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 0.266 m.

For example:

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

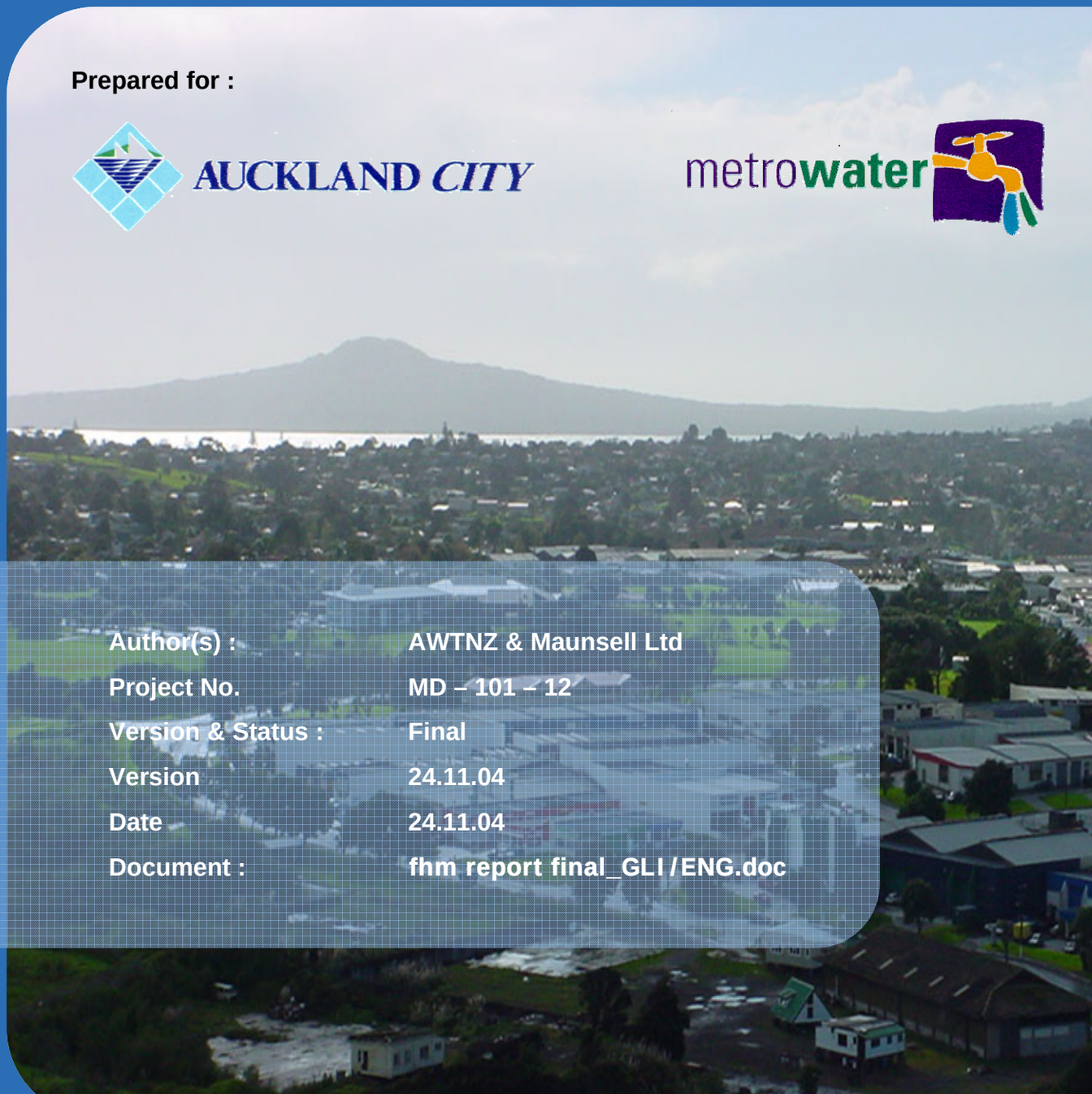
A single offset value for the catchment has been taken from the Land Information New Zealand (LINZ) Auckland 1946 to NZVD2016 Conversion Raster therefore this offset should be taken as an approximation only for the catchment.

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/

FLOOD HAZARD MAPPING REPORT

Glen Innes and Point England

Final



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IMPORTANT!!

This document consists of three PDFs:

1. **PDF – Main Report.**
2. **Flood Hazard Mapping Vol I.**
3. **Flood Hazard Mapping Vol II.**

1. PDF - Main Report.

FLOOD HAZARD MAPPING REPORT

Glen Innes & Point England

Final

November 2004

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QUALITY RECORD SHEET

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Reference: MD-101-12

Date: November 2004

Revision: Final

Description

Glen Innes / Point England Catchments

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DOCUMENT CONTROL

Distribution List

The following organisations shall receive a copy of this document on release:

Organisation
Auckland City Council Utility Planning
Metrowater Limited

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The following table outlines the revision history of this document:

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Review and Sign-off

The following persons have reviewed the document for its release:

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EXECUTIVE SUMMARY

Auckland City Council is responsible under the Resource Management and the Building Act to "avoid and mitigate flood hazards associated with the development and use of floodplains. To enable the extent of floodplains to be assessed for existing and Maximum Permissible Development (MPD) land use scenarios in Glen Innes and Point England, asset data collection, hydraulic modelling and public consultation have been undertaken.

An hydrological and hydraulic model was developed using the MOUSE (V2003B) modelling package (DHI, 2003a). The MOUSE Model B module was utilised to describe the hydrological process and the Flood Hazard Mapping analysis was undertaken utilising the TP108 rainstorm profile (DHI, 2003b; DHI, 2003c; ARC, 1999).

This analysis identified that during the 1%, 2% and 10% AEP TP108 storm events, (under Existing and Maximum Probable Development landuse scenarios) the number of habitable floors susceptible to and within 500mm of flooding are as shown in Table ES.1.

The Glen Innes / Point England Flood Hazard Mapping report identifies several areas of potentially significant overland flows and several areas where the flood hazard is such that business and residential habitable floors are flooded during 2% and 1% AEP events.

Table ES.1: Summary of Floors at Risk of Inundation

	Existing Development Landuse			Maximum Probable Development Landuse		
	10% AEP	2% AEP	1% AEP	10% AEP	2% AEP	1% AEP
NUMBER OF RESIDENTIAL HABITABLE AND NON-HABITABLE FLOORS INUNDATED						
Habitable floors within 500mm of water level	0	1	1	0	1	1
Non-habitable floors at risk	0	3	3	0	3	3
Habitable floors at risk	0	4	4	0	4	4
NUMBER OF HABITABLE BUSINESS FLOORS INUNDATED						
Habitable business floor within 500mm of water level	0	9	9	0	9	9
Commercial floors at risk	0	9	9	0	9	9

Resident surveys, subsequent field inspection and catchment modelling have identified 4 residential habitable floors at direct risk from flooding during the design 1% AEP event.

Catchment modelling has confirmed that flood hazards are generally confined to the reserve areas along the mainstream channels and along road reserves. There is also an area of significant overland flow and potential ponding located within the playing fields of Tamaki College.

In addition to Flood Hazard Areas, “Flood Prone Areas” have been included on the maps. These are areas that have no surface drainage path (“land-locked”) and as a consequence would flood should the downstream piped drainage system fail to convey water, even though the modelling does not predict flooding in the 10%, 2% or 1% AEP events.

1 INTRODUCTION

1.1 Introduction

Metrowater on behalf of Auckland *City* is currently undertaking a comprehensive Integrated Catchment Study (ICS) across the Auckland Isthmus. This ICS project will investigate the various wastewater, stormwater and combined drainage system networks in the Auckland *City* area and examine and address the effects of these systems on the receiving environment.

In addition Auckland City Council is responsible under the Resource Management and the Building Act to "avoid and mitigate flood hazards associated with the development and use of floodplains".

This report identifies the extent of flooding within the Glen Innes and Point England drainage management areas (DMA's) for the 10%, 2% or 1% AEP event design storms. This report is produced during the ICS project, however is not intended to specifically conform to all of the ICS frameworks and requirements.

1.2 Objectives

The objectives of the Glen Innes / Point England Flood Hazard Mapping Study are as follows:

1) Map the areal extent of the flood hazard area under the 10%, 2% or 1% AEP events
2) Identify the locations of significant overland flowpaths for the 10%, 2% or 1% AEP events
3) Identify stormwater pipes that exceed pipe-full capacity in the 10% AEP event and that exceed a velocity of 3 m/s.

1.3 Previous Work

A previous catchment management plan was completed for the Glen Innes – Point England Catchment in 1995 by Beca Steven. This comprehensive study included the preparation of flood hazard maps for Omaru Stream, and addressed water quality and sewer overflow issues.

The ICS Medium Level Options Analysis (MLOA) reports for Glen Innes and Point England (AWT/Maunsell, November 2004) gives and overview of flooding issues with the DMA and provides some broad solutions for flooding and stormwater quality problems in the study areas

1.4 Description of Study Area

1.4.1 Location and Topography

The Glen Innes & Point England DMAs cover approximately 900ha in the eastern part of Auckland *City*. It is generally bordered by West Tamaki Road, St Heliers Bay Road, St Johns Road, College Road, Mount Wellington, Dunn Road, Pilkington Road, Te Hoa Road, Church Crescent and the Tamaki Estuary. The study combines both the Glen Innes and Point England DMAs due to the numerous surface water interactions between the two areas. The upper section of the study area, particularly to the northwest, is relatively steep while the lower section near the estuary is relatively flat. The study area covers a predominantly residential area with small amounts of commercial and industrial areas. The stormwater catchment discharges directly in an easterly direction to the Tamaki Estuary via three main channels, the larger being Omaru Stream.

1.4.2 Geology

The geology of the area can be broadly described in terms of three groupings of soil and/or rock types:

- Sandstone and mudstone of the Waitemata Group: Alternating beds of very weak to weak sandstone and mudstone make up the higher ground and steeper slopes of the northern part of the Glen Innes DMA. These rocks weather to firm to stiff silty clay and clayey sand to depths of 10 m below ground.

- Tauranga Group Alluvial Sediments: Laterally discontinuous, interfingering, poorly consolidated beds of pumicieous silt, sand and gravel and organic-rich clay up to 60m thick underlie lower ground in the north to central part of the Glen Innes and Pt England DMAs. These sediments weather to very soft to soft variously coloured clay to depths to 10 metres. The pumicieous deposits, up to 5m thick, are porous with good transmissivity, weathering to very soft white clay and can be dispersed by wind when dry.

- Products of the Auckland Volcanoes: The southern half of the Glen Innes and Pt England DMAs is underlain by lava derived from the Mt Wellington volcano. Lithic tuff derived from the Taylor Hill volcanic centre outcrops in the north-eastern part of the study area.

In the study area, these deposits largely comprise clay to sand sized fragments of sandstone, mudstone, alluvium and basalt (lithic tuff) with variable strength and cementation. The tuff weathers to a very soft to soft silty clay to depths of less than 1m. Minor basaltic outcrops in the south-west, vary from extremely weak porous scoriaceous basalt to moderately strong

dense basalt with a regular series of vertical and horizontal cooling fractures. The lava may be locally cavernous.

2 METHODOLOGY

2.1 Hydrological and Hydraulic Modelling

2.1.1 Review of Background Information

As part of the wider Integrated Catchment Study (ICS) various data sources were provided to the AWT New Zealand / Maunsell Ltd consultant team (AWT/Maunsell) for ICS Areas 2 and 5. This data was reviewed and the results of this analysis are summarised in AWT/Maunsell report "Catchment Existing Status and Data Capture Recommendation Report: Integrated Catchment Study Stage 1A", February 2002.

Available data related to the stormwater drainage system for the Glen Innes / Point England DMAs was reviewed in detail during the course of the flood hazard mapping project. Various sources of asset information supplied by Metrowater/Auckland City were resolved according to a strict data hierarchy supplied by Metrowater. The stormwater pipe and manhole asset information available for the Glen Innes / Pt England DMA's was identified as being of "Good" quality (Metrowater, 2001). 'Good data' is defined as surveyed and generally complete although some anomalies may be found with detailed use of the information (for example in a model). 'Medium data' is defined as data known to contain errors and which may be incomplete. Issues are likely to be identified relating to connectivity, incomplete survey information, incomplete size and material attributes. 'Poor data' is defined as data known to be incomplete, of very poor quality, or digitised.

2.1.2 Data Collection

A preliminary walkover of the Catchment was conducted in June 2002. Subsequent site visits were undertaken at later stages throughout the Hydrological and Hydraulic modelling process to confirm overland flowpaths and ponding areas.

Topographical contours, at half-metre intervals, obtained from aerial photography conducted during 2001, were used to help identify the extent of significant ponding areas. These contours have a 95% confidence of +/- 0.5m.

Additional surveying was done by Cato Bolam Consultants Limited and CKL Surveyors Limited, including more detailed topographical surveys of the depression areas, cross-sections along significant flowpaths and floor levels for all habitable buildings and garages identified as lying within ponding areas and within approximately 500mm of the 1% AEP flood level. These are described in Section 4.1 of this report.

2.1.3 Model Type

This model simulates the hydrological and hydraulic stormwater system for discharge and level for the Glen Innes and Point England DMA's. The model includes both open channels and the pipe network.

2.1.4 Software

The following software was used to model the Glen Innes and Point England DMA's.

Table 2.1 Software

Software Type:	DHI MOUSE
Software Version:	Version 2003b

MOUSE is an advanced, powerful, and comprehensive surface runoff, open channel flow, pipe flow, water quality and sediment transport modelling package for urban drainage systems, storm water sewers and sanitary sewers.

For further information regarding the software used for this model including capabilities and limitations visit:
http://www.dhisoftware.com/mouse/

2.1.5 Files used

The files listed in Table 2.2 below were all the files used to run the final model.

Table 2.2 All files used to run the final MPD model

File Name	File Type	File Description
GLENINNESFHM_NOV2004.und	Network File	Hydraulic Pipe model
GLI FHM MPD NOV_2004.HGF	Hydrological file	Hydrological model
Dhiapp.ini	Mouse parameters	Application file

2.1.6 Summary of Model Attributes

A summary of the main components in the model are provided in Table 2.3 below.

Table 2.3 Summary of Model Components

Input Type	Component Type	Number of Components
Hydraulic Model	Total Number of Nodes	1851
	Total Number of Links	1860
Hydrological Model	Total Number of sub areas	415

2.2 Hydrological and Hydraulic Modelling

A hydrological / hydraulic computer model was used to determine the extent of flooding during the 10%, 2% and 1% AEP flood events under both the 'Existing' scenario and 'Maximum Probable Development (MPD) ' scenario as per the District Plan.

2.2.1 Modelling Methodology

For the purposes of the Glen Innes / Point England flood hazard modelling the MOUSE Model B approach was used to simulate the hydrological conditions in the catchment. Model B is founded on the Kinematic wave computation. This means that the surface runoff is computed as flow in an open channel taking the gravitational and frictional forces only. The runoff amount is controlled by the various hydrological losses and the size of the contributing area (DHI, 2003). The shape of the runoff hydrograph is controlled by the length, slope and roughness parameters of the catchment surface.

The rainfall characteristics for the study area were calculated using "TP108: Guidelines for Stormwater Runoff Modelling In the Auckland Region", Auckland Regional Council, 1999.

A 24 hour design storm was used to calculate Catchment Runoff in the Glen Innes / Point England Flood Hazard Model. Catchment runoff was calculated using the MOUSE Model B Method. The impervious area estimations supplied by Metrowater were developed from aerial photographs for the existing scenario, whilst the District Plan Imperviousness limits were used for the Maximum Permitted Development (MPD) scenario.

Where soak holes where present an appropriate soakage rate was determined from the soakage maps (available in GIS format) developed for the ICS project as part of ongoing ground water modelling. All flows to soakage areas in excess of this soakage rate were routed to appropriate overland flow paths. Information supplied on the number of soakholes and their specific soakage rates for this modelling stage has been limited. Metrowater was only able to provide information on those public soakholes that it has records for and generalised soakage rates. There are a significant number of soakholes on private properties, especially in business zones, that have a significant impact on the hydrology of these DMAs. For the purposes of flood hazard mapping the soakage areas have been lumped together and modelled with a soakage rate based on the area that they are draining.

As previously discussed, stream cross sectional information was incorporated into the MOUSE model where available in order to assess the maximum water level through the reach. This information was then used in conjunction with

supplied contours from aerial photogrammetry for the preparation of the associated flood hazard maps for the Glen Innes / Pt England DMAs.

Upstream areas were incorporated into the MOUSE model as lumped "model sub-catchments" in accordance with industry standard practice. The pipe network was represented in the model by nodes (i.e. manholes) and connecting pipes. The nodes were defined by X, Y co-ordinates, cover levels, invert levels and manhole diameters. The pipe data input to the model comprised diameter, upstream and downstream inverts and connecting nodes. The node and pipe data was available in electronic format from other stages of the ICS project. This information was extracted and exported to MOUSE either directly or with minor adjustments for modelling purposes.

A number of Maunsell in-house logical rules were used to identify data most likely to be in error and the highest priority for checking. Suspect data that was judged to be non-critical was corrected using in-house developed automated error detection and correction subroutines.

These included:

- All network connectivity confirmed.
- Identification of pipes with negative gradients in the network.
- Identification of backdrops at manholes.
- Long section profiles checked for inconsistencies.
- Identification of locations where pipe diameters decrease downstream.
- Identification of missing attribute data.

Overland flow paths and open channels within the modelled reach were represented by both the surveyed cross sections obtained from previous studies and the new cross sections obtained as part of this study. Where the criticality of overland flow paths did not warrant topographical survey, standard cross sections supplied by Metrowater were applied.

Industry standard values of Manning's "n" from the literature were used to describe the roughness for various conduits. These are outlined in Table 2.4

Table 2.4 Mannings 'n' values

Material Type	Mannings "n" value
Normal Concrete (Pipe)	0.0133
Overland Flow (Property)	0.03
Overland Flow (Road)	0.016
Natural Channels	0.045

2.2.2 Existing and MPD Landuse

The present zoned land uses within the Glen Innes and Point England DMAs are shown on sheets GI.01 and ENG.01 in Volume 2, Flood Hazard Maps. The associated impermeable surface coverage areas were derived from

imperviousness data supplied by Metrowater. The 'Existing' imperviousness data was computed by Auckland *City* and was determined from aerial photography flown in early 2001. The 'Future' or MPD (maximum possible development) imperviousness was also computed by Auckland *City* but was based upon Operative Auckland *City* District Plan (1999) permitted site coverage's. In this scenario it is assumed that infill housing and redevelopment will occur within the catchment and hence maximum imperviousness allowable under the current district plan has been assumed as the limit to future imperviousness.

The study area is predominantly residential (58% of total area). The residential housing is mainly zoned 5 and 6a (medium density), although there are small areas of more intensive zoning 7a and 7b (State Housing apartments) and 2b.

Table 2.5 - Existing Land Use Zoning for the Glen Innes / Point England DMAs

Land Use	Area	Percentage Area
Residential	520ha	58%
Special Purpose	60ha	7%
Business	120ha	14%
Open Space	190ha	21%
Total	**890ha**	**100%**

Note 1. Special Purpose Land includes the Auckland University Tamaki Campus, Auckland University playing fields and the Main Trunk Railway Line.
Note 2. Road areas are included in the in the land use zoning figures shown in Table 2.5

As the majority of residential land falls within Zone 5 and 6A a maximum imperviousness of area of 60% has been applied to these two zones as per the district plan. All business, open space and special purpose land was assessed on a case by case basis to determine the existing and potential development.

2.3 Model Limitations and Assumptions

The models as currently developed are subject to limitations as below, which must be considered when interpreting results. The report and maps should only be used by a qualified professional engineer who is fully conversant with the processes followed in the ICS study whilst exercising appropriate caution. Where new structures are proposed and damage or loss may occur due to flooding, a site specific analysis by a suitably qualified professional engineer who is fully conversant with the processes followed in the ICS should be undertaken.

Furthermore, during the modelling process, assumptions were made in order to adequately represent the flow, level, velocity and flood extent situation.

2.3.1 Limitations

- This flood hazard mapping study has been prepared to provide general guidance on likely flood levels, velocities and depths in the catchment. The modelling process relies on a range of assumptions and simplifications and is always subject to errors and inaccuracies which are masked by the calibration, verification and validation processes. The compounding effects of uncertainties in the TP108 rainfall model (ARC, 1999), and uncertainties in the contour model could result in the water level being different than the mapped levels. In addition, rainfall, wind and antecedent conditions during a real flood event may depart significantly from those modelled. Accordingly, actual flood events are subject to potential variance from report and map outputs.

- As directed by Metrowater, no freeboard has been applied to any of the modelled and mapped water levels in this report and maps. Asset planners, consent planners and designers should take appropriate care in using these maps and should apply a freeboard allowance that is appropriate for the situation, taking into account the above limitations and uncertainties including the compounding effects of uncertainties in the TP108 rainfall model (ARC, 1999), uncertainties in the contour model, as well as the assumptions listed in this report and on the maps.

2.3.2 Model Extent

- The flood hazard model is only capable of predicting water levels, flows and velocities within the immediate vicinity of the extent of the network model. Flood hazards may occur in locations upstream or away from the modelled network, but will not have been identified in this report and in the appended maps. In order to determine the flood hazard in areas outside the extent of the model, specific local flood hazard assessments must be carried out.

- Flood Prone Areas (FPA) are indicated on the Flood Hazard Maps. These are areas that have no suitable secondary flowpath available (i.e. the surrounding area is higher than some at risk features (like floor levels) causing the area to be “land-locked” and reliant upon the primary drainage system) and as a consequence would flood should the primary drainage system fail to convey the modelled flow (e.g. through blockage, collapse, etc), even though the modelling does not predict flooding in the FPA in the 1%, 2% or 1% AEP events. In a similar fashion to the previous bullet point, flood prone areas are only indicated in the immediate vicinity of the model extent. Flood prone areas may occur in locations upstream or away

from the model network, but are unable to be identified in this report and in the appended maps.

2.3.3 Hydrological Model Assumptions

- Stormwater sub-area boundaries follow property boundary lines in heavily urbanised areas where the lot size is small compared to the sub-catchment being studied.

- Stormwater actual imperviousness ratios were obtained from an aerial photo study carried out by City Design for Auckland City in 2002 are used as a base for calibration.

- Stormwater sub-area slopes were calculated from topographical information provided by Metrowater (contours, property boundaries etc). An average slope method (change in elevation from highest point in sub-area to ground level at inflow node divided by the length of flow path) was used in the model.

- The design storms are from ARC's TP108. The TP108 model has a reported 90% confidence of flow results being within +/- 25% of the system being modelled (ARC, 1999). With this potential variability in modelled flows from real flows, a more or less extensive flood hazard (flow, velocity and water level) will result.

- The rainfall storms used in the modelling have been specified by Metrowater and have not been reviewed or checked by AWTNZ/Maunsell. 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 effects of climate change on the hydrology have not been taken into account.

2.3.4Hydraulic Model Assumptions

- Where Metrowater has defined the asset data as being of 'Good' or 'Medium' quality, then only a small percentage of the asset data was subjected to audit. Even though the audit indicated that the 'Good' or 'Medium' quality asset data was not always complete, correct or reliable, Metrowater did not require AWTNZ/Maunsell to capture further asset data in these areas.

- Stormwater catchpit inlet control was not modelled for stormwater reticulation. This means that the model effectively assumes that

catchpit inlet capacity is equal to or greater than the modelled pipe capacity.

- No blockage has been assumed in manholes, pipes, culverts and entry points into the stormwater system, as directed by Metrowater.

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

- No sedimentation or erosion of watercourses and overland flow paths either during storm events, or gradually over time has been allowed for in the modelling.

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

- Change in asset condition over time is not modelled as directed by Metrowater.

- All manhole losses use MOUSE's Mean Energy Approach unless they are located at a structure for which the Mean Energy Approach is inappropriate (e.g. structures with a large cross-section over the flow path, or structures that exhibit inlet control, or those that are located at critical locations in the network where they were individually assessed).

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

- Metrowater has instructed that all manholes be considered as "sealed" thereby creating a pressurised condition with surcharge to above lid level in manholes to be modelled using weirs so that the frequency and volume of overflow can be clearly defined and additional storage above the manhole is not overcompensated.

- The flood hazard maps were developed by interpolation between contours provided by Metrowater at 0.5 metre intervals. The provided contours themselves have a 95% confidence of +/- 0.5 metres and are known to be significantly worse in some areas. Therefore the computed flood levels are only accurate to within +/- 0.5 metres (at 95% confidence) excluding other possible cumulative errors, which may be present, such as those resulting from assumptions indicated in this section of the report. As a result, the lateral extent of flood hazards may vary significantly from that shown on the maps. This can have a compounding effect with other

uncertainties such as the TP108 rainfall model and other causes for uncertainty. (The actual level of uncertainty as a result of other possible errors and inaccuracies will in some situations be in excess of 0.5 metres. Asset planners, consent planners and designers should take appropriate care in using these maps and should apply a freeboard allowance that is appropriate for the situation, taking into account these limitations, assumptions and uncertainties including the compounding effects of uncertainties in the TP108 rainfall model (ARC, 1999) and uncertainties in the contour model.

- Where pipes run in parallel, the total design flow of the pipes given in the tables of the Flood Hazard Report should be compared to the total combined capacity of the parallel pipes. Although the flow through the conduits was simulated by the hydrodynamic model, the pipe capacities shown in the tables are those computed by the model as additional information, based on Manning's equation. The actual available capacity of a pipe could be less than the capacity shown due to upstream and downstream conditions existing in the pipe system. Note that 'parallel' is defined as an instance where two or more pipes convey the flow from a particular part of the system. 'Parallel' pipes are not necessarily aligned with each other, adjacent to each other or the same size or same length.

- Overland flow paths use standard cross-sections for roads and properties as supplied by Metrowater except where modified following site inspections (e.g. for significant flow paths).

- Overland flow paths have been predicted from review of existing contour information, other available reports and site inspections. The extent of the flow paths may vary due to inaccuracies in available contour information or model assumptions. It is therefore possible that the flow paths could extend outside the identified extents or that other flow paths may exist that have not been incorporated into the model. Changes to topography (natural or otherwise), development, redevelopment, landscaping, obstructions and drainage since the date of data capture may alter the extent, location and depth of overland flow from those shown. Overland flow path locations and extents are subject to deliberate or inadvertent obstructions and changes introduced by land owners and occupiers and may therefore vary significantly over time.

- Channel dimensions for open channel flows are assumed generalised channel dimensions that have been selected to be representative of a channel with variable cross section or they may be based on contours for larger flow paths. The representation of the channel in the model may not be representative if the channel dimensions change due to natural or artificial means, or if there are changes to

the density of vegetation, or if obstructions occur during a flood event.

2.3.5 Boundary Conditions Assumptions

- Tide levels are assumed to be constant during the model run and have been set at Mean High Water Springs at the levels above LINZ datum 1946 tabulated in the report.

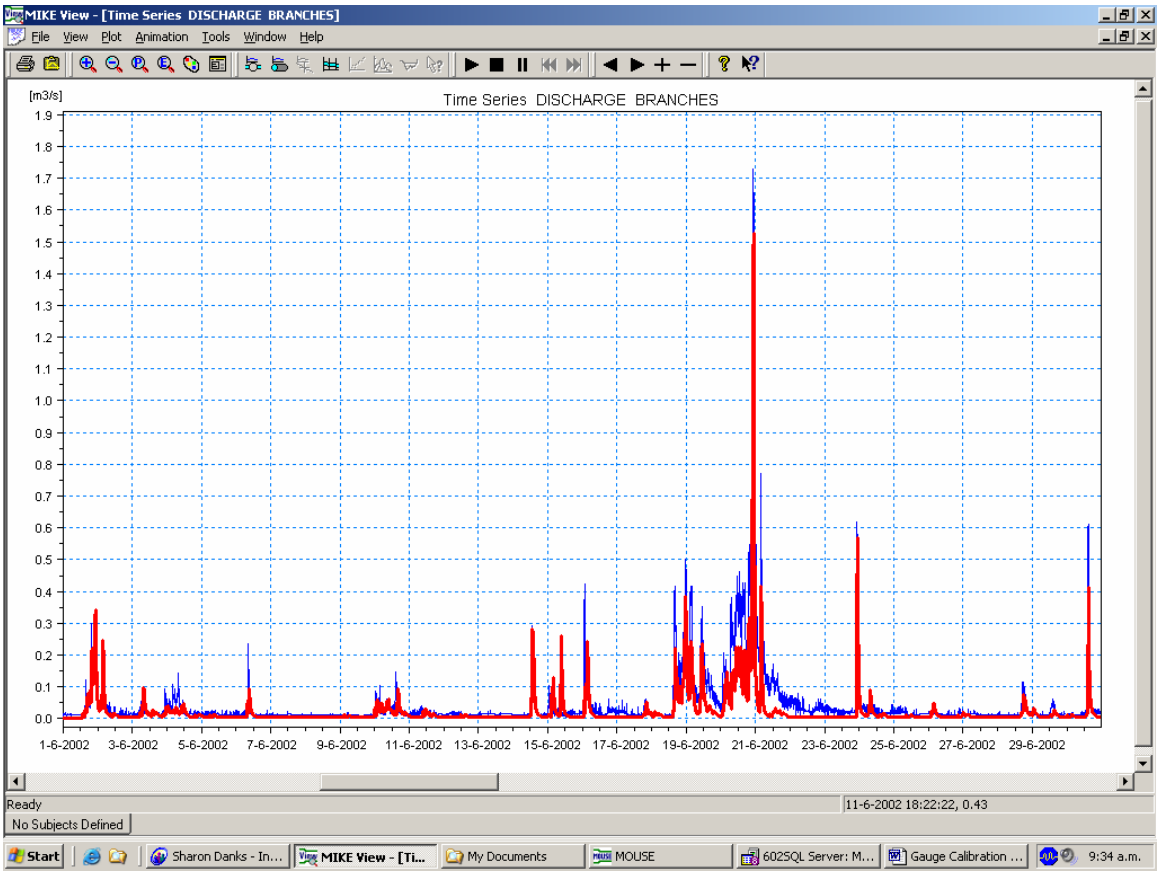
- Potential evapotranspiration rates as provided by Metrowater have been utilised.

The effects of climate change on the sea level at the outfalls from the model have not been taken into account. The existing MHWS level is considered to be the same now and in the future as directed by Metrowater. The Highest Astronomic Tide (HAT) level at the harbour has been increased by 200mm for the MPD scenario as directed by Metrowater. No specific allowance for increased storm surge height and frequency has been made other than the use of the existing MHWS level as a boundary condition for the design storms.

2.4 Glen Innes – Point England Stormwater Calibration

Two stormwater flow gauges were placed in the Omaru Stream for a period of 6 months in 2002. The gauges were installed in the 900mm culvert in Line Road and in the twin culverts in Elstree Avenue immediately upstream of the water quality pond located in the Point England Reserve. However, the Glen Innes stormwater gauges could not be calibrated with the MOUSE model for the following reasons:

Figure 2.1 Gauge Calibration with 100% Model B



Gauge NS1548 was located in the Glen Innes catchment on the Omaru Stream system in a culvert at Line Road. Calibration of Gauge NS1548 has not been able to be satisfactorily achieved. The following modifications were trialled in an attempt to achieve calibration:

- The original model contained 97 sub areas. These were initially converted to a single sub-catchment when it became apparent calibration was going to be difficult. This single sub-catchment used impervious percentages averaged from the 97 smaller sub-catchments. A rough order peak flow calibration could only be achieved by using a very steep slope and high Manning's (M) roughness values. In addition, the RDI pervious component had to be forced to flow as overland flow by altering the CQ_{of} value to 0.9999 or 1.

- As a third attempt, the hydrological model was then converted into 10 smaller catchments delineated by land use types. Average length and slope parameters were calculated from values calculated from the smaller sub-areas. Again calibration was attempted. The best calibration achieved still required very steep catchment slopes and high Manning's (M) numbers. In addition, all the pervious flows were routed through the overland flow component of the RDI calculations. The time step used for calculating the SRC was shortened to 5 minutes and the CK value reduced to 0.1 hour. This necessitated that the hydrological model was run using a .BAT file. Again the CQof values were set to 0.99 or 1 for all calculations. The ground and root-zone storages were minimised to allow all the water to be routed overland. Even with these 'non-sensible' parameters, the "best" calibration achieved is shown above in Figure 2.1. To allow the peaks to be calibrated approximately all of the flows need to be routed overland. As a result the volume calibration cannot be achieved due to the lack of modelled base flow and interflow.
- If the base flow / slow response is calibrated then the peaks are under-represented by around 50 to 80%.
- A relatively good calibration can be achieved for selected small storms.
- The model appears to be overestimating the gauged velocities at the gauge location.
- The level calibration is affected by the calibration forcing all the rain to flow overland. This is because there is an absence of base flows, interflows and groundwater influence in the model.

Gauge Data

The other possible source of error leading to the gauge being unable to be calibrated is an error with the gauge records or calibration.

The stormwater gauge NS 1548 was not calibrated in the field due to very low velocities during low flows and large water depth during storm events making access to the gauge unsafe. Photographs taken at the site during the gauging period do not reflect the gauged high water level. On the 17th of June 2002 the gauge recorded the water level ranging between 1.1 and 1.7 metres (Figure 2.2, 2.3, 2.4 and 2.5 below). This was due to a ponding effect in the downstream end of the culvert.

To overcome this effect a basin was simulated immediately downstream of the gauge. After manipulating the amount of storage in the culvert it was possible to simulate the level of the gauge with the model within reasonable limits.

The culvert has an upstream invert of 9.32 and a downstream invert of 8.80. The length of the pipe is approximately 31 metres. This gives an average grade of 1.6%. The pipe has a 1.8 metre diameter recorded from the survey

completed for the FHM report and 900mm from the AMIS data (the latter was discarded). This slope was adjusted to 10% to try to simulate the situation seen on the day of the photo below (0.6 metres in the downstream end of the pipe and no water level in the upstream end of the culvert) and although peak discharges increased they were not within the bounds of reasonable calibration criteria.

While all of the above methods improved the peak flow calibration marginally, the peak flows and volumes were both substantially lower than the gauged flows.
All the quality codes for the rain gauge data are 'Good'. The flow gauge shows a good response to the rain. An additional check was performed to compare rainfall data for gauge 5IC03 with the rainfall recorded by the gauge located in Churchill Park in the Glendowie DMA and there was a reasonable correlation.

For the above reasons, and after consulting the ICS modelling team leader, the gauge data was assessed as being of no use for calibration.

Figure 2.2 Upstream End – 17 June 2002

Figure 2.3 Location Map

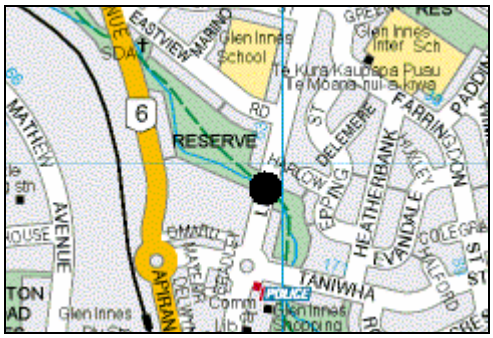


Figure 2.4 View from Downstream End before installation of gauge

(note: ponding extends to upstream end)

Figure 2.5 View of Outlet

<u>Gauge NS1580L</u>

Gauge NS1580L is a 6-month flow gauge located in the lower reaches of Omaru Stream at Ellstree Avenue. Six weeks into the installation period a

water quality pond was commissioned immediately downstream. After the initial 6 weeks of gauging information the culvert in which the gauge was located was permanently full due to the weir controlling the pond level just downstream of the culvert.

Two hundred sub-areas drain to this gauge. In addition there may be overland flows not related to the stormwater assets flowing to Omaru Stream that may also enter the stream at this location, thus complicating the calibration.

Analysis of the first 6 weeks of data from gauge NS1580L showed that using actual impervious-pervious ratios from the GIS data again produced modelled results lower than the gauge. In this case though, when imperviousness was increased to 100% Model B only, the gauge flows were exceeded by approximately 20% for the larger storms. This suggests that some calibration of peak flows may be possible (2 events) with the following reservations.

