	0.233	98	0	192	0.17	0.074	0.074	0.40%
MIS_NP3807_2_Per	0.055	74	5	192	0.17	0.013	0.013	2.10%
MIS_NP3807_3_Imp	0.44	98	0	192	0.17	0.14	0.139	0.90%
MIS_NP3807_3_Per	1.334	74	5	192	0.17	0.322	0.318	1.20%
MIS_NP3815_Imp	0.291	98	0	192	0.17	0.093	0.092	0.90%
MIS_NP3815_Per	0.194	74	5	192	0.17	0.047	0.046	1.80%
MIS_NP3817_Imp	0.246	98	0	192	0.17	0.078	0.078	0.60%
MIS_NP3817_Per	0.092	74	5	192	0.17	0.022	0.022	0.90%
MIS_NP3824_Imp	0.027	98	0	192	0.17	0.009	0.009	-4.30%
MIS_NP3824_Per	0.105	74	5	192	0.17	0.025	0.025	1.40%
MIS_NP3836_Imp	0.271	98	0	192	0.17	0.086	0.086	0.50%
MIS_NP3836_Per	1.017	74	5	192	0.17	0.245	0.242	1.40%
MIS_NP3849_Imp	0.17	98	0	192	0.17	0.054	0.054	0.40%
MIS_NP3849_Per	0.052	74	5	192	0.17	0.013	0.012	4.60%
MIS_NP3850_Imp	0.09	98	0	192	0.17	0.029	0.029	-1.00%
MIS_NP3850_Per	0.338	74	5	192	0.17	0.082	0.081	0.70%
MIS_NP3851_Imp	0.523	98	0	192	0.17	0.167	0.166	0.50%
MIS_NP3851_Per	0.349	74	5	192	0.17	0.084	0.083	1.50%
MIS_NP3853_1_Imp	0.171	98	0	192	0.17	0.055	0.054	1.00%
MIS_NP3853_1_Per	0.044	74	5	192	0.17	0.011	0.011	-3.50%

MIS_NP3853_2_Imp	0.178	98	0	192	0.17	0.057	0.056	1.40%
MIS_NP3853_2_Per	0.119	74	5	192	0.17	0.029	0.028	2.60%
MIS_NP3861_Imp	0.209	98	0	192	0.17	0.067	0.066	1.00%
MIS_NP3861_Per	0.139	74	5	192	0.17	0.034	0.033	1.70%
MIS_NP3877_1_Imp	0.245	98	0	192	0.17	0.078	0.078	0.20%
MIS_NP3877_1_Per	0.163	74	5	192	0.17	0.039	0.039	0.90%
MIS_NP3877_2_Imp	0.187	98	0	192	0.17	0.06	0.059	1.10%
MIS_NP3877_2_Per	0.222	74	5	192	0.17	0.054	0.053	1.10%
MIS_NP3891_Imp	0.209	98	0	192	0.17	0.067	0.066	1.00%
MIS_NP3891_Per	0.139	74	5	192	0.17	0.034	0.033	1.70%
MIS_NP3892_Imp	0.058	98	0	192	0.17	0.018	0.018	2.80%
MIS_NP3892_Per	0.017	74	5	192	0.17	0.004	0.004	2.60%
MIS_NP3893_1_Imp	0.16	98	0	192	0.17	0.051	0.051	0.00%
MIS_NP3893_1_Per	0.057	74	5	192	0.17	0.014	0.013	5.80%
MIS_NP3893_2_Imp	0.277	98	0	192	0.17	0.088	0.088	0.40%
MIS_NP3893_2_Per	0.184	74	5	192	0.17	0.044	0.044	0.90%
MIS_NP3893_3_Imp	0.366	98	0	192	0.17	0.117	0.116	0.60%
MIS_NP3893_3_Per	1.215	70	5	192	0.17	0.272	0.27	0.80%
MIS_NP3893_4_Imp	0.213	98	0	192	0.17	0.068	0.067	1.40%
MIS_NP3893_4_Per	0.142	74	5	192	0.17	0.034	0.034	0.80%
MIS_NP3895_Imp	0.445	98	0	192	0.17	0.142	0.141	0.60%
MIS_NP3895_Per	0.24	74	5	192	0.17	0.058	0.057	1.60%
MIS_NP3920_Imp	0.757	98	0	192	0.17	0.241	0.24	0.60%
MIS_NP3920_Per	0.504	74	5	192	0.17	0.122	0.12	1.40%
MIS_NP3924_1_Imp	0.183	98	0	192	0.17	0.058	0.058	0.60%
MIS_NP3924_1_Per	0.081	74	5	192	0.17	0.02	0.019	2.90%
MIS_NP3924_2_Imp	0.475	98	0	192	0.17	0.151	0.15	1.00%
MIS_NP3924_2_Per	0.316	74	5	192	0.17	0.076	0.075	1.70%
MIS_NP3928_Imp	0.976	98	0	192	0.17	0.311	0.309	0.70%
MIS_NP3928_Per	0.651	74	5	192	0.17	0.157	0.155	1.40%
MIS_NP3951_1_Imp	0.271	98	0	192	0.17	0.086	0.086	0.50%
MIS_NP3951_1_Per	0.181	74	5	192	0.17	0.044	0.043	1.60%
MIS_NP3951_2_Imp	0.23	98	0	192	0.17	0.073	0.073	0.50%
MIS_NP3951_2_Per	0.051	74	5	192	0.17	0.012	0.012	2.60%
MIS_NP3964_1_Imp	0.168	98	0	192	0.17	0.054	0.053	1.10%
MIS_NP3964_1_Per	0.089	74	5	192	0.17	0.021	0.021	2.30%
MIS_NP3964_2_Imp	0.156	98	0	192	0.17	0.05	0.05	-0.50%

MIS_NP3964_2_Per	0.071	74	5	192	0.17	0.017	0.017	0.80%
MIS_NP3965_Imp	0.428	98	0	192	0.17	0.136	0.135	1.10%
MIS_NP3965_Per	0.307	74	5	192	0.17	0.074	0.073	1.50%
MIS_NP3969_1_Imp	0.451	98	0	192	0.17	0.144	0.143	0.60%
MIS_NP3969_1_Per	0.123	74	5	192	0.17	0.03	0.029	2.40%
MIS_NP3969_2_Imp	0.738	98	0	192	0.17	0.235	0.234	0.60%
MIS_NP3969_2_Per	0.514	74	5	192	0.17	0.124	0.122	1.70%
MIS_NP3972_Imp	0.086	98	0	192	0.17	0.027	0.027	1.60%
MIS_NP3972_Per	0.027	74	5	192	0.17	0.007	0.006	8.60%
MIS_NP3978_Imp	0.189	98	0	192	0.17	0.06	0.06	0.40%
MIS_NP3978_Per	0.066	74	5	192	0.17	0.016	0.016	-0.50%
MIS_NP3988_Imp	0.183	98	0	192	0.17	0.058	0.058	0.60%
MIS_NP3988_Per	0.062	74	5	192	0.17	0.015	0.015	-0.20%
MIS_NP4003_Imp	0.238	98	0	192	0.17	0.076	0.075	1.20%
MIS_NP4003_Per	0.158	74	5	192	0.17	0.038	0.038	0.30%
MIS_NP4014_Imp	0.141	98	0	192	0.17	0.045	0.045	-0.10%
MIS_NP4014_Per	0.068	74	5	192	0.17	0.016	0.016	2.60%
MIS_NP4019_1_Imp	0.566	98	0	192	0.17	0.18	0.179	0.80%
MIS_NP4019_1_Per	0.378	74	5	192	0.17	0.091	0.09	1.40%
MIS_NP4019_2_Imp	0.554	98	0	192	0.17	0.177	0.175	0.90%
MIS_NP4019_2_Per	0.369	74	5	192	0.17	0.089	0.088	1.20%
MIS_NP4239_Imp	1.267	98	0	192	0.17	0.404	0.401	0.80%
MIS_NP4239_Per	0.12	74	5	192	0.17	0.029	0.029	-0.10%
MIS_NP4244_1_Imp	0.419	98	0	192	0.17	0.134	0.133	0.50%
MIS_NP4244_1_Per	0.118	74	5	192	0.17	0.028	0.028	1.70%
MIS_NP4244_2_Imp	0.128	98	0	192	0.17	0.041	0.041	-0.40%
MIS_NP4244_2_Per	0.086	74	5	192	0.17	0.021	0.02	3.80%
MIS_NP4245_1_Imp	0.531	98	0	192	0.17	0.169	0.168	0.80%
MIS_NP4245_1_Per	0.375	74	5	192	0.17	0.09	0.089	1.70%
MIS_NP4245_2_Imp	0.796	98	0	192	0.17	0.254	0.252	0.70%
MIS_NP4245_2_Per	0.492	74	5	192	0.17	0.119	0.117	1.50%
MIS_NP4245_3_Imp	0.109	98	0	192	0.17	0.035	0.035	-0.70%
MIS_NP4245_3_Per	0.05	74	5	192	0.17	0.012	0.012	0.60%
MIS_NP4245_4_Imp	0.173	98	0	192	0.17	0.055	0.055	0.30%
MIS_NP4245_4_Per	0.169	74	5	192	0.17	0.041	0.04	2.00%
MIS_NP4245_5_Imp	0.369	98	0	192	0.17	0.118	0.117	0.60%
MIS_NP4245_5_Per	0.18	74	5	192	0.17	0.043	0.043	1.00%

MIS_NP4249_Imp	0.236	98	0	192	0.17	0.075	0.075	0.30%
MIS_NP4249_Per	0.136	74	5	192	0.17	0.033	0.033	-0.50%
MIS_NP4252_Imp	0.983	98	0	192	0.17	0.313	0.311	0.80%
MIS_NP4252_Per	0.64	74	5	192	0.17	0.154	0.152	1.60%
MIS_NP4253_Imp	0.097	98	0	192	0.17	0.031	0.031	-0.20%
MIS_NP4253_Per	0.062	74	5	192	0.17	0.015	0.015	-0.20%
MIS_NP4256_Imp	0.261	98	0	192	0.17	0.083	0.082	1.50%
MIS_NP4256_Per	0.177	74	5	192	0.17	0.043	0.042	1.70%
MIS_NP4287_Imp	0.431	98	0	192	0.17	0.137	0.136	1.10%
MIS_NP4287_Per	0.291	74	5	192	0.17	0.07	0.069	1.80%
MIS_NV3051_1_Imp	0.606	98	0	192	0.17	0.193	0.192	0.60%
MIS_NV3051_1_Per	0.404	74	5	192	0.17	0.097	0.096	1.60%
MIS_NV3051_2_Imp	0.214	98	0	192	0.17	0.068	0.068	0.40%
MIS_NV3051_2_Per	0.125	74	5	192	0.17	0.03	0.03	0.60%
MIS_NZ4306_Imp	0.039	98	0	192	0.17	0.012	0.012	3.60%
MIS_NZ4306_Per	1.069	70	5	192	0.17	0.239	0.237	1.00%
MIS_NZ4378_Imp	0	98	0	192	0.17	0	0	0.00%
MIS_NZ4378_Per	2.043	70	5	192	0.17	0.457	0.453	1.00%
MIS_NZ4380_Imp	0	98	0	192	0.17	0	0	0.00%
MIS_NZ4380_Per	0.257	70	5	192	0.17	0.058	0.057	1.00%

Note: For catchment MIS_NP3877_1_Imp and MIS_NP3877_1_Per, catchment areas of 0.245 ha and 0.163 ha were used in the mode. However, the true catchment areas are 0.202 ha and 0.067 respectively. Peak runoff for 100year MPD were calculated for both to compare. The difference of peak runoff between areas used and true areas are less than 0.1 m³/s. Due to insignificant scale of difference, no simulation was repeated.

Appendix G: Model Results Water Level

- Water level at Mike Urban Nodes ED

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NS1632	2.92	4.02	4.11	4.17	4.24	4.27
MSCT020	3.91	4.64	4.65	4.65	4.66	4.66
MSCT030	4.56	5.42	5.54	5.61	5.63	5.64
OA7182	6.76	7.01	7.03	7.04	7.04	7.04
OA7181	8.51	8.73	8.74	8.75	8.75	8.75
MSGC020	14.61	15.55	15.56	15.57	15.59	15.60
NK9060	17.33	17.49	17.52	17.52	17.53	17.53
NK9048	23.39	23.51	23.53	23.53	23.53	23.53
NK9266	31.27	31.37	31.39	31.39	31.40	31.40
NK9260	32.47	33.33	33.49	33.50	33.50	33.51
MSGN030B	15.40	15.56	15.59	15.61	15.65	15.63
NS1419	22.65	22.76	22.77	22.77	22.77	22.77
NP3905	26.00	26.99	27.07	27.14	27.24	27.30
NP3904	26.70	27.42	27.42	27.43	27.44	27.44
NP3903	27.40	27.91	27.92	27.93	27.93	27.94
NZ4308	27.50	28.53	28.54	28.55	28.55	28.56
NQ1597	32.20	32.34	32.35	32.35	32.36	32.37
NK8939	35.50	35.67	35.68	35.69	35.70	35.70
NK4262	37.50	37.69	37.70	37.71	37.72	37.73
NK8937	37.60	37.65	37.66	37.67	37.68	37.69
NS3571	27.73	28.22	28.23	28.28	28.36	28.19
NP4243	29.51	29.69	29.70	29.71	29.72	29.72
NP4242	31.27	31.53	31.85	32.19	32.79	33.14
NP4244	37.85	38.06	38.08	38.09	38.13	38.88
NP4287	41.32	43.52	43.52	43.53	43.53	43.54
NP4240	47.65	49.01	49.01	49.00	49.01	49.01
NP4239	48.08	50.11	50.12	50.12	50.13	50.14
NP3962	21.30	21.31	21.31	21.60	21.95	22.20
NP3961	21.25	21.26	21.26	21.48	21.69	22.02
NP3956	21.03	21.04	21.04	21.26	21.54	21.96
NP3960	20.75	20.75	20.75	21.07	21.35	21.87
NP3959	20.26	20.26	20.26	20.53	21.08	21.80
NP3958	16.54	16.54	16.54	16.64	16.82	17.22
NS3570	15.76	15.76	15.76	15.86	16.32	16.78

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NS3568	27.46	27.58	27.58	27.58	27.58	27.58
NP3983	30.70	32.00	32.18	32.23	32.28	32.32
NP3964	34.31	35.85	36.05	36.09	36.15	36.20
NP3965	35.50	36.37	36.60	36.61	36.62	36.63
NP3963	39.73	40.36	40.36	40.36	40.37	40.37
NS6651	50.30	51.82	51.83	51.83	51.84	51.85
NP3988	56.00	56.09	56.11	56.12	56.13	56.14
NV7470	2.22	2.29	2.29	2.29	2.29	2.29
NV7471	1.55	1.77	1.80	1.83	1.87	1.90
NV7472	1.55	1.77	1.79	1.82	1.86	1.90
NV7473	1.44	1.63	1.69	1.75	1.81	1.85
NU3086	1.43	1.52	1.59	1.68	1.74	1.78
NU3087	1.43	1.50	1.55	1.64	1.69	1.73
NL9749	1.40	1.43	1.49	1.55	1.60	1.66
NL9787	1.98	2.91	2.92	2.93	2.93	2.94
NL9750	1.40	1.46	1.53	1.60	1.66	1.77
NS2313	1.39	1.39	1.39	1.39	1.39	1.39
NS5200	2.03	3.54	3.55	3.56	3.57	3.57
NL9751	1.41	1.49	1.56	1.63	1.76	1.90
NV0212	3.60	4.50	4.75	4.92	5.01	5.02
NL9753	1.42	1.56	1.65	1.72	1.89	2.06
NL9824	7.07	7.25	7.27	7.28	7.28	7.29
NL9812	1.43	1.59	1.69	1.81	2.00	2.18
NL9825	8.36	8.63	8.65	8.65	8.66	8.67
NL9779	1.43	1.61	1.65	1.80	2.05	2.23
NL9811	1.46	2.28	2.37	2.46	2.56	2.59
NL9871	10.10	10.46	11.51	11.52	11.53	11.54
NW6314	14.16	16.52	16.59	16.65	16.68	16.68
NL9815	1.44	1.61	1.66	1.89	2.16	2.34
NL9810	1.72	2.63	2.64	2.65	2.65	2.66
MSAC160	18.92	18.95	18.96	18.96	18.97	18.98
NL9817	1.43	1.91	2.09	2.34	2.36	2.37
NL9852	23.54	23.57	23.57	23.57	23.57	23.57
NL9816	1.52	1.92	2.11	2.34	2.39	2.41
NL9853	24.09	24.24	24.26	24.27	24.29	24.31

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NL9854	27.85	27.85	27.85	27.85	27.85	27.85
NK8947	40.25	41.49	41.50	41.51	41.51	41.52
NK8974	40.15	40.82	40.96	41.08	41.22	41.31
NK4269	31.80	31.95	31.95	31.95	31.95	31.95
NK4268	27.80	27.93	27.93	27.93	27.93	27.93
NS1839	22.81	22.94	22.94	22.94	22.95	22.95
NS1126	15.33	16.06	16.12	16.18	16.29	16.37
NK9023	14.01	14.66	14.71	14.81	14.92	14.93
NK9025	13.01	13.34	13.39	13.84	13.96	13.98
NK9021	16.01	16.15	16.16	16.16	16.17	16.17
NS1842	11.19	12.86	13.07	13.20	13.32	13.34
NK8966	22.00	22.15	22.17	22.17	22.18	22.18
NK8964	25.70	25.86	25.87	25.87	25.88	25.89
MSEB020	37.30	37.48	38.02	38.02	38.03	38.03
NK8951	43.48	43.65	44.49	44.49	44.50	44.51
MSCB060	38.96	39.12	39.12	39.14	39.17	39.19
NP4265	42.00	42.19	42.19	42.20	42.21	42.23
NP4266	43.00	43.26	43.26	43.27	43.27	43.39
NP4245	43.86	44.94	44.95	44.96	44.97	44.98
NP4249	54.15	54.25	54.26	54.28	54.29	54.30
NS3569	28.61	28.68	28.71	28.71	28.72	28.73
NP4012	32.80	32.98	32.99	32.99	32.99	33.00
NP4013	38.80	39.99	40.17	40.17	40.19	40.19
NP4014	40.17	40.86	41.22	41.25	41.30	41.33
NP4019	40.73	41.44	41.89	41.90	41.92	41.92
NL9748	1.50	2.52	2.90	2.95	2.96	2.96
NL9747	1.39	2.55	2.96	3.01	3.01	3.01
NS1666	1.39	1.73	1.75	1.77	1.80	1.81
NS1416	1.39	1.39	1.39	1.39	1.39	1.39
NS2315	1.39	1.39	1.39	1.39	1.39	1.39
NK9232	35.03	35.20	36.15	36.16	36.16	36.17
NK9090	30.82	31.02	32.06	32.05	32.06	32.05
NK9278	26.63	27.22	27.95	28.00	28.02	28.02
NK9046	22.38	24.72	24.94	24.96	24.96	24.97
NK9050	20.86	23.35	23.35	23.35	23.35	23.35

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NK9049	19.44	22.65	22.66	22.66	22.67	22.67
NK9051	20.53	22.53	22.54	22.54	22.54	22.55
OA7179	11.98	12.16	12.17	12.17	12.20	12.19
NK9052	20.92	22.55	22.55	22.56	22.56	22.56
NK9043	25.42	25.42	25.42	25.42	25.42	25.42
NL9800	21.77	21.82	21.82	21.82	21.82	21.82
NL9802	16.28	16.35	16.35	16.35	16.35	16.35
NQ5899	12.30	12.38	12.38	12.38	12.38	12.38
NL9804	11.56	11.72	11.74	11.76	11.78	11.79
NL9808	3.09	4.36	4.37	4.38	4.38	4.39
NL9760	2.36	3.09	3.10	3.11	3.12	3.12
NS3851	2.47	3.52	3.57	3.62	3.66	3.70
MSAH070	2.19	2.94	2.96	2.97	2.99	3.00
NQ1651	2.50	3.57	3.62	3.67	3.72	3.75
NL9777	2.16	2.82	2.84	2.85	2.88	2.89
NL9755	2.19	3.15	3.28	3.32	3.34	3.35
NS3672	2.63	3.78	3.86	3.92	3.98	4.02
MSAH040	1.92	2.48	2.52	2.55	2.58	2.61
NL9775	2.20	2.62	2.62	2.62	2.62	2.62
NW5950	2.77	3.97	4.07	4.14	4.22	4.27
NL9778	1.88	2.44	2.49	2.52	2.55	2.57
NL9778A_dummy	1.64	2.19	2.23	2.26	2.29	2.31
NW5894	1.46	2.03	2.06	2.08	2.11	2.13
NW5896	1.46	2.03	2.06	2.08	2.11	2.12
NP3716	1.46	2.02	2.05	2.07	2.10	2.12
NS3553	1.45	1.97	1.99	2.02	2.04	2.06
NS3553-2	1.45	1.97	1.99	2.02	2.04	2.06
NS3553-3	1.45	1.97	1.99	2.02	2.04	2.06
NP3752	40.89	40.89	40.89	40.89	40.89	40.89
NP3750	38.88	39.13	39.16	39.19	39.22	39.24
NP3751	38.21	38.28	38.29	38.30	38.30	38.31
NP3805	35.29	35.37	35.37	35.38	35.39	35.39
NP3806	30.08	31.83	31.84	31.85	31.86	31.87
NP3807	26.91	28.71	28.71	28.72	28.73	28.74
NP3798	27.24	29.02	29.02	29.03	29.04	29.04

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NV3046	24.35	24.71	24.80	25.77	26.20	26.22
NP3797	29.90	29.90	29.90	29.90	29.90	29.90
NV3047	20.30	23.29	23.97	24.75	25.11	25.13
NP3796	31.00	31.00	31.00	31.00	31.00	31.00
NZ4315	20.15	22.90	23.51	24.24	24.57	24.59
NV3048	18.72	20.62	21.21	21.67	21.89	21.90
NV3049	17.12	19.29	19.65	19.92	20.04	20.05
NV3050	13.18	15.63	16.00	16.14	16.16	16.17
NV3051	9.42	10.97	10.98	10.98	10.99	11.00
NP3833	9.31	10.03	10.28	10.33	10.37	10.39
NP3757	7.89	9.90	10.17	10.24	10.29	10.32
NP3756	9.79	10.30	10.46	10.53	10.61	10.65
NP3755	7.28	9.14	9.30	9.32	9.34	9.34
NK3709	12.06	12.38	12.50	12.56	12.64	12.69
NP3823	11.82	12.20	12.22	12.38	12.65	12.85
NP3754	7.00	8.44	8.62	8.66	8.68	8.69
NP3817	15.16	17.02	17.02	17.02	17.03	17.03
NP3824	12.87	13.69	13.73	14.04	14.46	14.74
NP3766	6.20	7.48	7.59	7.62	7.66	7.69
NP3928	17.65	19.53	19.54	19.55	19.56	19.57
NP3908	27.20	27.34	27.36	27.37	27.37	27.37
MSAD440	13.01	13.70	14.01	14.39	14.84	15.15
NP3924	6.19	7.11	7.15	7.16	7.17	7.17
NP3836	6.85	8.26	8.85	8.86	8.87	8.88
NP3815	22.23	22.50	22.52	22.53	22.55	22.78
NP3764	30.96	31.10	31.12	31.12	31.12	31.12
NP3767	5.30	6.20	6.23	6.25	6.27	6.28
NP3918	7.54	9.66	9.68	9.71	9.71	9.71
NP3974	28.68	28.92	28.92	28.93	28.93	28.94
NS0121	32.29	32.58	33.01	33.01	33.02	33.03
NP3860	5.17	5.95	5.94	5.95	5.96	5.95
NP3848	5.38	6.24	6.27	6.28	6.31	6.32
NP3919	11.34	12.04	12.08	12.10	12.14	12.14
NP3978	33.58	33.83	33.83	33.83	33.84	33.84
NU2228	4.40	4.89	4.90	4.89	4.88	4.88

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NP3861	5.17	6.00	6.09	6.18	6.33	6.45
NP3849	12.22	13.46	13.47	13.47	13.47	13.47
NP3973	38.56	38.80	38.80	38.80	38.80	38.80
NP3765	2.71	3.49	3.53	3.55	3.59	3.61
NP3851	13.70	16.00	16.81	16.82	16.83	16.83
NP3850	15.32	17.02	17.02	17.02	17.02	17.03
NP3955	40.72	41.92	41.92	41.92	41.92	41.93
NP3772	2.50	3.27	3.29	3.31	3.32	3.34
NS1417	4.22	5.05	5.16	5.23	5.31	5.35
NP3852	20.33	20.49	20.52	20.54	20.56	20.58
NP3868	19.62	19.88	19.88	19.88	19.88	19.88
NP3951	43.47	45.00	45.00	45.01	45.01	45.02
NP3771	2.48	3.22	3.23	3.25	3.26	3.27
NP3770	2.52	3.23	3.25	3.26	3.28	3.29
NP3768	3.50	4.99	5.06	5.12	5.19	5.24
NP3853	25.00	25.12	25.14	25.16	25.20	26.42
NW6043	22.52	22.76	22.76	22.76	22.76	22.76
NP3969	44.25	45.58	45.59	45.60	45.61	45.62
NP3953	46.12	46.19	46.19	46.20	46.21	46.21
NP3769	2.37	3.11	3.11	3.12	3.13	3.13
NP3773	2.17	3.13	3.14	3.16	3.17	3.17
NP3877	8.78	9.62	10.07	10.36	10.56	10.62
NP3867	23.44	25.57	25.56	25.56	25.57	25.56
NP4006	45.09	46.11	46.20	46.57	46.89	46.95
NP3972	48.50	48.56	48.56	48.57	48.58	48.58
NW6262	2.22	2.96	2.96	2.97	2.98	2.98
NK9083	2.37	3.03	3.04	3.05	3.06	3.06
NW6263	2.06	3.01	3.04	3.06	3.07	3.08
NP3899	16.54	16.81	16.82	16.82	16.83	16.84
NP3878	14.11	14.11	14.11	14.11	14.11	14.11
NP3920	9.00	10.52	10.53	10.54	10.55	10.56
NP3777	29.17	31.51	31.52	31.52	31.53	31.54
NP4004	46.76	47.04	47.06	47.63	48.12	48.12
NW5965	2.12	2.85	2.86	2.86	2.87	2.87
NW5967	1.92	2.92	2.94	2.95	2.96	2.97