It should be remembered that this gauge is again uncalibrated in the field for the same reasons as gauge NS1584. (Low velocities in dry weather / unsafe in wet weather) and hence may have inherent errors of up to +/- 25%. It should also be noted that the gauge recorded velocities and discharges of zero for most of the dry periods. This would make any attempt to calibrate volumes and base flows difficult to impossible.

The complication that the dual culvert and disproportionate flows brings to this gauging site would further reduce confidence in any calibration that might be achieved.

Conclusion

It was therefore decided that for the Point England and Glen Innes DMA's that the actual pervious/impervious data from the aerial photos would be used initially for the storm water model. These values would be adjusted manually downwards to take into account the % Model B and % RDI determined from the wastewater calibration. This prevents any theoretical double counting of rainfall in the un-gauged stormwater portion of the model.

It is recommended that other ICS DMA parameters from sub-catchments with similar characteristics be compared to those applied here and trialled if considered beneficial.

2.4.1 Rainfall

Simulations for the 10, 50 and 100-year storm events for the Existing Development and Maximum Permitted Development land-uses were

undertaken and flood extents plotted for the Maximum Permitted Development.

The TP108 Design Storm Unit Hydrograph was utilised for Flood Hazard Mapping. The 24 hour storm depths are shown below in Table 2.6.

Table 2.6 - 24-hour Storm Events

Storm Event	Rain Depth mm
10% AEP	130
2% AEP	175
1% AEP	200

Source: Auckland Regional Council TP108 (ARC, 1999)

2.5 Model Validation

The Glen Innes / Point England Flood Hazard model was validated against TP108 and results from the existing Catchment Management Plan Model prepared by Beca Carter in 1998; and validated against the results of the resident survey undertaken in 2002.

2.5.1 Technical Publication 108 (TP108) Validation

As described in section 2.1.6, the Glen Innes / Point England Flood Hazard Model was unable to be calibrated due to apparent gauging errors. However, validation with The ARC's TP108 document (currently under revision) was undertaken on the Omaru Stream. The Hydrological outputs were compared for the entire Omaru Stream catchment. Hydraulic effects were negated in MOUSE to allow a purely hydrological comparison. The two results were compared at the Omaru stream mouth.

The results of the TP108 validation are shown in Table 2.7 and 2.8 below:

Table 2.7 TP 108 Validation (Volume)

Storm Event	MOUSE Volume using Model B (m^3)	TP108 Hand Calculation (m^3)	Percent difference
1% AEP	536,285	554,540	-3.3%
5% AEP	469,749	470,085	-1.0%
10% AEP	339,574	320,460	+5.9%

Table 2.8 TP 108 Validation (Peak Flow)

Storm Event	MOUSE peak flow using Model B (m^3/s)	TP108 Hand Calculation (m^3/s)	Percent difference
1% AEP	32.0	34.1	-6.8%
5% AEP	26.8	29.2	-8.3%
10% AEP	17.2	20.6	-16.5%

A selection of links in the model was compared to the 1998 BCHF FINCH - SWAN Model completed in 1998. (In the period between constructing the 1998 model and 2004 a water quality pond was constructed near the outlet of the Omaru Stream and a detention pond constructed in the grounds of Auckland University Campus.) Accordingly, less weight can be applied to the validation against the BCHF work.

A comparison is provided in Table 2.9.

The 1998 CMP states that the stormwater methodology used TP19 and Auckland City Council Model Rainstorms to develop rainfall hydrographs for input into the SWAN model. It is not clear from the report what the duration of the storm used for analysis was. If the storm used was the same duration as the time of concentration of the subcatchments, this would to some extent explain the higher peak flows in the FINCH Model.

The MOUSE model (using Model B alone) validates reasonably well with the BCHF model, which generally over-estimates peak flows for the 24-hour duration storm event. As MOUSE includes extensive local pipe network the difference in peak flows may be due to head losses within the network, which are not included in the earlier model.

Table 2.9 Comparison with BCHF 1998 FINCH Model

MOUSE Link ID	Approximate Location	FINCH Chainage	10% AEP				1%AEP			
			m (RL)		m^3/s		m (RL)		m^3/s	
			FINCH	MOUSE	FINCH	MOUSE	FINCH	MOUSE	FINCH	MOUSE
100012211	Maybury Reserve (DS)	1955	7.2	7.1	15.6	10.3	7.3	7.3	25.6	15.8
10000344	71-79 Line Road	2714	12.8	13.5	11.2	8.5	13.7	14.0	15.8	12.0
10000367	Maybury Reserve (US)	2265	11.5	10.8	11.1	10.0	11.9	11.1	17.8	15.0
100004721[Note1]	Down stream of Elstree Pond	1572	5.0	4.8	15.2	12.0	5.5	5.3	25.8	18.0

Note 1: The water quality pond located at Elstree Avenue was built between the 1998 and 2004 model. This that will affect peak flow rates in the MOUSE model downstream of the pond.

3 FLOOD HAZARD MAPPING

3.1 Flood Hazard Definitions

3.1.1 Definition of a Flood Hazard

For the purpose of this study, a flood hazard is defined here as the likelihood and severity of a flood occurring, and is normally expressed in terms of a return period.

Except where specific surveying was done for this study, the extent of each significant flood hazard area was determined by interpolating between ground contours that were at half-metre intervals (90% confidence) and considering reticulation details, overland flowpaths and subcatchment boundaries. The resulting flooding extents were checked by a site walkover and are accurate to a property boundary scale.

3.1.2 Significant Flood Hazards

From the flood hazard maps, each area with the potential to create "significant" hazard was identified according to a chosen criterion.

This criterion considered the following aspects:

- Flooding of property
- Overland flow occurring to such a depth or velocity as to pose a possible safety hazard to vehicles and pedestrians.
- Areas which do not have a natural surface drainage path and would therefore flood if the piped drainage system failed.

Extensive surface ponding, as well as significant overland flow with unsafe depths and / or velocities were identified and defined as "significant" flood hazards.

3.2 Public Consultation

Public consultation was undertaken in the form of a property survey. The survey was conducted during late May 2002. A sample questionnaire is included in Appendix F.

The questionnaire was distributed to all occupied buildings within the defined catchment.

The survey asked the residents to comment on the following points:

- The use of the property.
- The areas affected by stormwater flooding.
- The extent and frequency of flooding experienced
- The effect of the flooding.
- The source of the stormwater
- If they are aware of any sewage overflows

The returned questionnaires were analysed, the results collated in tabular form and an issues analysis was performed. The results of the survey and a copy of the questionnaire are included in Appendix F and presented spatially in Volume 2, Flood Hazard Maps. The results are detailed in Section 4.1.

3.3 Flood Hazard Maps

It is important that the Flood Hazard Maps should be read in conjunction with this report.

The data and information provided in the report and flood hazard maps should be used cautiously, taking into account the limitations and assumptions stated in this report and their implications.

Although due care has been exercised in the modelling and analyses, users shall perform adequate checks when applying these data to ensure accuracy and validity of data.

A detailed list of assumptions and limitations is provided in Section 2.3.

3.4 Overland Flows

The significant overland flow paths have been extracted from the model results and represent the predicted extent of the top water level at these points. These flow paths have been predicted from review of existing contour information, other available reports and site inspections. Refer Section 2.3 for further assumptions and limitations.

Significant overland flow paths (i.e. unsafe) can be discerned from other overland flow paths using the following criteria:

(1) Velocity greater than 2.0m/s
(2) Depth greater than 0.3m (or where damage occurs)
(3) Velocity x Depth at a specific time that is described by the line V= -20d +6

3.5 Verification of Asset Layout and Condition

Discrepancies between the various data sources supplied by Metrowater with respect to the stormwater asset information in this catchment have been resolved to some degree. This resolution was based on a strict data hierarchy supplied by Metrowater.

Investigation of the 'cleaned' data revealed missing asset information, which was interpolated using engineering judgement for the earlier drafts of this report and maps. Some of this missing data was subsequently collected via field inspection and survey investigations and incorporated into the model, however certain values remain interpolated. Critical hydraulic structures in the catchment (such as culverts) were surveyed or otherwise verified by field inspection.

In support of any development proposal, CCTV inspection and survey confirmation of inverts and ground levels of critical lines should be conducted to check condition, gradient and diameter. Such observations should be checked and reported by a Chartered Professional Engineer experienced in flood level predictions. Critical lines are:

- Those serving or immediately downstream of a Flood Prone Area (landlocked area) or Possible Flood Hazard Area (say within 200m).
- Those servicing an area where flood levels are known or suspected to be within 1.0m of floor levels.

4 RESULTS AND DISCUSSION

4.1 Survey Questionnaire

Between 17 and 22 May 2002, AWT/Maunsell distributed approximately 6,700 questionnaires to all properties within the Glen Innes and Point England DMAs. A copy of this questionnaire is included in Appendix F. This questionnaire was prepared by Metrowater with input from all ICS Consultants. The questionnaire was printed by Metrowater and forwarded to AWT/Maunsell for distribution and analysis of results.

A total of 367 (5.5% of total) completed questionnaires were returned by 21 June 2002. This is considered to be a typical response rate for a questionnaire of this nature.

Field inspection of reported habitable floor flooding showed that all of the reported incidences are due to local effects such as landscaping and poor driveway design. There was no habitable floor flooding which could be directly attributed to the public drainage system.

Many incidences of flooding were reported in elevated portions of the catchment and were related to runoff from adjoining upstream properties. In the low-lying down-stream portions of the catchment there were numerous incidences of “soggy” sections, which reflected local ponding and low infiltration rates in these areas.

Appendix F contains a full summary of the information contained in the questionnaire responses. Drawings showing the extent, frequency and source of flooding problems are included in Volume 2 - Flood Hazard Maps, Questionnaire Response Summary. A summary of questionnaire responses is included in table 4.1.

Table 4.1 – Survey Questionnaire Responses

Survey Response	Number	Percentage of Responses	Percentage of Distributed Questionnaires
Total No. of Questionnaires Distributed	6,700		100.0
Total No. of Responses	367		5.5
Frequency of Flooding (yrs)			
1-2	27	7.4	0.4
3-5	19	5.2	0.3
6-10	32	8.7	0.5
11-20	34	9.3	0.5
More than 20	64	17.4	1.0
Flooding problems reported			
Front section	47	12.8	0.7
Rear section	52	14.2	0.8
Living area of residence	42	11.4	0.6
Garage / Outbuilding	34	9.3	0.5
Street	23	6.3	0.3
Other	107	29.2	1.6
Source of flooding			
Street	48	13.1	0.7
Pipes	44	12.0	0.7
Streams or open drains	35	9.5	0.5
Run-off from other properties	108	29.4	1.6
Blocked cesspits	43	11.7	0.6
Other	41	11.1	0.6

4.2 Capacity of Existing Primary Pipe System

Auckland City Council and Metrowater require that the primary pipe system be capable of accommodating the 10% AEP Storm Event. This Design Criteria requires that new pipe work be sized not to surcharge above the pipe soffit during the 10% AEP Storm. Many existing assets have been constructed to other design criteria, or the catchment characteristics have changed since they were installed. Accordingly, it is common for established networks not to achieve this performance standard.

Analysis of the Glen Innes / Point England DMAs indicates that 25% of overland flow paths are active during the 10% AEP storm using the existing development scenario. Similarly, analysis indicates that 27% of overland flow paths are active during the 10% AEP storm using the future development (MPD) scenario. This capacity shortfall is distributed throughout the catchment.

4.3 Significant Flood Hazards

Overland flows and significant Flood Hazard Areas for the 1%,2% and 1% AEP storm events are presented in Appendix C and D and in maps contained within the Glen Innes / Point England Catchments Volume 2 – Flood Hazard Maps.

4.3.1 Overland Flows

Overland Flows for the 10%, 2% and 1% AEP, MPD and existing development scenarios are outlined in the following tables. It is noted that ponding areas and significant overland flows in the Glenn Innes catchment are generally confined to reserves located along the major watercourses and within the road reserves. There are limited numbers of smaller overland flows that occur through private property. Additionally, there are significant overland flows and potential ponding on the fields of Tamaki College and to a lesser extent Tamaki Intermediate School / Tamaki Primary School.

The Glenn Innes catchment is to some extent bisected by the railway reserve with limited overland flow occurring between the western and eastern part of the catchment. In the north of the catchment the railway line is on a steep embankment which contains flows behind it while in the southern parts of the catchment, the railway line is located in a deep cut which intersects surface storm flows and diverts these to other subcatchments within the catchment, or out of the catchment (in this case into the Mt Wellington North (WELN) Drainage Management Area.

In general, the steeper northern parts of the Glen Innes catchment have higher peak flows with ponding limited to local depressions in roads while in the flatter southern parts of Point England there is more localised ponding and soakage is utilised as a means of dissipating stormwater flows.

Table 4.2 - Stormwater Overland Flows (10 %AEP, future development scenario)

Overland Flow (m^3/s)	Number	Percentage
0.0 - 0.1	421	53%
0.1 - 0.5	211	26%
0.5 - 1.0	87	11%
1.0 - 2.0	41	5%
>2.0	39	5%
Total	**799**	

Table 4.3 - Stormwater Overland Flows (2 %AEP, future development scenario)

Overland Flow (m^3/s)	Number	Percentage
0.0 - 0.1	323	40%
0.1 - 0.5	226	28%
0.5 - 1.0	97	12%
1.0 - 2.0	83	10%
>2.0	70	9%
Total	**799**	

Table 4.4 - Stormwater Overland Flows (1 %AEP, future development scenario)

Overland Flow (m^3/s)	Number	Percentage
0.0 - 0.1	295	36%
0.1 - 0.5	198	25%
0.5 - 1.0	126	16%
1.0 - 2.0	86	11%
>2.0	94	12%
Total	**799**	

Table 4.5 - Stormwater Overland Flows (10 %AEP, existing development scenario)

Overland Flow (m^3/s)	Number	Percentage
0.0 - 0.1	452	57%
0.1 - 0.5	208	26%
0.5 - 1.0	70	9%
1.0 - 2.0	42	5%
>2.0	27	3%
Total	**799**	

Table 4.6 - Stormwater Overland Flows (2%AEP, existing development scenario)

Overland Flow (m^3/s)	Number	Percentage
0.0 - 0.1	333	42%
0.1 - 0.5	232	29%
0.5 - 1.0	93	12%
1.0 - 2.0	75	9%
>2.0	66	8%
Total	**799**	

Table 4.7 - Stormwater Overland Flows (1%AEP, existing development scenario)

Overland Flow (m^3/s)	Number	Percentage
0.0 - 0.1	296	37%
0.1 - 0.5	214	26%
0.5 - 1.0	125	17%
1.0 - 2.0	83	10%
>2.0	81	10%
Total	**799**	

As expected there is an increase in the overland flow velocities when moving from the 10% to the 1% AEP events and from the existing to the future scenarios.

Areas of significant overland flow (greater than $2m^3/s$ or greater than 30cm in depth) during the 1%AEP event, MPD (future) scenario are listed below:

- Apirana Avenue – Flooding to a depth of 20cm will occur on the road reserve in the vicinity of 105-137 Aprirana Avenue (near the Pak and Save supermarket).
- Castledine Crescent- Water will pond to a depth of 25cm at the corner of Castledine Crescent and Eastview Road in a local depression.
- Tamaki College Playing Fields- the Tamaki college playing fields will flood to a depth of 30 cm. The flood waters will flow across Taniwha Street to Omaru Stream
- Howard Hunter Avenue –Areas of local flooding related to local depressions.
- Elstree Avenue- Flood water will flow across Elstree Avenue, as the capacity of the twin culverts under the road will be exceeded.
- Taniwha Street - Flood water will flow across Taniwha Street as the capacity of the twin culverts under the road will be exceeded
- Morrin Road – Flooding at the corner of Morrin Road and Howard Hunter to approximately 20 cm depth.
- Apirana / Merton / Pt England / Line Road Roundabout The roundabout will experience flooding of approximately 30 cm depth.

Each of the above sites has been inspected to ensure that the overland flows predicted by the model are feasible.

4.3.2 Flood Hazard Areas

Analysis shows the significant Flood Hazard Areas listed in Table 4.8 below as being apparent during the 1 %AEP event for the MPD (future) scenario.

Table 4.8 - Significant Flood Hazard Areas (1 %AEP, MPD Scenario)

Significant Flood Hazard Area	Existing Land Use
Tamaki College Playing Fields	Playing Fields
Pilkington Avenue	Commercial
Boundary Reserve	Reserve
Apirana Avenue	Residential / Reserve
Johnston Reserve	Residential / Reserve
Maybury Reserve	Residential / Reserve
Pt England Reserve	Residential / Reserve
Eastview Reserve	Residential / Reserve

The properties listed in Table 4.8 were considered to be at risk of habitable floor flooding and a more detailed survey was undertaken. (Habitable floors are defined as those that are habitable for domestic or business purposes. (A garage on a residential property is not considered a habitable floor. However, a similar structure on a business property is considered habitable.) Detailed floor level data are provided in Appendix I and selected floor levels are shown on the Flood Hazard Maps.

Table 4.9 - Floor Level Data Collected

Street Number	Street Name	Commercial / Residential
128	Apirana Avenue	Commercial
140-142	Apirana Avenue	Commercial
150	Apirana Avenue	Commercial
154	Apirana Avenue	Commercial
160	Apirana Avenue	Commercial
165-170	Apirana Avenue	Commercial
172-180	Apirana Avenue	Commercial
182-194	Apirana Avenue	Commercial
197-209	Taniwha Street	Commercial
78	Line Road	Residential
1	Sloane Street	Residential
38	Alamein Road	Residential
40	Alamein Road	Residential
33	Riverview Raod	Residential

4.4 Summary of Flood Hazard

The number of floors affected by flood hazards is summarised in Table 4.10 below. The reader is reminded that no freeboard has been allowed for in this study, as directed by Metrowater.

Table 4.10: Summary of Results

	Existing Development Landuse			Maximum Probable Development Landuse		
	10% AEP	2% AEP	1% AEP	10% AEP	2% AEP	1% AEP
Peak overland flow (m3/s) at Omaru Stream mouth	25	35	41	27	37	44
Peak water level (m above LINZ datum) for significant Flood Areas						
Tamaki College Playing Fields	0.24	0.34	0.34	0.28	0.34	0.38
Pilkington Avenue	0.14	0.18	0.20	0.14	0.18	0.20
Boundary Reserve	1.45	1.45	1.57	1.45	1.57	1.57
Apirana Avenue	0.12	0.18	0.18	0.12	0.18	0.18
Johnston Reserve	0.42	0.50	0.55	0.42	0.50	0.55
Maybury Reserve	2.4	2.7	2.9	2.4	2.8	3.0
Pt England Reserve	2.4	3.7	3.2	2.7	2.7	3.2
Eastview Reserve	3.4	3.5	3.5	3.4	3.5	3.5
NUMBER OF RESIDENTIAL HABITABLE AND NON-HABITABLE FLOORS INUNDATED						
Habitable floors within 500mm of water level	0	1	1	0	1	1
Non-habitable floors at risk	0	3	3	0	3	3
Habitable floors at risk	0	4	4	0	4	4
NUMBER OF HABITABLE BUSINESS FLOORS INUNDATED						
Habitable business floor within 500mm of water level	0	9	9	0	9	9
Commercial floors at risk	0	9	9	0	9	9

4.5 Flood Prone Areas

Flood Prone Areas have been identified in Glen Innes / Point England Flood Hazard Mapping Report Volume 2 –Flood Hazard Maps. These are areas that have no surface drainage path ("land-locked") and as a consequence would flood should the downstream piped drainage system fail to convey water, even though the modelling does not predict flooding in the 10%, 2% or 1% AEP events.

5 CONCLUSIONS

The Glen Innes / Point England Flood Hazard Mapping report outlines several areas of potentially significant overland flows and several areas where the flood hazard is such that business and residential habitable floors are flooded during 2% and 1% AEP events.

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Table 5.1: Summary of Floors at Risk of Inundation

	Existing Development Landuse			Maximum Probable Development Landuse		
	10 % AEP	2 % AEP	1 % AEP	10 % AEP	2 % AEP	1 % AEP
NUMBER OF RESIDENTIAL HABITABLE AND NON-HABITABLE FLOORS INUNDATED						
Habitable floors within 500mm of water level	0	1	1	0	1	1
Non-habitable floors at risk	0	3	3	0	3	3
Habitable floors at risk	0	4	4	0	4	4
NUMBER OF HABITABLE BUSINESS FLOORS INUNDATED						
Habitable business floor within 500mm of water level	0	9	9	0	9	9
Commercial floors at risk	0	9	9	0	9	9

Resident surveys, subsequent field inspection and catchment modelling have identified 4 residential habitable floors at direct risk from flooding during the design 100yr ARI event.

Catchment modelling has confirmed that flood hazards are generally confined to the reserve areas along the mainstream channels and along road reserves. There is also an area of significant overland flow and potential ponding located within the playing fields of Tamaki College.

In addition to Flood Hazard Areas, “Flood Prone Areas” have been included on the maps. These are areas that have no surface drainage path (“land-locked”) and as a consequence would flood should the downstream piped drainage system fail to convey water, even though the modelling does not predict flooding in the 10%, 2% or 1% AEP events.

6 RECOMMENDATIONS

The following actions are recommended as a result of the findings of this report:

- The Flood Hazard Maps should only be used in the context of the scope, limitations and assumptions described in Section 2 and 3 of this report.
- Other ICS DMA parameters from sub-catchments with similar characteristics should be compared to those applied here and trialled if it is considered that they may improve the confidence in the modelled and mapped results.
- Significant overland flow paths should be evaluated individually and in detail to determine whether the risk resulting from the hazard is acceptable to the Council, the affected property owner(s), the occupier(s) and the community as a whole.
- Where risks are not acceptable to the above parties, potential remedial works or other non-asset remedial solutions should be assessed and implemented, with reference to the ICS MLOA report (AWT/ Maunsell, November2004)

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City Design (2001) "Auckland City Flood Hazard Mapping And Stormwater Remedial Works – Mount Wellington North Catchment" Final Report and Addendum, September 2001.

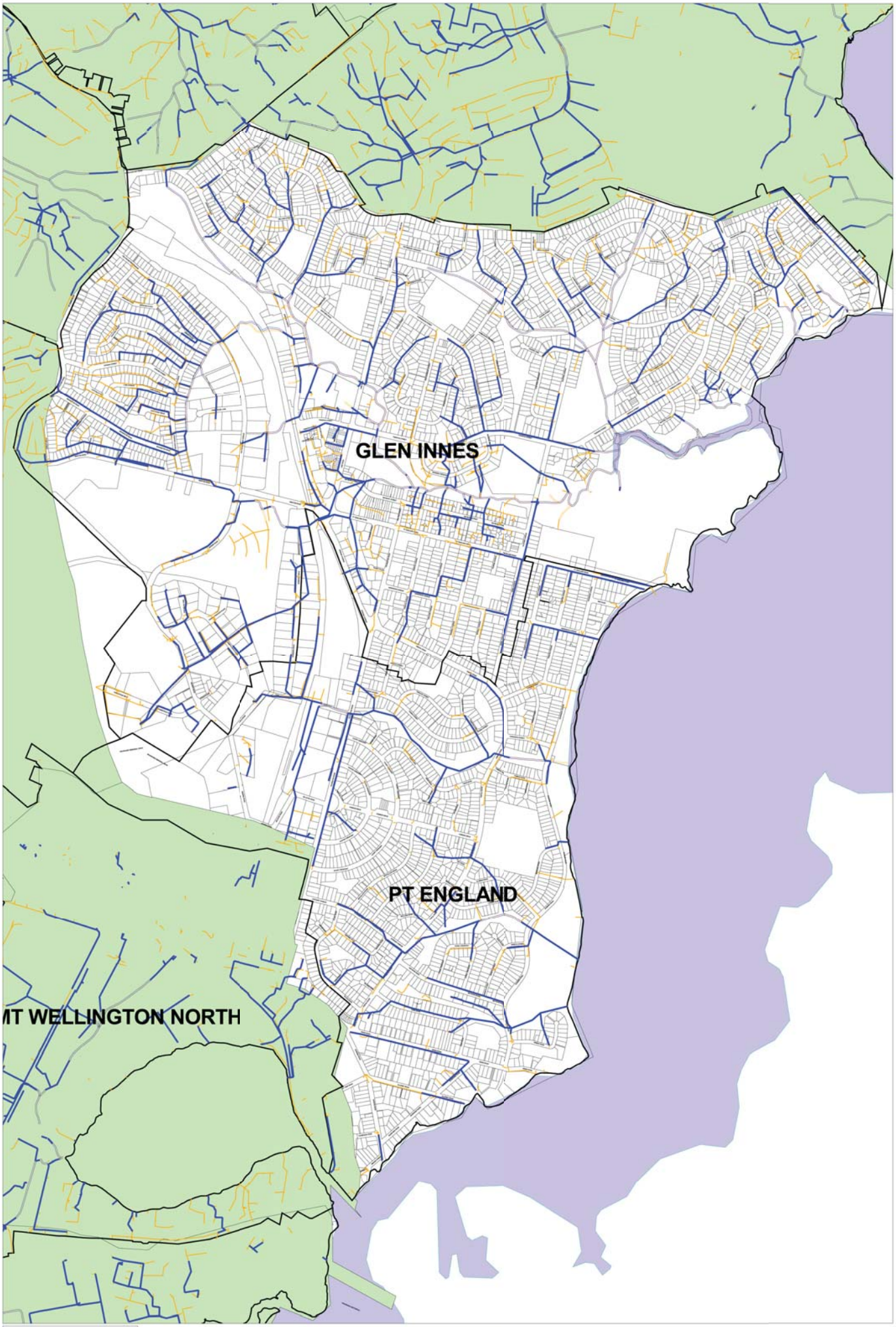
Appendix A: Model File Names

Appendix A. Mouse 2003b Computer File names

Table A1. Glenn Innes/ Point England Catchment

Simulation	.UND	.HGF	.CRF	.PRF	Min time Step/ Max time Step / Run Time (min:sec)
10 year ARI Storm Event Existing Development	GLENNINNESFHM_NOV2004	GLI FHM EXIST NOV_2004	10year_Existing_NOV2004	GLI_10yr_Existing_NOV2004	5,10,18:24
50 year ARI Storm Event Existing Development	GLENNINNESFHM_NOV2004	GLI FHM EXIST NOV_2004	10year_Existing_NOV2004	GLI_50yr_Existing_NOV2004	5,10,18:36
100 year ARI Storm Event Existing Development	GLENNINNESFHM_NOV2004	GLI FHM EXIST NOV_2004	100year_Existing_NOV 2004	GLI_100yr_Existing_NOV2004	5,10,17:31
10 year ARI Storm Event MPD	GLENNINNESFHM_NOV2004	GLI FHM MPD NOV_2004	10year_MPD_NOV2004	GLI_10yr_MPD_NOV2004	5,10,18:59
10 year ARI Storm Event MPD	GLENNINNESFHM_NOV2004	GLI FHM MPD NOV_2004	50year_MPD_NOV2004	GLI_50yr_MPD_NOV2004	5,10,19:52
100 year ARI Storm Event MPD	GLENNINNESFHM_NOV2004	GLI FHM MPD NOV_2004	100year_MPD_NOV2004	GLI_100yr_MPD_NOV2004	5,10,17:26

Appendix B: Details of Modelled Reticulation



Key Map

		Checked	Date
Design	SAD	MvW	24 Nov 2004
Drawn	SV	SAD	
Approved	MS	Status	Final
File Ref.	FLOOD_-3.APR		
Printed	9:45am on 24 Nov 2004		

metrowater AWT NEW ZEALAND AUCKLAND CITY maunsell

0 100 200 300 400 500 600 Meters

Project: Integrated Catchment Study

Title: Details of Modelled Reticulation

Scale 1:7500

Project No. 34 627 35 Issue 3

Sheet No: **Fig. 1**

Appendix C: Calculated Pipe Capacities and Flows

C1: Existing Development Scenario

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
4614	99212	99218	Pipe	450	3.52	0.52	0.16	0.16	0.16
4615	99216	99212	Pipe	300	1.96	0.13	0.16	0.16	0.16
4617	99214	99213	Pipe	150	0.64	0.01	0.02	0.02	0.02
4619	99213	99216	Pipe	150	0.60	0.01	0.03	0.03	0.03
4797	99384	99378	Pipe	1300	4.68	10.18	5.59	6.22	6.43
4800	99210	106417	Pipe	600	5.24	1.37	0.61	0.90	1.05
4802	99404	181496	Pipe	1200	3.24	6.84	2.01	2.51	2.75
4806	99402	181495	Pipe	600	0.30	0.33	0.58	0.59	0.59
4809	99380	99387	Pipe	350	1.00	0.14	0.16	0.18	0.19
4810	99414	99382	Pipe	500	0.83	0.34	0.44	0.43	0.43
4813	99416	99399	Pipe	600	3.66	1.15	1.08	1.08	1.07
4815	99417	99397	Pipe	450	2.30	0.42	0.45	0.49	0.53
4817	99399	99384	Pipe	600	2.69	0.98	1.19	1.20	1.20
4823	99388	99385	Pipe	450	7.49	0.76	0.12	0.12	0.12
4824	99383	99388	Pipe	350	1.70	0.19	0.12	0.12	0.12
4825	99391	99383	Pipe	300	0.52	0.07	0.14	0.14	0.14
4830	99386	99383	Pipe	350	1.50	0.17	0.08	0.07	0.07
4834	99397	99407	Pipe	450	1.96	0.39	0.46	0.49	0.50
4853	99422	99380	Pipe	300	1.21	0.10	0.00	0.00	0.00
4897	99536	99476	Pipe	300	9.90	0.30	0.12	0.17	0.19
4902	99450	99501	Pipe	300	1.21	0.10	0.16	0.14	0.15
4923	99465	99450	Pipe	300	0.70	0.08	0.13	0.13	0.13
4934	99461	99464	Pipe	300	0.70	0.08	0.08	0.08	0.08
4937	99457	99461	Pipe	225	0.87	0.04	0.08	0.08	0.08
4965	99499	99503	Pipe	600	1.04	0.61	0.50	0.54	0.46
4968	99501	99499	Pipe	500	1.25	0.41	0.49	0.54	0.54
4970	99507	99417	Pipe	450	1.28	0.32	0.28	0.36	0.37
4971	99508	99510	Pipe	650	0.56	0.55	0.70	0.68	0.70
4973	99510	99511	Pipe	650	0.82	0.67	0.69	0.68	0.70
5010	99446	99647	Pipe	250	3.48	0.11	0.11	0.11	0.11
5134	99719	99648	Pipe	250	2.77	0.10	0.10	0.10	0.10
5137	99665	99645	Pipe	300	3.76	0.18	0.05	0.06	0.07
5139	99714	99627	Pipe	350	0.96	0.14	0.14	0.15	0.16
5148	99619	132438	Pipe	375	5.10	0.39	0.25	0.35	0.40
5175	99644	99648	Pipe	250	0.38	0.04	0.01	0.01	0.01
5179	99647	99627	Pipe	375	0.17	0.07	0.17	0.17	0.17
5205	99670	99665	Pipe	300	4.09	0.19	0.05	0.06	0.07
5224	99731	99718	Pipe	350	2.99	0.25	0.08	0.12	0.13
5272	99716	99714	Pipe	350	0.49	0.10	0.14	0.15	0.16
5274	99711	99719	Pipe	300	1.57	0.12	0.10	0.10	0.10
5283	99733	99731	Pipe	350	5.50	0.33	0.08	0.12	0.13
5317	99503	99402	Pipe	600	0.67	0.49	0.58	0.59	0.59
5326	99441	99508	Pipe	375	2.65	0.28	0.19	0.20	0.19
5345	99718	99716	Pipe	350	1.59	0.18	0.05	0.05	0.04
5351	5000017	99711	Pipe	300	1.48	0.12	0.00	0.00	0.00
5356	99413	99382	Pipe	500	0.50	0.26	0.39	0.41	0.39
5375	99387	99386	Pipe	350	1.70	0.19	0.08	0.08	0.09
5376	99464	99465	Pipe	300	0.10	0.03	0.09	0.10	0.10
5380	99511	99416	Pipe	600	1.88	0.82	0.71	0.70	0.71
5396	99791	99784	Pipe	300	5.18	0.21	0.08	0.11	0.13
5412	99891	99843	Pipe	375	4.33	0.36	0.40	0.39	0.39
5415	99886	99835	Pipe	600	1.37	0.70	0.41	0.55	0.62
5417	99800	99869	Pipe	300	3.14	0.17	0.12	0.12	0.12
5422	99843	99840	Pipe	500	4.50	0.78	0.57	0.63	0.66
5436	99835	99831	Pipe	600	1.14	0.64	0.40	0.55	0.62
5438	99833	99831	Pipe	225	3.36	0.08	0.11	0.11	0.11
5440	99840	99804	Pipe	500	3.13	0.65	0.66	0.68	0.69
5443	99842	99840	Pipe	375	3.85	0.34	0.26	0.26	0.26
5461	99845	99848	Pipe	600	1.51	0.74	0.75	0.74	0.75
5468	99848	101399	Pipe	600	2.76	0.99	0.97	0.95	0.96
5473	101386	99848	Pipe	300	9.56	0.29	0.22	0.21	0.22
5476	99898	99878	Pipe	600	2.15	0.88	0.84	0.85	0.85
5484	99850	99869	Pipe	300	4.75	0.21	0.16	0.20	0.20
5485	99869	99882	Pipe	300	6.38	0.24	0.25	0.25	0.25
5491	99912	99864	Pipe	375	4.56	0.37	0.33	0.34	0.34
5494	99864	99856	Pipe	375	3.09	0.30	0.34	0.34	0.34
5496	99858	99851	Pipe	300	11.28	0.32	0.18	0.19	0.19
5497	99851	181504	Pipe	400	4.16	0.41	0.54	0.51	0.51
5511	99879	99873	Pipe	600	3.14	1.06	0.70	0.70	0.71