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NP3893	24.59	26.83	26.84	26.85	26.86	26.87
NP3692	17.10	17.10	17.10	17.10	17.10	17.10
NP3779	33.54	34.96	34.97	34.98	34.99	35.00
NP3778	29.94	31.51	31.51	31.51	31.52	31.52
NP4003	47.70	47.81	47.83	48.04	48.72	48.90
NP4005	49.00	49.00	49.00	49.00	49.00	49.00
NW5962	2.01	2.72	2.72	2.73	2.73	2.74
NW5961	1.81	2.86	2.87	2.89	2.90	2.91
NP3789	40.29	40.64	40.70	41.03	41.11	41.16
NP3892	27.30	28.18	28.67	28.68	28.68	28.68
NP3780	37.60	37.66	37.66	37.67	37.68	37.68
NW5889	1.93	2.68	2.68	2.69	2.69	2.70
NW5888	1.75	2.79	2.81	2.83	2.85	2.86
NP3895	40.70	41.00	41.22	41.51	41.52	41.52
NP3891	29.30	29.39	29.42	29.43	29.45	29.47
MSAG035	1.79	2.61	2.62	2.63	2.64	2.65
NP3712	1.75	2.80	2.83	2.86	2.90	2.92
MSAA090	1.64	2.62	2.64	2.65	2.67	2.68
NW5870	1.64	2.57	2.59	2.60	2.61	2.62
NP3710	5.37	5.46	5.47	5.49	5.50	5.51
NZ4306	1.57	2.43	2.46	2.47	2.50	2.51
NP3709	6.36	6.59	6.63	6.65	6.69	6.72
NZ4310	5.00	6.08	6.19	6.22	6.26	6.27
MSAG010	1.57	2.27	2.29	2.32	2.35	2.36
MSAG010_2	1.57	2.27	2.29	2.32	2.35	2.36
NP3708	11.64	11.69	11.70	11.70	11.71	11.71
NZ4383	10.08	11.09	11.20	11.24	11.28	11.29
NZ4382	13.87	14.09	14.10	14.10	14.11	14.11
NZ4381	14.69	15.37	15.49	15.50	15.56	15.58
NZ4380	15.77	16.67	16.98	17.08	17.24	17.30
NZ4378	16.49	17.26	17.61	17.62	17.63	17.64
NP3698	22.73	23.05	23.10	23.13	23.16	23.18
Node_18	17.00	17.26	17.64	17.65	17.66	17.67
NP3699	24.00	24.19	24.21	24.21	24.22	24.23
NP3697	26.91	27.00	27.01	27.02	27.03	27.04

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NZ4379	17.20	17.32	17.63	17.65	17.66	17.68
NP3687	24.15	24.46	24.50	24.54	24.59	24.62
NP3696	35.30	35.39	35.40	35.42	35.44	35.46
NP3686	27.88	27.88	27.88	27.88	27.88	27.88
NP3685	29.68	29.68	29.68	29.68	29.68	29.68
NQ1583	33.30	33.67	34.91	35.31	35.32	35.32
MSAH210	29.46	31.20	31.20	31.21	31.21	31.20
MSAH200	28.16	29.09	29.37	29.52	29.53	29.53
MSAH190	13.96	17.15	17.20	17.22	17.22	17.23
MSAH180	12.26	15.04	15.04	15.05	15.06	15.06
NK9066	10.69	13.56	13.62	13.72	14.06	14.17
NK8901	10.67	13.42	13.43	13.44	13.45	13.45
NK9062	15.16	15.16	15.16	15.16	15.16	15.16
NK9067	10.51	13.13	13.19	13.25	13.26	13.26
NK8899	14.60	14.60	14.60	14.60	14.60	14.60
NK9058	17.76	17.76	17.76	17.76	17.76	17.76
NK9071	8.61	11.08	11.13	11.19	11.21	11.21
NQ1637	16.90	18.30	18.31	18.32	18.33	18.33
NK8897	20.60	20.60	20.60	20.60	20.60	20.60
NK9076	6.58	6.86	6.86	6.87	6.87	6.87
NK9078	5.35	5.67	5.69	5.70	5.72	5.71
NS1840	4.12	4.90	4.99	5.04	5.11	5.07
NK9234	27.20	27.26	27.27	27.27	27.28	27.29
NK9019	24.40	25.61	25.62	25.63	25.63	25.64
NK9017	23.91	24.46	24.49	24.49	24.56	24.65
NK9016	23.60	23.72	23.72	23.72	23.72	23.72
NK9014	13.61	13.69	13.69	13.69	13.69	13.69
NK9012	9.49	11.65	11.71	11.73	11.74	11.75
NK9075	7.61	9.45	9.53	9.58	9.64	9.67
NK8903	11.16	12.65	12.85	12.95	13.05	13.09
NS1832	7.40	8.76	8.83	8.88	8.94	8.97
M_SE020	7.38	8.62	8.69	8.74	8.79	8.82
M_SE030	7.33	7.99	8.04	8.09	8.14	8.15
M_AH140	3.12	4.13	4.23	4.30	4.38	4.43
NK9073	9.19	9.48	10.35	10.48	10.49	10.49

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NK9072	9.75	10.14	10.68	10.68	10.69	10.69
NK9069	13.82	13.85	13.87	13.87	13.87	13.87
NU5113	18.25	20.34	21.00	21.37	21.77	22.01
NP3957	16.69	19.70	20.28	20.60	21.02	21.27
NP3753	15.53	16.36	16.45	16.47	17.04	17.46
NS3559	15.47	15.67	15.67	15.67	16.32	16.77
NS2318	17.27	17.69	17.79	17.85	17.92	17.87
NL9820	22.50	22.77	22.78	22.81	22.85	23.00
NP6306	23.50	24.57	24.62	24.64	24.65	24.66
NL9857	24.51	25.58	25.68	25.84	25.89	25.90
NL9858	25.47	26.81	26.83	26.84	26.84	26.85
NL9880	29.04	29.72	29.98	30.10	30.10	30.11
NL9859	26.29	27.64	27.65	27.66	27.67	27.67
NL9881	29.20	30.34	30.35	30.36	30.37	30.37
NK2906	27.11	28.22	28.23	28.23	28.24	28.24
NK2905	27.22	28.65	28.65	28.65	28.66	28.66
NP4252	49.62	49.81	49.97	50.67	50.68	50.69
NP4251	45.61	45.82	46.74	47.06	47.06	47.06
NP4253	40.51	41.26	42.40	42.40	42.40	42.41
NP4256	35.08	37.01	37.02	37.02	37.02	37.02
NY0998	29.51	35.61	35.65	35.69	35.74	35.77
NY0999	33.35	36.16	36.17	36.18	36.19	36.20
NY0997	29.52	29.89	29.94	30.04	30.11	30.12
NY1000	35.46	36.31	36.40	36.50	36.66	36.79
NY0996	26.62	28.08	28.09	28.10	28.11	28.11
OA8375	50.20	50.28	50.28	50.29	50.30	50.31
NK9283	26.14	27.95	27.95	27.95	27.96	27.96
NK8953	28.51	29.09	29.17	29.24	29.32	29.39
NK9095	22.82	24.06	24.18	24.31	24.35	24.36
NK9233	32.20	34.21	34.22	34.23	34.24	34.25
NP4262	29.81	29.91	29.95	29.96	29.96	29.97
NK9032	21.05	22.43	22.51	22.56	22.62	22.64
OA7178	37.01	37.01	37.01	37.01	37.01	37.01
NK9031	17.84	18.10	18.11	18.12	18.13	18.13
NZ4400	37.90	37.90	37.90	37.90	37.90	37.90

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NK9030	15.59	16.35	16.43	16.50	16.60	16.54
NK4274	23.90	24.00	24.01	24.01	24.01	24.01
MSBD020	15.13	15.82	15.90	15.97	16.19	16.06
NK9281	24.18	24.53	24.55	24.55	24.55	24.55
NK9045	24.89	25.10	25.13	25.13	25.13	25.13
NS4314	27.50	27.55	27.57	27.57	27.57	27.57
NS1834	2.76	4.04	4.14	4.21	4.28	4.32
MSCS010	2.77	3.92	3.92	3.93	3.93	3.93
NK9035	2.77	4.03	4.04	4.05	4.05	4.05
MSCS030	3.50	4.73	4.73	4.74	4.75	4.75
MSCD010	37.50	37.60	37.62	37.63	37.65	37.67
MSCB010	27.01	27.28	27.32	27.36	27.49	28.07
NK8917	28.50	28.89	28.90	28.90	28.87	30.45
NS1836	24.13	25.16	25.12	25.17	25.25	25.12
NP4281	29.00	29.24	29.25	29.26	29.33	30.85
NS1423	31.76	31.92	31.94	31.96	31.99	32.07
NU3261	6.50	6.88	6.89	6.88	6.90	6.88
NY2856	11.00	12.70	13.52	13.53	13.54	13.55
NW7706	6.59	7.35	7.41	7.47	7.53	7.55
NQ1622	23.60	23.68	23.69	23.70	23.71	23.72
M_SE060	3.12	4.13	4.23	4.30	4.38	4.43
NQ1646	9.40	10.83	10.83	10.84	10.85	10.86
MSFB005	22.69	22.69	22.69	22.69	22.72	22.72
MSFB010	28.82	28.85	28.85	28.85	28.85	28.85

- Water level at Mike Urban Nodes MPD

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NS1632	3.88	4.09	4.17	4.24	4.32	4.37
MSCT020	4.53	4.65	4.65	4.66	4.66	4.67
MSCT030	5.13	5.51	5.61	5.63	5.65	5.67
OA7182	7.00	7.02	7.04	7.04	7.04	7.04
OA7181	8.73	8.74	8.75	8.75	8.75	8.75
MSGC020	15.53	15.56	15.57	15.59	15.60	15.61
NK9060	17.47	17.52	17.52	17.53	17.54	17.55
NK9048	23.49	23.53	23.53	23.53	23.54	23.54
NK9266	31.36	31.39	31.39	31.40	31.40	31.41
NK9260	32.65	33.49	33.50	33.50	33.51	33.51
MSGN030B	15.53	15.58	15.61	15.64	15.68	15.71
NS1419	22.76	22.77	22.77	22.77	22.77	22.77
NP3905	26.91	27.05	27.14	27.23	27.30	27.31
NP3904	27.41	27.42	27.43	27.44	27.44	27.45
NP3903	27.88	27.92	27.93	27.93	27.94	27.94
NZ4308	28.53	28.54	28.55	28.55	28.56	28.57
NQ1597	32.33	32.35	32.35	32.36	32.37	32.37
NK8939	35.67	35.68	35.69	35.70	35.71	35.71
NK4262	37.67	37.70	37.71	37.72	37.73	37.74
NK8937	37.64	37.66	37.67	37.68	37.69	37.70
NS3571	28.18	28.22	28.28	28.35	28.45	28.52
NP4243	29.68	29.70	29.71	29.72	29.75	29.76
NP4242	31.51	31.76	32.19	32.75	33.17	33.21
NP4244	38.05	38.07	38.09	38.13	39.58	40.69
NP4287	43.51	43.52	43.53	43.53	43.54	43.54
NP4240	49.01	49.01	49.00	49.01	49.01	49.01
NP4239	50.10	50.12	50.12	50.13	50.14	50.15
NP3962	21.31	21.31	21.61	21.96	22.40	22.77
NP3961	21.26	21.26	21.50	21.71	22.23	22.56
NP3956	21.04	21.04	21.26	21.53	22.15	22.46
NP3960	20.75	20.75	21.09	21.36	22.05	22.34
NP3959	20.26	20.26	20.55	21.06	21.96	22.23
NP3958	16.54	16.54	16.64	16.82	17.52	17.96
NS3570	15.76	15.76	15.86	16.34	17.02	17.35

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NS3568	27.57	27.58	27.58	27.58	27.59	27.59
NP3983	31.76	32.17	32.23	32.28	32.35	32.40
NP3964	35.58	36.03	36.09	36.15	36.22	36.27
NP3965	36.03	36.60	36.61	36.62	36.63	36.64
NP3963	40.32	40.36	40.36	40.36	40.37	40.37
NS6651	51.81	51.83	51.83	51.84	51.85	51.86
NP3988	56.08	56.10	56.12	56.13	56.15	56.18
NV7470	2.28	2.29	2.29	2.29	2.29	2.30
NV7471	1.66	1.79	1.83	1.84	1.93	2.01
NV7472	1.64	1.79	1.82	1.84	1.92	2.00
NV7473	1.53	1.68	1.75	1.81	1.88	1.96
NU3086	1.47	1.58	1.67	1.74	1.81	1.88
NU3087	1.46	1.53	1.64	1.69	1.76	1.81
NL9749	1.42	1.48	1.55	1.60	1.68	1.73
NL9787	2.90	2.92	2.93	2.93	2.94	2.95
NL9750	1.45	1.51	1.59	1.66	1.77	1.83
NS2313	1.39	1.39	1.39	1.39	1.39	1.39
NS5200	3.53	3.55	3.56	3.57	3.58	3.58
NL9751	1.47	1.54	1.63	1.74	1.91	1.98
NV0212	4.31	4.70	4.91	5.01	5.02	5.03
NL9753	1.50	1.63	1.73	1.87	2.08	2.16
NL9824	7.23	7.27	7.28	7.28	7.29	7.30
NL9812	1.52	1.69	1.78	1.98	2.18	2.28
NL9825	8.60	8.64	8.65	8.66	8.67	8.68
NL9779	1.52	1.66	1.81	2.03	2.25	2.31
NL9811	2.20	2.35	2.46	2.56	2.59	2.59
NL9871	10.39	11.37	11.52	11.53	11.54	11.55
NW6314	16.48	16.57	16.64	16.68	16.76	16.79
NL9815	1.52	1.67	1.88	2.14	2.34	2.37
NL9810	2.62	2.64	2.65	2.65	2.66	2.66
MSAC160	18.94	18.95	18.96	18.97	18.98	18.99
NL9817	1.84	2.02	2.35	2.36	2.37	2.38
NL9852	23.57	23.57	23.57	23.57	23.57	23.57
NL9816	1.84	2.04	2.36	2.40	2.41	2.43
NL9853	24.22	24.25	24.27	24.29	24.32	24.34

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NL9854	27.85	27.85	27.85	27.85	27.85	27.85
NK8947	40.92	41.50	41.51	41.51	41.52	41.53
NK8974	40.32	40.92	41.08	41.21	41.36	41.39
NK4269	31.94	31.95	31.95	31.95	31.95	31.95
NK4268	27.92	27.93	27.93	27.93	27.93	27.93
NS1839	22.93	22.94	22.94	22.95	22.96	22.96
NS1126	15.97	16.10	16.18	16.28	16.44	16.51
NK9023	14.60	14.69	14.81	14.91	14.95	14.96
NK9025	13.26	13.37	13.84	13.95	14.00	14.01
NK9021	16.13	16.16	16.16	16.17	16.18	16.18
NS1842	12.57	13.01	13.20	13.31	13.44	13.53
NK8966	22.13	22.16	22.17	22.18	22.18	22.18
NK8964	25.84	25.86	25.87	25.88	25.89	25.89
MSEB020	37.45	37.51	38.02	38.02	38.03	38.03
NK8951	43.62	44.33	44.49	44.50	44.51	44.51
MSCB060	39.11	39.12	39.14	39.17	39.23	39.25
NP4265	42.18	42.19	42.20	42.21	42.23	42.24
NP4266	43.26	43.26	43.27	43.27	43.43	43.47
NP4245	44.93	44.95	44.96	44.97	44.99	45.00
NP4249	54.24	54.26	54.28	54.29	54.31	54.79
NS3569	28.65	28.70	28.72	28.72	28.74	28.74
NP4012	32.96	32.99	32.99	32.99	33.00	33.00
NP4013	39.57	40.16	40.17	40.19	40.20	40.21
NP4014	40.42	41.21	41.25	41.30	41.36	41.39
NP4019	40.98	41.89	41.90	41.92	41.93	41.94
NL9748	2.52	2.95	2.96	2.96	2.96	2.95
NL9747	2.52	3.00	3.01	3.01	3.02	3.02
NS1666	1.88	2.01	2.02	2.02	2.02	2.02
NS1416	1.40	1.40	1.40	1.39	1.39	1.39
NS2315	1.39	1.39	1.39	1.39	1.39	1.39
NK9232	35.17	36.15	36.16	36.16	36.17	36.18
NK9090	30.97	32.05	32.05	32.05	32.06	32.07
NK9278	26.78	27.95	28.00	28.02	28.02	28.02
NK9046	24.31	24.94	24.96	24.96	24.97	24.97
NK9050	23.26	23.35	23.35	23.35	23.35	23.35

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NK9049	22.49	22.66	22.66	22.67	22.68	22.68
NK9051	22.50	22.54	22.54	22.54	22.54	22.55
OA7179	12.14	12.16	12.17	12.20	12.24	12.26
NK9052	22.50	22.55	22.56	22.56	22.55	22.55
NK9043	25.42	25.42	25.42	25.42	25.42	25.42
NL9800	21.82	21.82	21.82	21.82	21.82	21.82
NL9802	16.34	16.35	16.35	16.35	16.35	16.35
NQ5899	12.38	12.38	12.38	12.38	12.38	12.38
NL9804	11.70	11.73	11.76	11.78	11.80	11.82
NL9808	4.35	4.37	4.38	4.38	4.39	4.40
NL9760	3.07	3.10	3.11	3.12	3.13	3.13
NS3851	3.44	3.56	3.62	3.66	3.72	3.75
MSAH070	2.92	2.95	2.98	2.99	3.01	3.01
NQ1651	3.48	3.61	3.67	3.71	3.78	3.81
NL9777	2.81	2.83	2.87	2.89	2.91	2.92
NL9755	3.03	3.26	3.33	3.34	3.35	3.36
NS3672	3.66	3.84	3.92	3.98	4.06	4.11
MSAH040	2.51	2.52	2.60	2.62	2.64	2.66
NL9775	2.61	2.62	2.62	2.62	2.62	2.62
NW5950	3.82	4.04	4.14	4.22	4.33	4.38
NL9778	2.49	2.48	2.56	2.58	2.60	2.62
NL9778A_dummy	2.29	2.23	2.33	2.34	2.35	2.36
NW5894	2.15	2.20	2.21	2.22	2.25	2.26
NW5896	2.15	2.19	2.20	2.21	2.24	2.26
NP3716	2.14	2.18	2.19	2.21	2.24	2.26
NS3553	2.10	2.14	2.16	2.19	2.22	2.24
NS3553-2	2.10	2.14	2.16	2.19	2.22	2.24
NS3553-3	2.10	2.14	2.16	2.19	2.22	2.24
NP3752	40.89	40.89	40.89	40.89	40.89	40.89
NP3750	39.10	39.15	39.19	39.22	39.25	39.38
NP3751	38.27	38.29	38.30	38.30	38.31	38.32
NP3805	35.36	35.37	35.38	35.39	35.40	35.41
NP3806	31.82	31.84	31.85	31.86	31.87	31.88
NP3807	28.70	28.71	28.72	28.73	28.74	28.75
NP3798	29.00	29.02	29.03	29.04	29.05	29.05

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NV3046	24.68	24.76	25.73	26.20	26.22	26.23
NP3797	29.90	29.90	29.90	29.90	29.90	29.90
NV3047	22.87	23.70	24.72	25.11	25.13	25.15
NP3796	31.00	31.00	31.00	31.00	31.00	31.00
NZ4315	22.53	23.25	24.21	24.57	24.59	24.60
NV3048	20.10	21.05	21.66	21.89	21.90	21.91
NV3049	18.97	19.55	19.91	20.04	20.05	20.06
NV3050	15.29	15.90	16.14	16.16	16.17	16.18
NV3051	10.96	10.98	10.98	10.99	11.00	11.00
NP3833	9.57	10.26	10.33	10.37	10.41	10.43
NP3757	8.94	10.14	10.24	10.29	10.34	10.36
NP3756	10.06	10.44	10.54	10.61	10.68	10.71
NP3755	8.21	9.29	9.32	9.34	9.35	9.36
NK3709	12.36	12.48	12.57	12.64	12.72	12.74
NP3823	12.20	12.20	12.40	12.66	12.97	13.15
NP3754	7.70	8.59	8.67	8.68	8.70	8.71
NP3817	17.01	17.02	17.02	17.03	17.03	17.03
NP3824	13.69	13.70	14.08	14.47	14.92	15.18
NP3766	7.05	7.57	7.62	7.66	7.71	7.74
NP3928	19.52	19.54	19.55	19.56	19.57	19.58
NP3908	27.32	27.36	27.37	27.37	27.37	27.37
MSAD440	13.67	13.94	14.44	14.85	15.33	15.61
NP3924	6.92	7.14	7.16	7.17	7.18	7.20
NP3836	7.40	8.74	8.86	8.87	8.88	8.89
NP3815	22.49	22.51	22.53	22.55	23.17	23.85
NP3764	31.08	31.12	31.12	31.12	31.12	31.12
NP3767	6.10	6.22	6.25	6.26	6.29	6.47
NP3918	9.50	9.68	9.70	9.71	9.71	9.71
NP3974	28.91	28.92	28.93	28.93	28.94	28.94
NS0121	32.44	33.00	33.01	33.02	33.03	33.03
NP3860	5.85	5.95	5.95	5.95	5.96	6.26
NP3848	6.13	6.26	6.29	6.31	6.33	6.58
NP3919	12.01	12.06	12.11	12.13	12.17	12.19
NP3978	33.82	33.83	33.83	33.84	33.85	33.85
NU2228	4.90	4.89	4.88	4.90	4.88	5.16

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NP3861	5.87	6.06	6.18	6.32	6.54	6.65
NP3849	13.46	13.47	13.47	13.47	13.47	13.47
NP3973	38.80	38.80	38.80	38.80	38.80	38.80
NP3765	3.36	3.52	3.55	3.58	3.62	3.62
NP3851	14.95	16.80	16.82	16.83	16.84	16.84
NP3850	17.01	17.02	17.02	17.02	17.03	17.03
NP3955	41.73	41.92	41.92	41.92	41.93	41.93
NP3772	3.20	3.29	3.31	3.32	3.34	3.34
NS1417	4.63	5.13	5.23	5.30	5.38	5.42
NP3852	20.46	20.52	20.54	20.56	20.59	20.63
NP3868	19.87	19.88	19.88	19.88	19.88	19.88
NP3951	44.99	45.00	45.01	45.01	45.02	45.02
NP3771	3.16	3.23	3.25	3.26	3.28	3.28
NP3770	3.17	3.25	3.26	3.28	3.30	3.30
NP3768	4.79	5.05	5.12	5.19	5.27	5.31
NP3853	25.11	25.14	25.16	25.18	27.35	27.41
NW6043	22.75	22.76	22.76	22.76	22.76	22.76
NP3969	45.57	45.59	45.60	45.61	45.62	45.63
NP3953	46.18	46.19	46.20	46.21	46.21	46.22
NP3769	3.08	3.11	3.12	3.13	3.13	3.14
NP3773	3.09	3.14	3.16	3.17	3.18	3.18
NP3877	9.10	9.95	10.35	10.56	10.71	10.72
NP3867	25.56	25.56	25.56	25.56	25.57	25.57
NP4006	46.10	46.11	46.57	46.88	46.99	47.00
NP3972	48.55	48.56	48.57	48.58	48.58	48.59
NW6262	2.93	2.97	2.97	2.98	2.98	2.99
NK9083	3.02	3.04	3.05	3.06	3.07	3.07
NW6263	2.97	3.05	3.06	3.08	3.09	3.09
NP3899	16.80	16.81	16.82	16.83	16.84	16.84
NP3878	14.11	14.11	14.11	14.11	14.11	14.11
NP3920	10.51	10.53	10.54	10.55	10.56	10.56
NP3777	31.50	31.51	31.52	31.53	31.54	31.55
NP4004	47.02	47.04	47.62	48.12	48.16	48.17
NW5965	2.83	2.86	2.86	2.87	2.88	2.88
NW5967	2.90	2.94	2.95	2.96	2.97	2.98

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NP3893	25.79	26.84	26.85	26.86	26.87	26.88
NP3692	17.10	17.10	17.10	17.10	17.10	17.10
NP3779	34.59	34.97	34.98	34.99	35.00	35.01
NP3778	31.49	31.51	31.51	31.52	31.52	31.53
NP4003	47.80	47.82	48.03	48.71	49.00	49.01
NP4005	49.00	49.00	49.00	49.00	49.00	49.00
NW5962	2.72	2.73	2.73	2.74	2.74	2.74
NW5961	2.83	2.88	2.90	2.91	2.93	2.93
NP3789	40.61	40.66	41.03	41.10	41.19	41.25
NP3892	27.66	28.65	28.68	28.68	28.69	28.69
NP3780	37.65	37.66	37.67	37.68	37.68	37.69
NW5889	2.68	2.69	2.70	2.70	2.71	2.71
NW5888	2.77	2.83	2.84	2.86	2.88	2.89
NP3895	40.91	41.13	41.51	41.52	41.53	41.53
NP3891	29.37	29.42	29.43	29.45	29.48	29.63
MSAG035	2.61	2.64	2.65	2.66	2.67	2.68
NP3712	2.77	2.84	2.87	2.91	2.96	2.98
MSAA090	2.62	2.66	2.68	2.69	2.71	2.72
NW5870	2.59	2.62	2.63	2.64	2.65	2.66
NP3710	5.45	5.47	5.49	5.50	5.52	5.53
NZ4306	2.47	2.52	2.53	2.55	2.56	2.57
NP3709	6.56	6.62	6.65	6.69	6.73	6.76
NZ4310	5.66	6.17	6.22	6.26	6.27	6.28
MSAG010	2.34	2.41	2.43	2.46	2.50	2.53
MSAG010_2	2.34	2.41	2.43	2.46	2.50	2.53
NP3708	11.69	11.70	11.70	11.71	11.72	11.72
NZ4383	10.69	11.18	11.24	11.27	11.29	11.30
NZ4382	14.04	14.10	14.10	14.11	14.11	14.11
NZ4381	15.30	15.48	15.50	15.56	15.59	15.59
NZ4380	16.43	16.96	17.08	17.23	17.32	17.35
NZ4378	17.06	17.61	17.62	17.63	17.65	17.66
NP3698	23.01	23.09	23.13	23.16	23.18	23.20
Node_18	17.12	17.62	17.65	17.66	17.68	17.69
NP3699	24.17	24.20	24.21	24.22	24.24	24.25
NP3697	26.98	27.01	27.02	27.03	27.04	27.05

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NZ4379	17.28	17.63	17.65	17.66	17.69	17.71
NP3687	24.42	24.49	24.54	24.58	24.64	24.68
NP3696	35.37	35.40	35.42	35.44	35.47	35.87
NP3686	27.88	27.88	27.88	27.88	27.88	27.88
NP3685	29.68	29.68	29.68	29.68	29.68	29.68
NQ1583	33.43	34.54	35.31	35.32	35.33	35.33
MSAH210	29.87	31.20	31.21	31.21	31.21	31.21
MSAH200	28.32	29.36	29.52	29.53	29.53	29.53
MSAH190	16.70	17.19	17.22	17.22	17.23	17.23
MSAH180	15.03	15.04	15.05	15.06	15.06	15.07
NK9066	13.13	13.60	13.72	14.04	14.18	14.19
NK8901	13.03	13.43	13.44	13.45	13.45	13.46
NK9062	15.16	15.16	15.16	15.16	15.16	15.16
NK9067	12.62	13.17	13.24	13.26	13.27	13.27
NK8899	14.60	14.60	14.60	14.60	14.60	14.60
NK9058	17.76	17.76	17.76	17.76	17.76	17.76
NK9071	10.80	11.12	11.19	11.21	11.21	11.21
NQ1637	17.06	18.31	18.32	18.32	18.33	18.34
NK8897	20.60	20.60	20.60	20.60	20.60	20.60
NK9076	6.85	6.86	6.87	6.87	6.87	6.87
NK9078	5.65	5.69	5.70	5.72	5.73	5.74
NS1840	4.75	4.97	5.03	5.11	5.19	5.24
NK9234	27.25	27.27	27.27	27.28	27.29	27.29
NK9019	25.37	25.62	25.63	25.63	25.64	25.65
NK9017	24.30	24.47	24.49	24.55	24.66	24.73
NK9016	23.71	23.72	23.72	23.72	23.72	23.73
NK9014	13.68	13.69	13.69	13.69	13.69	13.69
NK9012	11.37	11.71	11.73	11.74	11.75	11.76
NK9075	9.35	9.51	9.58	9.64	9.71	9.77
NK8903	12.37	12.79	12.95	13.05	13.16	13.24
NS1832	8.67	8.82	8.88	8.94	9.02	9.08
M_SE020	8.53	8.67	8.74	8.79	8.87	8.93
M_SE030	7.93	8.03	8.09	8.14	8.21	8.26
M_AH140	3.98	4.20	4.30	4.38	4.49	4.54
NK9073	9.45	10.29	10.48	10.49	10.50	10.50

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NK9072	10.07	10.68	10.68	10.69	10.69	10.69
NK9069	13.82	13.87	13.87	13.87	13.87	13.88
NU5113	19.41	20.81	21.39	21.76	22.21	22.57
NP3957	18.90	20.12	20.62	21.01	21.48	21.83
NP3753	16.22	16.42	16.49	17.06	17.69	18.03
NS3559	15.67	15.67	15.73	16.34	17.01	17.35
NS2318	17.63	17.78	17.85	17.91	18.00	18.05
NL9820	22.75	22.78	22.81	22.83	23.01	23.02
NP6306	24.44	24.62	24.64	24.64	24.66	24.67
NL9857	25.14	25.67	25.84	25.89	25.90	25.91
NL9858	26.28	26.83	26.84	26.84	26.85	26.86
NL9880	29.34	29.92	30.10	30.10	30.11	30.12
NL9859	27.34	27.65	27.66	27.67	27.67	27.68
NL9881	30.07	30.35	30.36	30.37	30.37	30.38
NK2906	28.09	28.23	28.23	28.24	28.24	28.25
NK2905	28.64	28.65	28.65	28.66	28.66	28.67
NP4252	49.78	49.84	50.67	50.68	50.70	50.70
NP4251	45.78	46.16	47.06	47.06	47.06	47.06
NP4253	40.73	42.40	42.40	42.40	42.41	42.41
NP4256	37.00	37.02	37.02	37.02	37.03	37.03
NY0998	34.86	35.63	35.68	35.73	35.80	35.85
NY0999	35.21	36.17	36.18	36.19	36.20	36.21
NY0997	29.86	29.89	30.04	30.10	30.13	30.15
NY1000	35.57	36.37	36.50	36.65	36.89	37.09
NY0996	28.05	28.09	28.10	28.10	28.11	28.12
OA8375	50.27	50.28	50.29	50.30	50.31	50.32
NK9283	27.86	27.95	27.95	27.96	27.96	27.97
NK8953	29.00	29.14	29.24	29.32	29.44	29.53
NK9095	23.93	24.14	24.31	24.35	24.37	24.38
NK9233	32.43	34.22	34.23	34.24	34.25	34.26
NP4262	29.87	29.93	29.96	29.96	29.97	29.98
NK9032	22.21	22.49	22.56	22.61	22.68	22.71
OA7178	37.01	37.01	37.01	37.01	37.01	37.01
NK9031	18.07	18.11	18.12	18.13	18.14	18.15
NZ4400	37.90	37.90	37.90	37.90	37.90	37.90

Node Water Level	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NK9030	16.01	16.41	16.50	16.61	16.77	16.87
NK4274	23.99	24.01	24.01	24.01	24.01	24.01
MSBD020	15.75	15.88	15.97	16.20	16.26	16.34
NK9281	24.40	24.54	24.55	24.55	24.55	24.55
NK9045	25.01	25.12	25.13	25.13	25.13	25.13
NS4314	27.53	27.56	27.57	27.57	27.57	27.57
NS1834	3.89	4.12	4.21	4.28	4.37	4.41
MSCS010	3.91	3.92	3.93	3.93	3.93	3.93
NK9035	4.03	4.04	4.05	4.05	4.05	4.06
MSCS030	4.72	4.73	4.74	4.74	4.75	4.76
MSCD010	37.59	37.61	37.63	37.65	37.68	39.01
MSCB010	27.23	27.30	27.36	27.44	28.76	29.02
NK8917	28.86	28.90	28.90	28.87	31.13	31.37
NS1836	25.14	25.14	25.17	25.24	25.35	25.46
NP4281	29.24	29.24	29.26	29.33	31.48	31.66
NS1423	31.90	31.94	31.96	31.98	32.23	32.24
NU3261	6.84	6.90	6.89	6.89	6.93	6.95
NY2856	11.22	13.51	13.53	13.54	13.56	13.57
NW7706	7.28	7.40	7.48	7.53	7.64	7.69
NQ1622	23.67	23.69	23.70	23.71	23.73	23.74
M_SE060	3.98	4.20	4.30	4.38	4.49	4.54
NQ1646	10.81	10.83	10.84	10.85	10.86	10.87
MSFB005	22.69	22.69	22.69	22.72	22.74	22.79
MSFB010	28.82	28.85	28.85	28.85	28.86	28.87

- Water level at model output locations

XS ID	ED 10 yr Max	ED 100 yr Max	MPD 10yr Max	MPD 100 yr Max
XS01	21.8	22.3	21.8	22.9
XS02	21.3	22.3	21.7	22.9
XS03	15.2	16.8	15.7	17.4
XS04	9.7	9.7	9.7	9.8
XS05	8.8	8.9	8.9	9.0
XS06	8.1	8.2	8.2	8.3
XS07	7.2	7.3	7.2	7.4
XS08	6.0	6.3	6.1	6.3
XS09	3.4	3.6	3.5	3.7
XS10	13.5	13.7	13.6	14.1
XS11	12.9	13.2	13.1	13.4
XS12	9.2	9.5	9.4	9.6
XS13	7.8	7.9	7.9	8.1
XS14	6.9	7.0	6.9	7.2
XS15	6.7	6.8	6.8	7.0
XS16	4.3	4.6	4.4	4.7
XS17	4.0	4.1	4.0	4.2
XS18	0.0	3.5	0.0	3.5
XS19	2.3	2.4	2.4	2.5
XS20	1.8	1.8	2.1	2.1
XS21	2.6	2.9	2.7	3.0
XS22	3.0	3.1	3.0	3.1
XS23	3.0	3.1	3.0	3.1

Appendix H: Model Result Flows

- Flows at model output locations

XS ID	ED 10 yr Max	ED 100 yr Max	MPD 10yr Max	MPD 100 yr Max
XS01	0.71	1.20	0.82	1.73
XS02	0.70	0.94	1.34	2.31
XS03	2.60	3.64	2.97	3.90
XS04	0.86	2.20	1.28	2.99
XS05	1.07	2.97	1.72	3.93
XS06	1.19	3.18	1.73	4.24
XS07	2.09	5.05	3.04	6.70
XS08	1.77	5.38	2.84	7.32
XS09	1.28	5.45	2.56	7.76
XS10	1.22	2.39	1.66	3.77
XS11	1.07	2.19	1.44	3.24
XS12	1.36	3.24	1.76	4.86
XS13	3.49	6.13	4.22	7.63
XS14	3.66	6.31	4.39	8.17
XS15	3.78	6.70	4.77	8.22
XS16	4.43	8.07	5.37	10.14
XS17	2.02	5.89	3.10	8.19
XS18	0.00	0.28	0.00	0.68
XS19	5.45	5.68	5.01	5.79
XS20	8.35	9.38	8.64	9.80
XS21	0.07	3.56	0.46	6.72
XS22	0.27	0.72	0.37	0.90
XS23	0.56	1.41	0.80	1.86

- Flows at Mike Urban Nodes ED

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
Link_14 (NZ4379 -> Node_18) 9.48	0	0.025	0.115	0.12	0.113	0.123
MSAA075I2 (NW5896 -> NP3716) 12.34	0.193	0.757	0.792	0.82	0.844	0.86
MSAA075I3 (NW5896 -> NP3716) 12.34	0.193	0.757	0.792	0.82	0.844	0.86
MSAA080I2 (NW5894 -> NW5896) 13.39	0.193	0.763	0.799	0.825	0.845	0.862
MSAA080I3 (NW5894 -> NW5896) 13.39	0.193	0.763	0.799	0.825	0.845	0.862
MSAG050I2 (NW6262 -> NW5965) 22.16	0.379	1.526	1.539	1.547	1.557	1.565
MSAH040I2 (MSAH040 -> NL9778) 11.35	0.273	1.104	1.142	1.17	1.19	1.201
MSAH090I2 (NS3851 -> NL9760) 33.89	0.288	1.605	1.686	1.749	1.815	1.857
MSAH090I2 (NS3851 -> NL9760) 101.67	0.281	1.606	1.686	1.749	1.815	1.857
MSAH095I2 (NQ1651 -> NS3851) 5.00	0.31	1.605	1.686	1.749	1.815	1.853
MSAH100I2 (NS3672 -> NQ1651) 20.81	0.32	1.605	1.686	1.749	1.815	1.853
MSAH105I2 (NW5950 -> NS3672) 5.00	0.499	1.67	1.721	1.749	1.815	1.853
MSCT020I1 (MSCT020 -> NS1632) 14.01	0	0.43	0.43	0.424	0.42	0.415
MSFC040I1 (NS1832 -> M_SE020) 5.00	0.312	1.763	1.774	1.779	1.784	1.817
MSGU010I1 (NS1666 -> NS1416) 5.00	0	0.056	0.059	0.061	0.063	0.064
NA0010 (NL9815 -> NL9779) 7.09	0.116	0.235	0.362	0.438	0.423	0.428
NA0486 (NW5950 -> NS3672) 5.00	0.499	1.67	1.721	1.749	1.815	1.853
NA9918 (NK2906 -> NL9859) 14.70	0	0.074	0.074	0.074	0.074	0.074
NA9919 (NK2905 -> NK2906) 11.43	0	0.078	0.077	0.077	0.077	0.077
NB1471 (NL9747 -> NS1666) 19.31	0	0.047	0.055	0.056	0.056	0.056
NB1471 (NL9747 -> NS1666) 57.92	0	0.047	0.055	0.056	0.056	0.056
NB3008 (NK4274 -> NK9030) 25.91	0	0.068	0.081	0.081	0.081	0.081

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NB3008 (NK4274 -> NK9030) 77.72	0	0.068	0.081	0.081	0.081	0.081
NB3015 (NK9232 -> NK9090) 18.02	0	0.14	0.153	0.154	0.154	0.153
NC0397 (MSAH180 -> NK9066) 8.91	0	0.156	0.156	0.157	0.157	0.156
NC0407 (NK8901 -> NK9067) 5.00	0	0.403	0.404	0.402	0.401	0.4
NC0410 (NK9066 -> NK8901) 5.00	0	0.331	0.378	0.423	0.473	0.489
NC0413 (NK9281 -> NK4274) 9.83	0	0.062	0.075	0.075	0.075	0.075
NC0415 (NP4262 -> NK8953) 8.13	0	0.013	0.025	0.025	0.025	0.026
NC0432 (NQ1583 -> MSAH210) 12.23	0	0.158	0.193	0.203	0.203	0.204
NC0438 (NK8917 -> MSCB010) 13.86	0	0.346	0.418	0.507	0.591	0.662
NC0440 (MSCB010 -> NS1836) 11.02	0	0.512	0.617	0.733	0.875	0.982
NC0451 (NK8903 -> NK9012) 17.97	0.288	1.66	1.699	1.768	1.832	1.846
NC0459 (NK9051 -> NK9049) 15.30	0	0.028	0.027	0.024	0.02	0.021
NC0470 (NS4314 -> NK9045) 20.71	0	0.012	0.025	0.025	0.025	0.025
NC0477 (MSCS010 -> NS1834) 18.30	0.008	0.053	0.052	0.051	0.05	0.048
NC0487 (MSAH210 -> MSAH200) 9.28	0	0.143	0.144	0.144	0.142	0.143
NC0513 (NK9025 -> NS1842) 10.58	0	0.812	0.957	1.083	1.242	1.361
NC0514 (NK4268 -> NS1839) 10.73	0	0.165	0.169	0.171	0.171	0.171
NC0523 (NS3672 -> NQ1651) 20.81	0.32	1.605	1.686	1.749	1.815	1.853
NC0537 (MSAH200 -> MSAH190) 20.14	0	0.137	0.137	0.138	0.138	0.138
NC0537 (MSAH200 -> MSAH190) 60.42	0	0.136	0.137	0.138	0.138	0.138
NC0537 (MSAH200 -> MSAH190) 100.69	0	0.136	0.137	0.138	0.138	0.138
NC0539 (MSAH190 -> MSAH180) 9.81	0	0.136	0.137	0.138	0.138	0.138
NC0545 (NQ1651 -> NS3851) 5.00	0.31	1.605	1.686	1.749	1.815	1.853

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NC0575 (MSCD010 -> MSCB010) 19.37	0	0.098	0.119	0.142	0.172	0.194
NC0587 (NK8939 -> NQ1597) 18.68	0	0.075	0.082	0.087	0.093	0.097
NC0590 (NK4262 -> NK8939) 16.64	0	0.076	0.083	0.089	0.096	0.1
NC0592 (NK8937 -> NK4262) 5.00	0	0.009	0.008	0.008	0.007	0.008
NC0613 (MSFB010 -> MSFB005) 30.54	0	0.006	0.006	0.006	0.006	0.006
NC0634 (NK8964 -> NK8966) 14.25	0	0.165	0.202	0.207	0.213	0.218
NC0640 (NK8966 -> NK9021) 31.90	0	0.165	0.202	0.207	0.213	0.218
NC0642 (MSEB020 -> NK8964) 18.89	0	0.142	0.177	0.177	0.177	0.177
NC0642 (MSEB020 -> NK8964) 56.68	0	0.142	0.175	0.175	0.175	0.175
NC0653 (NK8974 -> NK4269) 30.55	0	0.165	0.165	0.165	0.165	0.166
NC0655 (NK4269 -> NK4268) 17.25	0	0.165	0.165	0.165	0.165	0.166
NC0681 (MSCT030 -> MSCT020) 13.51	0	0.429	0.458	0.476	0.479	0.482
NC0722 (NK9019 -> NK9017) 5.00	0	0.098	0.098	0.098	0.098	0.098
NC0726 (NK9017 -> NK9016) 5.00	0	0.1	0.102	0.102	0.104	0.108
NC0729 (NK9016 -> NK9014) 27.43	0	0.1	0.102	0.102	0.104	0.108
NC0731 (NK9014 -> NK9012) 8.41	0	0.075	0.076	0.077	0.079	0.083
NC0733 (NK9012 -> NK9075) 25.90	0.288	1.813	1.825	1.829	1.832	1.832
NC0735 (NK9023 -> NK9025) 17.38	0	0.813	0.958	1.083	1.245	1.365
NC0737 (NK9021 -> NK9023) 13.68	0	0.165	0.202	0.207	0.213	0.218
NC0739 (NS1126 -> NK9023) 25.47	0	0.413	0.47	0.532	0.612	0.671
NC0747 (NK9030 -> MSBD020) 6.27	0.016	1.28	1.347	1.378	1.424	1.45
NC0749 (NK9031 -> NK9030) 7.41	0.016	1.214	1.268	1.297	1.333	1.345
NC0751 (NK9032 -> NK9031) 9.20	0.016	1.198	1.243	1.272	1.307	1.32

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NC0765 (MSCS030 -> NK9035) 10.44	0	0.086	0.085	0.084	0.083	0.082
NC0773 (NK8953 -> NY0996) 17.67	0	0.256	0.319	0.383	0.461	0.519
NC0780 (NK9049 -> OA7179) 20.18	0	0.206	0.206	0.206	0.206	0.206
NC0789 (NK9075 -> NS1832) 9.95	0.287	1.788	1.799	1.804	1.807	1.806
NC0805 (NK9072 -> NK9073) 5.42	0	0.051	0.067	0.067	0.065	0.066
NC0807 (NK9069 -> NK9072) 23.23	0	0.003	0.015	0.015	0.015	0.015
NC0812 (NK9073 -> M_AH140) 27.22	0	0.126	0.142	0.142	0.142	0.142
NC0816 (NK9071 -> NK9076) 6.50	0	0.646	0.654	0.663	0.665	0.665
NC0820 (NK9067 -> NK9071) 5.00	0	0.671	0.679	0.688	0.69	0.69
NC0838 (NQ1646 -> M_SE060) 27.10	0	0.16	0.159	0.159	0.158	0.158
NC0842 (MSGC020 -> OA7181) 12.65	0	0.369	0.373	0.376	0.379	0.382
NC0844 (NK9060 -> MSGC020) 31.43	0	0.135	0.177	0.182	0.2	0.202
NC0853 (NK9048 -> NK9060) 24.36	0	0.135	0.173	0.178	0.196	0.198
NC0858 (NK9045 -> NK9281) 6.18	0	0.037	0.05	0.05	0.05	0.05
NC0860 (NY0999 -> NY0998) 19.22	0	0.254	0.256	0.255	0.256	0.258
NC0864 (NQ1637 -> NK9067) 27.52	0	0.134	0.134	0.134	0.134	0.134
NC0869 (NK9046 -> NK9050) 8.30	0	0.113	0.122	0.122	0.122	0.122
NC0871 (NK9050 -> NK9049) 6.22	0	0.099	0.099	0.098	0.099	0.099
NC0872 (NY0997 -> NY0996) 16.64	0.019	0.38	0.385	0.392	0.396	0.396
NC0887 (NY0996 -> NK9283) 12.36	0.017	0.558	0.559	0.559	0.559	0.558
NC0904 (NK9283 -> NK9095) 23.44	0.017	0.766	0.767	0.766	0.767	0.766
NC0904 (NK9283 -> NK9095) 70.33	0.017	0.766	0.766	0.766	0.767	0.766
NC0905 (NK9090 -> NK9278) 18.65	0	0.14	0.146	0.146	0.146	0.146

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NC0911 (NK9095 -> NK9032) 12.77	0.016	1.149	1.225	1.299	1.321	1.327
NC1205 (NK9233 -> NK9283) 18.70	0	0.274	0.274	0.274	0.274	0.274
NC1205 (NK9233 -> NK9283) 56.09	0	0.274	0.274	0.274	0.274	0.274
NC1215 (NK9234 -> NK9019) 16.88	0	0.014	0.017	0.02	0.023	0.026
NC1215 (NK9234 -> NK9019) 50.65	0	0.014	0.017	0.02	0.023	0.026
NC1274 (NK9260 -> NK9266) 9.84	0	0.135	0.141	0.141	0.142	0.142
NC1276 (NK9266 -> NK9048) 33.34	0	0.135	0.17	0.174	0.191	0.194
NC1319 (NK9278 -> NK9046) 12.31	0	0.138	0.147	0.147	0.147	0.147
NC5319 (NP4281 -> NK8917) 5.00	0	0.231	0.278	0.327	0.389	0.457
NC5320 (NY1000 -> NY0999) 10.36	0	0.038	0.046	0.055	0.066	0.074
ND8519 (NL9778 -> NL9778A_dummy) 32.94	0.273	1.099	1.137	1.165	1.186	1.198
ND8519 (NL9778 -> NL9778A_dummy) 98.83	0.272	1.094	1.134	1.161	1.181	1.195
ND8522 (MSAH040 -> NL9778) 11.35	0.273	1.104	1.142	1.17	1.19	1.201
ND8524 (NS5200 -> NL9787) 6.80	0.063	0.854	0.895	0.919	0.934	0.938
ND8527 (NL9787 -> NL9749) 24.66	0.063	0.737	0.737	0.737	0.737	0.736
ND8527 (NL9787 -> NL9749) 73.97	0.063	0.737	0.737	0.737	0.737	0.736
ND8529 (NQ5899 -> NL9804) 5.10	0	0.025	0.025	0.025	0.026	0.026
ND8531 (NL9779 -> NL9812) 30.99	0.066	0.429	0.437	0.464	0.454	0.444
ND8543 (NL9777 -> MSAH040) 6.15	0.546	2.057	2.087	2.103	2.107	2.107
ND8552 (NL9748 -> NL9747) 9.96	0	0.004	0.004	0.012	0.032	0.025
ND8556 (NL9749 -> NS2313) 5.00	0.359	1.497	1.614	1.721	1.819	1.935
ND8557 (NL9750 -> NL9749) 16.74	0.083	0.374	0.41	0.516	0.638	0.715
ND8559 (NL9751 -> NL9750) 18.41	0.083	0.373	0.411	0.522	0.638	0.715