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
5514	99873	99845	Pipe	600	1.77	0.80	0.69	0.68	0.68
5521	99878	99879	Pipe	600	2.01	0.85	0.71	0.71	0.71
5523	99915	99912	Pipe	300	5.45	0.22	0.22	0.22	0.22
5529	99882	99886	Pipe	600	1.84	0.81	0.41	0.56	0.62
5530	99885	99882	Pipe	375	2.29	0.26	0.16	0.22	0.25
5545	99899	99898	Pipe	375	2.00	0.24	0.31	0.30	0.31
5555	99937	99896	Pipe	300	4.40	0.20	0.26	0.27	0.26
5565	99896	99898	Pipe	375	5.04	0.38	0.45	0.45	0.45
5568	99936	99937	Pipe	300	5.89	0.23	0.24	0.25	0.25
5576	99947	181505	Pipe	450	3.25	0.50	0.58	0.62	0.62
5580	99785	99948	Pipe	300	6.54	0.24	0.15	0.18	0.18
5581	99948	99947	Pipe	450	3.20	0.50	0.60	0.66	0.67
5583	99954	99948	Pipe	300	8.48	0.27	0.24	0.22	0.23
5584	99953	99951	Pipe	450	4.73	0.61	0.07	0.11	0.13
5585	99784	99953	Pipe	300	5.29	0.22	0.08	0.11	0.13
5621	99994	100012	Pipe	300	5.11	0.21	0.21	0.21	0.21
5622	100012	99842	Pipe	375	2.71	0.28	0.29	0.29	0.29
5623	181115	181514	Pipe	915	2.42	2.87	1.22	1.61	1.91
5625	100003	100080	Pipe	450	2.17	0.41	0.35	0.37	0.37
5650	100009	100004	Pipe	300	0.93	0.09	0.15	0.15	0.15
5656	100004	100007	Pipe	525	0.63	0.33	0.32	0.32	0.32
5668	99960	100098	Pipe	300	5.65	0.22	0.27	0.24	0.25
5669	100098	100076	Pipe	375	5.60	0.40	0.41	0.42	0.43
5671	100069	100087	Pipe	450	1.10	0.29	0.24	0.22	0.23
5673	100085	100069	Pipe	450	2.79	0.46	0.45	0.45	0.45
5674	100087	100072	Pipe	450	3.87	0.55	0.48	0.48	0.48
5676	100077	100052	Pipe	450	5.00	0.62	0.41	0.45	0.45
5677	100080	181655	Pipe	450	5.35	0.64	0.65	0.67	0.68
5680	100066	100065	Pipe	375	3.65	0.33	0.00	0.00	0.00
5681	100065	100029	Pipe	375	3.79	0.33	0.00	0.00	0.00
5683	100044	100023	Pipe	375	2.44	0.27	0.28	0.28	0.28
5694	100039	100042	Pipe	375	1.28	0.19	0.25	0.28	0.26
5699	100042	100044	Pipe	375	1.35	0.20	0.28	0.28	0.28
5707	100052	100050	Pipe	450	3.30	0.50	0.61	0.61	0.61
5719	100023	100026	Pipe	450	2.10	0.40	0.52	0.54	0.54
5726	181508	100030	Pipe	1250	1.44	5.08	2.23	2.64	2.82
5728	100029	100030	Pipe	375	5.60	0.40	0.03	0.04	0.04
5734	100072	181509	Pipe	450	2.43	0.43	0.58	0.59	0.59
5744	100075	100085	Pipe	450	3.42	0.51	0.54	0.56	0.58
5754	100076	100077	Pipe	450	3.21	0.50	0.41	0.47	0.46
5764	100102	100075	Pipe	300	8.39	0.27	0.14	0.20	0.23
5769	100089	100087	Pipe	300	1.74	0.12	0.13	0.13	0.14
5785	99888	99891	Pipe	375	3.91	0.34	0.27	0.27	0.28
5792	99919	99888	Pipe	300	7.92	0.27	0.27	0.27	0.27
5794	99925	99919	Pipe	300	6.26	0.24	0.10	0.13	0.15
5796	99951	100003	Pipe	450	2.00	0.39	0.36	0.36	0.36
5798	99856	99851	Pipe	400	5.84	0.49	0.32	0.32	0.32
5817	100227	100252	Pipe	450	17.88	1.18	0.62	0.63	0.63
5824	100124	100113	Pipe	1300	2.94	8.07	5.32	5.41	5.55
5828	100114	100115	Pipe	1200	1.21	4.19	4.76	4.78	4.78
5829	100113	100114	Pipe	1300	3.35	8.61	5.37	5.44	5.45
5830	100117	100119	Pipe	1200	2.30	5.77	4.63	4.53	4.46
5831	100115	100117	Pipe	1200	1.07	3.93	4.90	4.85	4.81
5848	100175	100124	Pipe	1300	1.52	5.81	5.34	5.48	5.44
5849	100165	100206	Pipe	550	0.86	0.44	0.46	0.53	0.54
5857	100142	100172	Pipe	1300	1.30	5.36	4.99	4.89	4.89
5863	99385	100133	Pipe	300	1.67	0.12	0.12	0.12	0.12
5866	100151	100165	Pipe	300	1.29	0.11	0.16	0.15	0.16
5872	100134	100140	Pipe	1300	0.58	3.60	4.63	4.57	4.57
5875	100133	100134	Pipe	300	2.33	0.14	0.19	0.19	0.19
5876	99378	100134	Pipe	1300	1.46	5.69	5.16	5.51	5.61
5882	100140	100142	Pipe	1300	1.42	5.61	4.91	4.86	4.87
5935	100206	100203	Pipe	600	2.14	0.88	0.46	0.50	0.50
5952	100221	100226	Pipe	375	4.79	0.37	0.39	0.38	0.40
5967	100232	100234	Pipe	300	4.77	0.21	0.19	0.19	0.19
5983	100252	5000013	Pipe	450	8.12	0.79	0.38	0.32	0.34
5987	100234	100344	Pipe	300	1.61	0.12	0.18	0.18	0.18
5991	100245	100288	Pipe	375	2.29	0.26	0.29	0.29	0.29
5993	100294	5000014	Pipe	300	0.98	0.09	0.15	0.15	0.15

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
6001	100262	GIOUT10	Pipe	450	1.80	0.37	0.55	0.57	0.58
6006	100685	100262	Pipe	450	0.49	0.19	0.30	0.31	0.31
6014	100346	100276	Pipe	450	3.91	0.55	0.59	0.60	0.60
6019	100363	100288	Pipe	375	1.58	0.22	0.25	0.27	0.27
6030	100256	181520	Pipe	1200	0.10	1.23	5.16	5.52	5.61
6031	100276	100256	Pipe	450	10.14	0.89	0.60	0.65	0.65
6033	100255	100274	Pipe	1200	1.06	3.92	3.63	3.59	3.58
6041	100316	100325	Pipe	450	1.40	0.33	0.01	0.01	0.01
6074	100324	100325	Pipe	450	0.89	0.26	0.22	0.22	0.22
6077	100320	100324	Pipe	450	0.63	0.22	0.22	0.22	0.22
6092	100334	100338	Pipe	525	0.30	0.23	0.85	0.96	0.98
6093	100338	100330	Pipe	525	7.13	1.12	0.84	0.97	1.00
6095	100330	GIOUT9	Pipe	750	2.10	1.57	0.90	1.11	1.16
6098	100354	100363	Pipe	375	2.13	0.25	0.19	0.19	0.19
6100	100344	100347	Pipe	450	2.23	0.42	0.37	0.40	0.40
6104	100347	100346	Pipe	450	2.54	0.44	0.39	0.40	0.40
6135	100172	100175	Pipe	1300	0.87	4.39	5.17	5.17	5.15
6137	100226	100227	Pipe	450	3.68	0.53	0.62	0.63	0.63
6138	100119	5000013	Pipe	1200	1.03	3.86	3.65	3.55	3.61
6139	5000013	100255	Pipe	1200	1.09	3.98	4.07	3.96	3.98
6141	5000014	5000015	Pipe	1200	-0.10	1.20	4.83	5.60	6.33
6142	5000015	GIOUT10	Pipe	1200	0.24	1.85	4.83	5.76	6.52
6147	100274	100256	Pipe	1200	0.52	2.75	4.25	3.96	4.04
6153	100325	100334	Pipe	450	1.41	0.33	0.36	0.37	0.36
6158	100286	100320	Pipe	375	0.57	0.13	0.14	0.14	0.14
6169	100448	100115	Pipe	300	12.34	0.33	0.31	0.31	0.31
6182	100440	5000016	Pipe	600	3.15	1.06	1.14	1.15	1.15
6183	100417	181525	Pipe	300	1.48	0.11	0.15	0.15	0.16
6191	5000016	100379	Pipe	450	3.09	0.49	0.51	0.51	0.51
6193	100380	100379	Pipe	400	6.58	0.52	0.36	0.39	0.40
6194	100379	181527	Pipe	500	1.50	0.45	0.81	0.80	0.79
6206	99476	100398	Pipe	200	6.00	0.08	0.08	0.08	0.08
6208	100398	100395	Pipe	225	4.83	0.10	0.09	0.09	0.09
6250	100447	100494	Pipe	300	5.72	0.23	0.21	0.21	0.21
6259	187227	100429	Pipe	225	7.50	0.12	0.00	0.00	0.00
6265	100425	100440	Pipe	225	4.53	0.09	0.09	0.10	0.10
6272	100431	100425	Pipe	225	3.60	0.08	0.09	0.09	0.09
6275	100428	100431	Pipe	225	4.45	0.09	0.09	0.09	0.09
6278	100429	100428	Pipe	225	2.40	0.07	0.07	0.08	0.08
6284	100436	100439	Pipe	300	0.98	0.09	0.07	0.07	0.07
6287	100439	100442	Pipe	300	1.34	0.11	0.17	0.19	0.19
6290	100442	100417	Pipe	300	1.52	0.12	0.13	0.13	0.13
6293	100478	100448	Pipe	300	18.40	0.40	0.55	0.43	0.55
6306	100460	100468	Pipe	250	3.69	0.11	0.10	0.10	0.10
6312	100454	100460	Pipe	250	13.61	0.21	0.21	0.23	0.22
6315	100470	100468	Pipe	225	3.74	0.09	0.05	0.07	0.08
6324	100477	100472	Pipe	350	2.26	0.21	0.01	0.01	0.01
6325	100474	100477	Pipe	225	3.35	0.08	0.00	0.00	0.00
6329	100472	100478	Pipe	300	3.33	0.17	0.04	0.01	0.04
6346	100494	100500	Pipe	225	4.99	0.10	0.09	0.09	0.09
6359	100500	100503	Pipe	300	1.43	0.11	0.15	0.16	0.16
6361	100502	100500	Pipe	250	0.55	0.04	0.05	0.06	0.06
6371	100616	100703	Pipe	300	1.56	0.12	0.14	0.15	0.15
6372	100600	100523	Pipe	450	3.36	0.51	0.45	0.44	0.44
6377	100636	100377	Pipe	300	1.72	0.12	0.21	0.21	0.21
6386	100633	100516	Pipe	400	1.71	0.27	0.27	0.28	0.29
6388	100598	100532	Pipe	300	2.06	0.14	0.16	0.16	0.16
6397	100518	100528	Pipe	375	1.24	0.19	0.18	0.19	0.20
6399	100533	100538	Pipe	300	1.74	0.12	0.17	0.17	0.17
6403	100535	100531	Pipe	450	4.18	0.57	0.47	0.52	0.54
6410	100528	100531	Pipe	225	8.91	0.13	0.13	0.13	0.13
6420	100521	100535	Pipe	450	0.00	0.00	0.44	0.46	0.47
6422	100522	100538	Pipe	375	3.53	0.32	0.38	0.39	0.40
6427	100545	100618	Pipe	400	4.14	0.41	0.42	0.42	0.42
6436	103222	100595	Pipe	225	3.46	0.08	0.10	0.11	0.11
6437	100559	100544	Pipe	300	3.56	0.18	0.17	0.17	0.17
6442	100568	100556	Pipe	225	3.66	0.08	0.09	0.09	0.09
6447	100565	100559	Pipe	300	3.82	0.18	0.18	0.18	0.18
6456	99645	100566	Pipe	300	3.95	0.19	0.18	0.18	0.18

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
6457	99648	100568	Pipe	250	0.42	0.04	0.10	0.10	0.10
6458	100566	100565	Pipe	300	3.94	0.19	0.18	0.18	0.18
6464	100580	100570	Pipe	225	3.94	0.09	0.09	0.09	0.09
6466	100570	100545	Pipe	225	3.48	0.08	0.10	0.10	0.10
6467	100393	100545	Pipe	300	3.97	0.19	0.19	0.19	0.19
6486	100590	100601	Pipe	300	2.12	0.14	0.15	0.16	0.16
6490	100544	100600	Pipe	300	2.12	0.14	0.17	0.17	0.17
6502	100601	100598	Pipe	300	2.24	0.14	0.13	0.13	0.13
6507	100613	100616	Pipe	300	2.39	0.15	0.14	0.15	0.15
6509	100582	100612	Pipe	300	1.73	0.12	0.14	0.14	0.15
6515	100612	100613	Pipe	300	0.80	0.08	0.14	0.14	0.14
6517	100627	100633	Pipe	400	1.72	0.27	0.14	0.21	0.21
6522	100618	100422	Pipe	450	2.09	0.40	0.46	0.46	0.45
6540	100503	100650	Pipe	300	2.88	0.16	0.14	0.14	0.14
6545	100656	100671	Pipe	450	0.43	0.18	0.31	0.29	0.29
6548	181098	100671	Pipe	900	0.37	1.07	1.48	1.70	1.85
6556	100640	100654	Pipe	300	3.95	0.19	0.20	0.20	0.20
6559	100651	181531A	Pipe	300	6.41	0.24	0.28	0.28	0.28
6564	100650	100652	Pipe	300	1.11	0.10	0.16	0.16	0.16
6567	100652	100651	Pipe	300	6.82	0.25	0.16	0.16	0.16
6587	100671	100668	Pipe	900	0.16	0.70	1.61	1.62	1.62
6596	100691	GIOUT12	Pipe	225	2.24	0.07	0.10	0.11	0.11
6597	100681	100689	Pipe	500	4.63	0.79	0.74	0.77	0.79
6616	100689	100691	Pipe	225	1.40	0.05	0.09	0.09	0.09
6625	100516	100716	Pipe	300	2.74	0.16	0.18	0.18	0.18
6626	100538	100713	Pipe	910	2.49	2.87	0.70	0.74	0.79
6634	100722	100731	Pipe	900	0.64	1.41	1.85	1.96	1.98
6643	100709	100722	Pipe	750	0.94	1.05	1.36	1.43	1.46
6652	100703	100709	Pipe	910	5.42	4.23	0.22	0.26	0.29
6653	100713	100709	Pipe	910	2.22	2.71	0.84	0.91	1.00
6666	100724	100722	Pipe	300	8.71	0.28	0.19	0.24	0.24
6667	100723	100722	Pipe	375	4.33	0.36	0.30	0.30	0.30
6671	100732	GIOUT14	Pipe	910	0.33	1.04	1.78	1.85	1.87
6678	100728	100733	Pipe	225	3.06	0.08	0.01	0.01	0.00
6679	100731	100732	Pipe	910	0.67	1.49	1.54	1.53	1.51
6680	100733	100732	Pipe	225	4.01	0.09	0.11	0.11	0.11
6700	100668	GIOUT13	Pipe	900	0.48	1.22	2.13	2.28	2.35
6711	100395	100393	Pipe	200	3.70	0.06	0.08	0.08	0.08
6719	100377	100380	Pipe	400	3.52	0.38	0.36	0.39	0.40
6722	100480	100417	Pipe	300	0.35	0.06	0.07	0.08	0.08
6724	100556	100590	Pipe	225	5.11	0.10	0.09	0.09	0.09
6730	100595	GIOUT16	Channel	10000	5.01	3591.50	0.60	0.79	0.90
6732	100532	100522	Pipe	300	4.36	0.20	0.24	0.24	0.24
6735	100624	100627	Pipe	400	1.65	0.26	0.15	0.21	0.25
6751	100422	100440	Pipe	600	2.36	0.92	0.78	0.78	0.77
6756	100523	100521	Pipe	450	0.85	0.26	0.42	0.42	0.42
7426	101164	101131	Pipe	300	11.21	0.32	0.32	0.30	0.30
7430	101126	101125	Pipe	300	1.73	0.12	0.23	0.23	0.23
7435	101133	101140	Pipe	300	7.80	0.26	0.23	0.24	0.25
7438	101157	101148	Pipe	225	6.02	0.11	0.07	0.09	0.09
7439	101148	101145	Pipe	225	5.72	0.11	0.10	0.13	0.13
7441	101145	181541	Pipe	225	14.21	0.17	0.10	0.13	0.13
7444	101131	101149	Pipe	300	10.39	0.30	0.30	0.30	0.29
7445	101149	101133	Pipe	300	5.12	0.21	0.23	0.24	0.25
7450	101151	101140	Pipe	300	7.89	0.27	0.00	0.00	0.00
7452	101138	101139	Pipe	450	4.37	0.58	0.50	0.50	0.51
7453	101140	101138	Pipe	450	4.70	0.60	0.77	0.86	0.87
7458	101139	101126	Pipe	450	2.31	0.42	0.41	0.42	0.42
7463	101154	101151	Pipe	300	8.91	0.28	0.00	0.00	0.00
7468	101171	181543	Pipe	300	0.74	0.08	0.13	0.14	0.14
7481	101179	101164	Pipe	225	8.32	0.13	0.00	0.00	0.00
7491	101170	101167	Pipe	300	8.03	0.27	0.28	0.28	0.28
7492	101167	181542	Pipe	300	6.10	0.23	0.34	0.36	0.36
7493	101184	101170	Pipe	300	7.57	0.26	0.28	0.27	0.28
7500	181091	101265	Pipe	400	9.30	0.62	0.24	0.27	0.29
7513	101260	101240	Pipe	225	3.92	0.09	0.11	0.11	0.11
7517	101257	101227	Pipe	375	5.48	0.40	0.26	0.28	0.30
7518	101255	101210	Pipe	300	5.27	0.22	0.22	0.20	0.20
7526	101211	101202	Pipe	500	3.27	0.67	0.66	0.66	0.65

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
7544	101227	101210	Pipe	375	6.14	0.42	0.39	0.39	0.39
7554	101252	101245	Pipe	225	11.30	0.15	0.08	0.11	0.11
7560	101245	101240	Pipe	225	7.01	0.12	0.13	0.13	0.12
7583	101273	101254	Pipe	300	7.96	0.27	0.26	0.27	0.27
7585	101265	101269	Pipe	300	3.40	0.17	0.26	0.26	0.26
7588	101267	101256	Pipe	300	9.40	0.29	0.26	0.28	0.27
7591	101256	101257	Pipe	300	4.85	0.21	0.26	0.28	0.29
7624	101323	101388	Pipe	300	2.01	0.13	0.00	0.00	0.00
7625	101308	101352	Pipe	900	2.42	2.75	1.10	1.58	1.85
7627	101336	5000009	Pipe	450	5.15	0.63	0.00	0.00	0.00
7628	101334	101331	Pipe	450	2.10	0.40	0.12	0.17	0.20
7630	182227	101310	Pipe	675	2.86	1.39	1.12	1.60	1.86
7631	101309	101308	Pipe	900	2.44	2.76	1.11	1.59	1.86
7632	101310	101309	Pipe	900	2.39	2.73	1.12	1.60	1.86
7636	101305	101308	Pipe	300	1.96	0.13	0.00	0.00	0.00
7641	101325	101327	Pipe	300	1.60	0.12	0.00	0.00	0.01
7643	101324	101325	Pipe	300	0.40	0.06	0.00	0.00	0.00
7647	101331	181545	Pipe	450	1.46	0.34	0.26	0.16	0.17
7656	101413	181546	Pipe	1100	0.61	2.36	1.80	2.17	2.31
7657	101125	101413	Pipe	600	2.50	0.95	0.41	0.48	0.52
7662	101419	181547	Pipe	225	1.40	0.05	0.11	0.11	0.11
7669	101396	5000010	Pipe	450	11.70	0.95	0.00	0.00	0.00
7675	101356	101376	Pipe	150	3.13	0.03	0.04	0.04	0.04
7681	101350	101354	Pipe	300	1.01	0.10	0.09	0.08	0.08
7684	101352	181551	Pipe	915	2.40	2.86	1.09	1.57	1.83
7688	101355	101354	Pipe	225	0.87	0.04	0.07	0.07	0.07
7701	101376	181558	Pipe	1200	1.02	3.84	1.40	1.49	1.53
7713	101388	181559	Pipe	900	0.99	1.75	0.03	0.03	0.04
7715	101399	181550	Pipe	600	2.30	0.91	1.15	1.10	1.08
7717	101472	101396	Pipe	450	6.00	0.68	0.00	0.00	0.00
7720	5000010	181549	Pipe	900	1.81	2.38	13.34	14.40	15.02
7724	101405	101386	Pipe	300	10.74	0.31	0.28	0.29	0.29
7730	101354	181553	Pipe	375	3.71	0.33	0.36	0.36	0.36
7731	181095	181552	Pipe	1500	1.06	13.19	15.04	17.89	19.30
7741	101424	101417	Pipe	450	5.02	0.62	0.49	0.50	0.51
7750	101416	101413	Pipe	600	2.35	0.92	0.99	1.07	1.09
7753	101417	101419	Pipe	600	1.57	0.75	0.76	0.77	0.78
7769	101433	101436	Pipe	375	1.86	0.23	0.31	0.31	0.31
7772	101436	101424	Pipe	450	2.56	0.44	0.40	0.43	0.44
7779	101450	101447	Pipe	300	2.77	0.16	0.20	0.20	0.20
7782	101447	101433	Pipe	375	1.82	0.23	0.27	0.26	0.27
7787	101318	101327	Pipe	375	4.10	0.35	0.12	0.17	0.20
7788	101313	101350	Pipe	225	3.22	0.08	0.08	0.08	0.08
7808	101160	101164	Pipe	300	3.02	0.16	0.13	0.12	0.12
7812	101202	101416	Pipe	500	2.79	0.61	0.73	0.73	0.73
7815	181092	181557	Pipe	1200	1.44	4.55	3.79	4.66	4.66
7821	181556	101376	Pipe	740	3.17	1.86	2.41	2.38	2.37
7822	101473	101318	Pipe	300	2.69	0.16	0.00	0.00	0.00
7841	101376	181558	Pipe	1200	1.02	3.84	1.40	1.49	1.53
7842	181094	5000010	Pipe	900	1.20	1.93	13.29	14.25	14.98
7849	101478	101498	Pipe	375	3.02	0.30	0.35	0.35	0.34
7854	101480	101478	Pipe	400	1.46	0.25	0.35	0.34	0.34
7855	101476	101478	Pipe	225	1.60	0.06	0.01	0.01	0.01
7861	101526	101484	Pipe	1350	0.68	4.30	3.03	3.71	4.00
7862	101483	101520	Pipe	375	4.16	0.35	0.17	0.23	0.26
7865	101520	5000020	Pipe	1600	1.95	11.43	7.02	8.35	8.73
7867	106395	101514	Pipe	1600	1.10	8.60	5.77	6.73	7.00
7872	5000018	101520	Pipe	1600	2.01	11.61	6.80	8.01	8.30
7873	101489	106396	Pipe	1600	19.50	36.15	5.79	6.73	7.00
7876	101488	101515	Pipe	750	5.90	2.64	1.50	1.58	1.60
7877	101490	101487	Pipe	450	3.83	0.54	0.59	0.57	0.59
7884	101504	101522	Pipe	1000	0.48	1.63	1.15	1.67	1.92
7886	101492	101498	Pipe	900	1.21	1.94	0.00	0.00	0.05
7889	101493	101492	Pipe	375	19.50	0.76	0.00	0.00	0.00
7893	101498	101504	Pipe	900	1.04	1.80	0.60	0.80	0.87
7894	101500	101498	Pipe	375	2.27	0.26	0.19	0.28	0.32
7902	101508	101526	Pipe	1350	0.57	3.93	2.85	3.39	3.63
7905	101522	101508	Pipe	1000	0.73	2.00	1.21	1.77	2.04
7909	101515	101512	Pipe	750	1.69	1.41	1.61	1.66	1.67

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
7910	101513	5000018	Pipe	700	4.90	2.00	1.08	1.29	1.32
7928	101340	101599	Pipe	375	3.55	0.32	0.26	0.28	0.29
7931	101584	181562	Pipe	1350	1.23	5.76	3.22	3.78	4.02
7932	101582	5000020	Pipe	500	3.90	0.73	0.51	0.76	0.70
7937	101558	101569	Pipe	375	4.18	0.35	0.25	0.34	0.38
7939	101569	101567	Pipe	450	2.39	0.43	0.31	0.44	0.47
7950	101544	101538	Pipe	225	5.60	0.10	0.09	0.11	0.11
7951	101538	101539	Pipe	450	1.68	0.36	0.20	0.27	0.29
7963	101553	101549	Pipe	225	0.59	0.03	0.07	0.09	0.10
7964	101550	101553	Pipe	225	0.65	0.04	0.07	0.10	0.10
7965	101554	101599	Pipe	225	4.17	0.09	0.00	0.00	0.00
7972	101589	101558	Pipe	375	3.77	0.33	0.25	0.34	0.40
7976	101567	101581	Pipe	500	2.61	0.59	0.30	0.44	0.48
7981	101562	101483	Pipe	300	5.66	0.22	0.17	0.23	0.26
7989	101573	101575	Pipe	225	2.51	0.07	0.06	0.07	0.08
7994	101484	101584	Pipe	1350	4.39	10.90	3.22	3.77	3.96
7998	101581	101582	Pipe	500	4.04	0.74	0.30	0.45	0.45
8000	101587	101589	Pipe	400	5.26	0.47	0.25	0.34	0.43
8009	101599	101598	Pipe	375	2.66	0.28	0.24	0.24	0.24
8019	101613	101687	Pipe	800	0.65	1.04	1.11	1.15	1.14
8021	101608	101480	Pipe	400	1.33	0.23	0.12	0.13	0.13
8022	100162	101608	Pipe	225	0.82	0.04	0.10	0.10	0.10
8028	100203	101610	Pipe	600	1.28	0.68	0.37	0.35	0.34
8031	101610	101613	Pipe	700	1.14	0.96	0.55	0.52	0.52
8061	101604	101635	Pipe	400	4.41	0.43	0.36	0.35	0.35
8066	101710	181570	Pipe	225	14.27	0.17	0.00	0.00	0.00
8067	101712	181574	Pipe	225	2.72	0.07	0.00	0.06	0.10
8068	101676	101641	Pipe	375	2.80	0.29	0.31	0.30	0.30
8070	101704	101643	Pipe	300	2.93	0.16	0.08	0.15	0.17
8074	181080	181567	Pipe	450	3.40	0.51	0.63	0.67	0.67
8075	181079	181566	Pipe	600	-2.18	0.88	1.47	1.62	1.65
8077	101641	181568	Pipe	300	8.72	0.28	0.31	0.30	0.30
8095	101669	101676	Pipe	300	0.94	0.09	0.05	0.05	0.05
8118	101679	101695	Pipe	1000	0.54	1.72	1.35	1.43	1.46
8125	101689	101683	Pipe	900	1.34	2.05	1.17	1.27	1.32
8128	101683	101679	Pipe	1000	1.72	3.06	1.37	1.54	1.61
8129	101686	101689	Pipe	700	0.08	0.25	1.13	1.17	1.22
8130	101687	101686	Pipe	700	0.38	0.55	1.11	1.15	1.15
8144	101695	101696	Pipe	1000	1.35	2.72	1.42	1.48	1.51
8147	101700	101704	Pipe	300	0.48	0.07	0.05	0.08	0.09
8154	101749	101711	Pipe	300	3.90	0.19	0.17	0.19	0.19
8161	181078	181575	Pipe	600	12.00	2.07	1.38	1.31	1.28
8165	101711	101705	Pipe	400	1.22	0.22	0.17	0.19	0.20
8172	101708	101710	Pipe	300	3.21	0.17	0.00	0.00	0.00
8175	101715	101712	Pipe	300	0.82	0.09	0.00	0.08	0.10
8176	99804	101720	Pipe	500	2.98	0.64	0.60	0.61	0.60
8177	99831	101718	Pipe	600	3.34	1.09	0.67	0.79	0.81
8179	101705	101720	Pipe	600	1.32	0.69	0.57	0.58	0.58
8181	101718	101705	Pipe	600	2.57	0.96	0.70	0.77	0.78
8210	101747	101749	Pipe	300	4.09	0.19	0.17	0.19	0.19
8213	101576	101598	Pipe	375	1.74	0.23	0.24	0.24	0.24
8215	101635	181563	Pipe	1600	3.31	14.89	8.15	8.64	8.72
8216	181077A	101635	Pipe	1600	0.35	4.81	8.60	8.86	8.91
8224	101514	5000018	Pipe	1600	1.95	11.44	5.78	6.73	7.00
8226	101512	101508	Pipe	750	3.07	1.90	1.62	1.67	1.68
8229	5000020	181561	Pipe	1600	3.16	14.55	7.45	9.03	9.48
8234	101643	181571	Channel	Channel	1.39	Channel	0.10	0.18	0.31
8244	101643	5000019	Channel	Channel	7.38	Channel	0.03	0.14	0.35
8247	101549	101340	Pipe	300	3.16	0.17	0.07	0.09	0.10
8249	101539	101491	Pipe	450	1.30	0.32	0.20	0.27	0.29
8252	101491	101519	Pipe	500	1.90	0.51	0.28	0.39	0.43
8255	101519	101513	Pipe	700	1.00	0.90	1.08	1.29	1.32
8273	101487	101519	Pipe	500	2.70	0.61	0.64	0.62	0.61
8283	101717	101833	Pipe	300	1.84	0.13	0.14	0.15	0.15
8284	101720	101847	Pipe	900	1.13	1.88	1.42	1.44	1.44
8285	101696	101825	Pipe	840	1.12	1.56	1.26	1.29	1.30
8302	101766	101762	Pipe	300	1.24	0.11	0.09	0.09	0.10
8304	101763	101778	Pipe	700	0.76	0.79	0.53	0.53	0.53
8306	100288	101763	Pipe	650	0.42	0.48	0.49	0.49	0.49

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
8319	101857	181585	Pipe	700	0.64	0.72	0.77	0.80	0.80
8322	101825	101781	Pipe	840	1.37	1.72	1.43	1.45	1.45
8326	101789	101810	Pipe	450	0.70	0.23	0.29	0.28	0.28
8332	101781	101803	Pipe	900	0.45	1.18	2.24	2.21	2.18
8333	101778	101781	Pipe	650	1.65	0.95	0.61	0.60	0.60
8350	101807	181582	Pipe	900	11.77	6.06	2.66	2.79	2.77
8359	101803	101807	Pipe	900	2.98	3.05	2.49	2.49	2.49
8366	101810	101812	Pipe	600	0.43	0.39	0.49	0.49	0.50
8381	101845	101867	Pipe	900	0.92	1.69	1.95	1.92	1.91
8386	100007	101845	Pipe	525	1.85	0.57	0.47	0.45	0.45
8387	101829	101845	Pipe	900	1.07	1.83	1.34	1.33	1.32
8392	101833	5000021	Pipe	300	0.79	0.08	0.07	0.06	0.06
8393	101836	101837	Pipe	450	2.21	0.41	0.37	0.35	0.34
8397	101837	101842	Pipe	600	0.25	0.30	0.77	0.80	0.80
8404	101849	101829	Pipe	900	1.00	1.76	1.48	1.48	1.49
8406	101847	101849	Pipe	900	0.44	1.17	1.32	1.32	1.33
8410	101873	181589	Pipe	900	0.80	1.57	2.11	2.12	2.13
8419	101858	101857	Pipe	950	0.40	1.30	0.77	0.80	0.80
8423	101867	101873	Pipe	900	0.96	1.73	1.95	1.92	1.91
8444	101812	101887	Pipe	600	0.29	0.32	0.62	0.67	0.68
8451	101887	GIOUT8	Channel	Channel	2.13	Channel	0.81	1.00	1.07
8455	101958	5000024	Pipe	300	6.11	0.23	0.21	0.21	0.21
8475	181082	181596	Pipe	525	1.84	0.57	0.00	0.00	0.00
8480	101771	101810	Pipe	300	1.66	0.12	0.18	0.18	0.18
8483	101805	101807	Pipe	225	0.71	0.04	0.08	0.08	0.08
8485	101842	101858	Pipe	950	0.04	0.41	0.77	0.80	0.80
8486	5000024	181595	Pipe	1830	2.23	17.50	6.26	6.86	7.16
8489	181081	181581	Pipe	1900	0.72	10.99	8.47	10.25	10.59
8495	101762	101789	Pipe	350	1.32	0.16	0.17	0.17	0.16
8502	101926	181597	Pipe	300	12.15	0.33	0.47	0.45	0.46
8518	101927	101926	Pipe	300	26.30	0.48	0.12	0.12	0.12
8544	101952	101967	Pipe	375	1.76	0.23	0.19	0.19	0.19
8556	101970	181598	Pipe	225	6.68	0.11	0.14	0.14	0.14
8559	101975	101958	Pipe	300	3.38	0.17	0.18	0.18	0.18
8566	101978	101975	Pipe	300	3.43	0.17	0.16	0.16	0.16
8574	101981	101967	Pipe	225	10.56	0.14	0.13	0.13	0.13
8580	101967	181599	Pipe	225	0.99	0.04	0.12	0.12	0.12
8586	102021	181602	Pipe	500	2.70	0.61	0.74	0.76	0.76
8598	181603	181601	Pipe	900	1.84	2.40	2.31	2.77	2.88
8601	101989	181600	Pipe	300	5.03	0.21	0.27	0.27	0.27
8602	100097	101989	Pipe	300	9.42	0.29	0.25	0.26	0.26
8606	101991	102059	Pipe	300	3.22	0.17	0.17	0.17	0.17
8610	102077	102037	Pipe	525	5.08	0.95	0.58	0.59	0.59
8615	102048	102006	Pipe	300	4.07	0.19	0.19	0.21	0.21
8618	102056	102032	Pipe	450	3.05	0.49	0.44	0.45	0.45
8624	102029	102015	Pipe	450	2.21	0.41	0.39	0.40	0.40
8630	102016	102001	Pipe	500	2.79	0.62	0.49	0.49	0.49
8638	102001	101998	Pipe	500	1.60	0.47	0.53	0.53	0.53
8647	102015	102016	Pipe	500	2.11	0.54	0.51	0.50	0.50
8650	102035	102026	Pipe	500	2.38	0.57	0.60	0.60	0.60
8651	102026	102021	Pipe	500	2.58	0.59	0.59	0.60	0.59
8654	102032	102029	Pipe	450	1.62	0.35	0.47	0.48	0.48
8656	102037	102035	Pipe	500	2.06	0.53	0.61	0.60	0.61
8667	102045	101952	Pipe	225	12.10	0.15	0.15	0.15	0.15
8668	102046	101952	Pipe	225	7.59	0.12	0.11	0.11	0.11
8669	102006	101952	Pipe	300	3.47	0.18	0.15	0.15	0.15
8674	102089	102059	Pipe	300	10.07	0.30	0.18	0.25	0.28
8676	102069	102056	Pipe	300	4.61	0.20	0.24	0.23	0.24
8684	102059	102069	Pipe	300	3.15	0.17	0.21	0.21	0.21
8711	102085	102082	Pipe	375	5.58	0.40	0.41	0.40	0.43
8714	102100	102085	Pipe	225	16.44	0.18	0.18	0.18	0.18
8715	102098	102085	Pipe	375	4.52	0.36	0.43	0.44	0.44
8720	102106	102109	Pipe	225	1.24	0.05	0.04	0.04	0.04
8727	102110	102109	Pipe	225	12.95	0.16	0.12	0.12	0.12
8731	101949	102110	Pipe	225	6.08	0.11	0.11	0.11	0.11
8741	102122	102117	Pipe	300	7.17	0.25	0.24	0.24	0.24
8753	102133	102122	Pipe	300	4.45	0.20	0.22	0.22	0.22
8762	102150	102133	Pipe	150	14.03	0.06	0.05	0.06	0.06
8775	183821	102164	Pipe	150	7.29	0.04	0.00	0.00	0.00