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
ND8560 (NL9753 -> NL9751) 30.06	0.082	0.381	0.43	0.507	0.596	0.643
ND8564 (NL9812 -> NL9753) 25.55	0.077	0.544	0.474	0.527	0.543	0.553
ND8572 (NL9775 -> NL9755) 19.26	0.001	0.01	0.009	0.008	0.007	0.008
ND8572 (NL9775 -> NL9755) 57.77	0.002	0.01	0.016	0.008	0.007	0.008
ND8634 (NL9800 -> NL9802) 31.95	0	0.015	0.015	0.015	0.015	0.015
ND8636 (NL9804 -> NL9808) 12.76	0	0.074	0.082	0.092	0.106	0.116
ND8638 (NL9808 -> NL9760) 23.85	0	0.071	0.072	0.072	0.072	0.072
ND8643 (NL9810 -> NL9811) 23.15	0	0.093	0.093	0.093	0.093	0.093
ND8644 (NL9811 -> NL9812) 10.45	0	0.137	0.137	0.14	0.137	0.137
ND8645 (NL9817 -> NL9815) 11.92	0.002	0.186	0.193	0.321	0.23	0.331
ND8649 (NL9816 -> NL9817) 7.98	0	0.236	0.084	0.17	0.12	0.14
ND8664 (NL9802 -> NQ5899) 23.90	0	0.019	0.019	0.02	0.02	0.02
ND8668 (NV0212 -> NS5200) 17.79	0.063	0.825	0.912	0.96	0.988	0.995
ND8673 (MSAC160 -> NL9871) 24.70	0.057	0.098	0.113	0.115	0.127	0.136
ND8673 (MSAC160 -> NL9871) 74.09	0.057	0.098	0.112	0.115	0.127	0.136
ND8674 (NL9824 -> NV0212) 13.97	0.063	0.688	0.744	0.761	0.779	0.801
ND8675 (NL9825 -> NL9824) 18.86	0.058	0.682	0.738	0.756	0.774	0.787
ND8677 (NL9820 -> NS2318) 18.51	0	0.536	0.563	0.591	0.623	0.635
ND8723 (NL9853 -> NL9852) 5.00	0.015	0.056	0.066	0.073	0.085	0.094
ND8724 (NL9854 -> NL9853) 21.69	0.015	0.015	0.015	0.015	0.015	0.015
ND8732 (NL9858 -> NL9857) 6.57	0	0.433	0.433	0.432	0.432	0.432
ND8733 (NL9857 -> NP6306) 5.00	0	0.429	0.43	0.429	0.43	0.429
ND8734 (NL9880 -> NL9858) 22.80	0	0.226	0.226	0.227	0.226	0.226

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
ND8735 (NL9859 -> NL9858) 21.49	0	0.075	0.075	0.075	0.074	0.077
ND8766 (NL9881 -> NL9880) 5.00	0	0.129	0.129	0.129	0.129	0.13
NJ0420 (NP3708 -> NP3709) 15.49	0	0.028	0.035	0.041	0.05	0.056
NJ0421 (NP3709 -> NP3710) 11.78	0	0.071	0.091	0.112	0.141	0.163
NJ0422 (NP3710 -> NP3712) 21.66	0	0.071	0.091	0.112	0.141	0.163
NJ0425 (NP3712 -> NW5888) 5.00	0	0.138	0.177	0.217	0.274	0.317
NJ0432 (NZ4306 -> MSAG010_2) 39.23	0.433	2.569	2.582	2.59	2.59	2.594
NJ0433 (NZ4306 -> MSAG010) 39.37	0.427	2.552	2.566	2.574	2.574	2.578
NJ0494 (NP3750 -> NP3751) 20.44	0	0.027	0.032	0.038	0.045	0.051
NJ0506 (NP3753 -> NS3559) 13.58	0.209	0.949	1.012	1.027	1.031	1.031
NJ0509 (NP3756 -> NP3757) 18.41	0.785	2.985	3.287	3.412	3.547	3.603
NJ0522 (NP3770 -> NP3773) 12.94	0.248	2.644	2.747	2.804	2.892	2.957
NJ0523 (NP3772 -> NP3770) 10.54	0.57	3.234	3.039	3.034	2.882	2.935
NJ0524 (NP3768 -> NP3772) 17.27	0	0.622	0.63	0.637	0.646	0.652
NJ0525 (NP3772 -> NP3771) 10.63	0.41	1.775	1.847	1.887	1.954	1.993
NJ0526 (NP3765 -> NP3772) 15.04	0.917	5.522	5.744	5.867	6.044	6.158
NJ0559 (NP3789 -> NP3893) 25.50	0	0.13	0.159	0.161	0.161	0.161
NJ0559 (NP3789 -> NP3893) 76.49	0	0.13	0.159	0.161	0.161	0.161
NJ0578 (NP3806 -> NP3807) 20.04	0	0.23	0.23	0.23	0.23	0.231
NJ0579 (NP3805 -> NP3806) 29.46	0	0.027	0.032	0.038	0.045	0.051
NJ0580 (NP3751 -> NP3805) 18.02	0	0.027	0.032	0.038	0.045	0.051
NJ0587 (NP3908 -> NP3824) 31.01	0	0.133	0.168	0.17	0.172	0.172
NJ0588 (NP3824 -> NP3823) 26.18	0.785	2.364	2.669	2.848	2.998	3.057

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NJ0590 (MSAD440 -> NP3824) 7.21	0.785	3.605	3.639	3.682	3.559	3.461
NJ0606 (NP3833 -> NP3757) 6.78	0	0.544	0.546	0.542	0.536	0.535
NJ0623 (NP3924 -> NP3767) 26.06	0.777	4.361	4.467	4.492	4.508	4.515
NJ0624 (NP3848 -> NP3767) 8.96	0	0.554	0.5	0.508	0.524	0.51
NJ0625 (NP3849 -> NP3848) 12.46	0	0.198	0.199	0.199	0.199	0.199
NJ0626 (NP3851 -> NP3849) 20.61	0	0.2	0.23	0.231	0.234	0.235
NJ0627 (NP3850 -> NP3849) 12.45	0	0.318	0.318	0.318	0.318	0.318
NJ0630 (NP3853 -> NP3852) 25.65	0	0.076	0.093	0.109	0.132	0.148
NJ0631 (NP3852 -> NP3851) 33.97	0	0.076	0.093	0.109	0.132	0.148
NJ0641 (NP3861 -> NP3860) 5.04	0	0.076	0.074	0.074	0.088	0.099
NJ0642 (NU2228 -> NP3765) 48.99	0.774	4.876	5.029	5.096	5.17	5.221
NJ0643 (NP3767 -> NP3860) 20.10	0.776	5.02	5.08	4.993	5.134	5.091
NJ0651 (NP3777 -> NP3867) 14.35	0	0.373	0.373	0.373	0.373	0.373
NJ0652 (NP3867 -> NW6043) 10.19	0	0.323	0.322	0.322	0.324	0.322
NJ0653 (NP3868 -> NP3850) 22.66	0	0.332	0.333	0.333	0.332	0.334
NJ0676 (NP3891 -> NP3892) 6.20	0	0.05	0.061	0.072	0.088	0.099
NJ0678 (NP3892 -> NP3893) 29.67	0	0.061	0.071	0.072	0.074	0.075
NJ0680 (NP3895 -> NP3789) 15.61	0	0.1	0.122	0.127	0.127	0.127
NJ0690 (NP3899 -> NP3877) 23.48	0	0.394	0.403	0.411	0.416	0.416
NJ0690 (NP3899 -> NP3877) 70.44	0	0.394	0.403	0.415	0.419	0.418
NJ0700 (NP3903 -> NP3904) 7.26	0	0.066	0.065	0.066	0.065	0.065
NJ0706 (NP3764 -> NP3908) 9.44	0	0.132	0.165	0.166	0.166	0.166
NJ0714 (NK3709 -> NP3756) 13.68	0	0.469	0.47	0.469	0.469	0.469
NJ0715 (NP3905 -> NS1419) 6.44	0	0.102	0.106	0.11	0.116	0.119
NJ0721 (NP3919 -> NP3918) 14.27	0.003	0.125	0.125	0.126	0.124	0.123

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NJ0724 (NP3918 -> NP3924) 16.78	0.001	0.122	0.123	0.124	0.125	0.125
NJ0725 (NP3766 -> NP3924) 5.35	0.777	4.103	5.007	4.359	4.736	4.442
NJ0728 (NP3920 -> NP3877) 9.76	0	0.119	0.119	0.119	0.119	0.119
NJ0730 (NP3877 -> NP3768) 17.97	0	0.6	0.608	0.617	0.622	0.623
NJ0737 (NP3815 -> NP3928) 17.18	0	0.414	0.438	0.462	0.496	0.52
NJ0766 (NS0121 -> NP3764) 7.85	0	0.132	0.151	0.151	0.151	0.151
NJ0768 (NP3817 -> NK3709) 31.47	0	0.455	0.455	0.455	0.454	0.454
NJ0770 (NP3757 -> NP3755) 26.78	0.784	3.483	3.758	3.86	3.958	4.021
NJ0774 (NP3755 -> NP3754) 27.41	0.782	3.688	3.925	3.985	4.016	4.031
NJ0775 (NP3754 -> NP3766) 40.34	0.78	3.817	4.01	4.057	4.081	4.093
NJ0779 (NP3836 -> NP3766) 17.04	0	0.147	0.182	0.182	0.183	0.183
NJ0783 (NP3778 -> NP3777) 18.26	0	0.075	0.075	0.074	0.072	0.072
NJ0786 (NP3780 -> NP3779) 19.64	0	0.014	0.017	0.02	0.024	0.027
NJ0786 (NP3780 -> NP3779) 58.91	0	0.014	0.017	0.02	0.024	0.027
NJ0787 (NP3779 -> NP3777) 34.51	0	0.194	0.194	0.194	0.195	0.195
NJ0790 (NP3797 -> NP3798) 69.24	0	0.014	0.008	0.011	0.007	0.007
NJ0792 (NP3928 -> NP3817) 13.81	0	0.466	0.473	0.48	0.49	0.498
NJ0794 (NP3893 -> NP3899) 25.96	0	0.389	0.391	0.391	0.391	0.391
NJ0796 (NY2856 -> NU3261) 16.92	0	0.391	0.418	0.418	0.419	0.42
NJ0797 (NP3771 -> NP3769) 14.10	0.396	1.775	1.85	1.9	1.966	2.006
NJ0800 (NS1417 -> NP3765) 19.17	0.149	0.709	0.759	0.791	0.823	0.84
NJ0803 (NP3823 -> NP3756) 36.79	0.785	2.39	2.696	2.884	3.015	3.06
NJ0804 (NP3904 -> NP3905) 5.81	0	0.077	0.077	0.077	0.077	0.077
NJ08080 (NP3972 -> NP3953) 15.11	0	0.017	0.021	0.025	0.03	0.034

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NJ0814 (NP3974 -> NP3815) 18.45	0	0.345	0.354	0.362	0.373	0.382
NJ0814 (NP3974 -> NP3815) 55.35	0	0.345	0.354	0.362	0.373	0.382
NJ0815 (NP3978 -> NP3974) 21.50	0	0.33	0.339	0.347	0.359	0.367
NJ0822 (NP3983 -> NS3568) 5.00	0	0.321	0.346	0.352	0.36	0.365
NJ0823 (NP3964 -> NP3983) 14.20	0	0.346	0.371	0.377	0.385	0.39
NJ0829 (NP3988 -> NS6651) 26.04	0	0.037	0.045	0.053	0.064	0.072
NJ0829 (NP3988 -> NS6651) 78.13	0	0.037	0.045	0.053	0.064	0.072
NJ0852 (NP4003 -> NP4004) 6.00	0	0.056	0.069	0.081	0.101	0.113
NJ0854 (NP4004 -> NP4006) 13.27	0	0.057	0.069	0.081	0.089	0.09
NJ0855 (NP4006 -> NP3969) 30.29	0	0.043	0.044	0.056	0.064	0.065
NJ0866 (NP4012 -> NS3569) 14.09	0	0.297	0.324	0.325	0.327	0.328
NJ0867 (NP4013 -> NP4012) 12.68	0	0.297	0.324	0.325	0.327	0.328
NJ0868 (NP4014 -> NP4013) 10.52	0	0.297	0.324	0.325	0.327	0.328
NJ0874 (NP4019 -> NP4014) 12.06	0	0.266	0.292	0.293	0.293	0.292
NJ0913 (NP3973 -> NP3978) 23.15	0	0.291	0.292	0.292	0.292	0.292
NJ0942 (NP3955 -> NP3973) 14.62	0	0.291	0.292	0.292	0.292	0.292
NJ0947 (NP3969 -> NP3951) 23.14	0	0.215	0.213	0.214	0.218	0.219
NJ0947 (NP3969 -> NP3951) 69.41	0	0.209	0.208	0.212	0.218	0.219
NJ0950 (NP3953 -> NP3951) 8.94	0	0.017	0.021	0.025	0.03	0.033
NJ0951 (NP3951 -> NP3955) 13.69	0	0.288	0.288	0.288	0.288	0.288
NJ0954 (NP3962 -> NP3961) 5.00	0.004	0.005	0.005	0.161	0.754	0.876
NJ0955 (NP3961 -> NP3956) 9.83	0.01	0.011	0.011	0.167	0.617	0.865
NJ0956 (NP3956 -> NP3960) 11.36	0.014	0.015	0.016	0.171	0.649	0.869
NJ0957 (NP3960 -> NP3959) 6.66	0.014	0.015	0.016	0.171	0.626	0.869
NJ0958 (NP3959 -> NP3958) 5.84	0.014	0.015	0.016	0.171	0.571	0.869

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NJ0959 (NP3958 -> NS3570) 10.80	0.028	0.033	0.036	0.195	0.596	0.894
NJ0963 (NS6651 -> NP3963) 31.86	0	0.179	0.178	0.178	0.178	0.178
NJ0966 (NP3963 -> NP3965) 12.93	0	0.179	0.179	0.179	0.178	0.178
NJ0970 (NP3965 -> NP3964) 10.07	0	0.275	0.287	0.287	0.287	0.287
NJ1001 (NU5113 -> NP3957) 18.44	0.187	0.949	1.013	1.05	1.061	1.066
NJ1003 (NP3957 -> NP3753) 14.57	0.195	0.924	0.988	1.025	1.035	1.04
NJ1150 (NP4266 -> NP4265) 8.06	0	0.209	0.212	0.216	0.222	0.244
NJ1164 (NS1423 -> NP4281) 19.51	0	0.206	0.253	0.3	0.364	0.412
NJ1288 (NP4256 -> NY0998) 29.17	0	0.199	0.199	0.199	0.198	0.198
NJ1292 (NP4252 -> NP4251) 18.00	0	0.232	0.284	0.3	0.3	0.3
NJ1293 (NP4251 -> NP4253) 22.94	0	0.232	0.282	0.294	0.294	0.294
NJ1296 (NP4253 -> NP4256) 28.38	0	0.253	0.283	0.284	0.284	0.284
NJ1302 (NP4249 -> NP4245) 18.96	0	0.054	0.066	0.078	0.095	0.107
NJ1302 (NP4249 -> NP4245) 56.87	0	0.054	0.066	0.078	0.095	0.107
NJ1302 (NP4249 -> NP4245) 94.78	0	0.054	0.066	0.078	0.095	0.107
NJ1310 (NP4245 -> NP4266) 11.68	0	0.209	0.212	0.216	0.222	0.227
NJ1317 (OA8375 -> NY1000) 24.46	0	0.038	0.046	0.055	0.066	0.074
NJ1317 (OA8375 -> NY1000) 73.39	0	0.038	0.046	0.055	0.066	0.074
NJ1325 (NP4239 -> NP4240) 5.52	0	0.145	0.144	0.145	0.144	0.143
NJ1331 (NP4240 -> NP4287) 26.95	0	0.138	0.138	0.138	0.138	0.138
NJ1337 (NP4287 -> NP4244) 15.08	0	0.165	0.165	0.165	0.165	0.165
NJ1339 (NP4244 -> NP4242) 17.35	0	0.279	0.304	0.328	0.361	0.375
NJ1340 (NP4242 -> NP4243) 8.46	0	0.304	0.329	0.353	0.386	0.399
NJ1341 (NP4243 -> NS3571) 5.00	0	0.31	0.334	0.359	0.392	0.405

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NK8947 (NK8947 -> NK8974) 5.00	0	0.123	0.124	0.124	0.124	0.124
NK9035 (NK9035 -> MSCS010) 13.06	0.005	0.042	0.041	0.042	0.041	0.04
NK9052 (NK9052 -> NK9051) 5.29	0	0.021	0.019	0.018	0.016	0.016
NK9076 (NK9076 -> NK9078) 9.63	0	0.671	0.679	0.688	0.69	0.69
NL9755 (NL9755 -> MSAH070) 5.00	0.002	0.106	0.109	0.108	0.107	0.106
NL9760 (NL9760 -> MSAH070) 5.00	0.553	1.966	1.973	1.983	2.006	2.017
NL9871 (NL9871 -> NL9825) 8.05	0.057	0.294	0.337	0.337	0.338	0.339
NP3798 (NP3798 -> NP3807) 21.33	0	0.147	0.147	0.147	0.145	0.146
NS9460 (OA7182 -> MSCT030) 11.22	0	0.407	0.433	0.451	0.454	0.457
NS9466 (M_SE020 -> M_SE030) 17.11	0.311	1.787	1.799	1.803	1.809	1.842
NT0457 (NS1419 -> MSGN030B) 26.41	0	0.107	0.111	0.116	0.121	0.125
NU3089 (NU3086 -> NU3087) 19.42	0.036	0.195	0.231	0.263	0.295	0.315
NU3090 (NU3087 -> NL9749) 35.80	0.237	0.396	0.436	0.47	0.497	0.515
NV3052 (NP3807 -> NV3046) 6.18	0	0.382	0.383	0.384	0.385	0.386
NV3053 (NV3046 -> NV3047) 7.41	0	0.526	0.565	0.593	0.614	0.62
NV3054 (NZ4315 -> NV3048) 8.03	0	0.476	0.513	0.541	0.554	0.555
NV3055 (NV3048 -> NV3049) 8.56	0	0.451	0.487	0.515	0.528	0.528
NV3056 (NV3049 -> NV3050) 6.71	0	0.425	0.462	0.49	0.503	0.503
NV3057 (NV3050 -> NV3051) 9.87	0	0.45	0.487	0.501	0.502	0.503
NV3058 (NV3051 -> NP3833) 5.00	0	0.452	0.452	0.45	0.448	0.445
NV4316 (NV3047 -> NZ4315) 5.00	0	0.501	0.538	0.566	0.583	0.587
NV7443 (NW6043 -> NP3868) 20.28	0	0.326	0.327	0.327	0.328	0.328
NV7476 (NV7473 -> NU3086) 35.94	0.035	0.181	0.212	0.234	0.264	0.281

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NV7477 (NV7472 -> NV7473) 32.35	0.033	0.129	0.131	0.132	0.133	0.134
NV7478 (NV7471 -> NV7472) 26.69	0.002	0.029	0.029	0.029	0.03	0.03
NV7479 (NV7470 -> NV7471) 5.72	0	0.022	0.022	0.022	0.022	0.022
NW5338 (NK9083 -> NP3769) 33.13	0.001	0.041	0.04	0.041	0.041	0.04
NW5818 (MSAG035 -> NW5870) 10.98	0.372	1.215	1.195	1.175	1.157	1.149
NW5864 (NP3860 -> NU2228) 25.17	0.776	4.894	4.935	4.929	4.99	4.992
NW5871 (NW5870 -> NZ4306) 30.09	0.431	2.333	2.33	2.337	2.356	2.351
NW5873 (NW5870 -> NZ4306) 30.09	0.431	2.333	2.33	2.337	2.356	2.351
NW5875 (NW5889 -> MSAG035) 44.08	0.373	1.216	1.207	1.183	1.161	1.152
NW5880 (MSAA090 -> NW5870) 11.08	0.128	2.525	2.545	2.558	2.585	2.603
NW5882 (MSAG035 -> NW5870) 10.98	0.372	1.215	1.195	1.175	1.157	1.149
NW5890 (NW5888 -> MSAA090) 43.44	0.13	2.469	2.487	2.5	2.513	2.52
NW5893 (NW5889 -> MSAG035) 44.08	0.373	1.216	1.207	1.183	1.161	1.152
NW5910 (NP3716 -> NS3553-3) 32.77	0.202	0.764	0.799	0.825	0.848	0.863
NW5912 (NP3716 -> NS3553) 32.78	0.161	0.728	0.77	0.802	0.83	0.848
NW5913 (NP3716 -> NS3553-2) 32.74	0.198	0.766	0.801	0.827	0.85	0.866
NW5919 (NW5896 -> NP3716) 12.34	0.193	0.757	0.792	0.82	0.844	0.86
NW5920 (NW5894 -> NW5896) 13.39	0.193	0.763	0.799	0.825	0.845	0.862
NW5921 (NL9778A_dummy -> NW5894) 42.95	0.273	1.118	1.167	1.202	1.231	1.25
NW5931 (MSAH070 -> NL9777) 25.42	0.277	1.02	1.033	1.04	1.041	1.04
NW5931 (MSAH070 -> NL9777) 76.26	0.274	1.02	1.033	1.04	1.041	1.04
NW5933 (NL9778 -> NL9778A_dummy) 32.94	0.273	1.099	1.137	1.165	1.186	1.198
NW5933 (NL9778 -> NL9778A_dummy) 98.83	0.272	1.094	1.134	1.161	1.181	1.195

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NW5934 (NL9778A_dummy -> NW5894) 42.95	0.273	1.118	1.167	1.202	1.231	1.25
NW5937 (MSAH070 -> NL9777) 25.42	0.277	1.02	1.033	1.04	1.041	1.04
NW5937 (MSAH070 -> NL9777) 76.26	0.274	1.02	1.033	1.04	1.041	1.04
NW5944 (NS3851 -> NL9760) 33.89	0.288	1.605	1.686	1.749	1.815	1.857
NW5944 (NS3851 -> NL9760) 101.67	0.281	1.606	1.686	1.749	1.815	1.857
NW5955 (NW5962 -> NW5889) 17.52	0.374	1.234	1.234	1.23	1.228	1.232
NW5956 (NW5965 -> NW5962) 26.65	0.376	1.538	1.552	1.559	1.57	1.577
NW5956-1 (NP3769 -> NW6262) 24.85	0.385	1.547	1.577	1.598	1.625	1.64
NW5959 (NW5962 -> NW5889) 17.52	0.374	1.234	1.234	1.23	1.228	1.232
NW5960 (NW5961 -> NW5888) 18.09	0.134	2.293	2.297	2.317	2.327	2.325
NW5963 (NW5965 -> NW5962) 26.65	0.376	1.538	1.552	1.559	1.57	1.577
NW5964 (NW5967 -> NW5961) 26.63	0.14	2.369	2.35	2.332	2.31	2.276
NW6259 (NP3772 -> NP3771) 10.63	0.41	1.775	1.847	1.887	1.954	1.993
NW6259-1 (NP3771 -> NP3769) 14.10	0.396	1.775	1.85	1.9	1.966	2.006
NW6260 (NW6262 -> NW5965) 22.16	0.379	1.526	1.539	1.547	1.557	1.565
NW6261 (NW6263 -> NW5967) 22.16	0.15	2.444	2.576	2.599	2.625	2.642
NW6268 (NP3769 -> NW6262) 24.85	0.385	1.547	1.577	1.598	1.625	1.64
NW6269 (NP3773 -> NW6263) 24.61	0.162	2.45	2.481	2.466	2.436	2.436
NW6315 (NW6314 -> NL9825) 25.36	0.002	0.337	0.343	0.345	0.344	0.344
NW9107 (NQ1622 -> NW7706) 21.57	0	0.057	0.069	0.082	0.098	0.111
NW9107 (NQ1622 -> NW7706) 64.70	0	0.057	0.069	0.082	0.098	0.111
NY0873 (NY0998 -> NY0997) 5.00	0.008	0.375	0.375	0.375	0.375	0.375
NY1725 (NS1839 -> NS1126) 30.69	0	0.204	0.215	0.225	0.239	0.248

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NY7761 (NK8951 -> MSEB020) 24.68	0	0.142	0.165	0.165	0.165	0.165
NZ0259 (NP4265 -> MSCB060) 15.47	0	0.209	0.212	0.234	0.246	0.269
NZ0309 (NP6306 -> NL9820) 12.22	0	0.429	0.431	0.434	0.435	0.435
NZ0407 (NP3687 -> NP3699) 12.40	0	0.055	0.067	0.079	0.096	0.108
NZ0409 (NP3697 -> NP3698) 18.36	0	0.045	0.06	0.075	0.097	0.113
NZ0410 (NP3696 -> NP3697) 21.12	0	0.045	0.06	0.075	0.097	0.113
NZ0410 (NP3696 -> NP3697) 63.35	0	0.045	0.06	0.075	0.097	0.113
NZ7472 (NL9852 -> MSAC160) 24.99	0.052	0.093	0.117	0.114	0.122	0.131
NZ7537 (NZ4308 -> NP3903) 14.05	0	0.066	0.065	0.065	0.065	0.065
NZ7539 (NQ1597 -> NZ4308) 20.49	0	0.075	0.082	0.087	0.093	0.097
NZ7575 (NP3699 -> NP3698) 15.21	0	0.054	0.066	0.079	0.096	0.108
NZ7579 (NP3698 -> NZ4378) 24.43	0	0.165	0.207	0.25	0.309	0.353
NZ7581 (Node_18 -> NZ4378) 7.79	0	0.032	0.102	0.097	0.098	0.086
NZ7582 (NZ4378 -> NZ4380) 11.56	0	0.368	0.4	0.4	0.399	0.405
NZ7583 (NZ4380 -> NZ4381) 34.11	0	0.389	0.42	0.427	0.437	0.44
NZ7584 (NZ4381 -> NZ4382) 25.05	0	0.389	0.418	0.427	0.437	0.44
NZ7586 (NZ4382 -> NZ4383) 19.09	0	0.389	0.418	0.427	0.437	0.44
NZ7587 (NZ4383 -> NZ4310) 6.40	0	0.389	0.418	0.427	0.437	0.44
NZ7589 (NZ4310 -> NZ4306) 8.50	0	0.389	0.418	0.427	0.437	0.44
NZ7611 (NK9078 -> NS1840) 18.84	0	0.676	0.685	0.702	0.714	0.715
NZ7622 (NS1416 -> NS2315) 9.51	0	0.082	0.093	0.102	0.112	0.12
OA7199 (OA7181 -> OA7182) 10.88	0	0.384	0.409	0.426	0.429	0.432