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
8776	102160	102163	Pipe	200	3.97	0.06	0.00	0.00	0.00
8781	102163	181606	Pipe	150	13.58	0.06	0.07	0.07	0.07
8783	183819	102164	Pipe	150	5.89	0.04	0.00	0.00	0.01
8784	102164	102163	Pipe	150	18.07	0.06	0.06	0.06	0.06
8785	102265	102263	Pipe	225	5.27	0.10	0.10	0.10	0.10
8801	102168	102046	Pipe	225	7.62	0.12	0.12	0.13	0.13
8807	102260	101991	Pipe	300	5.46	0.22	0.21	0.22	0.22
8811	102109	102265	Pipe	225	4.11	0.09	0.11	0.11	0.11
8816	102226	181609	Pipe	500	6.37	0.93	0.99	1.02	1.03
8827	102175	GIOUT4	Pipe	300	16.03	0.38	0.46	0.45	0.45
8829	102187	102184	Pipe	300	1.39	0.11	0.19	0.16	0.19
8852	102219	102214	Pipe	225	3.53	0.08	0.05	0.06	0.07
8854	102212	181611	Pipe	225	13.81	0.16	0.10	0.14	0.16
8856	102216	102174	Pipe	225	10.14	0.14	0.11	0.18	0.19
8858	102174	181607	Channel	Channel	5.80	Channel	0.11	0.18	0.19
8859	102224	102216	Pipe	225	16.32	0.18	0.05	0.16	0.16
8865	102222	102221	Pipe	225	5.42	0.10	0.04	0.05	0.06
8880	102289	102244	Pipe	300	4.74	0.21	0.26	0.26	0.24
8884	102231	102225	Pipe	225	10.74	0.14	0.15	0.14	0.15
8888	102234	102231	Pipe	150	6.41	0.04	0.04	0.04	0.04
8895	102116	102234	Pipe	150	11.15	0.05	0.05	0.05	0.05
8900	102242	102238	Pipe	375	0.93	0.17	0.39	0.39	0.39
8901	102244	102238	Pipe	300	7.94	0.27	0.26	0.26	0.24
8903	102238	102226	Pipe	500	8.06	1.05	0.73	0.87	0.93
8906	102225	102226	Pipe	300	3.40	0.17	0.24	0.24	0.24
8913	102240	102242	Pipe	375	5.70	0.41	0.39	0.37	0.38
8919	102117	102240	Pipe	300	5.80	0.23	0.27	0.26	0.26
8932	102173	181612	Pipe	225	10.31	0.14	0.00	0.00	0.00
8949	102263	102260	Pipe	225	5.45	0.10	0.11	0.11	0.11
8955	102221	102303	Pipe	225	5.28	0.10	0.04	0.06	0.06
8958	102302	181614	Pipe	225	4.50	0.09	0.04	0.06	0.06
8959	102303	102302	Pipe	225	31.71	0.25	0.04	0.06	0.07
8961	181617	GIOUT2	Channel	Channel	1.10	Channel	1.03	1.47	1.67
9013	102184	102175	Pipe	300	10.27	0.30	0.29	0.27	0.28
9020	102107	101949	Pipe	300	1.66	0.12	0.08	0.11	0.11
9028	102214	102212	Pipe	225	23.39	0.21	0.08	0.11	0.11
9037	5000027	5000024	Pipe	1830	2.34	17.90	0.10	0.14	0.16
9637	102687	102141	Pipe	300	6.69	0.24	5.76	6.24	6.46
9643	102307	116266	Pipe	300	11.82	0.32	0.38	0.39	0.39
9651	102684	102683	Pipe	300	3.08	0.17	0.07	0.09	0.11
9655	102141	102688	Pipe	300	3.49	0.18	0.19	0.19	0.19
10291	102685	102684	Pipe	300	0.83	0.09	0.07	0.09	0.11
10309	116261	116265	Pipe	300	8.42	0.27	0.25	0.26	0.26
10652	101269	101267	Pipe	300	4.99	0.21	0.26	0.26	0.26
10656	103310	103311	Pipe	375	3.47	0.32	0.27	0.29	0.29
10657	103311	99508	Pipe	450	2.00	0.39	0.41	0.41	0.41
10662	103313	99441	Pipe	300	4.37	0.20	0.20	0.20	0.20
10689	101254	101255	Pipe	300	4.36	0.20	0.22	0.22	0.22
10699	101210	101211	Pipe	450	4.57	0.59	0.58	0.56	0.56
10711	101240	101237	Pipe	400	2.50	0.32	0.45	0.45	0.45
10716	118625	101252	Pipe	225	6.79	0.11	0.08	0.11	0.12
10792	102686	103363	Pipe	300	4.42	0.20	0.14	0.19	0.21
10793	103363	102687	Pipe	300	4.00	0.19	0.19	0.19	0.19
10838	101575	101569	Pipe	225	2.65	0.07	0.06	0.08	0.08
10908	101237	101214	Pipe	450	5.23	0.64	0.63	0.62	0.63
10943	100050	181507	Pipe	600	1.67	0.77	0.79	0.86	0.89
10945	100073	100066	Pipe	375	5.88	0.41	0.00	0.00	0.00
10956	102082	102077	Pipe	450	1.83	0.38	0.45	0.45	0.45
10971	100654	100656	Pipe	300	3.13	0.17	0.13	0.13	0.13
10983	100716	100723	Pipe	375	2.67	0.28	0.30	0.29	0.29
11492	100531	GIOUT15	Pipe	910	4.48	3.85	0.60	0.65	0.67
11579	99627	100580	Pipe	300	2.00	0.13	0.11	0.11	0.11
12559	104110	104112	Pipe	300	0.92	0.09	0.12	0.17	0.19
12564	104112	104114	Pipe	300	3.98	0.19	0.12	0.17	0.19
12567	104114	104117	Pipe	300	8.28	0.27	0.12	0.17	0.19
12575	104121	104123	Pipe	300	1.30	0.11	0.11	0.14	0.16
12576	104123	104124	Pipe	300	2.98	0.16	0.11	0.14	0.16
12577	104125	104124	Pipe	525	1.02	0.42	0.12	0.15	0.17
12578	104126	104125	Pipe	525	0.83	0.38	0.10	0.16	0.18

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
12579	104127	104126	Pipe	525	1.01	0.42	0.00	0.00	0.00
12582	104130	104128	Pipe	375	1.03	0.17	0.19	0.19	0.19
12583	104124	104128	Pipe	525	8.12	1.20	0.23	0.29	0.34
12584	104128	104131	Pipe	600	5.10	1.35	0.45	0.53	0.57
12585	104131	104132	Pipe	600	5.06	1.35	0.48	0.58	0.62
12591	104132	104136	Pipe	600	1.89	0.82	0.64	0.81	0.88
12592	104136	104137	Pipe	600	5.91	1.46	0.64	0.81	0.88
12596	104139	104130	Pipe	375	0.30	0.09	0.20	0.19	0.19
12613	104140	104139	Pipe	300	0.50	0.07	0.19	0.20	0.20
12622	104148	104146	Pipe	300	0.70	0.08	0.12	0.14	0.14
12623	104149	104148	Pipe	300	1.79	0.13	0.01	0.04	0.04
12624	104150	104148	Pipe	225	0.87	0.04	0.09	0.09	0.09
12627	104146	104152	Pipe	300	5.38	0.22	0.20	0.22	0.22
12628	104154	104152	Pipe	375	2.65	0.28	0.14	0.20	0.24
12629	104155	104154	Pipe	375	0.55	0.13	0.14	0.19	0.21
12639	104152	104160	Pipe	525	0.04	0.09	0.34	0.44	0.49
12640	104161	104160	Pipe	300	6.30	0.24	0.00	0.00	0.00
12642	104162	104161	Pipe	300	0.47	0.07	0.00	0.00	0.00
12645	104160	104163	Pipe	600	3.09	1.05	0.57	0.73	0.83
12646	104163	104164	Pipe	600	7.81	1.67	0.57	0.74	0.83
12718	216591	216589	Pipe	450	1.28	0.31	0.43	0.52	0.54
12719	216589	181574	Pipe	600	0.02	0.07	0.43	0.52	0.54
12720	216606	216591	Pipe	375	-4.95	0.38	0.23	0.25	0.24
12721	216607	216606	Pipe	300	5.10	0.21	0.23	0.20	0.20
12725	216546	216548	Pipe	450	3.38	0.51	0.21	0.18	0.19
12727	216551	216546	Pipe	375	3.58	0.32	0.29	0.33	0.33
12729	216556	216551	Pipe	375	0.83	0.16	0.30	0.33	0.32
12731	216573	216565	Pipe	375	1.51	0.21	0.02	0.03	0.03
12734	216584	216582	Pipe	225	1.25	0.05	0.00	0.01	0.00
15768	106210	106132	Pipe	450	2.93	0.48	0.62	0.63	0.63
15769	106189	106187	Pipe	450	1.37	0.33	0.40	0.45	0.47
15771	116103	106200	Pipe	300	1.58	0.12	0.12	0.12	0.12
15773	106200	106202	Pipe	300	2.52	0.15	0.12	0.12	0.12
15777	106181	106167	Pipe	225	0.81	0.04	0.05	0.05	0.05
15778	106172	106196	Pipe	900	0.90	1.68	1.67	1.68	1.69
15800	106135	106132	Pipe	750	2.83	1.83	0.74	0.79	0.81
15801	106132	181785	Pipe	1200	6.06	9.36	1.56	1.96	2.20
15803	106138	106135	Pipe	750	3.44	2.01	0.71	0.74	0.75
15822	106145	106163	Pipe	450	1.83	0.38	0.36	0.36	0.35
15823	106188	106208	Pipe	450	5.07	0.63	0.40	0.45	0.47
15825	106166	106138	Pipe	750	3.49	2.03	0.66	0.68	0.69
15826	106154	106323	Pipe	300	4.27	0.20	0.16	0.22	0.24
15828	106158	106150	Pipe	300	5.09	0.21	0.00	0.00	0.01
15830	106148	106152	Pipe	300	1.44	0.11	0.07	0.08	0.08
15837	106163	106164	Pipe	450	2.22	0.41	0.35	0.35	0.35
15840	106162	106145	Pipe	450	1.07	0.29	0.39	0.42	0.43
15844	106165	106166	Pipe	450	2.98	0.48	0.66	0.68	0.69
15845	106164	106165	Pipe	450	2.21	0.41	0.36	0.36	0.36
15850	106174	106192	Pipe	450	1.53	0.34	0.30	0.29	0.30
15854	106170	106172	Pipe	900	1.07	1.83	1.67	1.68	1.69
15863	106183	106178	Pipe	300	1.39	0.11	0.14	0.14	0.12
15869	106187	106188	Pipe	450	1.09	0.29	0.40	0.45	0.47
15870	106178	106189	Pipe	450	1.16	0.30	0.40	0.45	0.47
15873	106199	106204	Pipe	900	2.65	2.87	2.39	2.48	2.55
15874	106196	106191	Pipe	900	1.39	2.08	1.85	1.94	1.99
15878	106193	106190	Pipe	450	1.28	0.31	0.49	0.53	0.53
15879	106192	106193	Pipe	450	0.96	0.27	0.30	0.28	0.30
15884	106191	106199	Pipe	900	4.46	3.73	2.32	2.39	2.42
15886	106202	181782	Pipe	300	1.81	0.13	0.18	0.20	0.20
15891	106204	181782	Pipe	900	1.59	2.23	3.35	3.87	4.02
15898	106208	106209	Pipe	450	13.04	1.00	0.40	0.45	0.47
15899	106209	106210	Pipe	450	2.68	0.46	0.40	0.45	0.47
15901	106214	106405	Pipe	300	2.90	0.16	0.15	0.16	0.15
15908	106254	106252	Pipe	450	0.74	0.24	0.90	0.76	0.76
15911	106231	106238	Pipe	450	0.40	0.18	0.30	0.29	0.30
15913	106263	106235	Pipe	1500	0.00	0.44	2.60	3.00	3.06
15914	106252	106263	Pipe	975	0.87	2.03	2.07	2.62	2.73
15917	106266	106234	Pipe	450	1.29	0.32	0.00	0.01	0.01
15918	106287	106277	Pipe	375	7.83	0.48	0.47	0.47	0.45

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
15922	106321	106443	Pipe	1500	0.88	6.47	3.57	3.85	3.94
15927	106216	106304	Pipe	375	4.35	0.36	0.00	0.02	0.02
15928	106234	106235	Pipe	500	-1.05	0.24	0.41	0.54	0.59
15934	106219	106281	Pipe	225	5.24	0.10	0.18	0.18	0.18
15952	106230	106231	Pipe	400	0.33	0.12	0.17	0.17	0.17
15953	2000006	106230	Pipe	400	0.42	0.13	0.17	0.17	0.17
15959	106233	106234	Pipe	450	19.70	1.23	0.42	0.58	0.61
15960	106293	106233	Pipe	300	2.32	0.14	0.15	0.20	0.20
15962	106236	106313	Pipe	375	7.95	0.48	0.00	0.00	0.00
15965	106243	106254	Pipe	450	0.31	0.15	0.43	0.43	0.43
15969	106238	106243	Pipe	450	0.20	0.12	0.33	0.32	0.32
15974	106247	106245	Pipe	300	3.07	0.17	0.18	0.19	0.19
15977	106246	106247	Pipe	300	3.16	0.17	0.18	0.20	0.20
15981	106290	106266	Pipe	375	1.90	0.24	0.00	0.00	0.00
15984	106275	106268	Pipe	750	2.46	1.70	0.82	0.99	1.01
15987	106257	106249	Pipe	525	3.00	0.73	0.64	0.65	0.66
15989	106223	106251	Pipe	525	3.72	0.81	0.88	0.88	0.89
15990	106249	106250	Pipe	525	2.99	0.73	0.53	0.54	0.53
15991	106251	106252	Pipe	675	0.86	0.76	1.24	1.33	1.33
15992	106250	106251	Pipe	225	7.60	0.12	0.19	0.19	0.19
15995	106253	106252	Pipe	225	23.20	0.21	0.11	0.16	0.16
15997	106258	106257	Pipe	525	3.12	0.74	0.59	0.64	0.66
16003	106268	106263	Pipe	750	3.44	2.01	0.83	0.99	1.01
16010	106281	106270	Pipe	525	3.21	0.75	0.26	0.32	0.33
16012	106270	106275	Pipe	600	1.40	0.71	0.36	0.48	0.49
16014	106272	106270	Pipe	300	2.22	0.14	0.11	0.13	0.12
16015	106273	106272	Pipe	225	0.80	0.04	0.09	0.09	0.09
16016	106274	106273	Pipe	225	1.90	0.06	0.09	0.09	0.09
16017	106245	106274	Pipe	225	2.60	0.07	0.08	0.08	0.08
16025	106277	106276	Pipe	375	12.13	0.60	0.47	0.47	0.45
16026	106276	106275	Pipe	375	7.42	0.47	0.48	0.49	0.48
16029	106150	106219	Pipe	450	4.00	0.56	0.00	0.01	0.01
16035	106152	106288	Pipe	225	2.01	0.06	0.07	0.08	0.08
16036	106288	106287	Pipe	375	5.73	0.41	0.47	0.45	0.44
16049	106316	106321	Pipe	900	4.67	3.82	0.61	0.79	0.77
16051	106302	106312	Pipe	900	0.42	1.14	0.59	0.80	0.76
16054	106307	106302	Pipe	450	1.57	0.35	0.03	0.01	0.01
16056	106303	106304	Pipe	450	1.53	0.34	0.00	0.04	0.05
16057	106304	106302	Pipe	750	0.70	0.91	0.60	0.80	0.76
16064	106312	106316	Pipe	900	0.80	1.58	0.61	0.80	0.77
16066	106311	106312	Pipe	300	7.61	0.26	0.00	0.00	0.00
16069	106323	106319	Pipe	450	2.32	0.42	0.16	0.22	0.24
16070	106235	106321	Pipe	1500	1.82	9.29	2.92	3.17	3.22
16071	106319	106320	Pipe	450	9.00	0.83	0.16	0.22	0.24
16086	106325	106389	Pipe	1500	0.88	6.45	4.71	5.49	5.60
16087	106405	181792	Pipe	300	2.83	0.16	0.26	0.27	0.28
16141	106371	106382	Pipe	450	2.00	0.39	0.37	0.37	0.37
16142	106370	106325	Pipe	1500	0.89	6.49	4.38	5.15	5.26
16150	181789	106389	Pipe	1200	3.67	7.28	2.58	3.33	3.63
16152	106378	106388	Pipe	300	2.40	0.15	0.18	0.18	0.18
16156	106382	106388	Pipe	450	3.13	0.49	0.39	0.41	0.42
16163	106387	106325	Pipe	225	0.98	0.04	0.17	0.16	0.16
16164	106388	106387	Pipe	675	0.95	0.80	0.57	0.63	0.64
16170	106392	101489	Pipe	1500	0.88	6.47	7.22	7.89	8.15
16171	106389	106392	Pipe	1500	0.87	6.44	7.22	7.89	8.15
16173	106396	106395	Pipe	1600	1.16	8.81	5.78	6.73	7.00
16199	106419	106425	Pipe	600	4.34	1.25	0.60	0.90	1.05
16209	106418	106419	Pipe	600	5.62	1.42	0.60	0.90	1.05
16210	106417	106418	Pipe	600	4.38	1.25	0.60	0.90	1.05
16213	106447	106428	Pipe	675	0.70	0.68	0.24	0.24	0.25
16214	106442	106423	Pipe	450	1.02	0.28	0.00	0.00	0.00
16218	106425	106432	Pipe	700	5.87	2.19	1.04	1.53	1.77
16219	106423	106424	Pipe	525	1.08	0.44	0.00	0.00	0.00
16221	106424	106425	Pipe	675	0.87	0.77	0.00	0.02	0.01
16226	106428	106429	Pipe	675	0.57	0.62	0.24	0.24	0.26
16233	106437	106455	Pipe	450	2.07	0.40	0.25	0.36	0.37
16235	106438	106455	Pipe	900	14.35	6.69	4.24	4.80	4.91
16238	106439	106437	Pipe	450	1.53	0.34	0.26	0.36	0.37
16241	106443	106438	Pipe	900	0.87	1.65	3.56	3.84	3.87

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
16244	106450	106448	Pipe	375	0.07	0.05	0.01	0.01	0.01
16245	106446	106448	Pipe	300	3.34	0.17	0.24	0.24	0.24
16246	106448	106447	Pipe	600	0.10	0.19	0.24	0.24	0.24
16248	106452	106453	Pipe	450	0.67	0.23	0.00	0.00	0.00
16252	106455	106370	Pipe	1500	0.87	6.44	4.41	5.15	5.26
16635	106785	106768	Pipe	150	9.47	0.05	0.01	0.01	0.02
16647	106723	106756	Pipe	450	1.19	0.30	0.48	0.49	0.49
16651	106757	106771	Pipe	675	2.38	1.26	0.53	0.54	0.55
16655	106752	106774	Pipe	450	1.67	0.36	0.17	0.17	0.17
16660	106724	106735	Pipe	300	8.31	0.27	0.00	0.00	0.00
16661	106731	106724	Pipe	525	9.26	1.28	0.00	0.00	0.00
16671	106745	106755	Pipe	300	6.53	0.24	0.24	0.24	0.24
16680	106735	106745	Pipe	300	8.33	0.27	0.24	0.24	0.24
16682	106736	106735	Pipe	300	0.00	0.00	0.23	0.24	0.24
16683	106737	106736	Pipe	300	5.92	0.23	0.24	0.25	0.25
16695	106755	106723	Pipe	450	0.79	0.25	0.26	0.28	0.28
16697	106753	106752	Pipe	300	0.81	0.09	0.17	0.17	0.17
16699	106756	106757	Pipe	675	2.33	1.25	0.48	0.48	0.48
16707	106767	106777	Pipe	300	6.80	0.25	0.04	0.25	0.24
16708	106167	106778	Pipe	300	0.57	0.07	0.05	0.05	0.05
16709	106168	106780	Pipe	300	0.40	0.06	0.13	0.13	0.13
16710	181803	106767	Pipe	300	0.75	0.08	0.00	0.05	0.05
16713	106768	106170	Pipe	900	0.81	1.59	1.66	1.68	1.68
16714	106769	106174	Pipe	375	2.20	0.25	0.29	0.29	0.30
16718	106776	106768	Pipe	750	0.93	1.05	1.58	1.60	1.61
16720	106774	106776	Pipe	450	5.33	0.64	0.32	0.39	0.42
16721	106771	106779	Pipe	750	2.34	1.66	0.59	0.64	0.63
16724	106777	106776	Pipe	750	1.00	1.09	1.34	1.38	1.38
16726	106779	106777	Pipe	750	7.56	2.99	1.20	1.13	1.14
16727	106780	106777	Pipe	300	12.90	0.34	0.13	0.13	0.13
16728	106778	106777	Pipe	300	4.35	0.20	0.05	0.06	0.06
16732	106787	106769	Pipe	300	5.17	0.21	0.19	0.21	0.21
32060	155845	116134	Pipe	300	8.64	0.28	0.16	0.22	0.23
32636	181160	116099	Pipe	2000	1.37	17.37	8.73	11.24	12.45
32637	116237	116196	Pipe	375	3.92	0.34	0.40	0.39	0.39
32638	116151	116152	Pipe	525	1.03	0.43	0.52	0.54	0.54
32639	116118	116151	Pipe	375	8.54	0.50	0.42	0.45	0.46
32644	116196	116099	Pipe	450	5.88	0.67	0.53	0.59	0.60
32645	116099	182226	Pipe	2000	1.55	18.47	9.23	11.80	13.05
32654	116152	116148	Pipe	525	0.84	0.39	0.63	0.71	0.71
32657	116098	116097	Pipe	525	0.60	0.33	0.00	0.00	0.00
32661	116224	116187	Pipe	600	5.07	1.35	1.21	1.22	1.23
32663	116230	116191	Pipe	450	2.37	0.43	0.32	0.41	0.44
32668	116202	116131	Pipe	225	10.38	0.14	0.05	0.06	0.07
32671	116104	182220	Pipe	450	1.00	0.28	0.29	0.36	0.40
32672	116141	116104	Pipe	450	1.69	0.36	0.29	0.34	0.38
32674	116114	116142	Pipe	225	10.08	0.14	0.14	0.14	0.14
32678	116107	116157	Pipe	300	5.71	0.23	0.29	0.29	0.29
32680	116130	116177	Pipe	300	12.04	0.33	0.30	0.30	0.30
32681	116131	116183	Pipe	225	8.85	0.13	0.05	0.07	0.07
32689	116109	116114	Pipe	225	3.42	0.08	0.00	0.00	0.00
32707	116134	116130	Pipe	300	8.37	0.27	0.29	0.28	0.30
32719	116142	116141	Pipe	300	2.03	0.13	0.14	0.14	0.15
32726	116148	182222	Pipe	800	0.79	1.14	0.92	1.00	1.06
32730	116157	116148	Pipe	375	2.53	0.27	0.29	0.31	0.32
32734	116146	182221	Pipe	375	3.33	0.31	0.26	0.36	0.45
32736	116164	116098	Pipe	525	1.00	0.42	0.00	0.00	0.00
32740	5000023	116163	Pipe	300	2.63	0.15	0.00	0.00	0.00
32741	116163	116164	Pipe	525	0.04	0.09	0.00	0.00	0.00
32744	116187	116194	Pipe	600	2.77	1.00	1.18	1.15	1.17
32748	116179	182224	Pipe	575	1.54	0.66	0.65	0.72	0.76
32751	116183	116179	Pipe	300	8.07	0.27	0.10	0.13	0.15
32755	116178	116181	Pipe	375	7.56	0.47	0.51	0.52	0.52
32760	116177	116178	Pipe	300	12.64	0.34	0.24	0.23	0.26
32765	116181	116179	Pipe	375	4.94	0.38	0.42	0.42	0.42
32776	116191	182225	Pipe	450	3.33	0.51	0.47	0.56	0.57
32778	116194	116096	Pipe	600	1.83	0.81	1.34	1.32	1.33
32785	116197	116224	Pipe	600	1.72	0.78	1.01	1.02	1.03
32786	116198	116226	Pipe	375	6.80	0.45	0.18	0.19	0.19

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
32790	116218	116211	Pipe	300	41.40	0.61	0.14	0.20	0.22
32792	116201	116197	Pipe	525	5.91	1.02	1.16	1.16	1.16
32804	116210	116198	Pipe	225	20.45	0.20	0.00	0.00	0.00
32806	116211	116198	Pipe	225	13.18	0.16	0.17	0.18	0.18
32810	116215	116218	Pipe	300	4.87	0.21	0.14	0.20	0.22
32811	116216	116215	Pipe	300	11.51	0.32	0.14	0.19	0.22
32816	116235	116221	Pipe	300	5.73	0.23	0.14	0.20	0.22
32823	116226	116230	Pipe	450	2.69	0.46	0.19	0.20	0.21
32827	116221	116237	Pipe	300	6.56	0.24	0.23	0.22	0.24
32861	116265	102307	Pipe	300	12.33	0.33	0.32	0.33	0.34
32863	116266	GIOUT1	Channel	Channel	19.89	Channel	0.38	0.39	0.39
36654	118559	118545	Pipe	300	1.02	0.10	0.05	0.06	0.06
36655	118546	118543	Pipe	225	0.17	0.02	0.02	0.02	0.02
36657	118544	101171	Pipe	225	0.76	0.04	0.13	0.14	0.14
36658	118543	118544	Pipe	225	3.00	0.08	0.05	0.05	0.05
36659	118545	118546	Pipe	225	2.04	0.06	0.05	0.05	0.05
37485	102683	102686	Pipe	300	6.28	0.24	0.14	0.19	0.22
37595	102688	116261	Pipe	300	2.17	0.14	0.18	0.18	0.18
58985	132433	132377	Pipe	300	1.78	0.13	0.17	0.17	0.17
59045	132376	132376A	Pipe	375	0.90	0.16	0.38	0.39	0.40
59058	132377	132376	Pipe	375	1.35	0.20	0.18	0.18	0.18
59108	132438	132433	Pipe	375	4.94	0.38	0.25	0.34	0.35
59133	132459	GI2	Pipe	300	1.60	0.12	0.29	0.29	0.29
59135	132461	132459	Pipe	300	4.13	0.19	0.19	0.19	0.19
93517	155817	155821	Pipe	450	9.61	0.86	0.53	0.60	0.60
93520	155821	155827	Pipe	525	9.25	1.28	0.96	1.00	1.00
93525	155826	155821	Pipe	375	7.75	0.48	0.47	0.47	0.48
93528	155827	116201	Pipe	525	9.70	1.31	1.19	1.20	1.20
93550	155835	155826	Pipe	375	6.08	0.42	0.47	0.47	0.48
93569	155859	155848	Pipe	300	3.51	0.18	0.16	0.22	0.23
93571	155848	155845	Pipe	300	6.20	0.24	0.16	0.22	0.23
93577	155869	155870	Pipe	300	9.93	0.30	0.25	0.25	0.25
93579	155870	116118	Pipe	300	9.02	0.28	0.31	0.30	0.30
93580	155872	116109	Pipe	225	0.28	0.02	0.00	0.00	0.00
93594	155889	155888	Pipe	300	4.14	0.19	0.26	0.30	0.31
93595	155885	155889	Pipe	300	5.51	0.22	0.00	0.00	0.00
93603	155888	155869	Pipe	300	3.75	0.18	0.18	0.18	0.18
93640	155938	155936	Pipe	300	11.74	0.32	0.11	0.15	0.17
93642	155942	155943	Pipe	300	1.03	0.10	0.08	0.11	0.12
93644	155941	155942	Pipe	300	1.96	0.13	0.08	0.11	0.12
93646	155944	155943	Pipe	300	0.03	0.02	0.03	0.04	0.05
93657	155943	155938	Pipe	300	10.32	0.30	0.11	0.15	0.17
93673	155955	155964	Pipe	300	1.69	0.12	0.00	0.00	0.00
93689	155936	155896	Pipe	225	10.86	0.14	0.15	0.16	0.16
93697	155964	155986	Pipe	300	6.42	0.24	0.00	0.00	0.00
93730	155797	155817	Pipe	450	1.25	0.31	0.31	0.29	0.28
216549	216548	181570	Pipe	450	0.23	0.13	0.21	0.19	0.18
216564	216565	216556	Pipe	375	0.75	0.15	0.03	0.04	0.04
216581	216582	216573	Pipe	225	1.20	0.05	0.02	0.02	0.01
216848	5000021	216846	Pipe	300	1.17	0.10	0.07	0.07	0.07
216849	216846	101836	Pipe	300	1.51	0.12	0.13	0.13	0.13
2000002	106123	2000005	Pipe	300	8.09	0.27	0.00	0.00	0.00
2000003	2000004	106120	Pipe	300	7.93	0.27	0.00	0.00	0.00
2000004	2000005	2000004	Pipe	300	3.50	0.18	0.00	0.00	0.00
2000005	106226	2000007	Pipe	700	1.17	0.98	0.40	0.44	0.45
2000006	2000009	2000007	Pipe	225	0.05	0.01	0.01	0.01	0.01
2000007	2000008	2000009	Pipe	225	0.72	0.04	0.00	0.00	0.00
5000002	155896	106787	Pipe	300	10.46	0.31	0.17	0.18	0.18
5000003	5000003	5000002	Pipe	300	6.72	0.24	0.00	0.00	0.00
5000004	5000002	106753	Pipe	300	7.28	0.25	0.00	0.00	0.00
5000005	5000004	5000003	Pipe	300	8.65	0.28	0.00	0.00	0.00
5000006	106190	106191	Pipe	450	17.30	1.16	0.49	0.53	0.53
5000007	5000006	155835	Pipe	375	2.65	0.28	0.04	0.01	0.01
5000008	5000005	5000006	Pipe	375	16.95	0.70	0.00	0.00	0.00
5000009	5000007	5000005	Pipe	375	4.60	0.37	0.00	0.00	0.00
5000010	101327	5000008	Pipe	375	2.71	0.28	0.12	0.17	0.20
5000012	5000009	101334	Pipe	375	0.18	0.07	0.12	0.17	0.19
5000013	5000008	5000009	Pipe	375	6.70	0.44	0.12	0.17	0.20
5000014	106313	106216	Pipe	375	1.35	0.20	0.00	0.01	0.02

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
5000015	5000011	106158	Pipe	300	5.70	0.23	0.00	0.00	0.00
5000016	106320	106321	Pipe	450	81.20	2.50	0.16	0.22	0.24
5000018	106429	106432	Pipe	675	0.00	0.00	0.24	0.25	0.26
5000021	106432	99404	Pipe	900	1.06	1.82	1.28	1.76	1.99
5000022	5000012	103313	Pipe	300	10.19	0.30	0.20	0.21	0.22
5000023	100468	100447	Pipe	225	6.09	0.11	0.13	0.13	0.13
5000024	106453	106450	Pipe	375	0.04	0.04	0.01	0.01	0.01
5000025	119099	5000022	Pipe	300	7.90	0.27	0.15	0.23	0.26
5000026	5000022	101927	Pipe	300	10.00	0.30	0.15	0.23	0.26
10000072	10000070	10000071	Pipe	1200	1.94	5.29	9.49	10.85	11.40
10000198	10000196	10000197	Pipe	900	1.52	2.18	0.50	0.55	0.56
10000396	10000394	10000395	Channel	Channel	2.50	Channel	8.34	10.46	11.43
10000645	10000642	10000644	Channel	Channel	0.28	Channel	13.97	21.00	23.76
10000960	10000957	GIOUT5	Channel	Channel	3.50	Channel	1.07	1.64	1.91
10000963	10000961	10000962	Pipe	300	3.60	0.18	0.02	0.01	0.01
10001065	10001063	10001064	Pipe	525	1.89	0.58	0.00	0.00	0.00
10001206	10001203	10001205	Channel	Channel	7.23	Channel	0.58	0.70	0.75
10000004l1	10000004	10000012	Channel	Channel	1.92	Channel	3.32	4.23	4.35
10000012l1	10000012	181092	Channel	Channel	1.92	Channel	3.76	5.10	5.01
10000040l1	10000040	10000054	Channel	Channel	0.52	Channel	7.31	10.05	11.77
10000054l1	10000054	10000064	Channel	Channel	0.51	Channel	7.31	9.94	11.63
10000064l1	10000064	10000926	Channel	Channel	0.84	Channel	7.28	9.94	11.32
10000071l1	10000071	181556	Channel	Channel	1.55	Channel	9.26	10.72	11.29
10000082l1	10000082	181789	Channel	Channel	1.67	Channel	0.00	0.00	0.00
10000085l1	10000085	181789	Channel	Channel	2.61	Channel	2.77	3.58	4.04
10000197l1	10000197	10000270	Pipe	900	2.98	3.45	0.64	0.73	0.76
10000252l1	10000252	182227	Pipe	900	2.72	2.91	0.77	1.05	1.12
10000270l1	10000270	10000252	Pipe	900	2.91	3.01	0.77	0.90	0.95
10000272l1	10000272	10000285	Channel	Channel	0.02	Channel	14.28	20.53	22.91
10000285l1	10000285	10000461	Channel	Channel	0.21	Channel	13.86	20.36	22.84
10000317l1	10000317	10000320	Channel	Channel	0.40	Channel	15.76	18.62	19.86
10000320l1	10000320	181095	Channel	Channel	3.20	Channel	15.32	17.97	19.47
10000321l1	10000321	10000332	Channel	Channel	0.38	Channel	15.30	18.59	20.14
10000332l1	10000332	10000344	Channel	Channel	0.53	Channel	14.71	18.59	20.13
10000344l1	10000344	181094	Channel	Channel	0.95	Channel	14.79	19.11	20.76
10000367l1	10000367	10000392	Channel	Channel	0.73	Channel	8.48	10.91	11.75
10000392l1	10000392	181080	Channel	Channel	-6.40	Channel	3.16	4.17	4.59
10000392l2	10000392	181079	Channel	Channel	0.90	Channel	5.19	6.46	6.94
10000395l1	10000395	10001221	Channel	Channel	2.36	Channel	21.10	31.24	35.28
10000400l1	10000400	10000423	Channel	Channel	0.12	Channel	21.27	31.55	35.63
10000423l1	10000423	10000431	Channel	Channel	1.00	Channel	20.64	30.77	34.82
10000431l1	10000431	10000774	Channel	Channel	0.23	Channel	21.20	31.67	35.79
10000459l1	10000459	10000472	Channel	Channel	2.66	Channel	21.34	31.95	36.15
10000461l1	10000461	181077	Channel	Channel	0.83	Channel	13.68	20.42	22.89
10000472l1	10000472	181081US	Channel	Channel	0.76	Channel	21.42	32.03	36.25
10000512l1	10000512	10000547	Channel	Channel	-0.28	Channel	24.03	35.56	40.50
10000535l1	10000535	10000547	Channel	Channel	0.24	Channel	0.81	0.73	0.72
10000547l1	10000547	10000563	Channel	Channel	0.18	Channel	24.74	36.08	40.37
10000563l1	10000563	10000577	Channel	Channel	0.10	Channel	24.64	35.59	37.95
10000577l1	10000577	10000585	Channel	Channel	0.24	Channel	24.67	35.56	37.86
10000585l1	10000585	10000597	Channel	Channel	0.25	Channel	24.54	35.69	38.00
10000597l1	10000597	10000607	Channel	Channel	0.22	Channel	24.52	35.78	38.10
10000607l1	10000607	10000623	Channel	Channel	0.23	Channel	26.34	37.53	39.90
10000623l1	10000623	10001082	Channel	Channel	0.06	Channel	33.21	45.75	49.51
10000644l1	10000644	181078	Channel	Channel	0.28	Channel	13.95	21.02	23.77
10000686l1	10000686	10000710	Channel	Channel	5.43	Channel	0.94	1.47	1.69
10000710l1	10000710	181603	Channel	Channel	3.29	Channel	1.78	2.67	3.07
10000772l1	181602	10000772	Channel	Channel	2.71	Channel	0.71	0.74	0.76
10000772l2	10000772	181510	Channel	Channel	1.99	Channel	2.94	3.61	4.04
10000774l1	10000774	5000019	Channel	Channel	0.67	Channel	21.24	31.67	35.61
10000799l1	10000799	10000805	Channel	Channel	2.35	Channel	2.30	3.19	3.62
10000805l1	10000805	181507	Channel	Channel	2.35	Channel	2.30	3.16	3.59
10000848l1	10000848	10000852	Channel	Channel	3.14	Channel	9.11	12.36	11.31
10000852l1	10000852	10000070	Channel	Channel	2.51	Channel	8.44	8.98	9.22
10000866l1	10000866	10000944	Channel	Channel	2.93	Channel	1.47	2.18	2.47
10000871l1	10000871	10000866	Channel	Channel	11.03	Channel	0.90	1.30	1.47
10000897l1	f10000897	F10000909	Channel	Channel	1.53	Channel	0.05	1.69	2.81
10000909l1	10000909	5000027	Pipe	1500	2.65	11.21	5.48	5.86	6.03
10000913l1	10000913	10000909	Pipe	500	2.57	0.59	0.42	0.43	0.45

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
10000915l1	10000915	10000913	Pipe	500	0.43	0.24	0.42	0.43	0.45
10000926l1	10000926	10000317	Channel	Channel	1.72	Channel	10.53	13.56	14.70
10000944l1	10000944	10000004	Channel	Channel	2.95	Channel	1.55	2.04	2.33
10000952l1	10000952	10000957	Channel	Channel	3.22	Channel	0.59	0.83	0.96
10000962l1	10000962	10000585	Channel	Channel	1.46	Channel	0.03	0.04	0.06
10000973l1	10000973	10000979	Channel	Channel	4.70	Channel	1.61	2.21	2.59
10000979l1	10000979	GIOUT3	Channel	Channel	11.57	Channel	2.09	2.91	3.55
10001040l1	10001040	181494	Channel	Channel	0.67	Channel	4.50	5.25	5.97
10001064l1	10001064	182219	Pipe	675	1.87	1.12	0.00	0.01	0.01
10001082l1	10001082	10001116	Channel	Channel	0.11	Channel	33.17	45.71	49.49
10001116l1	10001116	10001136	Channel	Channel	0.20	Channel	33.12	45.65	49.51
10001136l1	10001136	GIOUT6(main)	Channel	Channel	0.10	Channel	35.91	48.75	54.35
10001173l1	10001173	10001203	Channel	Channel	5.81	Channel	0.78	1.17	1.35
10001195l1	10001195	10001173	Channel	Channel	5.62	Channel	0.45	0.67	0.78
10001205l1	10001205	181617	Pipe	500	0.03	0.10	0.77	0.94	1.02
10001207l1	10001207	10000459	Channel	Channel	12.10	Channel	0.37	0.49	0.56
10001211l1	10001211	181607	Channel	Channel	0.52	Channel	1.52	2.22	2.51
10001221l1	10001221	10000400	Channel	Channel	0.47	Channel	21.13	31.27	35.36
100026l1	100026	10000897	Pipe	900	1.16	1.90	0.67	0.81	0.92
100030l1	100030	10000897	Pipe	900	1.26	1.98	2.17	2.18	2.18
101214l1	101214	101417	Pipe	600	2.99	1.04	0.78	0.85	0.89
101489l1	101489	101488	Pipe	750	9.50	3.35	1.50	1.58	1.60
101595l1	101595	101576	Pipe	375	3.14	0.30	0.30	0.31	0.31
101598l1	101598	101604	Pipe	400	3.59	0.39	0.34	0.33	0.33
101998l1	101998	10000915	Pipe	500	0.24	0.21	0.60	0.61	0.62
102044l1	102044	102048	Pipe	600	5.03	1.34	0.18	0.20	0.20
102114l1	102114	101949	Pipe	600	2.45	0.94	0.00	0.01	0.01
104117l1	104117	10001221	Channel	Channel	6.69	Channel	0.18	0.28	0.33
104125l1	F104125	F104124	Channel	Channel	2.48	Channel	0.00	0.00	0.00
104137l1	104137	10000423	Channel	Channel	1.24	Channel	0.56	0.72	0.90
104164l1	104164	10000472	Channel	Channel	2.40	Channel	0.53	0.68	0.78
106120l1	106120	106731	Pipe	300	7.70	0.26	0.00	0.00	0.00
106308l1	106308	106307	Pipe	300	4.40	0.22	0.00	0.00	0.00
116096l1	116096	182223	Pipe	675	2.63	1.33	1.48	1.49	1.48
116097l1	116097	10001063	Pipe	525	1.92	0.58	0.00	0.00	0.00
132376Al1	132376A	GI1	Channel	Channel	2.67	Channel	0.55	0.63	0.68
155986l1	155986	106123	Pipe	300	7.84	0.26	0.00	0.00	0.00
181077bl1	181077b	101635	Pipe	900	0.24	0.98	2.56	2.63	2.64
181077l1	181077	181077A	Channel	Channel	0.10	Channel	9.76	13.34	14.61
181077l2	181077	181077b	Channel	Channel	0.40	Channel	3.87	7.14	8.38
181079l1	181079	181566	Pipe	600	-2.18	0.88	1.47	1.62	1.65
181081l1	181081	181582	Pipe	1900	0.70	12.27	8.65	10.48	10.83
181081USl1	181081US	181081	Channel	Channel	0.20	Channel	21.41	31.93	35.98
181494l1	181494	99384	Pipe	1300	1.19	5.14	4.39	4.86	5.09
181495l1	181495	10001040	Channel	Channel	4.65	Channel	0.58	0.59	0.59
181496l1	181496	10001040	Channel	Channel	6.40	Channel	4.23	5.78	6.54
181504l1	181504	10000272	Channel	Channel	4.16	Channel	0.36	0.41	0.43
181505l1	181505A	181115	Channel	Channel	2.98	Channel	0.85	1.08	1.36
181505l2	181505	181505A	Channel	Channel	1.50	Channel	0.85	1.02	1.09
181507l1	181507A	181508	Channel	Channel	2.08	Channel	2.86	4.09	4.41
181507l2	181507	181507A	Channel	Channel	0.80	Channel	3.06	4.00	4.46
181509l1	181509	10000772	Channel	Channel	3.43	Channel	0.63	1.44	0.68
181510l1	181510	10000897	Pipe	1050	0.30	1.46	2.78	3.04	3.13
181513l1	181513	10000799	Channel	Channel	2.39	Channel	1.81	2.38	2.81
181514l1	181514A	181513	Channel	Channel	1.66	Channel	1.79	2.42	2.77
181514l2	181514	181514A	Channel	Channel	1.20	Channel	1.77	2.27	2.59
181520l1	181520A	5000014	Channel	Channel	0.32	Channel	6.95	10.04	11.94
181520l2	181520	181520A	Channel	Channel	0.70	Channel	5.18	5.40	5.40
181525l1	181525	5000016	Channel	Channel	10.96	Channel	0.15	0.15	0.15
181527l1	181527A	181531	Channel	Channel	0.59	Channel	3.57	4.94	5.75
181527l2	181527	181527A	Channel	Channel	1.30	Channel	1.50	1.78	1.95
181531Al1	181531A	181531	Channel	Channel	7.70	Channel	0.28	0.27	0.27
181531l1	181531	181098	Channel	Channel	1.00	Channel	2.52	3.75	4.65
181541l1	181541	10000866	Channel	Channel	0.43	Channel	0.10	0.13	0.15
181542l1	181542	181091	Channel	Channel	5.52	Channel	0.34	0.35	0.66
181543l1	181543a	10000871	Channel	Channel	10.89	Channel	0.92	1.30	1.49
181543l2	181543	181543a	Channel	Channel	2.30	Channel	0.93	1.29	1.48
181545l1	181545	181077	Channel	Channel	1.59	Channel	0.44	0.41	0.49
181546l1	181546	10000004	Channel	Channel	1.98	Channel	1.75	2.10	2.22

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
181547l1	181547	10000040	Channel	Channel	1.09	Channel	0.44	0.47	0.46
181549l1	181549A	10000272	Channel	Channel	0.00	Channel	14.92	20.35	22.57
181549l2	181549	181549A	Channel	Channel	0.00	Channel	14.15	15.24	15.91
181550l1	181550	181549	Channel	Channel	5.40	Channel	1.09	1.05	1.05
181551l1	181551	10000321	Channel	Channel	17.90	Channel	1.07	1.42	1.68
181552l1	181552	10000321	Channel	Channel	3.10	Channel	15.01	17.89	19.30
181553l1	181553	10000320	Channel	Channel	12.20	Channel	0.41	0.47	0.44
181557l1	181557	10000040	Channel	Channel	0.51	Channel	3.64	4.51	4.61
181558l1	181558	10000926	Channel	Channel	2.21	Channel	2.83	2.88	2.99
181559l1	181559	10000344	Channel	Channel	5.82	Channel	0.16	0.16	0.23
181560l1	181560	10000064	Channel	Channel	3.30	Channel	0.04	0.07	0.10
181561l1	181561	10000367	Channel	Channel	0.80	Channel	7.37	8.96	9.42
181562l1	181562	10000367	Channel	Channel	5.80	Channel	3.14	3.71	3.95
181563l1	181563	10000642	Channel	Channel	0.27	Channel	7.84	8.64	8.72
181566l1	181566	10000394	Channel	Channel	3.50	Channel	2.93	3.22	3.27
181567l1	181567	10000394	Channel	Channel	5.20	Channel	0.63	0.68	0.65
181568l1	181568	10000400	Channel	Channel	18.10	Channel	0.29	0.29	0.29
181570l1	181570	10000431	Channel	Channel	0.00	Channel	0.22	0.21	0.13
181571l1	181571	10000774	Channel	Channel	11.56	Channel	0.08	0.13	0.15
181574l1	181574	10001207	Channel	Channel	4.42	Channel	0.43	0.56	0.63
181575l1	181575A	10000395	Channel	Channel	0.91	Channel	13.94	21.05	23.78
181575l2	181575	181575A	Channel	Channel	0.80	Channel	1.39	1.32	1.28
181581l1	181581	10000512	Channel	Channel	0.10	Channel	8.47	10.25	10.57
181582l1	181582	10000512	Channel	Channel	0.10	Channel	10.69	12.83	13.17
181585l1	181585	10000535	Pipe	700	1.00	0.90	0.77	0.80	0.80
181589l1	181589	10000607	Channel	Channel	1.07	Channel	2.14	2.18	2.21
181595l1	181595	10000623	Channel	Channel	0.13	Channel	6.15	6.79	7.09
181596l1	181596	10000961	Pipe	300	0.63	0.02	0.00	0.00	0.00
181597l1	181597a	10000686	Channel	Channel	5.42	Channel	0.50	0.80	0.92
181597l2	181597	181597a	Channel	Channel	2.20	Channel	0.42	0.45	0.46
181598l1	181598	10001136	Channel	Channel	4.70	Channel	0.14	0.14	0.14
181599l1	181599	10000952	Channel	Channel	5.91	Channel	0.12	0.12	0.12
181600l1	181600	10000710	Channel	Channel	2.17	Channel	0.27	0.27	0.27
181601l1	181601	10000772	Channel	Channel	2.07	Channel	2.62	2.48	2.56
181606l1	181606	10000957	Channel	Channel	44.70	Channel	0.53	0.69	0.80
181607l1	181607	10000973	Channel	Channel	4.74	Channel	1.61	2.24	2.64
181609l1	181609	10001211	Channel	Channel	3.16	Channel	1.46	1.70	1.82
181611l1	181611	10000979	Channel	Channel	0.58	Channel	0.61	0.87	1.01
181612l1	181612	10001173	Channel	Channel	0.00	Channel	0.01	0.01	0.01
181614l1	181614	10001203	Channel	Channel	9.70	Channel	0.04	0.05	0.06
181655l1	181655	181514	Channel	Channel	5.60	Channel	0.65	0.67	0.68
181782l1	181782a	182220	Channel	Channel	0.35	Channel	3.49	4.06	4.22
181782l2	181782	181782a	Channel	Channel	1.00	Channel	3.52	4.07	4.21
181785l1	181785	10000082	Channel	Channel	5.28	Channel	2.49	3.24	3.62
181792l1	181792	10000196	Pipe	300	1.20	0.10	0.36	0.36	0.36
182219l1	182219	182224	Channel	Channel	1.90	Channel	0.98	1.42	1.65
182220l1	182220	182222	Channel	Channel	2.84	Channel	3.77	4.42	4.62
182221l1	182221	182224	Channel	Channel	1.61	Channel	4.89	5.75	6.01
182222l1	182222	182221	Channel	Channel	3.13	Channel	4.66	5.41	5.63
182223l1	182223a	182225	Channel	Channel	1.45	Channel	8.30	10.77	11.92
182223l2	182223	182223a	Channel	Channel	1.50	Channel	7.86	9.66	10.40
182224l1	182224	182223	Channel	Channel	0.69	Channel	6.46	8.21	8.95
182225l1	182225	181160	Channel	Channel	2.15	Channel	8.73	11.27	12.46
182226l1	182226a	10000848	Channel	Channel	1.25	Channel	9.22	11.76	13.31
182226l2	182226	182226a	Channel	Channel	0.60	Channel	9.23	11.75	13.05
187210l1	187210	RAILWAY_OUT	Channel	Channel	1.01	Channel	3.21	4.82	5.64
187234l1	187234	187227	Pipe	225	0.13	0.02	0.00	0.00	0.00
2000007l1	2000007	106231	Pipe	700	5.98	2.50	0.28	0.27	0.29
5000019l1	5000019	10000459	Channel	Channel	0.92	Channel	21.24	31.81	35.94
99189l1	99189	99197	Pipe	700	0.76	0.89	0.36	0.32	0.32
99197l1	99197	99198	Pipe	700	0.76	0.89	0.36	0.32	0.32
99198l1	99198	106226	Pipe	700	0.88	0.96	0.30	0.27	0.28
99199l1	99199	99198	Channel	Channel	5.09	Channel	0.04	0.08	0.07
99207l1	99207	99218	Pipe	300	0.60	0.08	0.23	0.22	0.22
99218l1	99218	99189	Pipe	450	3.24	0.57	0.42	0.43	0.43
99382l1	99382	99404	Pipe	600	1.19	0.65	0.74	0.76	0.77
99407l1	99407	181494	Pipe	450	2.88	0.47	0.46	0.48	0.49
EXTRAl1	EXTRA	187210	Pipe	600	5.79	1.44	0.00	0.00	0.00
GI13al1	GI13a	GIOUT13A	Channel	Channel	1.29	Channel	2.92	5.75	7.08

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
GI1l1	GI1	GIOUT18	Channel	Channel	7.20	Channel	0.98	1.41	1.61
GI2l1	GI2	GI3	Channel	Channel	1.91	Channel	0.49	0.58	0.62
GI3l1	GI3	GIOUT17	Channel	Channel	1.92	Channel	0.73	1.08	1.24
GIOUT10al1	GIOUT10a	GIOUT10b	Channel	Channel	1.10	Channel	5.13	6.57	7.76
GIOUT10l1	GIOUT10	GIOUT10a	Channel	Channel	3.00	Channel	5.07	6.11	6.97
GIOUT12l1	GIOUT12	FGI3	Channel	Channel	7.20	Channel	0.10	0.11	0.11
GIOUT13l1	GIOUT13	GI13a	Channel	Channel	0.18	Channel	2.12	2.29	2.35
GIOUT14l1	GIOUT14	GIOUT14A	Channel	Channel	3.65	Channel	2.95	4.22	4.86
GIOUT15l1	GIOUT15	GIOUT15A	Channel	Channel	5.40	Channel	1.16	2.13	2.65
GIOUT16l1	GIOUT16	GIOUT16A	Channel	Channel	25.00	Channel	1.35	1.98	2.28
GIOUT4Al1	GIOUT4A	GIOUT4B	Channel	Channel	10.00	Channel	0.55	0.92	1.07
GIOUT4l1	GIOUT4	GIOUT4A	Channel	Channel	8.10	Channel	0.46	0.45	0.45
GIOUT8l1	GIOUT8	GIOUT8B	Channel	Channel	12.53	Channel	0.81	1.37	1.67
GIOUT9Al1	GIOUT9A	GIOUT9B	Channel	Channel	5.00	Channel	1.17	1.85	2.19
GIOUT9l1	GIOUT9	GIOUT9A	Channel	Channel	4.40	Channel	0.89	1.08	1.15

C2: Future Development Scenario

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
4614	99212	99218	Pipe	450	3.52	0.52	0.16	0.16	0.16
4615	99216	99212	Pipe	300	1.96	0.13	0.16	0.16	0.16
4617	99214	99213	Pipe	150	0.64	0.01	0.02	0.02	0.02
4619	99213	99216	Pipe	150	0.60	0.01	0.03	0.03	0.03
4797	99384	99378	Pipe	1300	4.68	10.18	5.71	6.29	6.49
4800	99210	106417	Pipe	600	5.24	1.37	0.69	0.98	1.12
4802	99404	181496	Pipe	1200	3.24	6.84	2.16	2.64	2.91
4806	99402	181495	Pipe	600	0.30	0.33	0.58	0.59	0.60
4809	99380	99387	Pipe	350	1.00	0.14	0.16	0.18	0.19
4810	99414	99382	Pipe	500	0.83	0.34	0.44	0.44	0.43
4813	99416	99399	Pipe	600	3.66	1.15	1.08	1.07	1.07
4815	99417	99397	Pipe	450	2.30	0.42	0.46	0.49	0.53
4817	99399	99384	Pipe	600	2.69	0.98	1.19	1.20	1.20
4823	99388	99385	Pipe	450	7.49	0.76	0.12	0.12	0.12
4824	99383	99388	Pipe	350	1.70	0.19	0.12	0.12	0.12
4825	99391	99383	Pipe	300	0.52	0.07	0.13	0.14	0.14
4830	99386	99383	Pipe	350	1.50	0.17	0.08	0.08	0.07
4834	99397	99407	Pipe	450	1.96	0.39	0.47	0.49	0.49
4853	99422	99380	Pipe	300	1.21	0.10	0.00	0.00	0.00
4897	99536	99476	Pipe	300	9.90	0.30	0.12	0.17	0.19
4902	99450	99501	Pipe	300	1.21	0.10	0.15	0.14	0.14
4923	99465	99450	Pipe	300	0.70	0.08	0.13	0.13	0.13
4934	99461	99464	Pipe	300	0.70	0.08	0.08	0.08	0.08
4937	99457	99461	Pipe	225	0.87	0.04	0.08	0.08	0.08
4965	99499	99503	Pipe	600	1.04	0.61	0.50	0.52	0.48
4968	99501	99499	Pipe	500	1.25	0.41	0.50	0.53	0.53
4970	99507	99417	Pipe	450	1.28	0.32	0.31	0.36	0.37
4971	99508	99510	Pipe	650	0.56	0.55	0.69	0.70	0.70
4973	99510	99511	Pipe	650	0.82	0.67	0.69	0.69	0.70
5010	99446	99647	Pipe	250	3.48	0.11	0.11	0.11	0.11
5134	99719	99648	Pipe	250	2.77	0.10	0.10	0.10	0.10
5137	99665	99645	Pipe	300	3.76	0.18	0.04	0.06	0.07
5139	99714	99627	Pipe	350	0.96	0.14	0.14	0.15	0.16
5148	99619	132438	Pipe	375	5.10	0.39	0.26	0.37	0.40
5175	99644	99648	Pipe	250	0.38	0.04	0.01	0.01	0.01
5179	99647	99627	Pipe	375	0.17	0.07	0.17	0.17	0.17
5205	99670	99665	Pipe	300	4.09	0.19	0.04	0.06	0.07
5224	99731	99718	Pipe	350	2.99	0.25	0.08	0.12	0.13
5272	99716	99714	Pipe	350	0.49	0.10	0.14	0.15	0.16
5274	99711	99719	Pipe	300	1.57	0.12	0.09	0.10	0.10
5283	99733	99731	Pipe	350	5.50	0.33	0.08	0.12	0.13
5317	99503	99402	Pipe	600	0.67	0.49	0.58	0.59	0.59
5326	99441	99508	Pipe	375	2.65	0.28	0.20	0.20	0.19
5345	99718	99716	Pipe	350	1.59	0.18	0.05	0.04	0.04
5351	5000017	99711	Pipe	300	1.48	0.12	0.00	0.00	0.00
5356	99413	99382	Pipe	500	0.50	0.26	0.38	0.40	0.39
5375	99387	99386	Pipe	350	1.70	0.19	0.08	0.09	0.09
5376	99464	99465	Pipe	300	0.10	0.03	0.09	0.10	0.10
5380	99511	99416	Pipe	600	1.88	0.82	0.71	0.70	0.71
5396	99791	99784	Pipe	300	5.18	0.21	0.08	0.11	0.12
5412	99891	99843	Pipe	375	4.33	0.36	0.39	0.39	0.40
5415	99886	99835	Pipe	600	1.37	0.70	0.42	0.58	0.64
5417	99800	99869	Pipe	300	3.14	0.17	0.11	0.13	0.13
5422	99843	99840	Pipe	500	4.50	0.78	0.58	0.64	0.66
5436	99835	99831	Pipe	600	1.14	0.64	0.42	0.58	0.64
5438	99833	99831	Pipe	225	3.36	0.08	0.11	0.11	0.11
5440	99840	99804	Pipe	500	3.13	0.65	0.66	0.68	0.69
5443	99842	99840	Pipe	375	3.85	0.34	0.26	0.26	0.26
5461	99845	99848	Pipe	600	1.51	0.74	0.75	0.74	0.74
5468	99848	101399	Pipe	600	2.76	0.99	0.96	0.95	0.95
5473	101386	99848	Pipe	300	9.56	0.29	0.22	0.22	0.22
5476	99898	99878	Pipe	600	2.15	0.88	0.84	0.85	0.85
5484	99850	99869	Pipe	300	4.75	0.21	0.17	0.20	0.20
5485	99869	99882	Pipe	300	6.38	0.24	0.25	0.25	0.25
5491	99912	99864	Pipe	375	4.56	0.37	0.33	0.34	0.34
5494	99864	99856	Pipe	375	3.09	0.30	0.34	0.34	0.34
5496	99858	99851	Pipe	300	11.28	0.32	0.18	0.18	0.18
5497	99851	181504	Pipe	400	4.16	0.41	0.53	0.51	0.50
5511	99879	99873	Pipe	600	3.14	1.06	0.70	0.70	0.71
5514	99873	99845	Pipe	600	1.77	0.80	0.68	0.68	0.69
5521	99878	99879	Pipe	600	2.01	0.85	0.71	0.71	0.71
5523	99915	99912	Pipe	300	5.45	0.22	0.22	0.22	0.22
5529	99882	99886	Pipe	600	1.84	0.81	0.42	0.58	0.64
5530	99885	99882	Pipe	375	2.29	0.26	0.16	0.22	0.25
5545	99899	99898	Pipe	375	2.00	0.24	0.30	0.30	0.31

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
5555	99937	99896	Pipe	300	4.40	0.20	0.26	0.27	0.26
5565	99896	99898	Pipe	375	5.04	0.38	0.45	0.45	0.46
5568	99936	99937	Pipe	300	5.89	0.23	0.24	0.25	0.25
5576	99947	181505	Pipe	450	3.25	0.50	0.59	0.62	0.62
5580	99785	99948	Pipe	300	6.54	0.24	0.16	0.18	0.18
5581	99948	99947	Pipe	450	3.20	0.50	0.60	0.66	0.67
5583	99954	99948	Pipe	300	8.48	0.27	0.24	0.22	0.25
5584	99953	99951	Pipe	450	4.73	0.61	0.08	0.11	0.13
5585	99784	99953	Pipe	300	5.29	0.22	0.08	0.11	0.13
5621	99994	100012	Pipe	300	5.11	0.21	0.21	0.21	0.23
5622	100012	99842	Pipe	375	2.71	0.28	0.29	0.29	0.29
5623	181115	181514	Pipe	915	2.42	2.87	1.29	1.76	2.00
5625	100003	100080	Pipe	450	2.17	0.41	0.35	0.37	0.36
5650	100009	100004	Pipe	300	0.93	0.09	0.15	0.15	0.15
5656	100004	100007	Pipe	525	0.63	0.33	0.31	0.31	0.32
5668	99960	100098	Pipe	300	5.65	0.22	0.25	0.24	0.27
5669	100098	100076	Pipe	375	5.60	0.40	0.40	0.42	0.42
5671	100069	100087	Pipe	450	1.10	0.29	0.22	0.23	0.22
5673	100085	100069	Pipe	450	2.79	0.46	0.45	0.45	0.45
5674	100087	100072	Pipe	450	3.87	0.55	0.48	0.48	0.48
5676	100077	100052	Pipe	450	5.00	0.62	0.40	0.45	0.45
5677	100080	181655	Pipe	450	5.35	0.64	0.67	0.68	0.68
5680	100066	100065	Pipe	375	3.65	0.33	0.00	0.00	0.00
5681	100065	100029	Pipe	375	3.79	0.33	0.00	0.00	0.00
5683	100044	100023	Pipe	375	2.44	0.27	0.27	0.28	0.28
5694	100039	100042	Pipe	375	1.28	0.19	0.24	0.28	0.25
5699	100042	100044	Pipe	375	1.35	0.20	0.26	0.27	0.28
5707	100052	100050	Pipe	450	3.30	0.50	0.61	0.60	0.61
5719	100023	100026	Pipe	450	2.10	0.40	0.53	0.53	0.53
5726	181508	100030	Pipe	1250	1.44	5.08	2.29	2.71	2.88
5728	100029	100030	Pipe	375	5.60	0.40	0.02	0.04	0.04
5734	100072	181509	Pipe	450	2.43	0.43	0.58	0.59	0.59
5744	100075	100085	Pipe	450	3.42	0.51	0.54	0.57	0.58
5754	100076	100077	Pipe	450	3.21	0.50	0.40	0.47	0.46
5764	100102	100075	Pipe	300	8.39	0.27	0.15	0.21	0.23
5769	100089	100087	Pipe	300	1.74	0.12	0.13	0.13	0.14
5785	99888	99891	Pipe	375	3.91	0.34	0.27	0.28	0.28
5792	99919	99888	Pipe	300	7.92	0.27	0.26	0.27	0.27
5794	99925	99919	Pipe	300	6.26	0.24	0.10	0.13	0.15
5796	99951	100003	Pipe	450	2.00	0.39	0.35	0.36	0.35
5798	99856	99851	Pipe	400	5.84	0.49	0.32	0.32	0.32
5817	100227	100252	Pipe	450	17.88	1.18	0.62	0.63	0.64
5824	100124	100113	Pipe	1300	2.94	8.07	5.36	5.46	5.43
5828	100114	100115	Pipe	1200	1.21	4.19	4.76	4.79	4.79
5829	100113	100114	Pipe	1300	3.35	8.61	5.36	5.44	5.50
5830	100117	100119	Pipe	1200	2.30	5.77	4.61	4.49	4.44
5831	100115	100117	Pipe	1200	1.07	3.93	4.89	4.83	4.86
5848	100175	100124	Pipe	1300	1.52	5.81	5.34	5.53	5.50
5849	100165	100206	Pipe	550	0.86	0.44	0.49	0.53	0.54
5857	100142	100172	Pipe	1300	1.30	5.36	4.98	4.88	4.89
5863	99385	100133	Pipe	300	1.67	0.12	0.12	0.12	0.12
5866	100151	100165	Pipe	300	1.29	0.11	0.16	0.16	0.16
5872	100134	100140	Pipe	1300	0.58	3.60	4.57	4.55	4.58
5875	100133	100134	Pipe	300	2.33	0.14	0.19	0.19	0.19
5876	99378	100134	Pipe	1300	1.46	5.69	5.22	5.55	5.64
5882	100140	100142	Pipe	1300	1.42	5.61	4.91	4.83	4.85
5935	100206	100203	Pipe	600	2.14	0.88	0.50	0.51	0.50
5952	100221	100226	Pipe	375	4.79	0.37	0.38	0.40	0.38
5967	100232	100234	Pipe	300	4.77	0.21	0.19	0.19	0.19
5983	100252	5000013	Pipe	450	8.12	0.79	0.36	0.33	0.34
5987	100234	100344	Pipe	300	1.61	0.12	0.17	0.18	0.18
5991	100245	100288	Pipe	375	2.29	0.26	0.29	0.29	0.29
5993	100294	5000014	Pipe	300	0.98	0.09	0.15	0.15	0.15
6001	100262	GIOUT10	Pipe	450	1.80	0.37	0.56	0.57	0.58
6006	100685	100262	Pipe	450	0.49	0.19	0.30	0.31	0.31
6014	100346	100276	Pipe	450	3.91	0.55	0.60	0.60	0.59
6019	100363	100288	Pipe	375	1.58	0.22	0.25	0.27	0.27
6030	100256	181520	Pipe	1200	0.10	1.23	5.23	5.59	5.56
6031	100276	100256	Pipe	450	10.14	0.89	0.64	0.65	0.64
6033	100255	100274	Pipe	1200	1.06	3.92	3.59	3.59	3.57
6041	100316	100325	Pipe	450	1.40	0.33	0.01	0.01	0.01
6074	100324	100325	Pipe	450	0.89	0.26	0.22	0.22	0.22
6077	100320	100324	Pipe	450	0.63	0.22	0.22	0.22	0.22
6092	100334	100338	Pipe	525	0.30	0.23	0.87	0.96	0.98
6093	100338	100330	Pipe	525	7.13	1.12	0.87	0.98	1.01

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
6095	100330	GIOUT9	Pipe	750	2.10	1.57	0.91	1.13	1.17
6098	100354	100363	Pipe	375	2.13	0.25	0.19	0.19	0.19
6100	100344	100347	Pipe	450	2.23	0.42	0.37	0.40	0.40
6104	100347	100346	Pipe	450	2.54	0.44	0.39	0.40	0.40
6135	100172	100175	Pipe	1300	0.87	4.39	5.21	5.12	5.17
6137	100226	100227	Pipe	450	3.68	0.53	0.62	0.63	0.64
6138	100119	5000013	Pipe	1200	1.03	3.86	3.60	3.57	3.59
6139	5000013	100255	Pipe	1200	1.09	3.98	4.02	3.99	3.96
6141	5000014	5000015	Pipe	1200	-0.10	1.20	4.98	5.83	6.59
6142	5000015	GIOUT10	Pipe	1200	0.24	1.85	5.02	6.00	6.79
6147	100274	100256	Pipe	1200	0.52	2.75	4.17	4.01	4.10
6153	100325	100334	Pipe	450	1.41	0.33	0.37	0.37	0.36
6158	100286	100320	Pipe	375	0.57	0.13	0.15	0.14	0.14
6169	100448	100115	Pipe	300	12.34	0.33	0.31	0.31	0.30
6182	100440	5000016	Pipe	600	3.15	1.06	1.14	1.15	1.15
6183	100417	181525	Pipe	300	1.48	0.11	0.15	0.15	0.16
6191	5000016	100379	Pipe	450	3.09	0.49	0.51	0.51	0.51
6193	100380	100379	Pipe	400	6.58	0.52	0.37	0.40	0.40
6194	100379	181527	Pipe	500	1.50	0.45	0.81	0.79	0.79
6206	99476	100398	Pipe	200	6.00	0.08	0.08	0.08	0.08
6208	100398	100395	Pipe	225	4.83	0.10	0.09	0.09	0.09
6250	100447	100494	Pipe	300	5.72	0.23	0.21	0.21	0.21
6259	187227	100429	Pipe	225	7.50	0.12	0.00	0.00	0.00
6265	100425	100440	Pipe	225	4.53	0.09	0.10	0.10	0.10
6272	100431	100425	Pipe	225	3.60	0.08	0.09	0.09	0.09
6275	100428	100431	Pipe	225	4.45	0.09	0.09	0.09	0.09
6278	100429	100428	Pipe	225	2.40	0.07	0.08	0.08	0.08
6284	100436	100439	Pipe	300	0.98	0.09	0.07	0.07	0.07
6287	100439	100442	Pipe	300	1.34	0.11	0.18	0.19	0.19
6290	100442	100417	Pipe	300	1.52	0.12	0.12	0.12	0.12
6293	100478	100448	Pipe	300	18.40	0.40	0.42	0.45	0.46
6306	100460	100468	Pipe	250	3.69	0.11	0.10	0.10	0.10
6312	100454	100460	Pipe	250	13.61	0.21	0.21	0.21	0.24
6315	100470	100468	Pipe	225	3.74	0.09	0.05	0.07	0.08
6324	100477	100472	Pipe	350	2.26	0.21	0.00	0.01	0.00
6325	100474	100477	Pipe	225	3.35	0.08	0.00	0.00	0.00
6329	100472	100478	Pipe	300	3.33	0.17	0.01	0.03	0.01
6346	100494	100500	Pipe	225	4.99	0.10	0.09	0.09	0.09
6359	100500	100503	Pipe	300	1.43	0.11	0.16	0.16	0.16
6361	100502	100500	Pipe	250	0.55	0.04	0.05	0.05	0.05
6371	100616	100703	Pipe	300	1.56	0.12	0.14	0.15	0.15
6372	100600	100523	Pipe	450	3.36	0.51	0.44	0.44	0.44
6377	100636	100377	Pipe	300	1.72	0.12	0.21	0.21	0.21
6386	100633	100516	Pipe	400	1.71	0.27	0.27	0.28	0.29
6388	100598	100532	Pipe	300	2.06	0.14	0.15	0.16	0.16
6397	100518	100528	Pipe	375	1.24	0.19	0.18	0.19	0.20
6399	100533	100538	Pipe	300	1.74	0.12	0.17	0.17	0.17
6403	100535	100531	Pipe	450	4.18	0.57	0.47	0.53	0.55
6410	100528	100531	Pipe	225	8.91	0.13	0.14	0.13	0.13
6420	100521	100535	Pipe	450	0.00	0.00	0.44	0.46	0.47
6422	100522	100538	Pipe	375	3.53	0.32	0.38	0.39	0.40
6427	100545	100618	Pipe	400	4.14	0.41	0.42	0.42	0.42
6436	103222	100595	Pipe	225	3.46	0.08	0.11	0.11	0.11
6437	100559	100544	Pipe	300	3.56	0.18	0.17	0.17	0.17
6442	100568	100556	Pipe	225	3.66	0.08	0.09	0.09	0.09
6447	100565	100559	Pipe	300	3.82	0.18	0.18	0.18	0.18
6456	99645	100566	Pipe	300	3.95	0.19	0.18	0.18	0.18
6457	99648	100568	Pipe	250	0.42	0.04	0.10	0.10	0.10
6458	100566	100565	Pipe	300	3.94	0.19	0.18	0.18	0.18
6464	100580	100570	Pipe	225	3.94	0.09	0.09	0.09	0.09
6466	100570	100545	Pipe	225	3.48	0.08	0.10	0.10	0.10
6467	100393	100545	Pipe	300	3.97	0.19	0.19	0.19	0.19
6486	100590	100601	Pipe	300	2.12	0.14	0.15	0.16	0.16
6490	100544	100600	Pipe	300	2.12	0.14	0.17	0.17	0.17
6502	100601	100598	Pipe	300	2.24	0.14	0.13	0.13	0.13
6507	100613	100616	Pipe	300	2.39	0.15	0.14	0.15	0.15
6509	100582	100612	Pipe	300	1.73	0.12	0.14	0.14	0.15
6515	100612	100613	Pipe	300	0.80	0.08	0.13	0.14	0.15
6517	100627	100633	Pipe	400	1.72	0.27	0.16	0.21	0.21
6522	100618	100422	Pipe	450	2.09	0.40	0.46	0.45	0.45
6540	100503	100650	Pipe	300	2.88	0.16	0.14	0.14	0.14
6545	100656	100671	Pipe	450	0.43	0.18	0.31	0.29	0.29
6548	181098	100671	Pipe	900	0.37	1.07	1.48	1.76	1.91
6556	100640	100654	Pipe	300	3.95	0.19	0.20	0.20	0.20
6559	100651	181531A	Pipe	300	6.41	0.24	0.28	0.28	0.28