- Flows at Mike Urban Nodes MPD

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
Link_14 (NZ4379 -> Node_18) 9.48	0.019	0.125	0.111	0.112	0.119	0.124
MSAA075I2 (NW5896 -> NP3716) 12.34	0.708	0.78	0.753	0.755	0.765	0.786
MSAA075I3 (NW5896 -> NP3716) 12.34	0.708	0.78	0.753	0.755	0.765	0.786
MSAA080I2 (NW5894 -> NW5896) 13.39	0.705	0.786	0.759	0.763	0.765	0.767
MSAA080I3 (NW5894 -> NW5896) 13.39	0.705	0.786	0.759	0.763	0.765	0.767
MSAG050I2 (NW6262 -> NW5965) 22.16	1.469	1.525	1.537	1.547	1.559	1.56
MSAH040I2 (MSAH040 -> NL9778) 11.35	1.032	1.129	1.128	1.152	1.182	1.201
MSAH090I2 (NS3851 -> NL9760) 33.89	1.47	1.667	1.748	1.814	1.899	1.937
MSAH090I2 (NS3851 -> NL9760) 101.67	1.471	1.667	1.748	1.814	1.899	1.937
MSAH095I2 (NQ1651 -> NS3851) 5.00	1.47	1.667	1.748	1.813	1.897	1.965
MSAH100I2 (NS3672 -> NQ1651) 20.81	1.47	1.667	1.748	1.813	1.897	1.953
MSAH105I2 (NW5950 -> NS3672) 5.00	1.593	1.667	1.748	1.813	1.897	1.948
MSCT020I1 (MSCT020 -> NS1632) 14.01	0.414	0.432	0.425	0.419	0.414	0.411
MSFC040I1 (NS1832 -> M_SE020) 5.00	1.735	1.773	1.779	1.784	1.789	1.799
MSGU010I1 (NS1666 -> NS1416) 5.00	0.065	0.074	0.074	0.075	0.075	0.075
NA0010 (NL9815 -> NL9779) 7.09	0.14	0.286	0.424	0.428	0.427	0.416
NA0486 (NW5950 -> NS3672) 5.00	1.593	1.667	1.748	1.813	1.897	1.948
NA9918 (NK2906 -> NL9859) 14.70	0.074	0.074	0.074	0.074	0.074	0.074
NA9919 (NK2905 -> NK2906) 11.43	0.077	0.078	0.077	0.078	0.076	0.076
NB1471 (NL9747 -> NS1666) 19.31	0.04	0.05	0.05	0.05	0.05	0.05
NB1471 (NL9747 -> NS1666) 57.92	0.04	0.05	0.05	0.05	0.05	0.05
NB3008 (NK4274 -> NK9030) 25.91	0.03	0.076	0.081	0.081	0.081	0.081
NB3008 (NK4274 -> NK9030) 77.72	0.029	0.076	0.081	0.081	0.081	0.081
NB3015 (NK9232 -> NK9090) 18.02	0.107	0.152	0.154	0.154	0.153	0.153
NC0397 (MSAH180 -> NK9066) 8.91	0.156	0.155	0.157	0.157	0.156	0.156
NC0407 (NK8901 -> NK9067) 5.00	0.381	0.404	0.641	0.401	0.403	0.401
NC0410 (NK9066 -> NK8901) 5.00	0.289	0.365	0.422	0.471	0.49	0.491
NC0413 (NK9281 -> NK4274) 9.83	0.025	0.07	0.075	0.075	0.075	0.075
NC0415 (NP4262 -> NK8953) 8.13	0.005	0.018	0.025	0.025	0.026	0.026
NC0432 (NQ1583 -> MSAH210) 12.23	0.121	0.183	0.203	0.203	0.204	0.204

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NC0438 (NK8917 -> MSCB010) 13.86	0.245	0.398	0.504	0.586	0.664	0.663
NC0440 (MSCB010 -> NS1836) 11.02	0.369	0.586	0.732	0.868	1.002	1.022
NC0451 (NK8903 -> NK9012) 17.97	1.616	1.67	1.768	1.831	1.894	1.939
NC0459 (NK9051 -> NK9049) 15.30	0.029	0.028	0.025	0.02	0.022	0.02
NC0470 (NS4314 -> NK9045) 20.71	0.006	0.02	0.025	0.025	0.025	0.025
NC0477 (MSCS010 -> NS1834) 18.30	0.054	0.053	0.051	0.05	0.047	0.049
NC0487 (MSAH210 -> MSAH200) 9.28	0.121	0.144	0.144	0.143	0.143	0.143
NC0513 (NK9025 -> NS1842) 10.58	0.638	0.913	1.079	1.233	1.441	1.582
NC0514 (NK4268 -> NS1839) 10.73	0.146	0.169	0.171	0.171	0.172	0.172
NC0523 (NS3672 -> NQ1651) 20.81	1.47	1.667	1.748	1.813	1.897	1.953
NC0537 (MSAH200 -> MSAH190) 20.14	0.121	0.138	0.138	0.138	0.138	0.138
NC0537 (MSAH200 -> MSAH190) 60.42	0.121	0.137	0.138	0.138	0.138	0.138
NC0537 (MSAH200 -> MSAH190) 100.69	0.121	0.137	0.138	0.138	0.138	0.138
NC0539 (MSAH190 -> MSAH180) 9.81	0.121	0.137	0.138	0.138	0.138	0.138
NC0545 (NQ1651 -> NS3851) 5.00	1.47	1.667	1.748	1.813	1.897	1.965
NC0575 (MSCD010 -> MSCB010) 19.37	0.075	0.113	0.141	0.17	0.21	0.223
NC0587 (NK8939 -> NQ1597) 18.68	0.066	0.08	0.087	0.093	0.098	0.1
NC0590 (NK4262 -> NK8939) 16.64	0.067	0.081	0.089	0.096	0.102	0.105
NC0592 (NK8937 -> NK4262) 5.00	0.011	0.009	0.008	0.007	0.008	0.008
NC0613 (MSFB010 -> MSFB005) 30.54	0	0.006	0.006	0.006	0.011	0.013
NC0634 (NK8964 -> NK8966) 14.25	0.127	0.189	0.207	0.213	0.222	0.229
NC0640 (NK8966 -> NK9021) 31.90	0.127	0.189	0.207	0.213	0.222	0.229
NC0642 (MSEB020 -> NK8964) 18.89	0.11	0.163	0.177	0.177	0.177	0.177
NC0642 (MSEB020 -> NK8964) 56.68	0.11	0.163	0.175	0.175	0.175	0.175
NC0653 (NK8974 -> NK4269) 30.55	0.146	0.165	0.165	0.165	0.166	0.166
NC0655 (NK4269 -> NK4268) 17.25	0.146	0.165	0.165	0.165	0.166	0.166
NC0681 (MSCT030 -> MSCT020) 13.51	0.402	0.452	0.476	0.479	0.483	0.486
NC0722 (NK9019 -> NK9017) 5.00	0.091	0.098	0.098	0.098	0.098	0.098
NC0726 (NK9017 -> NK9016) 5.00	0.091	0.101	0.102	0.104	0.108	0.111
NC0729 (NK9016 -> NK9014) 27.43	0.091	0.101	0.102	0.104	0.108	0.111
NC0731 (NK9014 -> NK9012) 8.41	0.066	0.076	0.077	0.079	0.083	0.089
NC0733 (NK9012 -> NK9075) 25.90	1.757	1.824	1.829	1.832	1.833	1.833
NC0735 (NK9023 -> NK9025) 17.38	0.639	0.914	1.081	1.236	1.443	1.579
NC0737 (NK9021 -> NK9023) 13.68	0.127	0.189	0.207	0.213	0.222	0.229

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NC0739 (NS1126 -> NK9023) 25.47	0.334	0.453	0.53	0.608	0.709	0.772
NC0747 (NK9030 -> MSBD020) 6.27	1.087	1.332	1.377	1.427	1.472	1.496
NC0749 (NK9031 -> NK9030) 7.41	1.063	1.257	1.296	1.332	1.367	1.39
NC0751 (NK9032 -> NK9031) 9.20	1.064	1.232	1.271	1.306	1.342	1.365
NC0765 (MSCS030 -> NK9035) 10.44	0.087	0.085	0.084	0.084	0.082	0.08
NC0773 (NK8953 -> NY0996) 17.67	0.19	0.302	0.381	0.457	0.559	0.629
NC0780 (NK9049 -> OA7179) 20.18	0.204	0.206	0.206	0.206	0.206	0.206
NC0789 (NK9075 -> NS1832) 9.95	1.76	1.798	1.804	1.807	1.808	1.808
NC0805 (NK9072 -> NK9073) 5.42	0.037	0.067	0.066	0.067	0.065	0.066
NC0807 (NK9069 -> NK9072) 23.23	0	0.015	0.015	0.015	0.015	0.015
NC0812 (NK9073 -> M_AH140) 27.22	0.095	0.142	0.142	0.142	0.141	0.141
NC0816 (NK9071 -> NK9076) 6.50	0.604	0.652	0.663	0.665	0.665	0.665
NC0820 (NK9067 -> NK9071) 5.00	0.598	0.677	0.688	0.69	0.69	0.69
NC0838 (NQ1646 -> M_SE060) 27.10	0.161	0.16	0.159	0.158	0.158	0.158
NC0842 (MSGC020 -> OA7181) 12.65	0.365	0.372	0.376	0.379	0.383	0.386
NC0844 (NK9060 -> MSGC020) 31.43	0.104	0.177	0.182	0.199	0.213	0.228
NC0853 (NK9048 -> NK9060) 24.36	0.104	0.174	0.178	0.195	0.209	0.223
NC0858 (NK9045 -> NK9281) 6.18	0.013	0.045	0.05	0.05	0.05	0.05
NC0860 (NY0999 -> NY0998) 19.22	0.203	0.255	0.255	0.256	0.26	0.263
NC0864 (NQ1637 -> NK9067) 27.52	0.107	0.134	0.134	0.134	0.134	0.134
NC0869 (NK9046 -> NK9050) 8.30	0.102	0.121	0.122	0.122	0.122	0.122
NC0871 (NK9050 -> NK9049) 6.22	0.098	0.099	0.098	0.099	0.098	0.098
NC0872 (NY0997 -> NY0996) 16.64	0.357	0.381	0.392	0.396	0.397	0.397
NC0887 (NY0996 -> NK9283) 12.36	0.556	0.559	0.559	0.559	0.558	0.558
NC0904 (NK9283 -> NK9095) 23.44	0.759	0.766	0.767	0.767	0.767	0.767
NC0904 (NK9283 -> NK9095) 70.33	0.759	0.766	0.766	0.766	0.766	0.767
NC0905 (NK9090 -> NK9278) 18.65	0.107	0.146	0.146	0.146	0.146	0.146
NC0911 (NK9095 -> NK9032) 12.77	1.054	1.204	1.298	1.32	1.331	1.337
NC1205 (NK9233 -> NK9283) 18.70	0.223	0.274	0.274	0.274	0.274	0.274
NC1205 (NK9233 -> NK9283) 56.09	0.223	0.274	0.274	0.274	0.274	0.274
NC1215 (NK9234 -> NK9019) 16.88	0.011	0.016	0.02	0.023	0.028	0.032
NC1215 (NK9234 -> NK9019) 50.65	0.011	0.016	0.02	0.023	0.028	0.032
NC1274 (NK9260 -> NK9266) 9.84	0.105	0.141	0.141	0.142	0.142	0.142
NC1276 (NK9266 -> NK9048) 33.34	0.105	0.171	0.174	0.19	0.205	0.218
NC1319 (NK9278 -> NK9046) 12.31	0.107	0.147	0.147	0.147	0.147	0.147
NC5319 (NP4281 -> NK8917) 5.00	0.157	0.265	0.326	0.386	0.447	0.438

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NC5320 (NY1000 -> NY0999) 10.36	0.029	0.044	0.054	0.065	0.08	0.09
ND8519 (NL9778 -> NL9778A_dummy) 32.94	1.029	1.127	1.128	1.152	1.182	1.201
ND8519 (NL9778 -> NL9778A_dummy) 98.83	1.027	1.124	1.128	1.152	1.182	1.201
ND8522 (MSAH040 -> NL9778) 11.35	1.032	1.129	1.128	1.152	1.182	1.201
ND8524 (NS5200 -> NL9787) 6.80	0.806	0.887	0.919	0.933	0.94	0.944
ND8527 (NL9787 -> NL9749) 24.66	0.734	0.737	0.737	0.736	0.736	0.736
ND8527 (NL9787 -> NL9749) 73.97	0.734	0.737	0.737	0.736	0.736	0.736
ND8529 (NQ5899 -> NL9804) 5.10	0.025	0.025	0.025	0.026	0.026	0.026
ND8531 (NL9779 -> NL9812) 30.99	0.147	0.359	0.46	0.453	0.476	0.461
ND8543 (NL9777 -> MSAH040) 6.15	1.985	2.077	2.052	2.054	2.052	2.05
ND8552 (NL9748 -> NL9747) 9.96	0.002	0.002	0.027	0.03	0.025	0.025
ND8556 (NL9749 -> NS2313) 5.00	1.402	1.583	1.744	1.817	1.961	2.053
ND8557 (NL9750 -> NL9749) 16.74	0.338	0.396	0.508	0.628	0.722	0.742
ND8559 (NL9751 -> NL9750) 18.41	0.337	0.397	0.5	0.628	0.722	0.739
ND8560 (NL9753 -> NL9751) 30.06	0.343	0.417	0.508	0.593	0.648	0.666
ND8564 (NL9812 -> NL9753) 25.55	0.43	0.498	0.523	0.542	0.55	0.548
ND8572 (NL9775 -> NL9755) 19.26	0.011	0.009	0.009	0.007	0.008	0.006
ND8572 (NL9775 -> NL9755) 57.77	0.011	0.015	0.009	0.007	0.008	0.006
ND8634 (NL9800 -> NL9802) 31.95	0.015	0.015	0.015	0.015	0.015	0.015
ND8636 (NL9804 -> NL9808) 12.76	0.065	0.079	0.092	0.105	0.123	0.136
ND8638 (NL9808 -> NL9760) 23.85	0.07	0.071	0.072	0.072	0.072	0.071
ND8643 (NL9810 -> NL9811) 23.15	0.095	0.093	0.093	0.093	0.093	0.093
ND8644 (NL9811 -> NL9812) 10.45	0.134	0.138	0.14	0.14	0.134	0.137
ND8645 (NL9817 -> NL9815) 11.92	0.126	0.184	0.341	0.288	0.232	0.242
ND8649 (NL9816 -> NL9817) 7.98	0.055	0.103	0.187	0.16	0.166	0.165
ND8664 (NL9802 -> NQ5899) 23.90	0.019	0.019	0.02	0.02	0.02	0.02
ND8668 (NV0212 -> NS5200) 17.79	0.72	0.895	0.959	0.988	1	1.007
ND8673 (MSAC160 -> NL9871) 24.70	0.089	0.104	0.115	0.127	0.142	0.153
ND8673 (MSAC160 -> NL9871) 74.09	0.089	0.104	0.115	0.127	0.142	0.153
ND8674 (NL9824 -> NV0212) 13.97	0.614	0.735	0.761	0.778	0.816	0.838
ND8675 (NL9825 -> NL9824) 18.86	0.609	0.73	0.755	0.773	0.797	0.813
ND8677 (NL9820 -> NS2318) 18.51	0.501	0.555	0.59	0.622	0.632	0.632
ND8723 (NL9853 -> NL9852) 5.00	0.047	0.062	0.073	0.085	0.1	0.111
ND8724 (NL9854 -> NL9853) 21.69	0.015	0.015	0.015	0.015	0.015	0.015
ND8732 (NL9858 -> NL9857) 6.57	0.419	0.433	0.432	0.432	0.432	0.431

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
ND8733 (NL9857 -> NP6306) 5.00	0.419	0.429	0.429	0.428	0.429	0.428
ND8734 (NL9880 -> NL9858) 22.80	0.208	0.226	0.227	0.227	0.226	0.226
ND8735 (NL9859 -> NL9858) 21.49	0.074	0.075	0.075	0.074	0.075	0.075
ND8766 (NL9881 -> NL9880) 5.00	0.118	0.129	0.129	0.129	0.13	0.129
NJ0420 (NP3708 -> NP3709) 15.49	0.022	0.033	0.041	0.049	0.06	0.068
NJ0421 (NP3709 -> NP3710) 11.78	0.051	0.085	0.111	0.139	0.178	0.205
NJ0422 (NP3710 -> NP3712) 21.66	0.05	0.085	0.111	0.139	0.178	0.205
NJ0425 (NP3712 -> NW5888) 5.00	0.097	0.164	0.215	0.27	0.345	0.393
NJ0432 (NZ4306 -> MSAG010_2) 39.23	2.329	2.409	2.428	2.438	2.454	2.462
NJ0433 (NZ4306 -> MSAG010) 39.37	2.313	2.394	2.413	2.423	2.439	2.447
NJ0494 (NP3750 -> NP3751) 20.44	0.021	0.031	0.038	0.045	0.055	0.061
NJ0506 (NP3753 -> NS3559) 13.58	0.851	0.995	1.028	1.03	1.031	1.033
NJ0509 (NP3756 -> NP3757) 18.41	2.616	3.241	3.42	3.548	3.639	3.716
NJ0522 (NP3770 -> NP3773) 12.94	2.533	2.722	2.799	2.884	2.989	2.987
NJ0523 (NP3772 -> NP3770) 10.54	2.924	2.879	2.8	2.876	2.964	2.965
NJ0524 (NP3768 -> NP3772) 17.27	0.599	0.628	0.637	0.645	0.657	0.667
NJ0525 (NP3772 -> NP3771) 10.63	1.53	1.833	1.889	1.949	2.014	2.014
NJ0526 (NP3765 -> NP3772) 15.04	4.702	5.697	5.863	6.033	6.218	6.213
NJ0559 (NP3789 -> NP3893) 25.50	0.1	0.151	0.161	0.161	0.161	0.161
NJ0559 (NP3789 -> NP3893) 76.49	0.1	0.15	0.161	0.161	0.161	0.161
NJ0578 (NP3806 -> NP3807) 20.04	0.229	0.23	0.23	0.23	0.231	0.231
NJ0579 (NP3805 -> NP3806) 29.46	0.021	0.031	0.038	0.045	0.055	0.061
NJ0580 (NP3751 -> NP3805) 18.02	0.021	0.031	0.038	0.045	0.055	0.061
NJ0587 (NP3908 -> NP3824) 31.01	0.102	0.164	0.17	0.171	0.172	0.172
NJ0588 (NP3824 -> NP3823) 26.18	2.085	2.62	2.868	3.006	3.083	3.149
NJ0590 (MSAD440 -> NP3824) 7.21	3.68	3.62	3.518	3.562	3.484	3.542
NJ0606 (NP3833 -> NP3757) 6.78	0.497	0.546	0.537	0.533	0.529	0.527
NJ0623 (NP3924 -> NP3767) 26.06	3.806	4.459	4.493	4.508	4.52	4.693
NJ0624 (NP3848 -> NP3767) 8.96	0.528	0.492	0.488	0.508	0.508	0.705
NJ0625 (NP3849 -> NP3848) 12.46	0.198	0.199	0.199	0.199	0.199	0.199
NJ0626 (NP3851 -> NP3849) 20.61	0.153	0.229	0.231	0.234	0.237	0.241
NJ0627 (NP3850 -> NP3849) 12.45	0.317	0.318	0.318	0.318	0.318	0.318
NJ0630 (NP3853 -> NP3852) 25.65	0.059	0.088	0.109	0.131	0.159	0.16
NJ0631 (NP3852 -> NP3851) 33.97	0.059	0.088	0.109	0.131	0.159	0.188
NJ0641 (NP3861 -> NP3860) 5.04	0.072	0.076	0.075	0.087	0.107	0.138
NJ0642 (NU2228 -> NP3765) 48.99	4.202	5.005	5.097	5.168	5.254	5.493

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NJ0643 (NP3767 -> NP3860) 20.10	4.317	5.093	5.071	5.128	5.143	6.075
NJ0651 (NP3777 -> NP3867) 14.35	0.372	0.373	0.373	0.373	0.373	0.373
NJ0652 (NP3867 -> NW6043) 10.19	0.32	0.322	0.322	0.322	0.323	0.324
NJ0653 (NP3868 -> NP3850) 22.66	0.319	0.332	0.333	0.332	0.334	0.335
NJ0676 (NP3891 -> NP3892) 6.20	0.038	0.058	0.072	0.087	0.107	0.121
NJ0678 (NP3892 -> NP3893) 29.67	0.046	0.071	0.072	0.073	0.076	0.076
NJ0680 (NP3895 -> NP3789) 15.61	0.077	0.116	0.127	0.127	0.127	0.127
NJ0690 (NP3899 -> NP3877) 23.48	0.378	0.4	0.411	0.416	0.416	0.416
NJ0690 (NP3899 -> NP3877) 70.44	0.378	0.4	0.414	0.419	0.42	0.42
NJ0700 (NP3903 -> NP3904) 7.26	0.066	0.066	0.065	0.065	0.065	0.065
NJ0706 (NP3764 -> NP3908) 9.44	0.101	0.162	0.166	0.166	0.166	0.166
NJ0714 (NK3709 -> NP3756) 13.68	0.468	0.469	0.469	0.469	0.469	0.468
NJ0715 (NP3905 -> NS1419) 6.44	0.097	0.105	0.11	0.115	0.119	0.119
NJ0721 (NP3919 -> NP3918) 14.27	0.124	0.125	0.124	0.125	0.123	0.123
NJ0724 (NP3918 -> NP3924) 16.78	0.123	0.124	0.124	0.125	0.125	0.125
NJ0725 (NP3766 -> NP3924) 5.35	4.47	4.262	4.361	4.593	4.727	4.594
NJ0728 (NP3920 -> NP3877) 9.76	0.119	0.119	0.119	0.119	0.119	0.119
NJ0730 (NP3877 -> NP3768) 17.97	0.578	0.606	0.616	0.622	0.623	0.623
NJ0737 (NP3815 -> NP3928) 17.18	0.385	0.426	0.462	0.494	0.536	0.56
NJ0766 (NS0121 -> NP3764) 7.85	0.101	0.151	0.151	0.151	0.152	0.152
NJ0768 (NP3817 -> NK3709) 31.47	0.453	0.455	0.455	0.454	0.454	0.454
NJ0770 (NP3757 -> NP3755) 26.78	3.095	3.715	3.866	3.957	4.062	4.102
NJ0774 (NP3755 -> NP3754) 27.41	3.265	3.899	3.989	4.017	4.034	4.021
NJ0775 (NP3754 -> NP3766) 40.34	3.37	3.991	4.06	4.082	4.097	4.099
NJ0779 (NP3836 -> NP3766) 17.04	0.11	0.174	0.182	0.182	0.183	0.183
NJ0783 (NP3778 -> NP3777) 18.26	0.075	0.075	0.074	0.073	0.071	0.071
NJ0786 (NP3780 -> NP3779) 19.64	0.011	0.016	0.02	0.024	0.029	0.033
NJ0786 (NP3780 -> NP3779) 58.91	0.011	0.016	0.02	0.024	0.029	0.033
NJ0787 (NP3779 -> NP3777) 34.51	0.184	0.194	0.194	0.195	0.195	0.195
NJ0790 (NP3797 -> NP3798) 69.24	0.016	0.009	0.01	0.008	0.01	0.011
NJ0792 (NP3928 -> NP3817) 13.81	0.458	0.469	0.48	0.49	0.504	0.511
NJ0794 (NP3893 -> NP3899) 25.96	0.378	0.39	0.391	0.391	0.391	0.391
NJ0796 (NY2856 -> NU3261) 16.92	0.3	0.417	0.418	0.419	0.418	0.418
NJ0797 (NP3771 -> NP3769) 14.10	1.527	1.836	1.901	1.962	2.026	2.026
NJ0800 (NS1417 -> NP3765) 19.17	0.476	0.745	0.79	0.821	0.853	0.87
NJ0803 (NP3823 -> NP3756) 36.79	2.053	2.648	2.903	3.022	3.089	3.15