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
6564	100650	100652	Pipe	300	1.11	0.10	0.16	0.16	0.16
6567	100652	100651	Pipe	300	6.82	0.25	0.16	0.16	0.16
6587	100671	100668	Pipe	900	0.16	0.70	1.62	1.62	1.62
6596	100691	GIOUT12	Pipe	225	2.24	0.07	0.10	0.11	0.11
6597	100681	100689	Pipe	500	4.63	0.79	0.75	0.79	0.80
6616	100689	100691	Pipe	225	1.40	0.05	0.09	0.09	0.09
6625	100516	100716	Pipe	300	2.74	0.16	0.18	0.18	0.18
6626	100538	100713	Pipe	910	2.49	2.87	0.70	0.76	0.79
6634	100722	100731	Pipe	900	0.64	1.41	1.87	1.97	1.98
6643	100709	100722	Pipe	750	0.94	1.05	1.38	1.45	1.48
6652	100703	100709	Pipe	910	5.42	4.23	0.22	0.27	0.28
6653	100713	100709	Pipe	910	2.22	2.71	0.85	0.94	1.00
6666	100724	100722	Pipe	300	8.71	0.28	0.21	0.24	0.25
6667	100723	100722	Pipe	375	4.33	0.36	0.30	0.30	0.30
6671	100732	GIOUT14	Pipe	910	0.33	1.04	1.80	1.86	1.89
6678	100728	100733	Pipe	225	3.06	0.08	0.01	0.01	0.00
6679	100731	100732	Pipe	910	0.67	1.49	1.54	1.51	1.50
6680	100733	100732	Pipe	225	4.01	0.09	0.11	0.11	0.11
6700	100668	GIOUT13	Pipe	900	0.48	1.22	2.15	2.32	2.39
6711	100395	100393	Pipe	200	3.70	0.06	0.08	0.08	0.08
6719	100377	100380	Pipe	400	3.52	0.38	0.37	0.40	0.40
6722	100480	100417	Pipe	300	0.35	0.06	0.07	0.08	0.08
6724	100556	100590	Pipe	225	5.11	0.10	0.09	0.09	0.09
6730	100595	GIOUT16	Channel	Channel	5.01	Channel	0.60	0.80	0.87
6732	100532	100522	Pipe	300	4.36	0.20	0.24	0.24	0.24
6735	100624	100627	Pipe	400	1.65	0.26	0.16	0.23	0.25
6751	100422	100440	Pipe	600	2.36	0.92	0.77	0.78	0.77
6756	100523	100521	Pipe	450	0.85	0.26	0.43	0.42	0.42
7426	101164	101131	Pipe	300	11.21	0.32	0.29	0.30	0.30
7430	101126	101125	Pipe	300	1.73	0.12	0.23	0.23	0.23
7435	101133	101140	Pipe	300	7.80	0.26	0.23	0.24	0.25
7438	101157	101148	Pipe	225	6.02	0.11	0.07	0.09	0.09
7439	101148	101145	Pipe	225	5.72	0.11	0.11	0.13	0.13
7441	101145	181541	Pipe	225	14.21	0.17	0.11	0.13	0.13
7444	101131	101149	Pipe	300	10.39	0.30	0.29	0.30	0.30
7445	101149	101133	Pipe	300	5.12	0.21	0.23	0.24	0.24
7450	101151	101140	Pipe	300	7.89	0.27	0.00	0.00	0.00
7452	101138	101139	Pipe	450	4.37	0.58	0.50	0.50	0.51
7453	101140	101138	Pipe	450	4.70	0.60	0.79	0.87	0.87
7458	101139	101126	Pipe	450	2.31	0.42	0.41	0.42	0.43
7463	101154	101151	Pipe	300	8.91	0.28	0.00	0.00	0.00
7468	101171	181543	Pipe	300	0.74	0.08	0.13	0.14	0.14
7481	101179	101164	Pipe	225	8.32	0.13	0.00	0.00	0.00
7491	101170	101167	Pipe	300	8.03	0.27	0.28	0.28	0.28
7492	101167	181542	Pipe	300	6.10	0.23	0.34	0.36	0.36
7493	101184	101170	Pipe	300	7.57	0.26	0.28	0.28	0.28
7500	181091	101265	Pipe	400	9.30	0.62	0.24	0.27	0.29
7513	101260	101240	Pipe	225	3.92	0.09	0.11	0.11	0.11
7517	101257	101227	Pipe	375	5.48	0.40	0.26	0.29	0.30
7518	101255	101210	Pipe	300	5.27	0.22	0.20	0.20	0.20
7526	101211	101202	Pipe	500	3.27	0.67	0.65	0.66	0.65
7544	101227	101210	Pipe	375	6.14	0.42	0.39	0.39	0.39
7554	101252	101245	Pipe	225	11.30	0.15	0.08	0.11	0.11
7560	101245	101240	Pipe	225	7.01	0.12	0.13	0.13	0.13
7583	101273	101254	Pipe	300	7.96	0.27	0.26	0.27	0.27
7585	101265	101269	Pipe	300	3.40	0.17	0.26	0.26	0.26
7588	101267	101256	Pipe	300	9.40	0.29	0.26	0.28	0.27
7591	101256	101257	Pipe	300	4.85	0.21	0.26	0.29	0.29
7624	101323	101388	Pipe	300	2.01	0.13	0.00	0.00	0.00
7625	101308	101352	Pipe	900	2.42	2.75	1.24	1.69	1.93
7627	101336	5000009	Pipe	450	5.15	0.63	0.00	0.00	0.00
7628	101334	101331	Pipe	450	2.10	0.40	0.12	0.17	0.19
7630	182227	101310	Pipe	675	2.86	1.39	1.25	1.71	1.92
7631	101309	101308	Pipe	900	2.44	2.76	1.25	1.70	1.93
7632	101310	101309	Pipe	900	2.39	2.73	1.25	1.71	1.92
7636	101305	101308	Pipe	300	1.96	0.13	0.00	0.00	0.00
7641	101325	101327	Pipe	300	1.60	0.12	0.00	0.00	0.01
7643	101324	101325	Pipe	300	0.40	0.06	0.00	0.00	0.00
7647	101331	181545	Pipe	450	1.46	0.34	0.15	0.15	0.17
7656	101413	181546	Pipe	1100	0.61	2.36	1.91	2.22	2.35
7657	101125	101413	Pipe	600	2.50	0.95	0.43	0.49	0.52
7662	101419	181547	Pipe	225	1.40	0.05	0.11	0.11	0.11
7669	101396	5000010	Pipe	450	11.70	0.95	0.00	0.00	0.00
7675	101356	101376	Pipe	150	3.13	0.03	0.04	0.04	0.04
7681	101350	101354	Pipe	300	1.01	0.10	0.09	0.08	0.08

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
7684	101352	181551	Pipe	915	2.40	2.86	1.24	1.67	1.92
7688	101355	101354	Pipe	225	0.87	0.04	0.07	0.07	0.07
7701	101376	181558	Pipe	1200	1.02	3.84	1.42	1.51	1.54
7713	101388	181559	Pipe	900	0.99	1.75	0.03	0.03	0.04
7715	101399	181550	Pipe	600	2.30	0.91	1.14	1.09	1.07
7717	101472	101396	Pipe	450	6.00	0.68	0.00	0.00	0.00
7720	5000010	181549	Pipe	900	1.81	2.38	13.57	14.55	15.27
7724	101405	101386	Pipe	300	10.74	0.31	0.29	0.29	0.29
7730	101354	181553	Pipe	375	3.71	0.33	0.36	0.36	0.36
7731	181095	181552	Pipe	1500	1.06	13.19	15.24	18.40	19.68
7741	101424	101417	Pipe	450	5.02	0.62	0.50	0.50	0.51
7750	101416	101413	Pipe	600	2.35	0.92	1.02	1.08	1.10
7753	101417	101419	Pipe	600	1.57	0.75	0.76	0.77	0.77
7769	101433	101436	Pipe	375	1.86	0.23	0.31	0.31	0.31
7772	101436	101424	Pipe	450	2.56	0.44	0.41	0.44	0.44
7779	101450	101447	Pipe	300	2.77	0.16	0.19	0.20	0.20
7782	101447	101433	Pipe	375	1.82	0.23	0.26	0.26	0.26
7787	101318	101327	Pipe	375	4.10	0.35	0.12	0.17	0.19
7788	101313	101350	Pipe	225	3.22	0.08	0.08	0.08	0.08
7808	101160	101164	Pipe	300	3.02	0.16	0.10	0.11	0.12
7812	101202	101416	Pipe	500	2.79	0.61	0.73	0.73	0.73
7815	181092	181557	Pipe	1200	1.44	4.55	3.92	4.62	4.76
7821	181556	101376	Pipe	740	3.17	1.86	2.42	2.38	2.37
7822	101473	101318	Pipe	300	2.69	0.16	0.00	0.00	0.00
7841	101376	181558	Pipe	1200	1.02	3.84	1.42	1.51	1.54
7842	181094	5000010	Pipe	900	1.20	1.93	13.47	14.43	15.30
7849	101478	101498	Pipe	375	3.02	0.30	0.35	0.35	0.35
7854	101480	101478	Pipe	400	1.46	0.25	0.31	0.33	0.34
7855	101476	101478	Pipe	225	1.60	0.06	0.01	0.01	0.01
7861	101526	101484	Pipe	1350	0.68	4.30	3.21	3.81	4.07
7862	101483	101520	Pipe	375	4.16	0.35	0.16	0.23	0.25
7865	101520	5000020	Pipe	1600	1.95	11.43	7.59	8.59	8.83
7867	106395	101514	Pipe	1600	1.10	8.60	6.13	6.85	7.14
7872	5000018	101520	Pipe	1600	2.01	11.61	7.31	8.14	8.32
7873	101489	106396	Pipe	1600	19.50	36.15	6.14	6.85	7.14
7876	101488	101515	Pipe	750	5.90	2.64	1.53	1.58	1.61
7877	101490	101487	Pipe	450	3.83	0.54	0.58	0.60	0.59
7884	101504	101522	Pipe	1000	0.48	1.63	1.28	1.75	2.01
7886	101492	101498	Pipe	900	1.21	1.94	0.00	0.01	0.06
7889	101493	101492	Pipe	375	19.50	0.76	0.00	0.00	0.00
7893	101498	101504	Pipe	900	1.04	1.80	0.62	0.83	0.88
7894	101500	101498	Pipe	375	2.27	0.26	0.20	0.29	0.31
7902	101508	101526	Pipe	1350	0.57	3.93	2.98	3.47	3.69
7905	101522	101508	Pipe	1000	0.73	2.00	1.34	1.86	2.13
7909	101515	101512	Pipe	750	1.69	1.41	1.63	1.67	1.68
7910	101513	5000018	Pipe	700	4.90	2.00	1.13	1.30	1.30
7928	101340	101599	Pipe	375	3.55	0.32	0.27	0.29	0.29
7931	101584	181562	Pipe	1350	1.23	5.76	3.29	3.86	4.11
7932	101582	5000020	Pipe	500	3.90	0.73	0.53	0.71	0.71
7937	101558	101569	Pipe	375	4.18	0.35	0.25	0.34	0.37
7939	101569	101567	Pipe	450	2.39	0.43	0.31	0.43	0.47
7950	101544	101538	Pipe	225	5.60	0.10	0.08	0.10	0.10
7951	101538	101539	Pipe	450	1.68	0.36	0.20	0.27	0.28
7963	101553	101549	Pipe	225	0.59	0.03	0.07	0.10	0.10
7964	101550	101553	Pipe	225	0.65	0.04	0.07	0.10	0.10
7965	101554	101599	Pipe	225	4.17	0.09	0.00	0.00	0.00
7972	101589	101558	Pipe	375	3.77	0.33	0.25	0.34	0.36
7976	101567	101581	Pipe	500	2.61	0.59	0.31	0.44	0.48
7981	101562	101483	Pipe	300	5.66	0.22	0.16	0.23	0.25
7989	101573	101575	Pipe	225	2.51	0.07	0.06	0.07	0.08
7994	101484	101584	Pipe	1350	4.39	10.90	3.30	3.84	3.90
7998	101581	101582	Pipe	500	4.04	0.74	0.31	0.44	0.43
8000	101587	101589	Pipe	400	5.26	0.47	0.25	0.34	0.36
8009	101599	101598	Pipe	375	2.66	0.28	0.24	0.24	0.24
8019	101613	101687	Pipe	800	0.65	1.04	1.12	1.15	1.15
8021	101608	101480	Pipe	400	1.33	0.23	0.12	0.13	0.13
8022	100162	101608	Pipe	225	0.82	0.04	0.10	0.10	0.10
8028	100203	101610	Pipe	600	1.28	0.68	0.36	0.35	0.35
8031	101610	101613	Pipe	700	1.14	0.96	0.52	0.52	0.52
8061	101604	101635	Pipe	400	4.41	0.43	0.35	0.35	0.34
8066	101710	181570	Pipe	225	14.27	0.17	0.00	0.00	0.00
8067	101712	181574	Pipe	225	2.72	0.07	0.00	0.07	0.10
8068	101676	101641	Pipe	375	2.80	0.29	0.31	0.30	0.30
8070	101704	101643	Pipe	300	2.93	0.16	0.09	0.15	0.17
8074	181080	181567	Pipe	450	3.40	0.51	0.65	0.68	0.67

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
8075	181079	181566	Pipe	600	-2.18	0.88	1.51	1.64	1.68
8077	101641	181568	Pipe	300	8.72	0.28	0.31	0.30	0.30
8095	101669	101676	Pipe	300	0.94	0.09	0.05	0.05	0.05
8118	101679	101695	Pipe	1000	0.54	1.72	1.36	1.44	1.46
8125	101689	101683	Pipe	900	1.34	2.05	1.18	1.28	1.33
8128	101683	101679	Pipe	1000	1.72	3.06	1.39	1.56	1.60
8129	101686	101689	Pipe	700	0.08	0.25	1.14	1.18	1.22
8130	101687	101686	Pipe	700	0.38	0.55	1.12	1.15	1.15
8144	101695	101696	Pipe	1000	1.35	2.72	1.43	1.49	1.50
8147	101700	101704	Pipe	300	0.48	0.07	0.05	0.08	0.10
8154	101749	101711	Pipe	300	3.90	0.19	0.18	0.19	0.19
8161	181078	181575	Pipe	600	12.00	2.07	1.36	1.28	1.27
8165	101711	101705	Pipe	400	1.22	0.22	0.18	0.19	0.20
8172	101708	101710	Pipe	300	3.21	0.17	0.00	0.00	0.00
8175	101715	101712	Pipe	300	0.82	0.09	0.00	0.09	0.10
8176	99804	101720	Pipe	500	2.98	0.64	0.61	0.60	0.60
8177	99831	101718	Pipe	600	3.34	1.09	0.68	0.80	0.82
8179	101705	101720	Pipe	600	1.32	0.69	0.57	0.58	0.58
8181	101718	101705	Pipe	600	2.57	0.96	0.71	0.78	0.78
8210	101747	101749	Pipe	300	4.09	0.19	0.18	0.19	0.19
8213	101576	101598	Pipe	375	1.74	0.23	0.24	0.24	0.24
8215	101635	181563	Pipe	1600	3.31	14.89	8.42	8.86	8.84
8216	181077A	101635	Pipe	1600	0.35	4.81	8.84	8.93	8.91
8224	101514	5000018	Pipe	1600	1.95	11.44	6.14	6.85	7.12
8226	101512	101508	Pipe	750	3.07	1.90	1.64	1.67	1.68
8229	5000020	181561	Pipe	1600	3.16	14.55	8.23	9.22	9.67
8234	101643	181571	Channel	Channel	1.39	Channel	0.11	0.18	0.21
8244	101643	5000019	Channel	Channel	7.38	Channel	0.03	0.20	0.43
8247	101549	101340	Pipe	300	3.16	0.17	0.07	0.10	0.10
8249	101539	101491	Pipe	450	1.30	0.32	0.20	0.27	0.29
8252	101491	101519	Pipe	500	1.90	0.51	0.31	0.41	0.43
8255	101519	101513	Pipe	700	1.00	0.90	1.13	1.30	1.31
8273	101487	101519	Pipe	500	2.70	0.61	0.64	0.60	0.62
8283	101717	101833	Pipe	300	1.84	0.13	0.14	0.15	0.15
8284	101720	101847	Pipe	900	1.13	1.88	1.43	1.44	1.44
8285	101696	101825	Pipe	840	1.12	1.56	1.26	1.30	1.30
8302	101766	101762	Pipe	300	1.24	0.11	0.10	0.09	0.10
8304	101763	101778	Pipe	700	0.76	0.79	0.54	0.54	0.53
8306	100288	101763	Pipe	650	0.42	0.48	0.49	0.49	0.49
8319	101857	181585	Pipe	700	0.64	0.72	0.77	0.79	0.80
8322	101825	101781	Pipe	840	1.37	1.72	1.45	1.43	1.45
8326	101789	101810	Pipe	450	0.70	0.23	0.29	0.28	0.29
8332	101781	101803	Pipe	900	0.45	1.18	2.20	2.19	2.17
8333	101778	101781	Pipe	650	1.65	0.95	0.62	0.60	0.60
8350	101807	181582	Pipe	900	11.77	6.06	2.69	2.78	2.78
8359	101803	101807	Pipe	900	2.98	3.05	2.47	2.48	2.48
8366	101810	101812	Pipe	600	0.43	0.39	0.49	0.49	0.50
8381	101845	101867	Pipe	900	0.92	1.69	1.94	1.91	1.91
8386	100007	101845	Pipe	525	1.85	0.57	0.44	0.45	0.45
8387	101829	101845	Pipe	900	1.07	1.83	1.34	1.32	1.32
8392	101833	5000021	Pipe	300	0.79	0.08	0.07	0.07	0.06
8393	101836	101837	Pipe	450	2.21	0.41	0.36	0.34	0.35
8397	101837	101842	Pipe	600	0.25	0.30	0.77	0.80	0.80
8404	101849	101829	Pipe	900	1.00	1.76	1.48	1.49	1.49
8406	101847	101849	Pipe	900	0.44	1.17	1.32	1.33	1.33
8410	101873	181589	Pipe	900	0.80	1.57	2.10	2.11	2.13
8419	101858	101857	Pipe	950	0.40	1.30	0.77	0.79	0.80
8423	101867	101873	Pipe	900	0.96	1.73	1.94	1.91	1.91
8444	101812	101887	Pipe	600	0.29	0.32	0.64	0.68	0.69
8451	101887	GIOUT8	Channel	Channel	2.13	Channel	0.85	1.02	1.07
8455	101958	5000024	Pipe	300	6.11	0.23	0.21	0.21	0.21
8475	181082	181596	Pipe	525	1.84	0.57	0.00	0.00	0.00
8480	101771	101810	Pipe	300	1.66	0.12	0.18	0.18	0.18
8483	101805	101807	Pipe	225	0.71	0.04	0.08	0.07	0.07
8485	101842	101858	Pipe	950	0.04	0.41	0.77	0.80	0.80
8486	5000024	181595	Pipe	1830	2.23	17.50	6.36	6.97	7.25
8489	181081	181581	Pipe	1900	0.72	10.99	8.84	10.42	10.66
8495	101762	101789	Pipe	350	1.32	0.16	0.17	0.16	0.16
8502	101926	181597	Pipe	300	12.15	0.33	0.52	0.45	0.48
8518	101927	101926	Pipe	300	26.30	0.48	0.13	0.13	0.13
8544	101952	101967	Pipe	375	1.76	0.23	0.19	0.19	0.19
8556	101970	181598	Pipe	225	6.68	0.11	0.14	0.14	0.14
8559	101975	101958	Pipe	300	3.38	0.17	0.18	0.18	0.18
8566	101978	101975	Pipe	300	3.43	0.17	0.16	0.16	0.16
8574	101981	101967	Pipe	225	10.56	0.14	0.13	0.13	0.13

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
8580	101967	181599	Pipe	225	0.99	0.04	0.12	0.12	0.12
8586	102021	181602	Pipe	500	2.70	0.61	0.75	0.77	0.76
8598	181603	181601	Pipe	900	1.84	2.40	2.39	2.82	2.97
8601	101989	181600	Pipe	300	5.03	0.21	0.27	0.27	0.27
8602	100097	101989	Pipe	300	9.42	0.29	0.25	0.26	0.26
8606	101991	102059	Pipe	300	3.22	0.17	0.17	0.17	0.17
8610	102077	102037	Pipe	525	5.08	0.95	0.58	0.59	0.59
8615	102048	102006	Pipe	300	4.07	0.19	0.19	0.21	0.21
8618	102056	102032	Pipe	450	3.05	0.49	0.44	0.45	0.45
8624	102029	102015	Pipe	450	2.21	0.41	0.39	0.40	0.40
8630	102016	102001	Pipe	500	2.79	0.62	0.49	0.49	0.49
8638	102001	101998	Pipe	500	1.60	0.47	0.53	0.53	0.53
8647	102015	102016	Pipe	500	2.11	0.54	0.50	0.49	0.50
8650	102035	102026	Pipe	500	2.38	0.57	0.60	0.60	0.60
8651	102026	102021	Pipe	500	2.58	0.59	0.60	0.60	0.60
8654	102032	102029	Pipe	450	1.62	0.35	0.47	0.48	0.48
8656	102037	102035	Pipe	500	2.06	0.53	0.61	0.60	0.61
8667	102045	101952	Pipe	225	12.10	0.15	0.15	0.15	0.15
8668	102046	101952	Pipe	225	7.59	0.12	0.11	0.11	0.11
8669	102006	101952	Pipe	300	3.47	0.18	0.15	0.15	0.15
8674	102089	102059	Pipe	300	10.07	0.30	0.19	0.27	0.28
8676	102069	102056	Pipe	300	4.61	0.20	0.23	0.24	0.24
8684	102059	102069	Pipe	300	3.15	0.17	0.21	0.21	0.21
8711	102085	102082	Pipe	375	5.58	0.40	0.40	0.43	0.42
8714	102100	102085	Pipe	225	16.44	0.18	0.18	0.18	0.18
8715	102098	102085	Pipe	375	4.52	0.36	0.43	0.44	0.44
8720	102106	102109	Pipe	225	1.24	0.05	0.04	0.04	0.03
8727	102110	102109	Pipe	225	12.95	0.16	0.12	0.12	0.12
8731	101949	102110	Pipe	225	6.08	0.11	0.11	0.11	0.11
8741	102122	102117	Pipe	300	7.17	0.25	0.24	0.24	0.24
8753	102133	102122	Pipe	300	4.45	0.20	0.22	0.22	0.22
8762	102150	102133	Pipe	150	14.03	0.06	0.06	0.06	0.05
8775	183821	102164	Pipe	150	7.29	0.04	0.00	0.00	0.00
8776	102160	102163	Pipe	200	3.97	0.06	0.00	0.00	0.00
8781	102163	181606	Pipe	150	13.58	0.06	0.07	0.07	0.07
8783	183819	102164	Pipe	150	5.89	0.04	0.00	0.00	0.00
8784	102164	102163	Pipe	150	18.07	0.06	0.07	0.06	0.06
8785	102265	102263	Pipe	225	5.27	0.10	0.10	0.10	0.10
8801	102168	102046	Pipe	225	7.62	0.12	0.13	0.13	0.13
8807	102260	101991	Pipe	300	5.46	0.22	0.21	0.22	0.22
8811	102109	102265	Pipe	225	4.11	0.09	0.11	0.11	0.11
8816	102226	181609	Pipe	500	6.37	0.93	1.01	1.03	1.03
8827	102175	GIOUT4	Pipe	300	16.03	0.38	0.44	0.45	0.45
8829	102187	102184	Pipe	300	1.39	0.11	0.16	0.18	0.15
8852	102219	102214	Pipe	225	3.53	0.08	0.05	0.06	0.07
8854	102212	181611	Pipe	225	13.81	0.16	0.10	0.14	0.15
8856	102216	102174	Pipe	225	10.14	0.14	0.11	0.19	0.19
8858	102174	181607	Channel	Channel	5.80	Channel	0.11	0.19	0.19
8859	102224	102216	Pipe	225	16.32	0.18	0.05	0.16	0.16
8865	102222	102221	Pipe	225	5.42	0.10	0.04	0.06	0.06
8880	102289	102244	Pipe	300	4.74	0.21	0.26	0.25	0.26
8884	102231	102225	Pipe	225	10.74	0.14	0.15	0.14	0.15
8888	102234	102231	Pipe	150	6.41	0.04	0.04	0.04	0.04
8895	102116	102234	Pipe	150	11.15	0.05	0.05	0.05	0.05
8900	102242	102238	Pipe	375	0.93	0.17	0.39	0.39	0.39
8901	102244	102238	Pipe	300	7.94	0.27	0.26	0.26	0.26
8903	102238	102226	Pipe	500	8.06	1.05	0.79	0.90	0.94
8906	102225	102226	Pipe	300	3.40	0.17	0.24	0.24	0.24
8913	102240	102242	Pipe	375	5.70	0.41	0.39	0.38	0.37
8919	102117	102240	Pipe	300	5.80	0.23	0.27	0.26	0.26
8932	102173	181612	Pipe	225	10.31	0.14	0.00	0.00	0.00
8949	102263	102260	Pipe	225	5.45	0.10	0.11	0.11	0.11
8955	102221	102303	Pipe	225	5.28	0.10	0.04	0.06	0.06
8958	102302	181614	Pipe	225	4.50	0.09	0.04	0.06	0.06
8959	102303	102302	Pipe	225	31.71	0.25	0.04	0.06	0.06
8961	181617	GIOUT2	Channel	Channel	1.10	Channel	1.06	1.48	1.73
9013	102184	102175	Pipe	300	10.27	0.30	0.28	0.28	0.27
9020	102107	101949	Pipe	300	1.66	0.12	0.08	0.11	0.11
9028	102214	102212	Pipe	225	23.39	0.21	0.10	0.14	0.15
9037	5000027	5000024	Pipe	1830	2.34	17.90	5.84	6.32	6.55
9637	102687	102141	Pipe	300	6.69	0.24	0.19	0.20	0.20
9643	102307	116266	Pipe	300	11.82	0.32	0.38	0.39	0.39
9651	102684	102683	Pipe	300	3.08	0.17	0.07	0.09	0.11
9655	102141	102688	Pipe	300	3.49	0.18	0.19	0.19	0.19
10291	102685	102684	Pipe	300	0.83	0.09	0.07	0.09	0.11

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
10309	116261	116265	Pipe	300	8.42	0.27	0.25	0.26	0.26
10652	101269	101267	Pipe	300	4.99	0.21	0.26	0.26	0.26
10656	103310	103311	Pipe	375	3.47	0.32	0.29	0.29	0.29
10657	103311	99508	Pipe	450	2.00	0.39	0.41	0.41	0.42
10662	103313	99441	Pipe	300	4.37	0.20	0.20	0.20	0.20
10689	101254	101255	Pipe	300	4.36	0.20	0.22	0.22	0.22
10699	101210	101211	Pipe	450	4.57	0.59	0.54	0.56	0.56
10711	101240	101237	Pipe	400	2.50	0.32	0.45	0.45	0.45
10716	118625	101252	Pipe	225	6.79	0.11	0.08	0.11	0.11
10792	102686	103363	Pipe	300	4.42	0.20	0.14	0.19	0.21
10793	103363	102687	Pipe	300	4.00	0.19	0.19	0.19	0.19
10838	101575	101569	Pipe	225	2.65	0.07	0.06	0.08	0.09
10908	101237	101214	Pipe	450	5.23	0.64	0.62	0.63	0.63
10943	100050	181507	Pipe	600	1.67	0.77	0.80	0.87	0.90
10945	100073	100066	Pipe	375	5.88	0.41	0.00	0.00	0.00
10956	102082	102077	Pipe	450	1.83	0.38	0.46	0.45	0.46
10971	100654	100656	Pipe	300	3.13	0.17	0.13	0.13	0.13
10983	100716	100723	Pipe	375	2.67	0.28	0.30	0.29	0.29
11492	100531	GIOUT15	Pipe	910	4.48	3.85	0.61	0.66	0.68
11579	99627	100580	Pipe	300	2.00	0.13	0.11	0.11	0.11
12559	104110	104112	Pipe	300	0.92	0.09	0.12	0.17	0.19
12564	104112	104114	Pipe	300	3.98	0.19	0.12	0.17	0.19
12567	104114	104117	Pipe	300	8.28	0.27	0.12	0.17	0.19
12575	104121	104123	Pipe	300	1.30	0.11	0.10	0.14	0.16
12576	104123	104124	Pipe	300	2.98	0.16	0.10	0.14	0.16
12577	104125	104124	Pipe	525	1.02	0.42	0.12	0.15	0.17
12578	104126	104125	Pipe	525	0.83	0.38	0.10	0.14	0.16
12579	104127	104126	Pipe	525	1.01	0.42	0.00	0.00	0.00
12582	104130	104128	Pipe	375	1.03	0.17	0.20	0.19	0.19
12583	104124	104128	Pipe	525	8.12	1.20	0.22	0.30	0.33
12584	104128	104131	Pipe	600	5.10	1.35	0.44	0.54	0.56
12585	104131	104132	Pipe	600	5.06	1.35	0.47	0.59	0.61
12591	104132	104136	Pipe	600	1.89	0.82	0.63	0.81	0.86
12592	104136	104137	Pipe	600	5.91	1.46	0.63	0.81	0.86
12596	104139	104130	Pipe	375	0.30	0.09	0.20	0.19	0.19
12613	104140	104139	Pipe	300	0.50	0.07	0.19	0.20	0.20
12622	104148	104146	Pipe	300	0.70	0.08	0.11	0.14	0.15
12623	104149	104148	Pipe	300	1.79	0.13	0.01	0.03	0.04
12624	104150	104148	Pipe	225	0.87	0.04	0.09	0.09	0.09
12627	104146	104152	Pipe	300	5.38	0.22	0.21	0.22	0.22
12628	104154	104152	Pipe	375	2.65	0.28	0.13	0.20	0.23
12629	104155	104154	Pipe	375	0.55	0.13	0.13	0.18	0.21
12639	104152	104160	Pipe	525	0.04	0.09	0.35	0.44	0.49
12640	104161	104160	Pipe	300	6.30	0.24	0.00	0.00	0.00
12642	104162	104161	Pipe	300	0.47	0.07	0.00	0.00	0.00
12645	104160	104163	Pipe	600	3.09	1.05	0.56	0.74	0.80
12646	104163	104164	Pipe	600	7.81	1.67	0.56	0.74	0.81
12718	216591	216589	Pipe	450	1.28	0.31	0.42	0.52	0.54
12719	216589	181574	Pipe	600	0.02	0.07	0.42	0.52	0.54
12720	216606	216591	Pipe	375	-4.95	0.38	0.23	0.25	0.25
12721	216607	216606	Pipe	300	5.10	0.21	0.24	0.19	0.22
12725	216546	216548	Pipe	450	3.38	0.51	0.21	0.19	0.18
12727	216551	216546	Pipe	375	3.58	0.32	0.30	0.33	0.33
12729	216556	216551	Pipe	375	0.83	0.16	0.29	0.32	0.33
12731	216573	216565	Pipe	375	1.51	0.21	0.02	0.04	0.04
12734	216584	216582	Pipe	225	1.25	0.05	0.00	0.01	0.00
15768	106210	106132	Pipe	450	2.93	0.48	0.63	0.64	0.64
15769	106189	106187	Pipe	450	1.37	0.33	0.42	0.46	0.48
15771	116103	106200	Pipe	300	1.58	0.12	0.12	0.13	0.13
15773	106200	106202	Pipe	300	2.52	0.15	0.12	0.13	0.13
15777	106181	106167	Pipe	225	0.81	0.04	0.05	0.05	0.05
15778	106172	106196	Pipe	900	0.90	1.68	1.68	1.68	1.68
15800	106135	106132	Pipe	750	2.83	1.83	0.77	0.81	0.83
15801	106132	181785	Pipe	1200	6.06	9.36	1.72	2.20	2.49
15803	106138	106135	Pipe	750	3.44	2.01	0.73	0.76	0.77
15822	106145	106163	Pipe	450	1.83	0.38	0.35	0.35	0.36
15823	106188	106208	Pipe	450	5.07	0.63	0.42	0.46	0.48
15825	106166	106138	Pipe	750	3.49	2.03	0.67	0.69	0.69
15826	106154	106323	Pipe	300	4.27	0.20	0.16	0.23	0.24
15828	106158	106150	Pipe	300	5.09	0.21	0.01	0.00	0.01
15830	106148	106152	Pipe	300	1.44	0.11	0.08	0.08	0.08
15837	106163	106164	Pipe	450	2.22	0.41	0.35	0.35	0.35
15840	106162	106145	Pipe	450	1.07	0.29	0.40	0.44	0.45
15844	106165	106166	Pipe	450	2.98	0.48	0.67	0.69	0.69
15845	106164	106165	Pipe	450	2.21	0.41	0.36	0.36	0.36

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
15850	106174	106192	Pipe	450	1.53	0.34	0.30	0.29	0.30
15854	106170	106172	Pipe	900	1.07	1.83	1.67	1.68	1.68
15863	106183	106178	Pipe	300	1.39	0.11	0.14	0.12	0.12
15869	106187	106188	Pipe	450	1.09	0.29	0.42	0.46	0.48
15870	106178	106189	Pipe	450	1.16	0.30	0.42	0.46	0.48
15873	106199	106204	Pipe	900	2.65	2.87	2.41	2.49	2.56
15874	106196	106191	Pipe	900	1.39	2.08	1.85	1.95	1.98
15878	106193	106190	Pipe	450	1.28	0.31	0.49	0.54	0.52
15879	106192	106193	Pipe	450	0.96	0.27	0.29	0.29	0.30
15884	106191	106199	Pipe	900	4.46	3.73	2.32	2.40	2.42
15886	106202	181782	Pipe	300	1.81	0.13	0.18	0.20	0.20
15891	106204	181782	Pipe	900	1.59	2.23	3.44	3.92	4.02
15898	106208	106209	Pipe	450	13.04	1.00	0.42	0.46	0.48
15899	106209	106210	Pipe	450	2.68	0.46	0.42	0.45	0.47
15901	106214	106405	Pipe	300	2.90	0.16	0.15	0.16	0.15
15908	106254	106252	Pipe	450	0.74	0.24	0.90	0.76	0.76
15911	106231	106238	Pipe	450	0.40	0.18	0.29	0.30	0.30
15913	106263	106235	Pipe	1500	0.00	0.44	2.75	3.03	3.11
15914	106252	106263	Pipe	975	0.87	2.03	2.31	2.68	2.77
15917	106266	106234	Pipe	450	1.29	0.32	0.00	0.04	0.01
15918	106287	106277	Pipe	375	7.83	0.48	0.46	0.47	0.47
15922	106321	106443	Pipe	1500	0.88	6.47	3.62	3.87	3.99
15927	106216	106304	Pipe	375	4.35	0.36	0.00	0.00	0.02
15928	106234	106235	Pipe	500	-1.05	0.24	0.42	0.51	0.58
15934	106219	106281	Pipe	225	5.24	0.10	0.18	0.19	0.18
15952	106230	106231	Pipe	400	0.33	0.12	0.15	0.14	0.14
15953	2000006	106230	Pipe	400	0.42	0.13	0.15	0.14	0.14
15959	106233	106234	Pipe	450	19.70	1.23	0.42	0.58	0.59
15960	106293	106233	Pipe	300	2.32	0.14	0.15	0.20	0.20
15962	106236	106313	Pipe	375	7.95	0.48	0.00	0.00	0.01
15965	106243	106254	Pipe	450	0.31	0.15	0.43	0.43	0.43
15969	106238	106243	Pipe	450	0.20	0.12	0.33	0.33	0.33
15974	106247	106245	Pipe	300	3.07	0.17	0.19	0.19	0.20
15977	106246	106247	Pipe	300	3.16	0.17	0.19	0.20	0.21
15981	106290	106266	Pipe	375	1.90	0.24	0.00	0.00	0.00
15984	106275	106268	Pipe	750	2.46	1.70	0.87	0.98	0.99
15987	106257	106249	Pipe	525	3.00	0.73	0.65	0.66	0.66
15989	106223	106251	Pipe	525	3.72	0.81	0.89	0.88	0.89
15990	106249	106250	Pipe	525	2.99	0.73	0.53	0.53	0.53
15991	106251	106252	Pipe	675	0.86	0.76	1.29	1.33	1.33
15992	106250	106251	Pipe	225	7.60	0.12	0.19	0.19	0.19
15995	106253	106252	Pipe	225	23.20	0.21	0.16	0.16	0.16
15997	106258	106257	Pipe	525	3.12	0.74	0.62	0.66	0.68
16003	106268	106263	Pipe	750	3.44	2.01	0.87	0.98	0.99
16010	106281	106270	Pipe	525	3.21	0.75	0.27	0.31	0.32
16012	106270	106275	Pipe	600	1.40	0.71	0.39	0.47	0.48
16014	106272	106270	Pipe	300	2.22	0.14	0.11	0.12	0.12
16015	106273	106272	Pipe	225	0.80	0.04	0.09	0.09	0.09
16016	106274	106273	Pipe	225	1.90	0.06	0.09	0.09	0.09
16017	106245	106274	Pipe	225	2.60	0.07	0.08	0.08	0.08
16025	106277	106276	Pipe	375	12.13	0.60	0.46	0.46	0.46
16026	106276	106275	Pipe	375	7.42	0.47	0.47	0.49	0.47
16029	106150	106219	Pipe	450	4.00	0.56	0.01	0.02	0.01
16035	106152	106288	Pipe	225	2.01	0.06	0.08	0.08	0.08
16036	106288	106287	Pipe	375	5.73	0.41	0.46	0.45	0.46
16049	106316	106321	Pipe	900	4.67	3.82	0.56	0.76	0.76
16051	106302	106312	Pipe	900	0.42	1.14	0.57	0.76	0.76
16054	106307	106302	Pipe	450	1.57	0.35	0.01	0.01	0.01
16056	106303	106304	Pipe	450	1.53	0.34	0.00	0.07	0.05
16057	106304	106302	Pipe	750	0.70	0.91	0.61	0.76	0.77
16064	106312	106316	Pipe	900	0.80	1.58	0.57	0.76	0.76
16066	106311	106312	Pipe	300	7.61	0.26	0.00	0.00	0.01
16069	106323	106319	Pipe	450	2.32	0.42	0.17	0.23	0.24
16070	106235	106321	Pipe	1500	1.82	9.29	2.91	3.20	3.25
16071	106319	106320	Pipe	450	9.00	0.83	0.17	0.23	0.24
16086	106325	106389	Pipe	1500	0.88	6.45	5.02	5.57	5.65
16087	106405	181792	Pipe	300	2.83	0.16	0.27	0.28	0.27
16141	106371	106382	Pipe	450	2.00	0.39	0.38	0.37	0.37
16142	106370	106325	Pipe	1500	0.89	6.49	4.70	5.24	5.30
16150	181789	106389	Pipe	1200	3.67	7.28	2.81	3.50	3.78
16152	106378	106388	Pipe	300	2.40	0.15	0.18	0.18	0.18
16156	106382	106388	Pipe	450	3.13	0.49	0.40	0.42	0.43
16163	106387	106325	Pipe	225	0.98	0.04	0.16	0.16	0.16
16164	106388	106387	Pipe	675	0.95	0.80	0.60	0.64	0.65
16170	106392	101489	Pipe	1500	0.88	6.47	7.44	8.03	8.28