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NJ0804 (NP3904 -> NP3905) 5.81	0.077	0.077	0.077	0.077	0.077	0.077
NJ08080 (NP3972 -> NP3953) 15.11	0.014	0.02	0.025	0.03	0.036	0.041
NJ0814 (NP3974 -> NP3815) 18.45	0.333	0.346	0.362	0.373	0.388	0.393
NJ0814 (NP3974 -> NP3815) 55.35	0.333	0.346	0.362	0.373	0.388	0.396
NJ0815 (NP3978 -> NP3974) 21.50	0.318	0.337	0.347	0.358	0.373	0.383
NJ0822 (NP3983 -> NS3568) 5.00	0.286	0.344	0.352	0.36	0.369	0.375
NJ0823 (NP3964 -> NP3983) 14.20	0.311	0.369	0.377	0.385	0.394	0.4
NJ0829 (NP3988 -> NS6651) 26.04	0.029	0.043	0.053	0.064	0.078	0.088
NJ0829 (NP3988 -> NS6651) 78.13	0.029	0.043	0.053	0.064	0.078	0.088
NJ0852 (NP4003 -> NP4004) 6.00	0.043	0.066	0.081	0.1	0.117	0.118
NJ0854 (NP4004 -> NP4006) 13.27	0.043	0.066	0.08	0.089	0.091	0.091
NJ0855 (NP4006 -> NP3969) 30.29	0.042	0.043	0.055	0.064	0.066	0.066
NJ0866 (NP4012 -> NS3569) 14.09	0.227	0.323	0.325	0.327	0.329	0.33
NJ0867 (NP4013 -> NP4012) 12.68	0.227	0.323	0.325	0.327	0.329	0.33
NJ0868 (NP4014 -> NP4013) 10.52	0.227	0.323	0.325	0.327	0.329	0.33
NJ0874 (NP4019 -> NP4014) 12.06	0.203	0.291	0.293	0.293	0.292	0.293
NJ0913 (NP3973 -> NP3978) 23.15	0.289	0.291	0.292	0.292	0.292	0.292
NJ0942 (NP3955 -> NP3973) 14.62	0.289	0.291	0.292	0.292	0.292	0.292
NJ0947 (NP3969 -> NP3951) 23.14	0.214	0.214	0.213	0.217	0.22	0.22
NJ0947 (NP3969 -> NP3951) 69.41	0.208	0.209	0.212	0.217	0.22	0.22
NJ0950 (NP3953 -> NP3951) 8.94	0.014	0.02	0.025	0.03	0.036	0.041
NJ0951 (NP3951 -> NP3955) 13.69	0.288	0.288	0.288	0.288	0.288	0.287
NJ0954 (NP3962 -> NP3961) 5.00	0.005	0.005	0.176	0.699	0.921	0.981
NJ0955 (NP3961 -> NP3956) 9.83	0.011	0.011	0.182	0.651	0.919	1.006
NJ0956 (NP3956 -> NP3960) 11.36	0.015	0.015	0.186	0.627	0.924	1.011
NJ0957 (NP3960 -> NP3959) 6.66	0.015	0.015	0.186	0.63	0.924	1.011
NJ0958 (NP3959 -> NP3958) 5.84	0.015	0.015	0.186	0.56	0.924	1.011
NJ0959 (NP3958 -> NS3570) 10.80	0.03	0.035	0.209	0.585	0.948	1.035
NJ0963 (NS6651 -> NP3963) 31.86	0.179	0.179	0.178	0.178	0.178	0.178
NJ0966 (NP3963 -> NP3965) 12.93	0.179	0.179	0.179	0.178	0.178	0.178
NJ0970 (NP3965 -> NP3964) 10.07	0.256	0.286	0.287	0.287	0.287	0.288
NJ1001 (NU5113 -> NP3957) 18.44	0.852	0.995	1.051	1.059	1.066	1.066
NJ1003 (NP3957 -> NP3753) 14.57	0.826	0.97	1.027	1.033	1.039	1.04
NJ1150 (NP4266 -> NP4265) 8.06	0.206	0.211	0.216	0.222	0.248	0.252
NJ1164 (NS1423 -> NP4281) 19.51	0.158	0.24	0.299	0.361	0.427	0.435
NJ1288 (NP4256 -> NY0998) 29.17	0.199	0.199	0.199	0.198	0.198	0.198

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NJ1292 (NP4252 -> NP4251) 18.00	0.177	0.269	0.3	0.301	0.301	0.3
NJ1293 (NP4251 -> NP4253) 22.94	0.177	0.269	0.294	0.294	0.294	0.294
NJ1296 (NP4253 -> NP4256) 28.38	0.195	0.281	0.284	0.284	0.284	0.284
NJ1302 (NP4249 -> NP4245) 18.96	0.041	0.063	0.078	0.094	0.116	0.128
NJ1302 (NP4249 -> NP4245) 56.87	0.041	0.063	0.078	0.094	0.115	0.128
NJ1302 (NP4249 -> NP4245) 94.78	0.041	0.063	0.078	0.094	0.115	0.128
NJ1310 (NP4245 -> NP4266) 11.68	0.206	0.211	0.216	0.222	0.23	0.234
NJ1317 (OA8375 -> NY1000) 24.46	0.029	0.044	0.054	0.065	0.08	0.09
NJ1317 (OA8375 -> NY1000) 73.39	0.029	0.044	0.054	0.065	0.08	0.09
NJ1325 (NP4239 -> NP4240) 5.52	0.145	0.144	0.145	0.145	0.141	0.142
NJ1331 (NP4240 -> NP4287) 26.95	0.138	0.138	0.138	0.138	0.138	0.138
NJ1337 (NP4287 -> NP4244) 15.08	0.165	0.165	0.165	0.165	0.165	0.165
NJ1339 (NP4244 -> NP4242) 17.35	0.254	0.297	0.328	0.36	0.382	0.393
NJ1340 (NP4242 -> NP4243) 8.46	0.275	0.322	0.353	0.384	0.402	0.406
NJ1341 (NP4243 -> NS3571) 5.00	0.281	0.328	0.359	0.39	0.427	0.431
NK8947 (NK8947 -> NK8974) 5.00	0.106	0.124	0.124	0.124	0.124	0.124
NK9035 (NK9035 -> MSCS010) 13.06	0.043	0.042	0.041	0.041	0.04	0.041
NK9052 (NK9052 -> NK9051) 5.29	0.02	0.02	0.019	0.016	0.017	0.016
NK9076 (NK9076 -> NK9078) 9.63	0.61	0.677	0.688	0.69	0.69	0.69
NL9755 (NL9755 -> MSAH070) 5.00	0.1	0.106	0.109	0.107	0.105	0.105
NL9760 (NL9760 -> MSAH070) 5.00	1.915	1.967	1.959	1.988	2.025	2.045
NL9871 (NL9871 -> NL9825) 8.05	0.237	0.332	0.337	0.338	0.339	0.34
NP3798 (NP3798 -> NP3807) 21.33	0.145	0.147	0.145	0.145	0.147	0.145
NS9460 (OA7182 -> MSCT030) 11.22	0.402	0.428	0.451	0.454	0.458	0.461
NS9466 (M_SE020 -> M_SE030) 17.11	1.748	1.798	1.804	1.809	1.814	1.824
NT0457 (NS1419 -> MSGN030B) 26.41	0.103	0.11	0.116	0.121	0.125	0.125
NU3089 (NU3086 -> NU3087) 19.42	0.098	0.221	0.26	0.294	0.336	0.363
NU3090 (NU3087 -> NL9749) 35.80	0.299	0.427	0.464	0.496	0.534	0.563
NV3052 (NP3807 -> NV3046) 6.18	0.381	0.383	0.384	0.385	0.386	0.387
NV3053 (NV3046 -> NV3047) 7.41	0.492	0.555	0.592	0.614	0.616	0.615
NV3054 (NZ4315 -> NV3048) 8.03	0.441	0.503	0.54	0.554	0.554	0.554
NV3055 (NV3048 -> NV3049) 8.56	0.416	0.477	0.514	0.528	0.529	0.529
NV3056 (NV3049 -> NV3050) 6.71	0.391	0.452	0.489	0.503	0.504	0.504
NV3057 (NV3050 -> NV3051) 9.87	0.416	0.477	0.501	0.502	0.503	0.504
NV3058 (NV3051 -> NP3833) 5.00	0.439	0.452	0.448	0.448	0.445	0.444
NV4316 (NV3047 -> NZ4315) 5.00	0.466	0.528	0.565	0.583	0.584	0.584

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NV7443 (NW6043 -> NP3868) 20.28	0.319	0.327	0.327	0.328	0.329	0.329
NV7476 (NV7473 -> NU3086) 35.94	0.093	0.202	0.232	0.263	0.297	0.319
NV7477 (NV7472 -> NV7473) 32.35	0.071	0.131	0.133	0.135	0.136	0.136
NV7478 (NV7471 -> NV7472) 26.69	0.027	0.029	0.029	0.03	0.03	0.03
NV7479 (NV7470 -> NV7471) 5.72	0.022	0.022	0.022	0.022	0.022	0.022
NW5338 (NK9083 -> NP3769) 33.13	0.041	0.041	0.041	0.041	0.04	0.041
NW5818 (MSAG035 -> NW5870) 10.98	1.122	1.121	1.076	1.096	1.041	1.044
NW5864 (NP3860 -> NU2228) 25.17	4.24	4.927	4.942	4.992	5.007	5.976
NW5871 (NW5870 -> NZ4306) 30.09	2.151	2.168	2.194	2.213	2.183	2.16
NW5873 (NW5870 -> NZ4306) 30.09	2.151	2.168	2.194	2.213	2.183	2.16
NW5875 (NW5889 -> MSAG035) 44.08	1.107	1.111	1.063	1.077	1.036	1.039
NW5880 (MSAA090 -> NW5870) 11.08	2.346	2.44	2.472	2.51	2.546	2.565
NW5882 (MSAG035 -> NW5870) 10.98	1.122	1.121	1.076	1.096	1.041	1.044
NW5890 (NW5888 -> MSAA090) 43.44	2.316	2.386	2.407	2.421	2.415	2.4
NW5893 (NW5889 -> MSAG035) 44.08	1.107	1.111	1.063	1.077	1.036	1.039
NW5910 (NP3716 -> NS3553-3) 32.77	0.711	0.78	0.754	0.756	0.765	0.787
NW5912 (NP3716 -> NS3553) 32.78	0.704	0.775	0.748	0.751	0.76	0.782
NW5913 (NP3716 -> NS3553-2) 32.74	0.714	0.783	0.756	0.759	0.767	0.79
NW5919 (NW5896 -> NP3716) 12.34	0.708	0.78	0.753	0.755	0.765	0.786
NW5920 (NW5894 -> NW5896) 13.39	0.705	0.786	0.759	0.763	0.765	0.767
NW5921 (NL9778A_dummy -> NW5894) 42.95	1.045	1.156	1.107	1.109	1.109	1.106
NW5931 (MSAH070 -> NL9777) 25.42	0.986	1.028	1.016	1.016	1.014	1.012
NW5931 (MSAH070 -> NL9777) 76.26	0.986	1.028	1.016	1.016	1.014	1.012
NW5933 (NL9778 -> NL9778A_dummy) 32.94	1.029	1.127	1.128	1.152	1.182	1.201
NW5933 (NL9778 -> NL9778A_dummy) 98.83	1.027	1.124	1.128	1.152	1.182	1.201
NW5934 (NL9778A_dummy -> NW5894) 42.95	1.045	1.156	1.107	1.109	1.109	1.106
NW5937 (MSAH070 -> NL9777) 25.42	0.986	1.028	1.016	1.016	1.014	1.012
NW5937 (MSAH070 -> NL9777) 76.26	0.986	1.028	1.016	1.016	1.014	1.012
NW5944 (NS3851 -> NL9760) 33.89	1.47	1.667	1.748	1.814	1.899	1.937
NW5944 (NS3851 -> NL9760) 101.67	1.471	1.667	1.748	1.814	1.899	1.937
NW5955 (NW5962 -> NW5889) 17.52	1.173	1.174	1.177	1.185	1.182	1.167
NW5956 (NW5965 -> NW5962) 26.65	1.462	1.537	1.549	1.559	1.571	1.573
NW5956-1 (NP3769 -> NW6262) 24.85	1.44	1.568	1.595	1.62	1.645	1.644
NW5959 (NW5962 -> NW5889) 17.52	1.173	1.174	1.177	1.185	1.182	1.167

Link Discharge	2yr Max	5yr Max	10yr Max	20yr Max	50yr Max	100yr Max
NW5960 (NW5961 -> NW5888) 18.09	2.213	2.201	2.228	2.237	2.215	2.169
NW5963 (NW5965 -> NW5962) 26.65	1.462	1.537	1.549	1.559	1.571	1.573
NW5964 (NW5967 -> NW5961) 26.63	2.271	2.241	2.244	2.22	2.179	2.176
NW6259 (NP3772 -> NP3771) 10.63	1.53	1.833	1.889	1.949	2.014	2.014
NW6259-1 (NP3771 -> NP3769) 14.10	1.527	1.836	1.901	1.962	2.026	2.026
NW6260 (NW6262 -> NW5965) 22.16	1.469	1.525	1.537	1.547	1.559	1.56
NW6261 (NW6263 -> NW5967) 22.16	2.323	2.543	2.58	2.608	2.636	2.633
NW6268 (NP3769 -> NW6262) 24.85	1.44	1.568	1.595	1.62	1.645	1.644
NW6269 (NP3773 -> NW6263) 24.61	2.342	2.447	2.432	2.413	2.397	2.385
NW6315 (NW6314 -> NL9825) 25.36	0.333	0.343	0.345	0.344	0.345	0.345
NW9107 (NQ1622 -> NW7706) 21.57	0.044	0.066	0.082	0.098	0.119	0.134
NW9107 (NQ1622 -> NW7706) 64.70	0.044	0.066	0.082	0.098	0.119	0.134
NY0873 (NY0998 -> NY0997) 5.00	0.357	0.375	0.375	0.375	0.375	0.375
NY1725 (NS1839 -> NS1126) 30.69	0.176	0.211	0.225	0.238	0.254	0.264
NY7761 (NK8951 -> MSEB020) 24.68	0.11	0.163	0.165	0.165	0.165	0.165
NZ0259 (NP4265 -> MSCB060) 15.47	0.206	0.211	0.233	0.246	0.273	0.277
NZ0309 (NP6306 -> NL9820) 12.22	0.419	0.43	0.434	0.435	0.435	0.435
NZ0407 (NP3687 -> NP3699) 12.40	0.042	0.063	0.079	0.095	0.116	0.131
NZ0409 (NP3697 -> NP3698) 18.36	0.03	0.055	0.074	0.095	0.123	0.141
NZ0410 (NP3696 -> NP3697) 21.12	0.03	0.055	0.074	0.095	0.123	0.141
NZ0410 (NP3696 -> NP3697) 63.35	0.03	0.055	0.074	0.095	0.123	0.141
NZ7472 (NL9852 -> MSAC160) 24.99	0.084	0.099	0.119	0.122	0.137	0.148
NZ7537 (NZ4308 -> NP3903) 14.05	0.066	0.065	0.065	0.065	0.065	0.065
NZ7539 (NQ1597 -> NZ4308) 20.49	0.066	0.08	0.087	0.093	0.098	0.1
NZ7575 (NP3699 -> NP3698) 15.21	0.042	0.063	0.079	0.095	0.116	0.131
NZ7579 (NP3698 -> NZ4378) 24.43	0.121	0.194	0.248	0.305	0.382	0.432
NZ7581 (Node_18 -> NZ4378) 7.79	0.019	0.109	0.079	0.092	0.098	0.091
NZ7582 (NZ4378 -> NZ4380) 11.56	0.262	0.398	0.4	0.398	0.399	0.397
NZ7583 (NZ4380 -> NZ4381) 34.11	0.277	0.418	0.426	0.436	0.44	0.441
NZ7584 (NZ4381 -> NZ4382) 25.05	0.277	0.413	0.426	0.436	0.44	0.441
NZ7586 (NZ4382 -> NZ4383) 19.09	0.277	0.413	0.426	0.436	0.44	0.441
NZ7587 (NZ4383 -> NZ4310) 6.40	0.277	0.413	0.426	0.436	0.44	0.441
NZ7589 (NZ4310 -> NZ4306) 8.50	0.277	0.413	0.426	0.436	0.44	0.441
NZ7611 (NK9078 -> NS1840) 18.84	0.61	0.683	0.702	0.714	0.715	0.721
NZ7622 (NS1416 -> NS2315) 9.51	0.085	0.106	0.115	0.125	0.138	0.146
OA7199 (OA7181 -> OA7182) 10.88	0.379	0.403	0.426	0.429	0.433	0.436

Appendix I: Flood Levels at Buildings

- ED – Residential

Address	Floor Level (m RL)	ED Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
107A-107B Aotea Street	15.13	n/a	n/a	n/a	n/a	n/a	n/a
2/107 Aotea Street	16.08	n/a	n/a	n/a	n/a	n/a	n/a
98 Aotea Street	13.00	n/a	n/a	n/a	n/a	n/a	n/a
1/20 Atkin Ave	4.00	n/a	n/a	n/a	3.35	3.52	3.58
1/35 Atkin Ave	4.00	n/a	n/a	3.28	3.40	3.53	3.58
1/40 Atkin Ave	3.30	n/a	3.15	3.28	3.40	3.53	3.58
1/43 Atkin Ave	4.10	n/a	n/a	n/a	n/a	n/a	n/a
1/57 Atkin Ave	5.60	n/a	n/a	n/a	n/a	5.67	5.67
107B Atkin Ave	24.77	n/a	n/a	n/a	n/a	n/a	n/a
119 Atkin Ave	34.94	n/a	n/a	n/a	n/a	n/a	n/a
11a-b Atkin Ave	3.10	n/a	n/a	n/a	n/a	2.93	2.97
1-3/39 Atkin Ave	3.60	n/a	3.15	3.28	3.40	3.53	3.58
1-3/41 Atkin Ave	3.70	n/a	n/a	3.28	3.40	3.53	3.58
15 Atkin Ave	4.20	n/a	n/a	n/a	n/a	n/a	n/a
16 Atkin Ave	3.90	n/a	n/a	n/a	n/a	n/a	n/a
17 Atkin Ave	3.64	n/a	n/a	n/a	n/a	3.16	3.20
18 Atkin Ave	4.81	n/a	n/a	n/a	n/a	n/a	n/a
19 Atkin Ave	3.60	n/a	n/a	n/a	n/a	n/a	n/a
2 Atkin Ave	3.25	n/a	n/a	n/a	n/a	n/a	n/a
2/35 Atkin Ave	4.20	n/a	n/a	n/a	n/a	n/a	n/a
2/40 Atkin Ave	3.30	n/a	3.15	3.28	3.40	3.53	3.58
2/47 Atkin Ave	3.70	n/a	n/a	n/a	n/a	3.53	3.58
2/57 Atkin Ave	5.40	n/a	n/a	n/a	n/a	5.43	5.44
22a Atkin Ave	4.00	n/a	n/a	n/a	3.40	3.52	3.58
22b Atkin Ave	4.00	n/a	n/a	n/a	n/a	3.52	3.58
24 Atkin Ave	4.00	n/a	n/a	3.28	3.40	3.53	3.58
25 Atkin Ave	3.70	n/a	n/a	3.28	3.40	3.53	3.58
27 Atkin Ave	4.10	n/a	n/a	n/a	n/a	n/a	n/a
29a Atkin Ave	4.10	n/a	n/a	n/a	n/a	n/a	n/a
29b Atkin Ave	4.40	n/a	n/a	n/a	n/a	n/a	n/a
29c Atkin Ave	4.80	n/a	n/a	n/a	n/a	n/a	n/a
3/35 Atkin Ave	4.40	n/a	n/a	3.88	3.89	3.90	3.91

Address	Floor Level (m RL)	ED Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
3/40 Atkin Ave	3.30	3.05	3.15	3.28	3.40	3.53	3.58
3/47 Atkin Ave	3.70	n/a	n/a	n/a	n/a	3.53	3.58
3/57 Atkin Ave	5.20	n/a	n/a	5.25	5.28	5.35	5.39
32a Atkin Ave	3.90	n/a	3.15	3.28	3.40	3.53	3.58
32b Atkin Ave	3.20	3.08	3.15	3.28	3.40	3.53	3.58
34 Atkin Ave	3.20	n/a	3.15	3.28	3.40	3.53	3.58
36 Atkin Ave	3.30	3.01	3.15	3.28	3.40	3.53	3.58
37 Atkin Ave	4.20	n/a	n/a	n/a	n/a	n/a	n/a
37a Atkin Ave	4.60	n/a	n/a	n/a	n/a	n/a	n/a
38 Atkin Ave	3.30	n/a	3.15	3.28	3.40	3.53	3.58
38a Atkin Ave	3.30	n/a	3.15	3.28	3.40	3.53	3.58
38b Atkin Ave	3.30	n/a	3.15	3.28	3.40	3.53	3.58
4/40 Atkin Ave	3.30	3.05	3.15	3.28	3.40	3.53	3.58
4/57 Atkin Ave	5.10	n/a	n/a	n/a	5.29	5.36	5.38
42 Atkin Ave	4.10	n/a	n/a	n/a	n/a	n/a	n/a
43 Atkin Ave	4.10	n/a	n/a	n/a	n/a	n/a	n/a
44 Atkin Ave	3.90	n/a	n/a	n/a	n/a	3.53	3.58
45a Atkin Ave	3.70	n/a	3.15	3.28	3.40	3.53	3.58
45b Atkin Ave	3.80	n/a	n/a	n/a	n/a	3.53	3.58
45c Atkin Ave	3.90	n/a	n/a	n/a	n/a	n/a	n/a
49 Atkin Ave	4.40	n/a	n/a	n/a	n/a	n/a	n/a
49a Atkin Ave	4.20	n/a	n/a	n/a	n/a	n/a	n/a
5 Atkin Ave	5.43	n/a	n/a	n/a	n/a	n/a	n/a
51 Atkin Ave	4.00	n/a	n/a	3.28	3.40	3.53	3.58
55a-d Atkin Ave	5.20	n/a	n/a	n/a	n/a	n/a	n/a
59 Atkin Ave	8.80	n/a	n/a	8.39	8.39	8.40	8.40
7 Atkin Ave	2.91	n/a	n/a	n/a	n/a	n/a	n/a
9a Atkin Ave	3.60	n/a	n/a	n/a	n/a	n/a	n/a
1-2/31Atkin Ave	4.40	n/a	n/a	n/a	n/a	n/a	n/a
15 Bongard Road	30.96	n/a	n/a	n/a	n/a	n/a	n/a
17 Bongard Road	30.50	n/a	n/a	n/a	n/a	n/a	n/a
20 Bongard Road	34.09	n/a	n/a	n/a	n/a	n/a	n/a
24 Bongard Road	30.22	n/a	n/a	n/a	n/a	n/a	n/a
26 Bongard Road	29.50	n/a	n/a	n/a	n/a	n/a	n/a

Address	Floor Level (m RL)	ED Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
23 Codrington Cres	14.77	n/a	n/a	14.76	14.79	14.82	14.83
24 Codrington Cres	13.03	n/a	n/a	n/a	n/a	n/a	n/a
1/26 Comins Cres	24.27	n/a	24.26	24.30	24.32	24.35	24.36
2/60 Comins Crescent	9.60	n/a	n/a	n/a	n/a	n/a	n/a
20 Comins Cres	26.90	n/a	26.67	26.70	26.73	26.77	26.79
22A-22C Comins Cres	25.92	n/a	25.51	25.53	25.55	25.57	25.57
28 Comins Cres	23.64	n/a	n/a	n/a	n/a	n/a	n/a
28B-28C Comins Cres	25.94	n/a	n/a	n/a	n/a	n/a	n/a
3/60 Comins Crescent	9.40	n/a	n/a	n/a	n/a	n/a	n/a
30 Comins Cres	26.10	n/a	n/a	n/a	n/a	n/a	n/a
32 Comins Cres	22.25	n/a	n/a	n/a	n/a	n/a	n/a
34 Comins Cres	22.41	n/a	n/a	n/a	n/a	n/a	n/a
36 Comins Cres	24.13	n/a	n/a	n/a	n/a	n/a	n/a
36A-36B Comins Cres	18.18	n/a	n/a	n/a	n/a	n/a	n/a
38 Comins Crescent	23.70	n/a	n/a	n/a	n/a	n/a	n/a
40 Comins Crescent	27.00	n/a	n/a	n/a	n/a	n/a	n/a
44 Comins Cres	19.87	n/a	n/a	n/a	n/a	n/a	n/a
62B Comins Cres	8.54	n/a	n/a	n/a	n/a	9.55	9.55
64 Comins Cres	17.75	n/a	n/a	n/a	n/a	n/a	n/a
66A Comins Cres	21.48	n/a	n/a	n/a	n/a	n/a	n/a
66B Comins Cres	17.61	n/a	17.23	17.24	17.24	17.24	17.24
68A Comins Cres	10.92	n/a	n/a	n/a	n/a	n/a	n/a
18A Godden Cres	24.68	n/a	25.98	25.98	26.01	26.03	26.05
22 Godden Cres	32.59	n/a	n/a	n/a	n/a	n/a	n/a
46A-46D Godden Cres	26.50	n/a	n/a	n/a	n/a	n/a	n/a
68 Godden Cres	46.46	n/a	n/a	n/a	n/a	n/a	n/a
70 Godden Cres	45.85	n/a	n/a	n/a	n/a	n/a	n/a
71 Kurahaupo St	25.94	n/a	n/a	n/a	n/a	n/a	n/a
69 Kurahaupo St	25.94	n/a	n/a	n/a	n/a	n/a	n/a
1 Marau Cres	3.78	n/a	n/a	n/a	n/a	n/a	n/a
10 Marau Cres	2.85	2.55	2.59	2.59	2.62	2.70	2.75
11a Marau Cres	3.40	n/a	n/a	n/a	n/a	n/a	n/a
12 Marau Cres	2.90	2.55	2.59	2.59	2.62	2.70	2.75
14 Marau Cres	3.03	2.55	2.59	2.59	2.62	2.70	2.75