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
16171	106389	106392	Pipe	1500	0.87	6.44	7.45	8.03	8.28
16173	106396	106395	Pipe	1600	1.16	8.81	6.13	6.85	7.14
16199	106419	106425	Pipe	600	4.34	1.25	0.70	0.99	1.13
16209	106418	106419	Pipe	600	5.62	1.42	0.70	0.99	1.13
16210	106417	106418	Pipe	600	4.38	1.25	0.70	0.99	1.13
16213	106447	106428	Pipe	675	0.70	0.68	0.24	0.24	0.25
16214	106442	106423	Pipe	450	1.02	0.28	0.00	0.00	0.00
16218	106425	106432	Pipe	700	5.87	2.19	1.18	1.65	1.89
16219	106423	106424	Pipe	525	1.08	0.44	0.00	0.00	0.01
16221	106424	106425	Pipe	675	0.87	0.77	0.00	0.00	0.02
16226	106428	106429	Pipe	675	0.57	0.62	0.24	0.25	0.26
16233	106437	106455	Pipe	450	2.07	0.40	0.31	0.36	0.39
16235	106438	106455	Pipe	900	14.35	6.69	4.40	4.88	4.91
16238	106439	106437	Pipe	450	1.53	0.34	0.31	0.37	0.35
16241	106443	106438	Pipe	900	0.87	1.65	3.62	3.88	3.87
16244	106450	106448	Pipe	375	0.07	0.05	0.01	0.01	0.01
16245	106446	106448	Pipe	300	3.34	0.17	0.24	0.24	0.24
16246	106448	106447	Pipe	600	0.10	0.19	0.24	0.24	0.24
16248	106452	106453	Pipe	450	0.67	0.23	0.00	0.00	0.00
16252	106455	106370	Pipe	1500	0.87	6.44	4.70	5.24	5.30
16635	106785	106768	Pipe	150	9.47	0.05	0.01	0.01	0.02
16647	106723	106756	Pipe	450	1.19	0.30	0.48	0.49	0.48
16651	106757	106771	Pipe	675	2.38	1.26	0.53	0.54	0.54
16655	106752	106774	Pipe	450	1.67	0.36	0.17	0.17	0.17
16660	106724	106735	Pipe	300	8.31	0.27	0.00	0.00	0.00
16661	106731	106724	Pipe	525	9.26	1.28	0.00	0.00	0.00
16671	106745	106755	Pipe	300	6.53	0.24	0.24	0.24	0.24
16680	106735	106745	Pipe	300	8.33	0.27	0.25	0.24	0.24
16682	106736	106735	Pipe	300	0.00	0.00	0.26	0.24	0.24
16683	106737	106736	Pipe	300	5.92	0.23	0.26	0.25	0.25
16695	106755	106723	Pipe	450	0.79	0.25	0.27	0.28	0.28
16697	106753	106752	Pipe	300	0.81	0.09	0.17	0.17	0.17
16699	106756	106757	Pipe	675	2.33	1.25	0.48	0.48	0.48
16707	106767	106777	Pipe	300	6.80	0.25	0.11	0.25	0.24
16708	106167	106778	Pipe	300	0.57	0.07	0.05	0.05	0.05
16709	106168	106780	Pipe	300	0.40	0.06	0.13	0.13	0.13
16710	181803	106767	Pipe	300	0.75	0.08	0.01	0.05	0.05
16713	106768	106170	Pipe	900	0.81	1.59	1.67	1.68	1.68
16714	106769	106174	Pipe	375	2.20	0.25	0.30	0.29	0.30
16718	106776	106768	Pipe	750	0.93	1.05	1.59	1.60	1.61
16720	106774	106776	Pipe	450	5.33	0.64	0.33	0.40	0.42
16721	106771	106779	Pipe	750	2.34	1.66	0.60	0.63	0.63
16724	106777	106776	Pipe	750	1.00	1.09	1.36	1.38	1.37
16726	106779	106777	Pipe	750	7.56	2.99	1.17	1.13	1.14
16727	106780	106777	Pipe	300	12.90	0.34	0.13	0.13	0.13
16728	106778	106777	Pipe	300	4.35	0.20	0.05	0.06	0.06
16732	106787	106769	Pipe	300	5.17	0.21	0.19	0.21	0.21
32060	155845	116134	Pipe	300	8.64	0.28	0.17	0.22	0.23
32636	181160	116099	Pipe	2000	1.37	17.37	8.71	11.48	12.74
32637	116237	116196	Pipe	375	3.92	0.34	0.39	0.39	0.39
32638	116151	116152	Pipe	525	1.03	0.43	0.52	0.54	0.54
32639	116118	116151	Pipe	375	8.54	0.50	0.42	0.46	0.46
32644	116196	116099	Pipe	450	5.88	0.67	0.54	0.59	0.59
32645	116099	182226	Pipe	2000	1.55	18.47	9.23	12.03	13.32
32654	116152	116148	Pipe	525	0.84	0.39	0.64	0.71	0.71
32657	116098	116097	Pipe	525	0.60	0.33	0.00	0.00	0.00
32661	116224	116187	Pipe	600	5.07	1.35	1.22	1.24	1.23
32663	116230	116191	Pipe	450	2.37	0.43	0.34	0.42	0.44
32668	116202	116131	Pipe	225	10.38	0.14	0.05	0.06	0.07
32671	116104	182220	Pipe	450	1.00	0.28	0.29	0.36	0.38
32672	116141	116104	Pipe	450	1.69	0.36	0.28	0.35	0.37
32674	116114	116142	Pipe	225	10.08	0.14	0.14	0.14	0.14
32678	116107	116157	Pipe	300	5.71	0.23	0.29	0.29	0.29
32680	116130	116177	Pipe	300	12.04	0.33	0.30	0.30	0.30
32681	116131	116183	Pipe	225	8.85	0.13	0.05	0.07	0.07
32689	116109	116114	Pipe	225	3.42	0.08	0.00	0.00	0.00
32707	116134	116130	Pipe	300	8.37	0.27	0.31	0.28	0.29
32719	116142	116141	Pipe	300	2.03	0.13	0.14	0.14	0.14
32726	116148	182222	Pipe	800	0.79	1.14	0.93	1.01	1.06
32730	116157	116148	Pipe	375	2.53	0.27	0.29	0.31	0.32
32734	116146	182221	Pipe	375	3.33	0.31	0.27	0.37	0.41
32736	116164	116098	Pipe	525	1.00	0.42	0.00	0.00	0.00
32740	5000023	116163	Pipe	300	2.63	0.15	0.00	0.00	0.00
32741	116163	116164	Pipe	525	0.04	0.09	0.00	0.00	0.00
32744	116187	116194	Pipe	600	2.77	1.00	1.14	1.16	1.16

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
32748	116179	182224	Pipe	575	1.54	0.66	0.65	0.73	0.75
32751	116183	116179	Pipe	300	8.07	0.27	0.09	0.13	0.14
32755	116178	116181	Pipe	375	7.56	0.47	0.51	0.52	0.52
32760	116177	116178	Pipe	300	12.64	0.34	0.21	0.23	0.25
32765	116181	116179	Pipe	375	4.94	0.38	0.42	0.42	0.42
32776	116191	182225	Pipe	450	3.33	0.51	0.49	0.56	0.57
32778	116194	116096	Pipe	600	1.83	0.81	1.32	1.32	1.34
32785	116197	116224	Pipe	600	1.72	0.78	0.98	1.02	1.01
32786	116198	116226	Pipe	375	6.80	0.45	0.18	0.19	0.19
32790	116218	116211	Pipe	300	41.40	0.61	0.14	0.20	0.22
32792	116201	116197	Pipe	525	5.91	1.02	1.16	1.16	1.16
32804	116210	116198	Pipe	225	20.45	0.20	0.00	0.00	0.00
32806	116211	116198	Pipe	225	13.18	0.16	0.17	0.18	0.18
32810	116215	116218	Pipe	300	4.87	0.21	0.14	0.20	0.22
32811	116216	116215	Pipe	300	11.51	0.32	0.14	0.20	0.22
32816	116235	116221	Pipe	300	5.73	0.23	0.14	0.20	0.22
32823	116226	116230	Pipe	450	2.69	0.46	0.19	0.20	0.21
32827	116221	116237	Pipe	300	6.56	0.24	0.24	0.22	0.24
32861	116265	102307	Pipe	300	12.33	0.33	0.32	0.33	0.34
32863	116266	GIOUT1	Channel	Channel	19.89	Channel	0.39	0.39	0.39
36654	118559	118545	Pipe	300	1.02	0.10	0.05	0.06	0.06
36655	118546	118543	Pipe	225	0.17	0.02	0.02	0.02	0.02
36657	118544	101171	Pipe	225	0.76	0.04	0.13	0.14	0.14
36658	118543	118544	Pipe	225	3.00	0.08	0.05	0.05	0.05
36659	118545	118546	Pipe	225	2.04	0.06	0.05	0.05	0.05
37485	102683	102686	Pipe	300	6.28	0.24	0.14	0.19	0.22
37595	102688	116261	Pipe	300	2.17	0.14	0.17	0.18	0.18
58985	132433	132377	Pipe	300	1.78	0.13	0.17	0.17	0.17
59045	132376	132376A	Pipe	375	0.90	0.16	0.38	0.39	0.40
59058	132377	132376	Pipe	375	1.35	0.20	0.19	0.18	0.19
59108	132438	132433	Pipe	375	4.94	0.38	0.26	0.35	0.35
59133	132459	GI2	Pipe	300	1.60	0.12	0.29	0.29	0.29
59135	132461	132459	Pipe	300	4.13	0.19	0.19	0.19	0.19
93517	155817	155821	Pipe	450	9.61	0.86	0.56	0.60	0.61
93520	155821	155827	Pipe	525	9.25	1.28	0.97	1.00	1.00
93525	155826	155821	Pipe	375	7.75	0.48	0.50	0.50	0.46
93528	155827	116201	Pipe	525	9.70	1.31	1.20	1.20	1.21
93550	155835	155826	Pipe	375	6.08	0.42	0.51	0.50	0.47
93569	155859	155848	Pipe	300	3.51	0.18	0.17	0.23	0.24
93571	155848	155845	Pipe	300	6.20	0.24	0.17	0.22	0.23
93577	155869	155870	Pipe	300	9.93	0.30	0.25	0.25	0.25
93579	155870	116118	Pipe	300	9.02	0.28	0.30	0.30	0.30
93580	155872	116109	Pipe	225	0.28	0.02	0.00	0.00	0.00
93594	155889	155888	Pipe	300	4.14	0.19	0.27	0.31	0.30
93595	155885	155889	Pipe	300	5.51	0.22	0.00	0.00	0.00
93603	155888	155869	Pipe	300	3.75	0.18	0.18	0.18	0.18
93640	155938	155936	Pipe	300	11.74	0.32	0.11	0.15	0.17
93642	155942	155943	Pipe	300	1.03	0.10	0.08	0.11	0.12
93644	155941	155942	Pipe	300	1.96	0.13	0.08	0.11	0.12
93646	155944	155943	Pipe	300	0.03	0.02	0.03	0.04	0.05
93657	155943	155938	Pipe	300	10.32	0.30	0.11	0.15	0.16
93673	155955	155964	Pipe	300	1.69	0.12	0.00	0.00	0.00
93689	155936	155896	Pipe	225	10.86	0.14	0.16	0.16	0.16
93697	155964	155986	Pipe	300	6.42	0.24	0.00	0.00	0.00
93730	155797	155817	Pipe	450	1.25	0.31	0.29	0.29	0.30
216549	216548	181570	Pipe	450	0.23	0.13	0.20	0.19	0.17
216564	216565	216556	Pipe	375	0.75	0.15	0.02	0.05	0.05
216581	216582	216573	Pipe	225	1.20	0.05	0.00	0.02	0.00
216848	5000021	216846	Pipe	300	1.17	0.10	0.07	0.07	0.07
216849	216846	101836	Pipe	300	1.51	0.12	0.13	0.13	0.13
2000002	106123	2000005	Pipe	300	8.09	0.27	0.00	0.00	0.00
2000003	2000004	106120	Pipe	300	7.93	0.27	0.00	0.00	0.00
2000004	2000005	2000004	Pipe	300	3.50	0.18	0.00	0.00	0.00
2000005	106226	2000007	Pipe	700	1.17	0.98	0.44	0.46	0.49
2000006	2000009	2000007	Pipe	225	0.05	0.01	0.01	0.01	0.01
2000007	2000008	2000009	Pipe	225	0.72	0.04	0.00	0.00	0.00
5000002	155896	106787	Pipe	300	10.46	0.31	0.17	0.18	0.18
5000003	5000003	5000002	Pipe	300	6.72	0.24	0.00	0.00	0.00
5000004	5000002	106753	Pipe	300	7.28	0.25	0.00	0.00	0.00
5000005	5000004	5000003	Pipe	300	8.65	0.28	0.00	0.00	0.00
5000006	106190	106191	Pipe	450	17.30	1.16	0.49	0.54	0.52
5000007	5000006	155835	Pipe	375	2.65	0.28	0.01	0.04	0.01
5000008	5000005	5000006	Pipe	375	16.95	0.70	0.00	0.00	0.00
5000009	5000007	5000005	Pipe	375	4.60	0.37	0.00	0.00	0.00
5000010	101327	5000008	Pipe	375	2.71	0.28	0.12	0.17	0.19

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
5000012	5000009	101334	Pipe	375	0.18	0.07	0.12	0.17	0.19
5000013	5000008	5000009	Pipe	375	6.70	0.44	0.12	0.17	0.19
5000014	106313	106216	Pipe	375	1.35	0.20	0.00	0.00	0.01
5000015	5000011	106158	Pipe	300	5.70	0.23	0.01	0.00	0.00
5000016	106320	106321	Pipe	450	81.20	2.50	0.17	0.23	0.24
5000018	106429	106432	Pipe	675	0.00	0.00	0.24	0.25	0.26
5000021	106432	99404	Pipe	900	1.06	1.82	1.42	1.88	2.13
5000022	5000012	103313	Pipe	300	10.19	0.30	0.20	0.21	0.22
5000023	100468	100447	Pipe	225	6.09	0.11	0.13	0.13	0.13
5000024	106453	106450	Pipe	375	0.04	0.04	0.01	0.01	0.01
5000025	119099	5000022	Pipe	300	7.90	0.27	0.16	0.23	0.24
5000026	5000022	101927	Pipe	300	10.00	0.30	0.16	0.23	0.25
10000072	10000070	10000071	Pipe	1200	1.94	5.29	9.79	11.05	11.58
10000198	10000196	10000197	Pipe	900	1.52	2.18	0.51	0.55	0.55
10000396	10000394	10000395	Channel	Channel	2.50	Channel	8.94	10.82	11.95
10000645	10000642	10000644	Channel	Channel	0.28	Channel	15.36	21.84	24.63
10000960	10000957	GIOUT5	Channel	Channel	3.50	Channel	1.17	1.76	2.02
10000963	10000961	10000962	Pipe	300	3.60	0.18	0.02	0.00	0.01
10001065	10001063	10001064	Pipe	525	1.89	0.58	0.00	0.00	0.00
10001206	10001203	10001205	Channel	Channel	7.23	Channel	0.59	0.72	0.78
10000004l1	10000004	10000012	Channel	Channel	1.92	Channel	3.35	4.14	4.90
10000012l1	10000012	181092	Channel	Channel	1.92	Channel	3.85	4.80	5.96
10000040l1	10000040	10000054	Channel	Channel	0.52	Channel	7.72	10.78	12.57
10000054l1	10000054	10000064	Channel	Channel	0.51	Channel	7.63	10.66	12.54
10000064l1	10000064	10000926	Channel	Channel	0.84	Channel	7.58	10.39	12.42
10000071l1	10000071	181556	Channel	Channel	1.55	Channel	9.59	10.91	11.46
10000082l1	10000082	181789	Channel	Channel	1.67	Channel	0.00	0.00	0.00
10000085l1	10000085	181789	Channel	Channel	2.61	Channel	2.94	3.84	4.72
10000197l1	10000197	10000270	Pipe	900	2.98	3.45	0.65	0.74	0.76
10000252l1	10000252	182227	Pipe	900	2.72	2.91	0.81	1.08	1.14
10000270l1	10000270	10000252	Pipe	900	2.91	3.01	0.80	0.92	0.96
10000272l1	10000272	10000285	Channel	Channel	0.02	Channel	15.44	21.22	23.71
10000285l1	10000285	10000461	Channel	Channel	0.21	Channel	15.18	21.07	23.55
10000317l1	10000317	10000320	Channel	Channel	0.40	Channel	15.97	18.72	20.72
10000320l1	10000320	181095	Channel	Channel	3.20	Channel	15.48	18.48	19.86
10000321l1	10000321	10000332	Channel	Channel	0.38	Channel	15.58	19.09	20.69
10000332l1	10000332	10000344	Channel	Channel	0.53	Channel	15.41	19.08	20.71
10000344l1	10000344	181094	Channel	Channel	0.95	Channel	15.60	19.61	21.35
10000367l1	10000367	10000392	Channel	Channel	0.73	Channel	9.10	11.29	12.23
10000392l1	10000392	181080	Channel	Channel	-6.40	Channel	3.43	4.33	4.81
10000392l2	10000392	181079	Channel	Channel	0.90	Channel	5.53	6.65	7.21
10000395l1	10000395	10001221	Channel	Channel	2.36	Channel	23.12	32.58	36.74
10000400l1	10000400	10000423	Channel	Channel	0.12	Channel	23.24	32.86	37.05
10000423l1	10000423	10000431	Channel	Channel	1.00	Channel	23.33	33.82	38.16
10000431l1	10000431	10000774	Channel	Channel	0.23	Channel	23.23	33.15	37.46
10000459l1	10000459	10000472	Channel	Channel	2.66	Channel	23.41	33.26	37.63
10000461l1	10000461	181077	Channel	Channel	0.83	Channel	15.10	21.05	23.59
10000472l1	10000472	181081US	Channel	Channel	0.76	Channel	23.48	33.38	37.76
10000512l1	10000512	10000547	Channel	Channel	-0.28	Channel	25.67	36.98	42.18
10000535l1	10000535	10000547	Channel	Channel	0.24	Channel	0.71	0.72	0.70
10000547l1	10000547	10000563	Channel	Channel	0.18	Channel	26.13	37.26	41.79
10000563l1	10000563	10000577	Channel	Channel	0.10	Channel	25.96	36.14	38.87
10000577l1	10000577	10000585	Channel	Channel	0.24	Channel	25.99	36.08	38.76
10000585l1	10000585	10000597	Channel	Channel	0.25	Channel	26.10	36.22	38.88
10000597l1	10000597	10000607	Channel	Channel	0.22	Channel	26.21	36.33	38.98
10000607l1	10000607	10000623	Channel	Channel	0.23	Channel	27.61	38.08	40.79
10000623l1	10000623	10001082	Channel	Channel	0.06	Channel	34.81	47.19	50.57
10000644l1	10000644	181078	Channel	Channel	0.28	Channel	15.31	21.81	24.61
10000686l1	10000686	10000710	Channel	Channel	5.43	Channel	1.09	1.56	1.79
10000710l1	10000710	181603	Channel	Channel	3.29	Channel	2.02	2.89	3.34
10000772l1	181602	10000772	Channel	Channel	2.71	Channel	0.71	0.75	0.88
10000772l2	10000772	181510	Channel	Channel	1.99	Channel	3.00	3.76	4.18
10000774l1	10000774	5000019	Channel	Channel	0.67	Channel	23.29	32.92	37.00
10000799l1	10000799	10000805	Channel	Channel	2.35	Channel	2.43	3.36	3.89
10000805l1	10000805	181507	Channel	Channel	2.35	Channel	2.41	3.34	3.86
10000848l1	10000848	10000852	Channel	Channel	3.14	Channel	8.97	10.54	10.79
10000852l1	10000852	10000070	Channel	Channel	2.51	Channel	8.16	8.94	9.38
10000866l1	10000866	10000944	Channel	Channel	2.93	Channel	1.67	2.30	2.62
10000871l1	10000871	10000866	Channel	Channel	11.03	Channel	0.98	1.34	1.53
10000897l1	f10000897	F10000909	Channel	Channel	1.53	Channel	0.25	2.76	3.02
10000909l1	10000909	5000027	Pipe	1500	2.65	11.21	5.55	5.91	6.10
10000913l1	10000913	10000909	Pipe	500	2.57	0.59	0.42	0.43	0.45
10000915l1	10000915	10000913	Pipe	500	0.43	0.24	0.42	0.43	0.45
10000926l1	10000926	10000317	Channel	Channel	1.72	Channel	10.99	13.73	15.37
10000944l1	10000944	10000004	Channel	Channel	2.95	Channel	1.56	2.19	2.54

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
10000952l1	10000952	10000957	Channel	Channel	3.22	Channel	0.64	0.92	1.08
10000962l1	10000962	10000585	Channel	Channel	1.46	Channel	0.04	0.04	0.07
10000973l1	10000973	10000979	Channel	Channel	4.70	Channel	1.72	2.29	2.78
10000979l1	10000979	GIOUT3	Channel	Channel	11.57	Channel	2.20	3.14	3.78
10001040l1	10001040	181494	Channel	Channel	0.67	Channel	4.75	5.50	6.31
10001064l1	10001064	182219	Pipe	675	1.87	1.12	0.00	0.01	0.01
10001082l1	10001082	10001116	Channel	Channel	0.11	Channel	34.76	47.17	50.55
10001116l1	10001116	10001136	Channel	Channel	0.20	Channel	34.74	47.19	50.54
10001136l1	10001136	GIOUT6(main)	Channel	Channel	0.10	Channel	37.51	50.82	55.26
10001173l1	10001173	10001203	Channel	Channel	5.81	Channel	0.82	1.18	1.39
10001195l1	10001195	10001173	Channel	Channel	5.62	Channel	0.47	0.68	0.78
10001205l1	10001205	181617	Pipe	500	0.03	0.10	0.77	0.95	1.03
10001207l1	10001207	10000459	Channel	Channel	12.10	Channel	0.37	0.51	0.56
10001211l1	10001211	181607	Channel	Channel	0.52	Channel	1.60	2.34	2.63
10001221l1	10001221	10000400	Channel	Channel	0.47	Channel	23.14	32.63	36.81
100026l1	100026	10000897	Pipe	900	1.16	1.90	0.68	0.80	0.94
100030l1	100030	10000897	Pipe	900	1.26	1.98	2.18	2.19	2.18
101214l1	101214	101417	Pipe	600	2.99	1.04	0.77	0.85	0.88
101489l1	101489	101488	Pipe	750	9.50	3.35	1.53	1.58	1.61
101595l1	101595	101576	Pipe	375	3.14	0.30	0.30	0.31	0.31
101598l1	101598	101604	Pipe	400	3.59	0.39	0.33	0.33	0.33
101998l1	101998	10000915	Pipe	500	0.24	0.21	0.60	0.61	0.62
102044l1	102044	102048	Pipe	600	5.03	1.34	0.19	0.20	0.21
102114l1	102114	101949	Pipe	600	2.45	0.94	0.01	0.01	0.01
104117l1	104117	10001221	Channel	Channel	6.69	Channel	0.18	0.29	0.32
104125l1	F104125	F104124	Channel	Channel	2.48	Channel	0.00	0.00	0.00
104137l1	104137	10000423	Channel	Channel	1.24	Channel	0.59	0.77	0.88
104164l1	104164	10000472	Channel	Channel	2.40	Channel	0.52	0.69	0.77
106120l1	106120	106731	Pipe	300	7.70	0.26	0.00	0.00	0.00
106308l1	106308	106307	Pipe	300	4.40	0.22	0.00	0.00	0.00
116096l1	116096	182223	Pipe	675	2.63	1.33	1.48	1.48	1.49
116097l1	116097	10001063	Pipe	525	1.92	0.58	0.00	0.00	0.00
132376Al1	132376A	GI1	Channel	Channel	2.67	Channel	0.56	0.65	0.68
155986l1	155986	106123	Pipe	300	7.84	0.26	0.00	0.00	0.00
181077bl1	181077b	101635	Pipe	900	0.24	0.98	2.61	2.65	2.65
181077l1	181077	181077A	Channel	Channel	0.10	Channel	10.76	13.72	15.02
181077l2	181077	181077b	Channel	Channel	0.40	Channel	4.62	7.50	8.78
181079l1	181079	181566	Pipe	600	-2.18	0.88	1.51	1.64	1.68
181081l1	181081	181582	Pipe	1900	0.70	12.27	9.03	10.65	10.90
181081USl1	181081US	181081	Channel	Channel	0.20	Channel	23.39	33.25	37.31
181494l1	181494	99384	Pipe	1300	1.19	5.14	4.49	4.93	5.16
181495l1	181495	10001040	Channel	Channel	4.65	Channel	0.58	0.59	0.59
181496l1	181496	10001040	Channel	Channel	6.40	Channel	4.56	6.01	6.77
181504l1	181504	10000272	Channel	Channel	4.16	Channel	0.38	0.41	0.44
181505l1	181505A	181115	Channel	Channel	2.98	Channel	0.90	1.15	1.44
181505l2	181505	181505A	Channel	Channel	1.50	Channel	0.89	1.04	1.10
181507l1	181507A	181508	Channel	Channel	2.08	Channel	3.19	4.40	5.10
181507l2	181507	181507A	Channel	Channel	0.80	Channel	3.20	4.19	4.74
181509l1	181509	10000772	Channel	Channel	3.43	Channel	0.62	0.68	0.69
181510l1	181510	10000897	Pipe	1050	0.30	1.46	2.84	3.07	3.15
181513l1	181513	10000799	Channel	Channel	2.39	Channel	1.90	2.60	3.01
181514l1	181514A	181513	Channel	Channel	1.66	Channel	1.93	2.64	3.06
181514l2	181514	181514A	Channel	Channel	1.20	Channel	1.94	2.42	2.68
181520l1	181520A	5000014	Channel	Channel	0.32	Channel	5.50	7.12	8.48
181520l2	181520	181520A	Channel	Channel	0.70	Channel	5.14	5.36	5.36
181525l1	181525	5000016	Channel	Channel	10.96	Channel	0.15	0.15	0.16
181527l1	181527A	181531	Channel	Channel	0.59	Channel	3.82	5.22	6.44
181527l2	181527	181527A	Channel	Channel	1.30	Channel	1.54	1.85	1.91
181531Al1	181531A	181531	Channel	Channel	7.70	Channel	0.28	0.27	0.27
181531l1	181531	181098	Channel	Channel	1.00	Channel	2.75	4.08	5.12
181541l1	181541	10000866	Channel	Channel	0.43	Channel	0.10	0.14	0.15
181542l1	181542	181091	Channel	Channel	5.52	Channel	0.34	0.35	0.36
181543l1	181543a	10000871	Channel	Channel	10.89	Channel	0.97	1.35	1.49
181543l2	181543	181543a	Channel	Channel	2.30	Channel	0.97	1.33	1.48
181545l1	181545	181077	Channel	Channel	1.59	Channel	0.43	0.43	0.36
181546l1	181546	10000004	Channel	Channel	1.98	Channel	1.86	2.13	2.35
181547l1	181547	10000040	Channel	Channel	1.09	Channel	0.45	0.46	0.52
181549l1	181549A	10000272	Channel	Channel	0.00	Channel	15.90	21.03	23.24
181549l2	181549	181549A	Channel	Channel	0.00	Channel	14.36	15.42	16.17
181550l1	181550	181549	Channel	Channel	5.40	Channel	1.08	1.04	1.03
181551l1	181551	10000321	Channel	Channel	17.90	Channel	1.21	1.56	1.85
181552l1	181552	10000321	Channel	Channel	3.10	Channel	15.20	18.40	19.69
181553l1	181553	10000320	Channel	Channel	12.20	Channel	0.42	0.50	0.43
181557l1	181557	10000040	Channel	Channel	0.51	Channel	3.82	4.54	4.70
181558l1	181558	10000926	Channel	Channel	2.21	Channel	2.84	2.93	2.98

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
181559l1	181559	10000344	Channel	Channel	5.82	Channel	0.16	0.15	0.20
181560l1	181560	10000064	Channel	Channel	3.30	Channel	0.04	0.08	0.12
181561l1	181561	10000367	Channel	Channel	0.80	Channel	8.14	9.16	9.60
181562l1	181562	10000367	Channel	Channel	5.80	Channel	3.20	3.80	4.05
181563l1	181563	10000642	Channel	Channel	0.27	Channel	7.85	8.67	8.73
181566l1	181566	10000394	Channel	Channel	3.50	Channel	3.02	3.25	3.34
181567l1	181567	10000394	Channel	Channel	5.20	Channel	0.64	0.66	0.65
181568l1	181568	10000400	Channel	Channel	18.10	Channel	0.30	0.29	0.29
181570l1	181570	10000431	Channel	Channel	0.00	Channel	0.17	0.15	0.09
181571l1	181571	10000774	Channel	Channel	11.56	Channel	0.08	0.14	0.11
181574l1	181574	10001207	Channel	Channel	4.42	Channel	0.42	0.58	0.62
181575l1	181575A	10000395	Channel	Channel	0.91	Channel	15.27	21.79	24.60
181575l2	181575	181575A	Channel	Channel	0.80	Channel	1.37	1.29	1.26
181581l1	181581	10000512	Channel	Channel	0.10	Channel	8.84	10.41	10.63
181582l1	181582	10000512	Channel	Channel	0.10	Channel	11.09	13.00	13.22
181585l1	181585	10000535	Pipe	700	1.00	0.90	0.77	0.79	0.80
181589l1	181589	10000607	Channel	Channel	1.07	Channel	2.13	2.19	2.22
181595l1	181595	10000623	Channel	Channel	0.13	Channel	6.27	6.89	7.16
181596l1	181596	10000961	Pipe	300	0.63	0.02	0.00	0.00	0.00
181597l1	181597a	10000686	Channel	Channel	5.42	Channel	0.60	0.85	0.97
181597l2	181597	181597a	Channel	Channel	2.20	Channel	0.43	0.45	0.46
181598l1	181598	10001136	Channel	Channel	4.70	Channel	0.14	0.14	0.14
181599l1	181599	10000952	Channel	Channel	5.91	Channel	0.12	0.12	0.12
181600l1	181600	10000710	Channel	Channel	2.17	Channel	0.27	0.27	0.27
181601l1	181601	10000772	Channel	Channel	2.07	Channel	2.21	2.52	2.62
181606l1	181606	10000957	Channel	Channel	44.70	Channel	0.52	0.69	0.79
181607l1	181607	10000973	Channel	Channel	4.74	Channel	1.68	2.45	2.79
181609l1	181609	10001211	Channel	Channel	3.16	Channel	1.51	1.73	1.82
181611l1	181611	10000979	Channel	Channel	0.58	Channel	0.64	0.91	1.00
181612l1	181612	10001173	Channel	Channel	0.00	Channel	0.01	0.01	0.01
181614l1	181614	10001203	Channel	Channel	9.70	Channel	0.04	0.05	0.06
181655l1	181655	181514	Channel	Channel	5.60	Channel	0.67	0.68	0.68
181782l1	181782a	182220	Channel	Channel	0.35	Channel	3.63	4.11	4.33
181782l2	181782	181782a	Channel	Channel	1.00	Channel	3.63	4.11	4.20
181785l1	181785	10000082	Channel	Channel	5.28	Channel	2.65	3.47	3.96
181792l1	181792	10000196	Pipe	300	1.20	0.10	0.36	0.36	0.36
182219l1	182219	182224	Channel	Channel	1.90	Channel	1.04	1.45	1.67
182220l1	182220	182222	Channel	Channel	2.84	Channel	3.91	4.47	4.70
182221l1	182221	182224	Channel	Channel	1.61	Channel	5.11	5.84	6.12
182222l1	182222	182221	Channel	Channel	3.13	Channel	5.11	5.84	6.10
182223l1	182223a	182225	Channel	Channel	1.45	Channel	8.27	11.02	12.28
182223l2	182223	182223a	Channel	Channel	1.50	Channel	8.24	9.81	10.60
182224l1	182224	182223	Channel	Channel	0.69	Channel	6.81	8.37	9.15
182225l1	182225	181160	Channel	Channel	2.15	Channel	8.73	11.52	12.77
182226l1	182226a	10000848	Channel	Channel	1.25	Channel	9.18	11.70	12.02
182226l2	182226	182226a	Channel	Channel	0.60	Channel	9.21	11.95	13.17
187210l1	187210	RAILWAY_OUT	Channel	Channel	1.01	Channel	0.05	0.03	0.03
187234l1	187234	187227	Pipe	225	0.13	0.02	0.01	0.00	0.00
2000007l1	2000007	106231	Pipe	700	5.98	2.50	3.56	5.21	6.16
5000019l1	5000019	10000459	Channel	Channel	0.92	Channel	0.00	0.00	0.00
99189l1	99189	99197	Pipe	700	0.76	0.89	0.28	0.29	0.29
99197l1	99197	99198	Pipe	700	0.76	0.89	23.32	33.09	37.40
99198l1	99198	106226	Pipe	700	0.88	0.96	0.32	0.31	0.31
99199l1	99199	99198	Channel	Channel	5.09	Channel	0.32	0.31	0.31
99207l1	99207	99218	Pipe	300	0.60	0.08	0.29	0.27	0.28
99218l1	99218	99189	Pipe	450	3.24	0.57	0.04	0.07	0.06
99382l1	99382	99404	Pipe	600	1.19	0.65	0.22	0.22	0.22
99407l1	99407	181494	Pipe	450	2.88	0.47	0.41	0.43	0.43
EXTRAl1	EXTRA	187210	Pipe	600	5.79	1.44	0.74	0.76	0.78
GI13al1	GI13a	GIOUT13A	Channel	Channel	1.29	Channel	0.47	0.48	0.48
GI1l1	GI1	GIOUT18	Channel	Channel	7.20	Channel	0.00	0.00	0.00
GI2l1	GI2	GI3	Channel	Channel	1.91	Channel	3.27	6.64	7.16
GI3l1	GI3	GIOUT17	Channel	Channel	1.92	Channel	1.05	1.45	1.63
GIOUT10al1	GIOUT10a	GIOUT10b	Channel	Channel	1.10	Channel	0.49	0.58	0.61
GIOUT10l1	GIOUT10	GIOUT10a	Channel	Channel	3.00	Channel	0.80	1.13	1.29
GIOUT12l1	GIOUT12	FGI3	Channel	Channel	7.20	Channel	5.79	6.92	8.19
GIOUT13l1	GIOUT13	GI13a	Channel	Channel	0.18	Channel	5.27	6.35	7.26
GIOUT14l1	GIOUT14	GIOUT14A	Channel	Channel	3.65	Channel	0.10	0.11	0.11
GIOUT15l1	GIOUT15	GIOUT15A	Channel	Channel	5.40	Channel	2.15	2.32	2.40
GIOUT16l1	GIOUT16	GIOUT16A	Channel	Channel	25.00	Channel	3.03	4.43	5.10
GIOUT4Al1	GIOUT4A	GIOUT4B	Channel	Channel	10.00	Channel	1.29	2.14	3.11
GIOUT4l1	GIOUT4	GIOUT4A	Channel	Channel	8.10	Channel	1.47	2.05	2.37
GIOUT8l1	GIOUT8	GIOUT8B	Channel	Channel	12.53	Channel	0.71	1.00	1.14
GIOUT9Al1	GIOUT9A	GIOUT9B	Channel	Channel	5.00	Channel	0.44	0.45	0.45
GIOUT9l1	GIOUT9	GIOUT9A	Channel	Channel	4.40	Channel	0.93	1.44	1.73