Address	Floor Level (m RL)	ED Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
15 Marau Cres	3.50	n/a	n/a	n/a	n/a	n/a	n/a
16 Marau Cres	4.03	n/a	n/a	n/a	n/a	n/a	n/a
18 Marau Cres	3.46	n/a	n/a	n/a	n/a	n/a	n/a
26 Marau Cres	3.69	n/a	n/a	n/a	n/a	n/a	n/a
28 Marau Cres	3.61	n/a	n/a	n/a	n/a	n/a	n/a
30 Marau Cres	3.58	n/a	n/a	n/a	n/a	n/a	n/a
32 Marau Cres	3.34	n/a	n/a	n/a	2.89	2.90	2.91
34 Marau Cres	3.67	n/a	n/a	n/a	n/a	n/a	n/a
36 Marau Cres	3.73	n/a	n/a	n/a	n/a	n/a	n/a
45 Marau Cres	3.85	3.61	3.61	3.61	3.62	3.62	3.63
49 Marau Cres	4.08	n/a	n/a	n/a	n/a	n/a	n/a
4A Marau Cres	2.89	n/a	n/a	n/a	2.63	2.71	2.76
5a Marau Cres	3.50	n/a	n/a	n/a	n/a	n/a	n/a
5b Marau Cres	3.50	n/a	n/a	n/a	n/a	n/a	n/a
6 Marau Cres	3.13	2.56	2.59	2.59	2.63	2.71	2.75
6 Marau Cres	3.05	2.56	2.59	2.59	2.63	2.71	2.75
7 Marau Cres	3.40	n/a	n/a	n/a	n/a	n/a	n/a
8 Marau Cres	2.94	2.57	2.59	2.59	2.65	2.74	2.79
1/17 Nihill Cres	4.00	n/a	n/a	n/a	n/a	n/a	n/a
1/2 Nihill Cres	4.00	n/a	n/a	n/a	3.87	3.92	3.94
1/4 Nihill Cres	4.80	n/a	n/a	n/a	n/a	n/a	n/a
10 Nihill Cres	3.70	n/a	n/a	n/a	n/a	n/a	n/a
10a Nihill Cres	3.80	n/a	n/a	n/a	n/a	3.53	3.58
11a Nihill Cres	5.00	n/a	n/a	n/a	n/a	n/a	n/a
15 Nihill Cres	3.80	n/a	n/a	n/a	n/a	n/a	n/a
15 Nihill Cres	4.00	n/a	n/a	n/a	n/a	n/a	n/a
18a Nihill Cres	4.60	n/a	n/a	n/a	n/a	n/a	n/a
18b Nihill Cres	4.00	n/a	3.27	3.35	3.41	3.53	3.58
19 Nihill Cres	3.70	n/a	n/a	n/a	n/a	n/a	3.58
2/2 Nihill Cres	3.70	n/a	n/a	n/a	n/a	3.53	3.58
2/4 Nihill Cres	5.90	n/a	n/a	n/a	n/a	n/a	n/a
20b Nihill Cres	4.20	n/a	n/a	n/a	n/a	n/a	n/a
21 Nihill Cres	4.40	n/a	n/a	n/a	n/a	n/a	n/a
22 Nihill Cres	6.70	n/a	n/a	n/a	n/a	n/a	n/a

Address	Floor Level (m RL)	ED Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
22a Nihill Cres	4.70	n/a	n/a	n/a	n/a	n/a	n/a
27 Nihill Cres	6.80	n/a	n/a	n/a	n/a	n/a	n/a
27A Nihill Cres	4.67	n/a	3.97	4.05	4.12	4.19	4.22
29 Nihill Cres	4.40	n/a	3.98	4.06	4.12	4.19	4.22
29a Nihill Cres	4.40	n/a	3.99	4.08	4.15	4.23	4.26
2a Nihill Cres	3.50	n/a	n/a	n/a	n/a	n/a	n/a
2b Nihill Cres	4.50	n/a	n/a	n/a	n/a	n/a	n/a
2c Nihill Cres	4.50	n/a	n/a	n/a	n/a	n/a	n/a
3 Nihill Cres	3.50	n/a	n/a	n/a	n/a	n/a	n/a
3/17 Nihill Cres	4.50	n/a	n/a	n/a	n/a	n/a	n/a
31 Nihill Cres	5.30	n/a	4.99	4.99	4.99	5.00	5.00
33 Nihill Cres	5.66	n/a	n/a	n/a	n/a	n/a	n/a
37 Nihill Cres	5.30	n/a	n/a	n/a	n/a	n/a	n/a
37a Nihill Cres	4.50	n/a	4.79	4.83	4.87	4.92	4.92
39a Nihill Cres	3.90	3.96	5.09	5.14	5.18	5.23	5.23
41a Nihill Cres	4.50	5.89	5.91	5.92	5.93	5.95	5.95
43 Nihill Cres	4.80	n/a	n/a	n/a	n/a	n/a	n/a
43 Nihill Cres	4.40	n/a	n/a	n/a	n/a	n/a	n/a
43 Nihill Cres	4.40	n/a	n/a	n/a	n/a	n/a	n/a
45a Nihill Cres	4.30	n/a	n/a	n/a	n/a	n/a	n/a
47a Nihill Cres	5.20	n/a	6.76	6.83	6.90	7.00	7.00
5 Nihill Cres	5.60	n/a	n/a	n/a	n/a	n/a	n/a
6 Nihill Cres	5.50	n/a	n/a	n/a	n/a	n/a	n/a
7 Nihill Cres	7.00	n/a	n/a	n/a	n/a	n/a	n/a
8 Nihill Cres	6.90	n/a	n/a	n/a	n/a	n/a	n/a
8A Nihill Cres	6.90	n/a	n/a	n/a	n/a	n/a	n/a
8B Nihill Cres	6.50	n/a	n/a	n/a	n/a	n/a	n/a
9 Nihill Cres	5.00	n/a	n/a	n/a	n/a	n/a	n/a
20 Nihill Cres	4.50	n/a	n/a	n/a	n/a	n/a	n/a
1 Palmer Cres	47.65	n/a	n/a	n/a	n/a	n/a	n/a
27A Palmer Cres	34.06	n/a	n/a	n/a	n/a	n/a	n/a
29 Palmer Cres	29.56	n/a	n/a	n/a	n/a	n/a	n/a
1/22 Patteson Ave	4.10	n/a	n/a	n/a	n/a	n/a	n/a
1/28 Patteson Ave	3.80	n/a	n/a	n/a	n/a	n/a	n/a

Address	Floor Level (m RL)	ED Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
1/32 Patteson Ave	3.90	n/a	3.17	3.29	3.41	3.53	3.58
1/32a Patteson Ave	4.30	n/a	n/a	n/a	n/a	n/a	n/a
1/35 Patteson Ave	3.50	n/a	3.17	3.29	3.41	3.53	3.58
1/36 Patteson Ave	3.30	n/a	3.17	3.29	3.40	3.53	3.58
1/39 Patteson Ave	4.10	n/a	n/a	n/a	n/a	n/a	n/a
1/42 Patteson Ave	4.47	n/a	n/a	n/a	4.07	4.13	4.17
1/44 Patteson Ave	4.60	n/a	n/a	n/a	4.85	4.85	4.85
102A Patteson Ave	36.11	n/a	n/a	n/a	n/a	n/a	n/a
111 Patteson Ave	31.94	n/a	31.60	31.60	31.60	31.60	31.60
119 Patteson Ave	38.18	n/a	n/a	n/a	n/a	n/a	n/a
1-2/20 Patteson Ave	4.60	n/a	n/a	n/a	n/a	n/a	n/a
12A Patteson Ave	2.68	n/a	2.55	2.57	2.57	2.59	2.63
14 Patteson Ave	4.27	n/a	n/a	n/a	n/a	n/a	n/a
1-4/30 Patteson Ave	3.60	n/a	n/a	3.29	3.40	3.53	3.58
14B Patteson Ave	3.26	n/a	n/a	n/a	n/a	n/a	n/a
14C Patteson Ave	3.26	n/a	n/a	n/a	n/a	n/a	n/a
15 Patteson Ave	4.10	n/a	n/a	n/a	n/a	n/a	n/a
17 Patteson Ave	3.50	3.21	3.23	3.24	3.36	3.49	3.54
19 Patteson Ave	4.00	n/a	n/a	n/a	3.40	3.52	3.58
2/22 Patteson Ave	4.10	n/a	n/a	n/a	n/a	n/a	n/a
2/28 Patteson Ave	3.80	n/a	n/a	3.47	3.47	3.53	3.58
2/32 Patteson Ave	4.00	n/a	3.17	3.29	3.41	3.53	3.58
2/32a Patteson Ave	4.30	n/a	n/a	n/a	n/a	n/a	n/a
2/36 Patteson Ave	3.30	n/a	3.21	3.29	3.40	3.53	3.58
2/39 Patteson Ave	4.10	n/a	n/a	n/a	n/a	n/a	n/a
2/42 Patteson Ave	4.39	n/a	n/a	n/a	4.13	4.19	4.22
2/44 Patteson Ave	4.90	n/a	n/a	n/a	n/a	n/a	n/a
21 Patteson Ave	4.00	n/a	3.16	3.29	3.40	3.52	3.58
23 Patteson Ave	3.90	n/a	3.16	3.29	3.40	3.52	3.58
2-3/35 Patteson Ave	3.50	n/a	n/a	3.29	3.41	3.53	3.58
24 Patteson Ave	4.00	n/a	3.16	3.29	3.40	3.53	3.58
26 Patteson Ave	4.10	n/a	n/a	n/a	n/a	n/a	n/a
3/20 Patteson Ave	4.00	n/a	3.16	3.29	3.40	3.52	3.58
3/28 Patteson Ave	3.80	n/a	n/a	3.61	3.61	3.62	3.62

Address	Floor Level (m RL)	ED Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
3/32 Patteson Ave	4.00	n/a	3.17	3.29	3.41	3.53	3.58
3/39 Patteson Ave	4.10	n/a	n/a	n/a	n/a	n/a	n/a
3/42 Patteson Ave	4.37	n/a	3.98	4.06	4.13	4.21	4.25
31a Patteson Ave	3.80	3.13	3.17	3.29	3.40	3.53	3.58
31b Patteson Ave	3.80	3.14	3.17	3.29	3.40	3.53	3.58
31c Patteson Ave	3.40	3.16	3.18	3.29	3.41	3.53	3.58
33 Patteson Ave	4.50	n/a	n/a	n/a	n/a	n/a	n/a
34 Patteson Ave	3.30	n/a	3.28	3.31	3.40	3.53	3.58
36a Patteson Ave	3.40	n/a	3.18	3.29	3.41	3.53	3.58
37 Patteson Ave	4.00	n/a	n/a	n/a	3.41	3.53	3.58
37a Patteson Ave	3.50	n/a	n/a	n/a	3.41	3.53	3.58
37b Patteson Ave	4.00	3.17	3.18	3.29	3.41	3.53	3.58
4/28 Patteson Ave	4.40	n/a	n/a	4.02	4.02	4.02	4.02
4/42 Patteson Ave	4.32	n/a	3.98	4.07	4.15	4.24	4.28
46 Patteson Ave	7.00	n/a	n/a	n/a	n/a	n/a	n/a
48 Patteson Ave	8.50	n/a	n/a	n/a	n/a	n/a	8.14
48a Patteson Ave	6.70	n/a	n/a	n/a	n/a	n/a	n/a
5/52 Patteson Ave	8.00	n/a	n/a	n/a	7.54	7.56	7.57
50 Patteson Ave	1.27	n/a	5.28	5.31	5.32	5.34	5.36
50A Patteson Ave	6.32	n/a	n/a	n/a	n/a	6.90	6.91
54 Patteson Ave	9.30	n/a	n/a	n/a	n/a	n/a	n/a
8,10 Patteson Ave	2.64	n/a	2.55	2.57	2.58	2.59	2.63
8;10 Patteson Ave	2.64	n/a	n/a	n/a	n/a	n/a	n/a
9A Patteson Ave	3.60	n/a	n/a	n/a	n/a	n/a	n/a
9B Patteson Ave	3.60	n/a	n/a	n/a	n/a	n/a	n/a
40 Ronaki Road	24.78	n/a	n/a	n/a	n/a	n/a	n/a
42 Ronaki Road	23.98	n/a	n/a	23.74	23.75	23.76	23.76
45 Ronaki Road	27.21	n/a	n/a	n/a	n/a	n/a	n/a
1/29 Rukutai Street	23.50	n/a	n/a	n/a	n/a	n/a	n/a
1/33 Rukutai Street	16.40	n/a	n/a	n/a	n/a	16.32	16.76
1-2/31 Rukutai Street	21.00	n/a	n/a	n/a	n/a	n/a	n/a
13A Rukutai Street	24.78	n/a	n/a	n/a	n/a	24.34	24.34
19 Rukutai Street	28.40	n/a	n/a	n/a	n/a	n/a	n/a
2/17 Rukutai Street	28.50	n/a	n/a	n/a	n/a	n/a	n/a

Address	Floor Level (m RL)	ED Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
2/29 Rukutai Street	23.60	n/a	n/a	n/a	n/a	n/a	n/a
2/33 Rukutai Street	16.40	15.87	15.88	15.88	15.88	16.32	16.76
21 Rukutai Street	23.00	n/a	n/a	n/a	n/a	n/a	n/a
3/17 Rukutai Street	22.10	21.58	21.61	21.61	21.61	21.61	21.62
3/29 Rukutai Street	22.50	n/a	n/a	n/a	n/a	n/a	n/a
3/33 Rukutai Street	16.40	15.87	15.87	15.87	15.87	16.32	16.76
33 Rukutai Street	16.40	n/a	n/a	n/a	n/a	n/a	n/a
35 Rukutai Street	22.10	n/a	n/a	n/a	22.05	22.05	22.05
37 Rukutai Street	21.80	n/a	n/a	n/a	n/a	n/a	n/a
39-41 Rukutai Street	18.80	n/a	n/a	n/a	18.99	18.99	18.99
4/33 Rukutai Street	16.40	n/a	n/a	n/a	n/a	n/a	16.76
42 Rukutai Street	21.80	n/a	n/a	n/a	n/a	n/a	n/a
42A Rukutai Street	15.99	n/a	n/a	n/a	n/a	n/a	n/a
44B Rukutai Street	20.04	n/a	n/a	n/a	n/a	n/a	n/a
44C Rukutai Street	21.48	n/a	21.29	21.30	21.31	21.32	21.35
17 Selwyn Ave	10.88	n/a	n/a	n/a	n/a	n/a	n/a
21 Selwyn Ave	19.16	n/a	n/a	n/a	n/a	n/a	n/a
23 Selwyn Ave	12.04	n/a	n/a	n/a	n/a	n/a	n/a
35 Selwyn Ave	19.81	n/a	n/a	n/a	n/a	n/a	n/a
9 Selwyn Ave	8.42	n/a	n/a	n/a	n/a	n/a	n/a
1/13 Tagalad Road	3.40	n/a	3.15	3.29	3.40	3.53	3.58
10 Tagalad Road	3.10	n/a	n/a	3.28	3.40	3.52	3.58
11a-b Tagalad Road	3.30	n/a	n/a	3.28	3.40	3.52	3.58
12 Tagalad Road	3.90	n/a	3.16	3.29	3.40	3.53	3.58
14 Tagalad Road	4.00	n/a	3.16	3.29	3.40	3.53	3.58
1-4/15 Tagalad Road	4.20	n/a	n/a	n/a	n/a	n/a	n/a
1-5/1 Tagalad Road	3.90	n/a	3.15	3.28	3.40	3.53	3.58
16 Tagalad Road	3.60	n/a	3.16	3.29	3.40	3.52	3.58
2 Tagalad Road	3.70	2.97	3.15	3.28	3.40	3.53	3.58
2/13 Tagalad Road	3.40	n/a	3.15	3.29	3.40	3.53	3.58
3/13 Tagalad Road	3.50	n/a	n/a	n/a	3.41	3.53	3.58
4 Tagalad Road	3.90	n/a	3.15	3.28	3.40	3.53	3.58
4 Tagalad Road (g)	3.30	n/a	3.15	3.28	3.40	3.52	3.58
4/13 Tagalad Road	3.50	n/a	n/a	n/a	3.41	3.53	3.58

Address	Floor Level (m RL)	ED Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
5a-b Tagalad Road	3.20	n/a	3.15	3.28	3.40	3.53	3.58
6 Tagalad Road	3.90	n/a	3.15	3.28	3.40	3.53	3.58
7 Tagalad Road	3.40	n/a	n/a	3.28	3.40	3.53	3.58
8 Tagalad Road	3.20	n/a	3.15	3.28	3.40	3.53	3.58
101 Tamaki Drive	2.95	n/a	n/a	n/a	n/a	n/a	n/a
103 Tamaki Drive	3.13	n/a	n/a	n/a	n/a	n/a	n/a
105 Tamaki Drive	3.14	n/a	n/a	n/a	n/a	2.90	2.90
29 Tamaki Drive	3.04	n/a	n/a	n/a	n/a	n/a	n/a
31 Tamaki Drive	2.67	n/a	n/a	n/a	n/a	n/a	2.56
39 Tamaki Drive	3.35	n/a	n/a	n/a	n/a	n/a	n/a
39 Tamaki Drive (g)	2.85	2.57	2.58	2.59	2.62	2.68	2.72
41 Tamaki Drive	2.85	2.67	2.68	2.68	2.68	2.71	2.75
43 Tamaki Drive	2.85	n/a	n/a	n/a	n/a	n/a	2.75
45 Tamaki Drive	2.84	n/a	n/a	n/a	n/a	2.70	2.75
47 Tamaki Drive	2.84	2.55	2.59	2.59	2.62	2.70	2.75

- ED – Commercial

Address	Floor Level (m RL)	ED Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
1/13 Marau Cres	2.98	n/a	n/a	n/a	n/a	n/a	n/a
2 Marau Cres	3.25	n/a	n/a	n/a	n/a	n/a	n/a
2/13 Marau Cres	2.98	n/a	n/a	n/a	n/a	n/a	n/a
3/13 Marau Cres	3.75	n/a	n/a	n/a	n/a	n/a	n/a
4 Marau Cres	3.48	n/a	n/a	n/a	n/a	n/a	n/a
4/13 Marau Cres	3.23	n/a	n/a	n/a	n/a	n/a	n/a
3 Patteson Ave	2.76	n/a	n/a	n/a	n/a	n/a	n/a
6 Patteson Ave	2.67	n/a	2.55	2.57	2.57	2.59	2.63
113 Rukutai Street	17.21	n/a	n/a	n/a	n/a	n/a	n/a
15 Rukutai Street	27.95	n/a	n/a	n/a	n/a	n/a	n/a
44 Rukutai Street	15.96	n/a	n/a	n/a	n/a	n/a	n/a
44A Rukutai Street	18.50	n/a	n/a	n/a	n/a	n/a	n/a
79A Rukutai Street	12.03	n/a	n/a	n/a	n/a	n/a	n/a
101 Tamaki Drive (c)	2.73	n/a	n/a	n/a	2.71	2.73	2.74
125A Tamaki Drive	3.79	n/a	n/a	n/a	n/a	n/a	n/a
125B Tamaki Drive	3.49	n/a	n/a	n/a	n/a	n/a	n/a
125C Tamaki Drive	4.11	n/a	n/a	n/a	n/a	n/a	n/a
125D Tamaki Drive	4.38	n/a	n/a	n/a	n/a	n/a	n/a
33 Tamaki Drive	3.06	n/a	n/a	n/a	n/a	n/a	n/a
35 Tamaki Drive	2.66	n/a	n/a	n/a	n/a	n/a	n/a
51 Tamaki Drive	2.80	n/a	n/a	n/a	n/a	n/a	n/a
55 Tamaki Drive	2.66	2.52	2.53	2.53	2.55	2.62	2.67
61-63 Tamaki Drive	2.68	2.52	2.53	2.53	2.53	2.57	2.63
65-71 Tamaki Drive	2.7	n/a	n/a	n/a	n/a	n/a	n/a
75-79 Tamaki Drive	2.66	n/a	2.56	2.57	2.58	2.59	2.63
81-87 Tamaki Drive	2.80	n/a	n/a	n/a	n/a	n/a	n/a
89 Tamaki Drive	2.79	n/a	n/a	n/a	n/a	n/a	n/a
95 Tamaki Drive	3.58	n/a	n/a	n/a	n/a	n/a	n/a
97 Tamaki Drive	3.55	n/a	n/a	n/a	n/a	n/a	n/a
99 Tamaki Drive	2.71	n/a	n/a	2.65	2.67	2.69	2.68

- MPD - Residential

Address	Floor Level (m RL)	MPD Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
107A-107B Aotea Street	15.13	n/a	n/a	n/a	n/a	n/a	n/a
2/107 Aotea Street	16.08	n/a	n/a	n/a	n/a	n/a	n/a
98 Aotea Street	13.00	n/a	n/a	n/a	n/a	n/a	n/a
1/20 Atkin Ave	4.00	n/a	n/a	3.36	3.53	3.62	3.66
1/35 Atkin Ave	4.00	n/a	3.26	3.42	3.53	3.63	3.66
1/40 Atkin Ave	3.30	n/a	3.26	3.42	3.53	3.63	3.66
1/43 Atkin Ave	4.10	n/a	n/a	n/a	n/a	3.63	3.66
1/57 Atkin Ave	5.60	n/a	n/a	n/a	n/a	5.69	5.72
107B Atkin Ave	24.77	n/a	n/a	n/a	n/a	n/a	n/a
119 Atkin Ave	34.94	n/a	n/a	n/a	n/a	n/a	n/a
11a-b Atkin Ave	3.10	n/a	n/a	n/a	2.93	2.99	3.00
1-3/39 Atkin Ave	3.60	n/a	3.26	3.42	3.53	3.63	3.66
1-3/41 Atkin Ave	3.70	n/a	3.26	3.42	3.53	3.63	3.66
15 Atkin Ave	4.20	n/a	n/a	n/a	n/a	n/a	n/a
16 Atkin Ave	3.90	n/a	n/a	n/a	n/a	n/a	n/a
17 Atkin Ave	3.64	n/a	n/a	n/a	3.17	3.22	3.24
18 Atkin Ave	4.81	n/a	n/a	n/a	n/a	n/a	n/a
19 Atkin Ave	3.60	n/a	n/a	n/a	n/a	n/a	n/a
2 Atkin Ave	3.25	2.57	2.59	2.64	2.69	2.78	2.81
2/35 Atkin Ave	4.20	n/a	n/a	n/a	n/a	n/a	n/a
2/40 Atkin Ave	3.30	n/a	3.26	3.42	3.53	3.63	3.67
2/47 Atkin Ave	3.70	n/a	n/a	n/a	3.53	3.63	3.67
2/57 Atkin Ave	5.40	n/a	n/a	n/a	5.43	5.45	5.47
22a Atkin Ave	4.00	n/a	n/a	3.42	3.53	3.62	3.66
22b Atkin Ave	4.00	n/a	n/a	n/a	3.53	3.62	3.66
24 Atkin Ave	4.00	n/a	3.26	3.42	3.53	3.62	3.66
25 Atkin Ave	3.70	n/a	3.26	3.42	3.53	3.62	3.66
27 Atkin Ave	4.10	n/a	3.26	3.42	3.53	3.62	3.66
29a Atkin Ave	4.10	n/a	n/a	n/a	3.53	3.62	3.66
29b Atkin Ave	4.40	n/a	n/a	n/a	n/a	n/a	n/a
29c Atkin Ave	4.80	n/a	n/a	n/a	n/a	n/a	n/a
3/35 Atkin Ave	4.40	n/a	n/a	3.89	3.90	3.91	3.92
3/40 Atkin Ave	3.30	3.05	3.26	3.42	3.53	3.63	3.66

Address	Floor Level (m RL)	MPD Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
3/47 Atkin Ave	3.70	n/a	n/a	3.42	3.53	3.63	3.67
3/57 Atkin Ave	5.20	n/a	n/a	5.28	5.34	5.43	5.47
32a Atkin Ave	3.90	2.99	3.26	3.42	3.53	3.63	3.66
32b Atkin Ave	3.20	3.08	3.26	3.42	3.53	3.62	3.66
34 Atkin Ave	3.20	n/a	3.26	3.42	3.53	3.63	3.66
36 Atkin Ave	3.30	3.01	3.26	3.42	3.53	3.63	3.66
37 Atkin Ave	4.20	n/a	n/a	n/a	n/a	n/a	n/a
37a Atkin Ave	4.60	n/a	n/a	n/a	n/a	n/a	n/a
38 Atkin Ave	3.30	n/a	3.26	3.42	3.53	3.63	3.66
38a Atkin Ave	3.30	n/a	3.26	3.42	3.53	3.63	3.66
38b Atkin Ave	3.30	n/a	3.26	3.42	3.53	3.63	3.66
4/40 Atkin Ave	3.30	3.06	3.26	3.42	3.53	3.63	3.67
4/57 Atkin Ave	5.10	n/a	n/a	5.29	5.35	5.42	5.46
42 Atkin Ave	4.10	3.05	3.26	3.42	3.53	3.63	3.67
43 Atkin Ave	4.10	n/a	3.26	3.42	3.53	3.63	3.66
44 Atkin Ave	3.90	n/a	n/a	n/a	3.53	3.63	3.67
45a Atkin Ave	3.70	n/a	3.26	3.42	3.53	3.63	3.67
45b Atkin Ave	3.80	n/a	n/a	n/a	3.53	3.63	3.66
45c Atkin Ave	3.90	n/a	n/a	n/a	n/a	n/a	n/a
49 Atkin Ave	4.40	n/a	n/a	n/a	n/a	n/a	n/a
49a Atkin Ave	4.20	n/a	n/a	n/a	n/a	n/a	n/a
5 Atkin Ave	5.43	n/a	n/a	n/a	n/a	n/a	n/a
51 Atkin Ave	4.00	n/a	3.26	3.42	3.53	3.63	3.67
55a-d Atkin Ave	5.20	n/a	n/a	n/a	n/a	n/a	n/a
59 Atkin Ave	8.80	n/a	8.39	8.39	8.40	8.40	8.40
7 Atkin Ave	2.91	n/a	n/a	n/a	2.40	2.44	2.41
9a Atkin Ave	3.60	n/a	n/a	n/a	n/a	n/a	n/a
1-2/31Atkin Ave	4.40	n/a	n/a	n/a	n/a	n/a	n/a
15 Bongard Road	30.96	n/a	n/a	n/a	n/a	n/a	n/a
17 Bongard Road	30.50	n/a	n/a	n/a	n/a	n/a	n/a
20 Bongard Road	34.09	n/a	n/a	n/a	n/a	n/a	n/a
24 Bongard Road	30.22	n/a	n/a	n/a	n/a	n/a	n/a
26 Bongard Road	29.50	n/a	n/a	n/a	n/a	n/a	n/a
23 Codrington Cres	14.77	n/a	14.75	14.79	14.82	14.84	14.86

Address	Floor Level (m RL)	MPD Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
24 Codrington Cres	13.03	n/a	n/a	n/a	n/a	n/a	n/a
1/26 Comins Cres	24.27	24.20	24.29	24.32	24.35	24.38	24.40
2/60 Comins Crescent	9.60	n/a	n/a	n/a	n/a	n/a	n/a
20 Comins Cres	26.90	26.56	26.70	26.73	26.77	26.81	26.83
22A-22C Comins Cres	25.92	25.45	25.53	25.55	25.56	25.59	25.60
28 Comins Cres	23.64	n/a	n/a	n/a	n/a	n/a	n/a
28B-28C Comins Cres	25.94	n/a	n/a	n/a	n/a	n/a	n/a
3/60 Comins Crescent	9.40	n/a	n/a	n/a	n/a	n/a	n/a
30 Comins Cres	26.10	n/a	n/a	n/a	n/a	n/a	n/a
32 Comins Cres	22.25	n/a	n/a	n/a	n/a	n/a	n/a
34 Comins Cres	22.41	n/a	n/a	n/a	n/a	n/a	n/a
36 Comins Cres	24.13	n/a	n/a	n/a	n/a	n/a	n/a
36A-36B Comins Cres	18.18	n/a	n/a	n/a	n/a	n/a	n/a
38 Comins Crescent	23.70	n/a	n/a	n/a	n/a	n/a	n/a
40 Comins Crescent	27.00	n/a	n/a	n/a	n/a	n/a	n/a
44 Comins Cres	19.87	n/a	n/a	n/a	n/a	n/a	n/a
62B Comins Cres	8.54	n/a	n/a	n/a	9.55	9.56	9.57
64 Comins Cres	17.75	n/a	n/a	n/a	n/a	n/a	n/a
66A Comins Cres	21.48	n/a	n/a	n/a	n/a	n/a	n/a
66B Comins Cres	17.61	n/a	17.23	17.24	17.24	17.24	17.24
68A Comins Cres	10.92	n/a	n/a	n/a	n/a	n/a	n/a
18A Godden Cres	24.68	25.98	25.98	26.01	26.03	26.06	26.08
22 Godden Cres	32.59	n/a	n/a	n/a	n/a	n/a	n/a
46A-46D Godden Cres	26.50	n/a	n/a	n/a	n/a	n/a	n/a
68 Godden Cres	46.46	n/a	n/a	n/a	n/a	n/a	n/a
70 Godden Cres	45.85	n/a	n/a	n/a	n/a	n/a	n/a
71 Kurahaupo St	25.94	n/a	n/a	n/a	n/a	n/a	n/a
69 Kurahaupo St	25.94	n/a	n/a	n/a	n/a	n/a	n/a
1 Marau Cres	3.78	n/a	n/a	n/a	n/a	n/a	n/a
10 Marau Cres	2.85	2.46	2.59	2.63	2.71	2.80	2.84
11a Marau Cres	3.40	n/a	n/a	n/a	n/a	n/a	2.92
12 Marau Cres	2.90	2.47	2.59	2.63	2.71	2.80	2.83
14 Marau Cres	3.03	n/a	2.59	2.63	2.71	2.80	2.84
15 Marau Cres	3.50	n/a	n/a	n/a	n/a	n/a	n/a

Address	Floor Level (m RL)	MPD Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
16 Marau Cres	4.03	n/a	n/a	n/a	n/a	n/a	n/a
18 Marau Cres	3.46	n/a	n/a	n/a	n/a	n/a	n/a
26 Marau Cres	3.69	n/a	n/a	n/a	n/a	n/a	n/a
28 Marau Cres	3.61	n/a	n/a	n/a	n/a	n/a	n/a
30 Marau Cres	3.58	n/a	n/a	n/a	n/a	n/a	n/a
32 Marau Cres	3.34	n/a	n/a	2.89	2.90	2.92	2.93
34 Marau Cres	3.67	n/a	n/a	n/a	n/a	n/a	n/a
36 Marau Cres	3.73	n/a	n/a	n/a	n/a	n/a	n/a
45 Marau Cres	3.85	3.61	3.61	3.62	3.62	3.63	3.63
49 Marau Cres	4.08	n/a	n/a	n/a	n/a	n/a	n/a
4A Marau Cres	2.89	n/a	n/a	2.64	2.71	2.80	2.83
5a Marau Cres	3.50	n/a	n/a	n/a	n/a	n/a	n/a
5b Marau Cres	3.50	n/a	n/a	n/a	n/a	n/a	n/a
6 Marau Cres	3.13	2.56	2.59	2.64	2.71	2.80	2.83
6 Marau Cres	3.05	2.56	2.59	2.64	2.71	2.80	2.83
7 Marau Cres	3.40	n/a	n/a	n/a	n/a	n/a	n/a
8 Marau Cres	2.94	2.57	2.59	2.66	2.75	2.84	2.88
1/17 Nihill Cres	4.00	n/a	n/a	n/a	n/a	n/a	n/a
1/2 Nihill Cres	4.00	n/a	n/a	3.87	3.91	3.97	4.00
1/4 Nihill Cres	4.80	n/a	n/a	n/a	n/a	n/a	n/a
10 Nihill Cres	3.70	n/a	n/a	n/a	n/a	n/a	n/a
10a Nihill Cres	3.80	n/a	n/a	n/a	3.53	3.63	3.66
11a Nihill Cres	5.00	n/a	n/a	n/a	n/a	n/a	n/a
15 Nihill Cres	3.80	n/a	n/a	n/a	n/a	n/a	n/a
15 Nihill Cres	4.00	n/a	n/a	n/a	n/a	n/a	n/a
18a Nihill Cres	4.60	n/a	n/a	n/a	n/a	n/a	n/a
18b Nihill Cres	4.00	n/a	3.33	3.42	3.53	3.63	3.67
19 Nihill Cres	3.70	n/a	n/a	n/a	n/a	3.63	3.67
2/2 Nihill Cres	3.70	n/a	n/a	n/a	3.53	3.63	3.67
2/4 Nihill Cres	5.90	n/a	n/a	n/a	n/a	n/a	n/a
20b Nihill Cres	4.20	n/a	n/a	n/a	n/a	n/a	n/a
21 Nihill Cres	4.40	n/a	n/a	n/a	n/a	n/a	n/a
22 Nihill Cres	6.70	n/a	n/a	n/a	n/a	n/a	n/a
22a Nihill Cres	4.70	n/a	n/a	n/a	n/a	n/a	n/a

Address	Floor Level (m RL)	MPD Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
27 Nihill Cres	6.80	n/a	n/a	n/a	n/a	n/a	n/a
27A Nihill Cres	4.67	3.85	4.03	4.12	4.18	4.27	4.31
29 Nihill Cres	4.40	3.85	4.04	4.12	4.19	4.27	4.31
29a Nihill Cres	4.40	3.85	4.06	4.15	4.23	4.32	4.36
2a Nihill Cres	3.50	n/a	n/a	n/a	n/a	n/a	n/a
2b Nihill Cres	4.50	n/a	n/a	n/a	n/a	n/a	n/a
2c Nihill Cres	4.50	n/a	n/a	n/a	n/a	n/a	n/a
3 Nihill Cres	3.50	n/a	n/a	n/a	n/a	n/a	n/a
3/17 Nihill Cres	4.50	n/a	n/a	n/a	n/a	n/a	n/a
31 Nihill Cres	5.30	4.99	4.99	4.99	5.00	5.00	5.00
33 Nihill Cres	5.66	n/a	n/a	n/a	n/a	n/a	n/a
37 Nihill Cres	5.30	n/a	4.74	4.75	4.77	4.81	4.83
37a Nihill Cres	4.50	4.75	4.82	4.87	4.92	4.97	5.01
39a Nihill Cres	3.90	5.02	5.13	5.18	5.24	5.29	5.31
41a Nihill Cres	4.50	5.90	5.92	5.93	5.95	5.98	6.01
43 Nihill Cres	4.80	n/a	n/a	n/a	n/a	n/a	n/a
43 Nihill Cres	4.40	n/a	n/a	n/a	n/a	n/a	n/a
43 Nihill Cres	4.40	n/a	n/a	n/a	n/a	n/a	n/a
45a Nihill Cres	4.30	n/a	n/a	n/a	n/a	n/a	n/a
47a Nihill Cres	5.20	6.67	6.82	6.91	7.00	7.08	7.14
5 Nihill Cres	5.60	n/a	n/a	n/a	n/a	n/a	n/a
6 Nihill Cres	5.50	n/a	n/a	n/a	n/a	n/a	n/a
7 Nihill Cres	7.00	n/a	n/a	n/a	n/a	n/a	n/a
8 Nihill Cres	6.90	n/a	n/a	n/a	n/a	n/a	n/a
8A Nihill Cres	6.90	n/a	n/a	n/a	n/a	n/a	n/a
8B Nihill Cres	6.50	n/a	n/a	n/a	n/a	n/a	n/a
9 Nihill Cres	5.00	n/a	n/a	n/a	n/a	n/a	n/a
20 Nihill Cres	4.50	n/a	n/a	n/a	n/a	n/a	n/a
1 Palmer Cres	47.65	n/a	n/a	n/a	n/a	n/a	n/a
27A Palmer Cres	34.06	n/a	n/a	n/a	n/a	n/a	n/a
29 Palmer Cres	29.56	n/a	n/a	n/a	n/a	n/a	n/a
1/22 Patteson Ave	4.10	n/a	n/a	3.42	3.53	3.62	3.66
1/28 Patteson Ave	3.80	n/a	n/a	n/a	n/a	3.63	3.66
1/32 Patteson Ave	3.90	3.05	3.27	3.42	3.53	3.62	3.66

Address	Floor Level (m RL)	MPD Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
1/32a Patteson Ave	4.30	n/a	n/a	n/a	n/a	n/a	n/a
1/35 Patteson Ave	3.50	n/a	3.27	3.42	3.53	3.62	3.66
1/36 Patteson Ave	3.30	3.06	3.27	3.42	3.53	3.62	3.66
1/39 Patteson Ave	4.10	3.19	3.27	3.42	3.53	3.62	3.66
1/42 Patteson Ave	4.47	n/a	n/a	4.07	4.13	4.20	4.23
1/44 Patteson Ave	4.60	n/a	n/a	4.85	4.85	4.85	4.86
102A Patteson Ave	36.11	n/a	n/a	n/a	n/a	n/a	n/a
111 Patteson Ave	31.94	31.59	31.60	31.60	31.60	31.61	31.61
119 Patteson Ave	38.18	n/a	n/a	n/a	n/a	n/a	n/a
1-2/20 Patteson Ave	4.60	n/a	n/a	n/a	n/a	n/a	n/a
12A Patteson Ave	2.68	n/a	2.56	2.57	2.59	2.66	2.69
14 Patteson Ave	4.27	n/a	n/a	n/a	n/a	n/a	n/a
1-4/30 Patteson Ave	3.60	n/a	3.27	3.42	3.53	3.62	3.66
14B Patteson Ave	3.26	n/a	n/a	n/a	n/a	n/a	n/a
14C Patteson Ave	3.26	n/a	n/a	n/a	n/a	n/a	n/a
15 Patteson Ave	4.10	n/a	n/a	n/a	n/a	n/a	n/a
17 Patteson Ave	3.50	3.21	3.24	3.38	3.49	3.58	3.62
19 Patteson Ave	4.00	n/a	n/a	3.42	3.53	3.62	3.65
2/22 Patteson Ave	4.10	n/a	n/a	n/a	n/a	n/a	3.66
2/28 Patteson Ave	3.80	n/a	3.47	3.47	3.53	3.62	3.66
2/32 Patteson Ave	4.00	3.05	3.27	3.42	3.53	3.62	3.66
2/32a Patteson Ave	4.30	n/a	n/a	n/a	n/a	n/a	n/a
2/36 Patteson Ave	3.30	3.17	3.27	3.42	3.53	3.62	3.66
2/39 Patteson Ave	4.10	n/a	3.27	3.42	3.53	3.62	3.67
2/42 Patteson Ave	4.39	n/a	n/a	4.13	4.18	4.25	4.29
2/44 Patteson Ave	4.90	n/a	4.13	4.23	4.31	4.41	4.46
21 Patteson Ave	4.00	3.04	3.27	3.42	3.53	3.62	3.66
23 Patteson Ave	3.90	3.04	3.27	3.42	3.53	3.62	3.66
2-3/35 Patteson Ave	3.50	n/a	3.27	3.42	3.53	3.62	3.66
24 Patteson Ave	4.00	3.04	3.27	3.42	3.53	3.62	3.66
26 Patteson Ave	4.10	3.04	3.27	3.42	3.53	3.62	3.66
3/20 Patteson Ave	4.00	3.04	3.27	3.42	3.53	3.62	3.66
3/28 Patteson Ave	3.80	n/a	3.61	3.61	3.62	3.62	3.66
3/32 Patteson Ave	4.00	3.05	3.27	3.42	3.53	3.62	3.66

Address	Floor Level (m RL)	MPD Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
3/39 Patteson Ave	4.10	n/a	n/a	3.42	3.53	3.62	3.67
3/42 Patteson Ave	4.37	3.85	4.04	4.13	4.21	4.30	4.34
31a Patteson Ave	3.80	3.13	3.27	3.42	3.53	3.62	3.66
31b Patteson Ave	3.80	3.14	3.27	3.42	3.53	3.62	3.66
31c Patteson Ave	3.40	3.16	3.27	3.42	3.53	3.62	3.66
33 Patteson Ave	4.50	n/a	n/a	n/a	n/a	n/a	n/a
34 Patteson Ave	3.30	3.22	3.30	3.42	3.53	3.62	3.67
36a Patteson Ave	3.40	3.09	3.27	3.42	3.53	3.62	3.67
37 Patteson Ave	4.00	n/a	n/a	3.42	3.53	3.63	3.67
37a Patteson Ave	3.50	n/a	n/a	3.42	3.53	3.63	3.67
37b Patteson Ave	4.00	3.18	3.27	3.42	3.53	3.62	3.66
4/28 Patteson Ave	4.40	n/a	n/a	4.02	4.02	4.02	4.02
4/42 Patteson Ave	4.32	3.85	4.05	4.15	4.23	4.34	4.39
46 Patteson Ave	7.00	n/a	n/a	n/a	n/a	n/a	n/a
48 Patteson Ave	8.50	n/a	n/a	n/a	n/a	8.14	8.14
48a Patteson Ave	6.70	n/a	n/a	n/a	n/a	n/a	n/a
5/52 Patteson Ave	8.00	n/a	n/a	7.54	7.55	7.57	7.58
50 Patteson Ave	1.27	n/a	5.31	5.32	5.34	5.37	5.39
50A Patteson Ave	6.32	n/a	n/a	n/a	6.90	6.93	6.96
54 Patteson Ave	9.30	n/a	n/a	n/a	n/a	n/a	n/a
8,10 Patteson Ave	2.64	n/a	2.57	2.58	2.59	2.66	2.69
8;10 Patteson Ave	2.64	n/a	n/a	n/a	n/a	n/a	n/a
9A Patteson Ave	3.60	n/a	n/a	n/a	n/a	n/a	n/a
9B Patteson Ave	3.60	n/a	n/a	n/a	n/a	n/a	n/a
40 Ronaki Road	24.78	n/a	n/a	n/a	n/a	n/a	n/a
42 Ronaki Road	23.98	n/a	23.74	23.75	23.75	23.78	23.78
45 Ronaki Road	27.21	n/a	n/a	n/a	n/a	n/a	n/a
1/29 Rukutai Street	23.50	n/a	n/a	n/a	n/a	n/a	n/a
1/33 Rukutai Street	16.40	n/a	n/a	n/a	16.33	17.00	17.35
1-2/31 Rukutai Street	21.00	n/a	n/a	n/a	n/a	n/a	n/a
13A Rukutai Street	24.78	n/a	n/a	n/a	n/a	24.34	24.34
19 Rukutai Street	28.40	n/a	n/a	n/a	n/a	n/a	n/a
2/17 Rukutai Street	28.50	n/a	n/a	n/a	n/a	n/a	n/a
2/29 Rukutai Street	23.60	n/a	n/a	n/a	n/a	n/a	n/a

Address	Floor Level (m RL)	MPD Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
2/33 Rukutai Street	16.40	15.88	15.88	15.89	16.33	17.00	17.35
21 Rukutai Street	23.00	n/a	n/a	n/a	n/a	n/a	n/a
3/17 Rukutai Street	22.10	21.60	21.60	21.61	21.62	21.62	21.62
3/29 Rukutai Street	22.50	n/a	n/a	n/a	n/a	n/a	n/a
3/33 Rukutai Street	16.40	15.87	15.87	15.87	16.33	17.00	17.35
33 Rukutai Street	16.40	n/a	n/a	n/a	n/a	n/a	19.95
35 Rukutai Street	22.10	n/a	n/a	22.05	22.05	22.06	22.06
37 Rukutai Street	21.80	n/a	n/a	n/a	n/a	n/a	n/a
39-41 Rukutai Street	18.80	n/a	n/a	18.99	18.99	18.99	18.99
4/33 Rukutai Street	16.40	n/a	n/a	n/a	n/a	17.00	17.35
42 Rukutai Street	21.80	n/a	n/a	n/a	n/a	n/a	n/a
42A Rukutai Street	15.99	n/a	n/a	n/a	n/a	n/a	n/a
44B Rukutai Street	20.04	n/a	n/a	n/a	n/a	n/a	n/a
44C Rukutai Street	21.48	n/a	21.30	21.31	21.32	21.34	21.35
17 Selwyn Ave	10.88	n/a	n/a	n/a	n/a	n/a	n/a
21 Selwyn Ave	19.16	n/a	n/a	n/a	n/a	n/a	n/a
23 Selwyn Ave	12.04	n/a	n/a	n/a	n/a	n/a	n/a
35 Selwyn Ave	19.81	n/a	n/a	n/a	n/a	n/a	n/a
9 Selwyn Ave	8.42	n/a	n/a	n/a	n/a	n/a	n/a
1/13 Tagalad Road	3.40	n/a	3.27	3.42	3.53	3.62	3.66
10 Tagalad Road	3.10	n/a	3.26	3.42	3.53	3.62	3.66
11a-b Tagalad Road	3.30	n/a	3.26	3.42	3.53	3.62	3.66
12 Tagalad Road	3.90	n/a	3.27	3.42	3.53	3.62	3.66
14 Tagalad Road	4.00	3.00	3.27	3.42	3.53	3.62	3.66
1-4/15 Tagalad Road	4.20	n/a	n/a	n/a	n/a	n/a	n/a
1-5/1 Tagalad Road	3.90	n/a	3.26	3.42	3.53	3.62	3.66
16 Tagalad Road	3.60	3.03	3.27	3.42	3.53	3.62	3.66
2 Tagalad Road	3.70	3.00	3.27	3.42	3.53	3.62	3.66
2/13 Tagalad Road	3.40	n/a	3.27	3.42	3.53	3.62	3.66
3/13 Tagalad Road	3.50	n/a	n/a	3.42	3.53	3.62	3.66
4 Tagalad Road	3.90	n/a	3.27	3.42	3.53	3.62	3.66
4 Tagalad Road (g)	3.30	2.99	3.26	3.42	3.53	3.62	3.66
4/13 Tagalad Road	3.50	n/a	n/a	3.42	3.53	3.62	3.66
5a-b Tagalad Road	3.20	n/a	3.27	3.42	3.53	3.62	3.66

Address	Floor Level (m RL)	MPD Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
6 Tagalad Road	3.90	3.00	3.27	3.42	3.53	3.62	3.66
7 Tagalad Road	3.40	n/a	3.27	3.42	3.53	3.62	3.66
8 Tagalad Road	3.20	n/a	3.27	3.42	3.53	3.62	3.66
101 Tamaki Drive	2.95	n/a	n/a	n/a	n/a	n/a	n/a
103 Tamaki Drive	3.13	n/a	n/a	n/a	n/a	2.79	2.80
105 Tamaki Drive	3.14	n/a	n/a	n/a	2.90	2.91	2.92
29 Tamaki Drive	3.04	n/a	n/a	n/a	n/a	2.54	2.55
31 Tamaki Drive	2.67	n/a	n/a	n/a	n/a	2.59	2.61
39 Tamaki Drive	3.35	n/a	n/a	n/a	n/a	n/a	n/a
39 Tamaki Drive (g)	2.85	n/a	2.59	2.63	2.69	2.77	2.80
41 Tamaki Drive	2.85	n/a	2.68	2.68	2.71	2.80	2.83
43 Tamaki Drive	2.85	n/a	n/a	n/a	n/a	2.80	2.83
45 Tamaki Drive	2.84	n/a	n/a	n/a	2.71	2.80	2.83
47 Tamaki Drive	2.84	2.47	2.59	2.63	2.71	2.80	2.83

- MPD – Commercial

Address	Floor Level (m RL)	MPD Flood Level (m RL)					
		2 year ARI	5 year ARI	10 year ARI	20 year ARI	50 year ARI	100 year ARI
1/13 Marau Cres	2.98	n/a	n/a	n/a	n/a	n/a	n/a
2 Marau Cres	3.25	n/a	n/a	n/a	n/a	n/a	n/a
2/13 Marau Cres	2.98	n/a	n/a	n/a	2.85	2.91	2.95
3/13 Marau Cres	3.75	n/a	n/a	n/a	n/a	n/a	n/a
4 Marau Cres	3.48	n/a	n/a	n/a	n/a	n/a	n/a
4/13 Marau Cres	3.23	n/a	n/a	n/a	n/a	n/a	n/a
3 Patteson Ave	2.76	n/a	n/a	n/a	n/a	n/a	n/a
6 Patteson Ave	2.67	n/a	2.56	2.57	2.59	2.66	2.69
113 Rukutai Street	17.21	n/a	n/a	n/a	n/a	n/a	n/a
15 Rukutai Street	27.95	n/a	n/a	n/a	n/a	n/a	n/a
44 Rukutai Street	15.96	n/a	n/a	n/a	n/a	n/a	n/a
44A Rukutai Street	18.50	n/a	n/a	n/a	n/a	n/a	n/a
79A Rukutai Street	12.03	n/a	n/a	n/a	n/a	n/a	n/a
101 Tamaki Drive (c)	2.73	n/a	n/a	2.71	2.73	2.75	2.75
125A Tamaki Drive	3.79	n/a	n/a	n/a	n/a	n/a	n/a
125B Tamaki Drive	3.49	n/a	n/a	n/a	n/a	n/a	n/a
125C Tamaki Drive	4.11	n/a	n/a	n/a	n/a	n/a	n/a
125D Tamaki Drive	4.38	n/a	n/a	n/a	n/a	n/a	n/a
33 Tamaki Drive	3.06	n/a	n/a	n/a	n/a	n/a	n/a
35 Tamaki Drive	2.66	n/a	n/a	n/a	n/a	n/a	n/a
51 Tamaki Drive	2.80	n/a	n/a	n/a	n/a	n/a	n/a
55 Tamaki Drive	2.66	2.52	2.53	2.56	2.62	2.71	2.73
61-63 Tamaki Drive	2.68	2.52	2.53	2.53	2.58	2.67	2.69
65-71 Tamaki Drive	2.7	2.51	2.52	2.53	2.57	2.66	2.69
75-79 Tamaki Drive	2.66	n/a	2.57	2.58	2.59	2.66	2.68
81-87 Tamaki Drive	2.80	n/a	n/a	n/a	n/a	n/a	n/a
89 Tamaki Drive	2.79	n/a	n/a	n/a	n/a	n/a	n/a
95 Tamaki Drive	3.58	n/a	n/a	n/a	n/a	n/a	n/a
97 Tamaki Drive	3.55	n/a	n/a	n/a	n/a	n/a	n/a
99 Tamaki Drive	2.71	n/a	2.63	2.67	2.69	2.70	2.71



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