Link ID	Upstream Conduit Node	Downstream Conduit Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	Pipe Capacity (m^3/s)	10 Year Design Storm Flows (m^3/s)	50 Year Design Storm Flows (m^3/s)	100 Year Design Storm Flows (m^3/s)
GIOUT9Al1	GIOUT9A	GIOUT9B	Channel	20000	5.00	6854.15	1.20	1.96	2.28
GIOUT9l1	GIOUT9	GIOUT9A	Channel	20000	4.40	6429.76	0.91	1.12	1.17

Appendix D: Calculated Overland Flow and Flood Levels

D1: Existing Development Scenario
Calculated Overland Flows

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F10000085l1	F10000085	F181789B	Overland	Overland	5.62	0.00	0.00	0.00
F10000196l1	F10000196	F10000252	Overland	Overland	2.90	0.02	0.25	0.37
F10000252l1	F10000252	F182227	Overland	Overland	2.82	0.00	0.05	0.18
F100003l1	F100003	F100080	Overland	Overland	3.73	0.00	0.15	0.22
F100004l1	F100004	F100007	Overland	Overland	0.37	1.38	2.26	2.65
F100007l1	F100007	F101845	Overland	Overland	1.13	1.42	2.42	2.87
f10000897l1	10000897	10000909	Overland	Overland	0.32	5.39	5.86	6.00
F10000909l1	F10000909	F5000027	Overland	Overland	-0.58	2.02	4.53	5.79
F10000915l1	F10000915	F10000909	Overland	Overland	2.19	2.10	3.77	4.46
F10000961l1	F10000961	10000585	Overland	Overland	4.15	0.16	0.20	0.32
F100009l1	F100009	F100004	Overland	Overland	0.49	1.29	1.99	2.32
F10001063l1	F10001063	F10001064	Overland	Overland	2.55	0.00	0.00	0.00
F10001064l1	F10001064	182224	Overland	Overland	2.40	0.00	0.01	0.01
F100012l1	F100012	F99842	Overland	Overland	3.52	0.12	0.32	0.41
F100023l1	F100023	F100026	Overland	Overland	0.72	0.01	0.31	0.55
F100026l1	F100026	f10000897	Overland	Overland	2.09	0.00	0.11	0.35
F100029l1	F100029	F100030	Overland	Overland	0.93	0.01	0.13	0.15
F100030l1	F100030	f10000897	Overland	Overland	1.51	0.86	1.72	2.18
F100039l1	F100039	F100042	Overland	Overland	1.27	0.22	0.41	0.51
F100042l1	F100042	F100044	Overland	Overland	0.00	0.20	0.45	0.56
F100044l1	F100044	F100023	Overland	Overland	3.56	0.16	0.39	0.49
F100050l1	F100050	181507A	Overland	Overland	3.97	0.02	0.22	0.43
F100052l1	F100052	F100050	Overland	Overland	4.21	0.09	0.27	0.37
F100065l1	F100065	F100029	Overland	Overland	4.99	0.00	0.00	0.00
F100066l1	F100066	F100065	Overland	Overland	4.72	0.00	0.00	0.00
F100069l1	F100069	F100072	Overland	Overland	3.62	0.43	0.88	1.07
F100072l1	F100072	10000772	Overland	Overland	4.59	0.65	1.16	1.49
F100073l1	F100073	F100066	Overland	Overland	5.71	0.00	0.00	0.00
F100075l1	F100075	F100085	Overland	Overland	4.54	0.02	0.32	0.44
F100076l1	F100076	F100077	Overland	Overland	3.18	0.00	0.03	0.26
F100077l1	F100077	F100052	Overland	Overland	2.65	0.00	0.06	0.14
F100080l1	F100080	181514A	Overland	Overland	8.93	0.01	0.26	0.40
F100085l1	F100085	F100069	Overland	Overland	2.93	0.10	0.43	0.56
F100087l1	F100087	F100072	Overland	Overland	4.57	0.15	0.29	0.36
F100089l1	F100089	F100087	Overland	Overland	-0.39	0.16	0.32	0.39
F100097l1	F100097	F101989	Overland	Overland	7.29	0.12	0.29	0.38
F100098l1	F100098	F100076	Overland	Overland	6.13	0.00	0.20	0.31
F100102l1	F100102	F100075	Overland	Overland	8.39	0.00	0.00	0.00
F100113l1	F100113	F100114	Overland	Overland	2.68	1.19	3.78	5.06
F100114l1	F100114	F100115	Overland	Overland	2.24	1.75	4.45	5.79
F100115l1	F100115	F100117	Overland	Overland	2.21	2.23	5.20	6.64
F100117l1	F100117	F100119	Overland	Overland	2.74	2.84	5.77	7.36
F100119l1	F100119	F5000013	Overland	Overland	-0.21	4.27	7.23	8.91
F100124l1	F100124	F100113	Overland	Overland	1.53	1.31	3.92	5.16
F100133l1	F100133	F100134	Overland	Overland	2.38	0.63	1.07	1.24
F100134l1	F100134	F100140	Overland	Overland	0.68	1.77	3.91	5.22
F100140l1	F100140	F100142	Overland	Overland	-0.34	1.76	4.80	5.57
F100142l1	F100142	F100172	Overland	Overland	1.96	1.49	3.83	5.17
F100151l1	F100151	F100165	Overland	Overland	0.93	0.04	0.18	0.23
F100162l1	F100162	F101608	Overland	Overland	0.45	0.29	0.46	0.54
F100165l1	F100165	F100206	Overland	Overland	1.68	0.03	0.21	0.32
F100172l1	F100172	F100175	Overland	Overland	0.45	1.65	4.24	5.47
F100175l1	F100175	F100124	Overland	Overland	3.08	1.45	4.07	5.25
F100203l1	F100203	F101610	Overland	Overland	-0.27	0.36	0.64	0.82
F100206l1	F100206	F100203	Overland	Overland	1.77	0.02	0.22	0.34
F100221l1	F100221	F100226	Overland	Overland	4.23	0.22	0.47	0.61
F100226l1	F100226	F100346	Overland	Overland	2.38	0.25	0.66	0.86
F100227l1	F100227	F100252	Overland	Overland	19.09	0.00	0.00	0.00
F100232l1	F100232	F100234	Overland	Overland	4.35	0.09	0.21	0.27
F100234l1	F100234	F100344	Overland	Overland	1.99	0.21	0.42	0.50
F100245l1	F100245	FGI7	Overland	Overland	1.58	0.11	0.32	0.42
F100252l1	F100252	F100255	Overland	Overland	10.87	0.35	0.48	0.49
F100255l1	F100255	F100274	Overland	Overland	-0.08	4.70	8.20	9.94
F100256l1	F100256	181520A	Overland	Overland	12.32	2.87	6.95	9.26
F100262l1	F100262	GIOUT10a	Overland	Overland	6.01	0.34	0.77	0.98
F100274l1	F100274	F100256	Overland	Overland	-7.46	3.14	7.07	9.02
F100276l1	F100276	F100256	Overland	Overland	5.51	0.32	1.00	1.33
F100286l1	F100286	F100320	Overland	Overland	0.30	0.31	0.54	0.64
F100288l1	F100288	F100320	Overland	Overland	1.04	0.16	0.27	0.31
F100294l1	F100294	F5000014	Overland	Overland	1.39	0.31	0.55	0.66
F100316l1	F100316	F100325	Overland	Overland	0.23	0.01	0.06	0.08
F100324l1	F100324	F100320	Overland	Overland	-0.09	0.00	0.00	0.00
F100324l2	F100324	F100325	Overland	Overland	0.76	0.49	0.89	1.08
F100325l1	F100325	F100338	Overland	Overland	1.30	0.56	1.08	1.34
F100330l1	F100330	GIOUT9A	Overland	Overland	53.60	0.27	0.81	1.09
F100338l1	F100338	F100330	Overland	Overland	2.00	0.41	0.97	1.25
F100344l1	F100344	F100347	Overland	Overland	2.24	0.16	0.40	0.51
F100346l1	F100346	F100276	Overland	Overland	3.31	0.29	1.09	1.45
F100347l1	F100347	F100346	Overland	Overland	3.06	0.15	0.39	0.50
F100354l1	F100354	F100363	Overland	Overland	1.69	0.00	0.08	0.13
F100363l1	F100363	FGI7	Overland	Overland	-1.29	0.00	0.00	0.00
F100377l1	F100377	F100636	Overland	Overland	-1.45	0.00	0.00	0.00
F100379l1	F100379	181527A	Overland	Overland	12.90	2.10	3.46	4.30

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F100380l1	F100380	F100379	Overland	Overland	7.09	0.00	0.00	0.00
F100393l1	F100393	F100618	Overland	Overland	3.17	0.97	1.49	1.75
F100395l1	F100395	F100393	Overland	Overland	3.90	0.51	0.77	0.90
F100398l1	F100398	F100395	Overland	Overland	4.32	0.46	0.75	0.87
F100422l1	F100422	F100440	Overland	Overland	1.91	1.53	2.53	3.04
F100425l1	F100425	F100440	Overland	Overland	4.09	0.02	0.31	0.64
F100428l1	F100428	F100431	Overland	Overland	4.06	0.16	0.28	0.33
F100431l1	F100431	F100425	Overland	Overland	2.24	0.47	0.73	0.86
F100436l1	F100436	F100425	Overland	Overland	-1.42	0.00	0.06	0.20
F100439l1	F100439	F100436	Overland	Overland	-0.86	0.00	0.00	0.00
F100440l1	F100440	F5000016	Overland	Overland	5.10	1.53	2.76	3.73
F100442l1	F100442	FEX2	Overland	Overland	4.35	0.33	0.53	0.62
F100447l1	F100447	F100494	Overland	Overland	5.39	0.39	0.67	0.80
F100448l1	F100448	F100115	Overland	Overland	9.53	0.12	0.13	0.13
F100454l1	F100454	F100460	Overland	Overland	20.10	0.11	0.24	0.31
F100460l1	F100460	F100468	Overland	Overland	2.92	0.21	0.36	0.43
F100468l1	F100468	F100447	Overland	Overland	9.40	0.49	0.77	0.90
F100470l1	F100470	F100502	Overland	Overland	7.70	0.00	0.00	0.01
F100474l1	F100474	F100477	Overland	Overland	2.20	0.02	0.02	0.02
F100477l1	F100477	F100478	Overland	Overland	1.56	0.00	0.00	0.00
F100478l2	F100478	FGI4	Overland	Overland	5.46	0.14	0.40	0.52
F100480l1	F100480	F100442	Overland	Overland	0.64	0.20	0.32	0.38
F100494l1	F100494	F100500	Overland	Overland	5.00	0.49	0.78	0.91
F100500l1	F100500	F100502	Overland	Overland	0.19	0.76	1.20	1.40
F100502l1	F100502	FGI2	Overland	Overland	7.96	1.06	1.55	1.82
F100503l1	F100503	FGI2	Overland	Overland	3.25	0.02	0.02	0.03
F100516l1	F100516	F100716	Overland	Overland	2.28	0.29	0.46	0.52
F100518l1	F100518	F100528	Overland	Overland	1.07	0.10	0.19	0.24
F100523l1	F100523	F100535	Overland	Overland	-0.93	0.67	1.39	1.68
F100528l1	F100528	F100531	Overland	Overland	3.78	0.14	0.25	0.30
F100531l1	F100531	GIOUT15	Overland	Overland	7.22	0.57	1.37	1.69
F100532l1	F100532	F100538	Overland	Overland	2.63	0.54	0.88	1.15
F100533l1	F100533	F100532	Overland	Overland	-0.50	0.00	0.00	0.00
F100535l1	F100535	F100531	Overland	Overland	3.30	0.54	1.19	1.44
F100538l1	F100538	F100713	Overland	Overland	2.48	0.22	0.46	0.77
F100544l1	F100544	F100600	Overland	Overland	2.26	0.55	0.86	1.00
F100556l1	F100556	F100590	Overland	Overland	5.60	0.00	0.02	0.07
F100559l1	F100559	F100544	Overland	Overland	4.41	0.16	0.29	0.35
F100565l1	F100565	F100559	Overland	Overland	4.27	0.14	0.26	0.32
F100566l1	F100566	F100565	Overland	Overland	3.22	0.14	0.26	0.33
F100568l1	F100568	F100556	Overland	Overland	2.63	0.00	0.02	0.08
F100570l1	F100570	F100618	Overland	Overland	2.24	0.69	0.91	1.05
F100580l1	F100580	F100570	Overland	Overland	3.92	0.68	0.87	1.13
F100582l1	F100582	F100613	Overland	Overland	0.94	0.00	0.02	0.06
F100590l1	F100590	F100601	Overland	Overland	2.27	0.43	0.67	0.78
F100595l1	F100595	GIOUT16	Overland	Overland	6.36	0.79	1.24	1.44
F100598l1	F100598	F100532	Overland	Overland	1.71	0.66	1.03	1.20
F100600l1	F100600	F100523	Overland	Overland	3.47	0.55	1.01	1.22
F100601l1	F100601	F100598	Overland	Overland	1.78	0.45	0.70	0.82
F100613l1	F100613	F100616	Overland	Overland	2.05	0.00	0.00	0.00
F100616l1	F100616	F100703	Overland	Overland	2.06	0.00	0.00	0.00
F100618l1	F100618	F100422	Overland	Overland	2.83	1.99	2.88	3.41
F100624l1	F100624	F100627	Overland	Overland	1.74	0.00	0.00	0.00
F100627l1	F100627	F100633	Overland	Overland	1.63	0.00	0.00	0.02
F100633l1	F100633	F100516	Overland	Overland	1.75	0.19	0.33	0.40
F100636l1	F100636	F100633	Overland	Overland	-0.61	0.00	0.00	0.00
F100640l1	F100640	F100654	Overland	Overland	4.07	0.11	0.25	0.32
F100650l1	F100650	FGI1	Overland	Overland	2.08	0.17	0.24	0.28
F100651l1	F100651	181531	Overland	Overland	9.92	0.52	0.82	0.98
F100654l1	F100654	F100656	Overland	Overland	1.99	0.18	0.33	0.40
F100656l1	F100656	F100671	Overland	Overland	1.34	0.36	0.68	0.76
F100668l1	F100668	GI13a	Overland	Overland	1.49	0.83	2.46	3.69
F100671l1	F100671	F100668	Overland	Overland	0.98	0.68	2.29	3.31
F100681l1	F100681	F100689	Overland	Overland	4.25	1.30	2.10	2.73
F100685l1	F100685	F100262	Overland	Overland	1.43	0.06	0.25	0.34
F100689l1	F100689	F100691	Overland	Overland	1.42	1.80	2.74	3.40
F100691l1	F100691	FGI3	Overland	Overland	9.53	1.78	2.71	3.38
F100703l1	F100703	F100709	Overland	Overland	4.39	0.00	0.00	0.00
F100709l1	F100709	F100722	Overland	Overland	3.09	0.02	0.58	0.94
F100713l1	F100713	F100709	Overland	Overland	2.26	0.03	0.28	0.54
F100716l1	F100716	F100723	Overland	Overland	3.08	0.37	0.63	0.74
F100722l1	F100722	F100731	Overland	Overland	1.81	0.33	1.19	1.65
F100723l1	F100723	F100722	Overland	Overland	2.23	0.34	0.63	0.75
F100724l1	F100724	F100722	Overland	Overland	9.46	0.00	0.05	0.10
F100728l1	F100728	F100733	Overland	Overland	2.70	0.00	0.00	0.00
F100731l1	F100731	F100732	Overland	Overland	0.54	0.66	1.63	2.11
F100732l1	F100732	GIOUT14	Overland	Overland	1.43	1.22	2.31	2.94
F100733l1	F100733	F100732	Overland	Overland	5.23	0.42	0.60	0.71
F101125l1	F101125	F101413	Overland	Overland	3.36	1.03	1.48	1.74
F101126l1	F101126	F101125	Overland	Overland	-0.13	0.94	1.39	1.59
F101131l1	F101131	F101149	Overland	Overland	11.12	0.00	0.00	0.00
F101138l1	F101138	F101139	Overland	Overland	3.37	0.48	0.83	0.99
F101139l1	F101139	F101126	Overland	Overland	2.38	0.77	1.23	1.43

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F101140l1	F101140	F101138	Overland	Overland	12.13	0.24	0.48	0.63
F101145l1	F101145	10000866	Overland	Overland	11.44	0.00	0.00	0.00
F101148l1	F101148	F101145	Overland	Overland	5.58	0.00	0.00	0.01
F101148l2	F101148	F101125	Overland	Overland	7.70	0.12	0.24	0.32
F101149l1	F101149	F101140	Overland	Overland	3.09	0.26	0.33	0.36
F101151l1	F101151	F101140	Overland	Overland	4.60	0.00	0.00	0.00
F101154l1	F101154	F101151	Overland	Overland	6.46	0.00	0.00	0.00
F101157l1	F101157	F101148	Overland	Overland	4.85	0.13	0.25	0.33
F101160l1	F101160	F101157	Overland	Overland	7.58	0.15	0.29	0.37
F101164l1	F101164	F101160	Overland	Overland	-0.81	0.00	0.00	0.00
F101167l1	F101167	F181091	Overland	Overland	-18.10	0.00	0.00	0.00
F101170l1	F101170	F101167	Overland	Overland	10.56	0.03	0.21	0.29
F101171l1	F101171	181543a	Overland	Overland	4.33	0.00	0.00	0.00
F101179l1	F101179	F101164	Overland	Overland	6.97	0.00	0.00	0.00
F101184l1	F101184	F101170	Overland	Overland	7.60	0.06	0.20	0.28
F101202l1	F101202	F101416	Overland	Overland	1.20	0.89	1.54	1.84
F101210l1	F101210	F101211	Overland	Overland	4.24	0.65	1.17	1.40
F101211l1	F101211	F101202	Overland	Overland	3.62	0.73	1.36	1.62
F101214l1	F101214	F101417	Overland	Overland	2.74	0.38	0.81	1.03
F101227l1	F101227	F101210	Overland	Overland	5.71	0.05	0.17	0.23
F101237l1	F101237	F101214	Overland	Overland	4.34	0.37	0.90	1.12
F101240l1	F101240	F101237	Overland	Overland	3.30	0.46	0.99	1.19
F101245l1	F101245	F101240	Overland	Overland	8.24	0.10	0.21	0.25
F101252l1	F101252	F101245	Overland	Overland	8.63	0.00	0.00	0.00
F101254l1	F101254	F101255	Overland	Overland	5.13	0.35	0.60	0.73
F101255l1	F101255	F101210	Overland	Overland	4.81	0.36	0.62	0.74
F101256l1	F101256	F101257	Overland	Overland	4.02	0.00	0.00	0.01
F101257l1	F101257	F101227	Overland	Overland	7.09	0.00	0.00	0.00
F101260l1	F101260	F101240	Overland	Overland	2.74	0.33	0.50	0.59
F101265l1	F101265	F101267	Overland	Overland	11.65	0.00	0.03	0.04
F101267l1	F101267	F101256	Overland	Overland	9.35	0.00	0.01	0.03
F101273l1	F101273	F101254	Overland	Overland	6.95	0.31	0.54	0.67
F101305l1	F101305	F101308	Overland	Overland	-1.42	0.00	0.00	0.00
F101308l1	F101308	F101352	Overland	Overland	1.49	0.00	0.00	0.00
F101310l1	F101310	F101308	Overland	Overland	3.78	0.00	0.00	0.00
F101313l1	F101313	F101350	Overland	Overland	3.00	0.20	0.32	0.37
F101318l1	F101318	F101327	Overland	Overland	2.50	0.00	0.00	0.00
F101323l1	F101323	F101388	Overland	Overland	2.56	0.00	0.00	0.00
F101324l1	F101324	F101327	Overland	Overland	0.31	0.00	0.00	0.00
F101327l1	F101327	F101599	Overland	Overland	0.10	0.00	0.00	0.00
F101336l1	F101336	F5000008	Overland	Overland	8.61	0.01	0.01	0.01
F101340l1	F101340	F101599	Overland	Overland	3.34	0.00	0.08	0.13
F101350l1	F101350	F101355	Overland	Overland	1.42	0.15	0.32	0.38
F101352l1	F101352	10000321	Overland	Overland	6.72	0.00	0.00	0.00
F101355l1	F101355	10000317	Overland	Overland	6.14	6.16	7.65	8.36
F101356l1	F101356	F101355	Overland	Overland	0.70	6.24	7.66	8.29
F101376l1	F101376	F101356	Overland	Overland	1.70	6.28	7.69	8.31
F101376l2	F101376	10000926	Overland	Overland	4.84	0.30	0.43	0.46
F101386l1	F101386	F101399	Overland	Overland	3.82	0.31	0.57	0.69
F101388l1	F101388	10000344	Overland	Overland	3.28	0.00	0.00	0.00
F101396l1	F101396	F5000010	Overland	Overland	2.83	0.00	0.00	0.00
F101399l1	F101399	181549A	Overland	Overland	6.46	1.38	2.42	2.97
F101405l1	F101405	F101386	Overland	Overland	8.45	0.05	0.22	0.30
F101413l1	F101413	10000004	Overland	Overland	3.12	0.02	0.03	0.07
F101413l2	F101413	F181092	Overland	Overland	1.75	1.50	2.42	2.91
F101416l1	F101416	F101413	Overland	Overland	3.65	0.60	1.09	1.38
F101417l1	F101417	F101419	Overland	Overland	2.12	1.24	2.03	2.57
F101419l1	F101419	10000040	Overland	Overland	3.52	2.15	3.04	3.69
F101424l1	F101424	F101417	Overland	Overland	3.27	0.26	0.64	0.92
F101433l1	F101433	F101436	Overland	Overland	-1.04	0.04	0.38	0.52
F101436l1	F101436	F101424	Overland	Overland	3.77	0.02	0.35	0.50
F101447l1	F101447	F101433	Overland	Overland	2.35	0.22	0.47	0.58
F101450l1	F101450	F101447	Overland	Overland	4.16	0.07	0.19	0.25
F101472l1	F101472	F101396	Overland	Overland	6.30	0.00	0.00	0.00
F101476l1	F101476	F101493	Overland	Overland	1.40	0.00	0.00	0.00
F101478l1	F101478	F101498	Overland	Overland	2.37	0.07	0.28	0.38
F101480l1	F101480	F101478	Overland	Overland	3.30	0.18	0.33	0.41
F101483l1	F101483	F101567	Overland	Overland	2.47	0.00	0.00	0.00
F101484l1	F101484	F5000020	Overland	Overland	0.85	0.00	0.00	0.00
F101487l1	F101487	F101519	Overland	Overland	0.79	0.37	1.58	2.01
F101489l1	F101489	F101515	Overland	Overland	16.05	0.00	0.00	0.00
F101490l1	F101490	F101487	Overland	Overland	3.21	0.40	1.61	1.98
F101491l1	F101491	F101519	Overland	Overland	2.03	0.00	0.00	0.02
F101493l1	F101493	F101515	Overland	Overland	-0.34	0.00	0.00	0.00
F101498l1	F101498	F101504	Overland	Overland	0.60	0.00	0.03	0.10
F101500l1	F101500	F101498	Overland	Overland	3.17	0.00	0.00	0.00
F101504l1	F101504	F101522	Overland	Overland	0.35	0.00	0.00	0.00
F101508l1	F101508	F101526	Overland	Overland	0.72	0.00	0.00	0.00
F101513l1	F101513	F101520	Overland	Overland	1.19	0.00	0.00	0.00
F101514l1	F101514	F101513	Overland	Overland	-2.30	0.00	0.00	0.00
F101515l1	F101515	F106395	Overland	Overland	-2.19	0.00	0.00	0.00
F101519l1	F101519	F101520	Overland	Overland	1.96	0.37	1.43	1.94
F101520l1	F101520	F5000020	Overland	Overland	2.72	0.07	1.07	1.55

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F101522I1	F101522	F101508	Overland	Overland	0.20	0.00	0.00	0.00
F101526I1	F101526	F101484	Overland	Overland	2.39	0.00	0.00	0.00
F101538I1	F101538	F101539	Overland	Overland	1.41	0.00	0.01	0.03
F101539I1	F101539	F101491	Overland	Overland	1.94	0.00	0.01	0.02
F101544I1	F101544	F101538	Overland	Overland	3.30	0.00	0.01	0.04
F101549I1	F101549	F101340	Overland	Overland	3.62	0.00	0.00	0.00
F101550I1	F101550	F101544	Overland	Overland	1.12	0.00	0.00	0.00
F101553I1	F101553	F101549	Overland	Overland	7.29	0.00	0.00	0.00
F101554I1	F101554	F101599	Overland	Overland	4.95	0.00	0.00	0.00
F101558I1	F101558	F101569	Overland	Overland	3.90	0.00	0.00	0.02
F101562I1	F101562	F101483	Overland	Overland	5.47	0.00	0.00	0.00
F101567I1	F101567	F101581	Overland	Overland	3.53	0.02	0.13	0.20
F101569I1	F101569	F101567	Overland	Overland	2.71	0.02	0.14	0.21
F101573I1	F101573	F101575	Overland	Overland	2.06	0.02	0.17	0.24
F101575I1	F101575	F101569	Overland	Overland	1.54	0.02	0.15	0.24
F101576I1	F101576	F101598	Overland	Overland	1.91	0.07	0.07	0.08
F101581I1	F101581	F5000020	Overland	Overland	1.51	0.02	0.12	0.21
F101587I1	F101587	F101589	Overland	Overland	2.10	0.00	0.00	0.04
F101589I1	F101589	F101558	Overland	Overland	5.41	0.01	0.01	0.02
F101595I1	F101595	F101573	Overland	Overland	2.84	0.03	0.15	0.22
F101598I1	F101598	F101604	Overland	Overland	3.23	0.20	0.32	0.37
F101599I1	F101599	F101598	Overland	Overland	1.60	0.01	0.11	0.16
F101604I1	F101604	F101635	Overland	Overland	4.33	0.18	0.28	0.34
F101608I1	F101608	FGI6	Overland	Overland	2.05	0.24	0.40	0.47
F101610I1	F101610	F101613	Overland	Overland	0.89	0.80	1.23	0.95
F101613I1	F101613	F101687	Overland	Overland	-0.91	0.00	0.18	0.80
F101635I1	F101635	10000642	Overland	Overland	1.25	6.15	12.18	14.71
F101641I1	F101641	10000400	Overland	Overland	21.98	0.00	0.00	0.00
F101643I1	F101643	10000774	Overland	Overland	10.41	0.01	0.01	0.01
F101669I1	F101669	101484	Overland	Overland	1.27	0.04	0.10	0.13
F101676I1	F101676	F104128	Overland	Overland	0.14	0.19	0.41	0.51
F101679I1	F101679	F101695	Overland	Overland	0.58	0.01	0.11	0.23
F101683I1	F101683	F101679	Overland	Overland	1.31	0.00	0.01	0.26
F101686I1	F101686	F101689	Overland	Overland	0.20	0.00	0.00	0.33
F101687I1	F101687	F101686	Overland	Overland	3.02	0.00	0.01	0.59
F101689I1	F101689	F101683	Overland	Overland	2.06	0.00	0.00	0.31
F101695I1	F101695	F101696	Overland	Overland	1.24	0.13	0.37	0.48
F101696I1	F101696	F101825	Overland	Overland	0.75	0.34	0.68	0.82
F101704I1	F101704	F104152	Overland	Overland	0.07	0.02	0.17	0.25
F101705I1	F101705	F101720	Overland	Overland	0.65	0.47	0.82	1.01
F101708I1	F101708	F101710	Overland	Overland	1.28	0.00	0.00	0.00
F101710I1	F101710	10000431	Overland	Overland	15.67	0.00	0.00	0.00
F101711I1	F101711	F101705	Overland	Overland	1.73	0.00	0.05	0.08
F101712I1	F101712	F181574	Overland	Overland	-12.97	0.00	0.00	0.00
F101715I1	F101715	F216591	Overland	Overland	-1.23	0.00	0.00	0.00
F101717I1	F101717	F101833	Overland	Overland	3.48	0.01	0.10	0.14
F101718I1	F101718	F101705	Overland	Overland	2.29	0.18	0.49	0.66
F101720I1	F101720	F101847	Overland	Overland	1.19	1.13	1.96	2.56
F101747I1	F101747	F101749	Overland	Overland	3.43	0.00	0.06	0.09
F101749I1	F101749	F101711	Overland	Overland	2.39	0.00	0.06	0.10
F101762I1	F101762	F101789	Overland	Overland	0.18	0.21	0.41	0.49
F101763I1	F101763	F101778	Overland	Overland	0.36	0.16	0.35	0.44
F101766I1	F101766	F101762	Overland	Overland	0.13	0.16	0.26	0.30
F101771I1	F101771	F101810	Overland	Overland	0.37	0.29	0.52	0.62
F101778I1	F101778	F101781	Overland	Overland	0.23	0.31	0.57	0.70
F101781I1	F101781	F101803	Overland	Overland	2.03	0.80	1.63	2.01
F101789I1	F101789	F101810	Overland	Overland	0.44	0.21	0.41	0.51
F101803I1	F101803	F101807	Overland	Overland	2.10	0.76	1.62	2.12
F101805I1	F101805	F101807	Overland	Overland	-1.09	2.35	4.93	6.55
F101807I1	F101807	10000512	Overland	Overland	13.39	2.44	6.15	8.25
F101810I1	F101810	F101812	Overland	Overland	0.25	0.39	0.71	0.88
F101812I1	F101812	GIOUT8	Overland	Overland	2.67	0.26	0.52	0.73
F101825I1	F101825	F101781	Overland	Overland	0.97	0.50	0.96	1.16
F101829I1	F101829	F101845	Overland	Overland	0.53	1.32	2.69	3.30
F101833I1	F101833	F5000021	Overland	Overland	-1.65	0.06	0.11	0.20
F101836I1	F101836	F101837	Overland	Overland	3.82	0.13	0.50	0.62
F101837I1	F101837	F101805	Overland	Overland	0.54	2.79	5.07	6.60
F101842I1	F101842	F101858	Overland	Overland	-0.80	0.00	0.00	0.00
F101845I2	F101845	F101837	Overland	Overland	0.70	2.79	5.06	6.16
F101847I1	F101847	F101849	Overland	Overland	0.67	1.20	2.12	2.63
F101849I1	F101849	F101829	Overland	Overland	0.78	1.30	2.44	3.00
F101857I1	F101857	F181585	Overland	Overland	0.20	0.00	0.00	0.00
F101858I1	F101858	F101857	Overland	Overland	0.31	0.00	0.00	0.00
F101867I1	F101867	F101873	Overland	Overland	1.47	0.00	0.00	0.00
F101873I1	F101873	10000607	Overland	Overland	2.48	0.00	0.00	0.00
F101926I1	F101926	181597a	Overland	Overland	17.00	0.12	0.36	0.48
F101927I1	F101927	F101926	Overland	Overland	5.90	0.14	0.36	0.47
F101949I1	F101949	F102110	Overland	Overland	6.87	0.06	0.12	0.14
F101952I1	F101952	F101967	Overland	Overland	1.20	0.29	0.47	0.58
F101958I1	F101958	F5000024	Overland	Overland	3.51	0.38	0.70	0.85
F101967I1	F101967	10000952	Overland	Overland	8.12	0.47	0.75	0.89
F101970I1	F101970	10001136	Overland	Overland	6.38	0.07	0.16	0.20

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F101975I1	F101975	F101958	Overland	Overland	3.95	0.17	0.35	0.45
F101978I1	F101978	F101975	Overland	Overland	3.15	0.03	0.13	0.18
F101981I1	F101981	F101967	Overland	Overland	9.29	0.02	0.09	0.13
F101989I1	F101989	10000710	Overland	Overland	6.86	0.17	0.43	0.53
F101991I1	F101991	F102059	Overland	Overland	3.45	0.18	0.32	0.37
F101998I1	F101998	F10000915	Overland	Overland	2.94	1.87	3.51	4.16
F102001I1	F102001	F101998	Overland	Overland	2.94	1.71	3.26	3.86
F102006I1	F102006	F101952	Overland	Overland	2.25	0.06	0.14	0.21
F102015I1	F102015	F102016	Overland	Overland	1.95	1.65	2.90	3.55
F102016I1	F102016	F102001	Overland	Overland	1.79	1.53	2.91	3.48
F102021I1	F102021	10000772	Overland	Overland	4.56	0.00	0.12	0.14
F102026I1	F102026	F102021	Overland	Overland	1.42	0.02	0.21	0.14
F102029I1	F102029	F102015	Overland	Overland	1.44	1.62	2.79	3.36
F102032I1	F102032	F102029	Overland	Overland	2.89	1.53	2.73	3.28
F102035I1	F102035	F102026	Overland	Overland	4.36	0.00	0.00	0.00
F102037I1	F102037	F102032	Overland	Overland	1.22	0.82	1.55	1.88
F102044I1	F102044	F102048	Overland	Overland	4.95	0.09	0.25	0.32
F102045I1	F102045	F101952	Overland	Overland	13.77	0.03	0.14	0.18
F102046I1	F102046	F101952	Overland	Overland	5.70	0.01	0.02	0.02
F102048I1	F102048	F102006	Overland	Overland	6.30	0.02	0.10	0.16
F102056I1	F102056	F102032	Overland	Overland	4.51	0.60	1.11	1.33
F102059I1	F102059	F102069	Overland	Overland	1.54	0.64	1.01	1.16
F102069I1	F102069	F102056	Overland	Overland	3.67	0.59	0.97	1.12
F102077I1	F102077	F102037	Overland	Overland	2.16	0.73	1.44	1.75
F102082I1	F102082	F102077	Overland	Overland	2.39	0.75	1.21	1.46
F102085I1	F102085	F102082	Overland	Overland	5.01	0.61	1.28	1.53
F102089I1	F102089	102044	Overland	Overland	5.58	0.00	0.00	0.02
F102098I1	F102098	F102100	Overland	Overland	2.62	0.12	0.40	0.53
F102100I1	F102100	F102085	Overland	Overland	14.64	0.42	1.05	1.30
F102106I1	F102106	F102100	Overland	Overland	9.47	0.29	0.51	0.58
F102107I1	F102107	F102114	Overland	Overland	1.25	0.00	0.01	0.03
F102109I1	F102109	F102106	Overland	Overland	1.70	0.17	0.32	0.38
F102110I1	F102110	F102109	Overland	Overland	6.96	0.23	0.37	0.43
F102114I1	F102114	F119099	Overland	Overland	1.16	0.00	0.00	0.01
F102116I1	F102116	F102234	Overland	Overland	12.05	0.05	0.09	0.11
F102117I1	F102117	F102240	Overland	Overland	2.69	0.37	0.71	0.82
F102122I1	F102122	F102117	Overland	Overland	7.12	0.15	0.30	0.35
F102133I1	F102133	F102122	Overland	Overland	5.52	0.00	0.02	0.07
F102141I1	F102141	F102688	Overland	Overland	4.66	0.12	0.26	0.32
F102150I1	F102150	F102133	Overland	Overland	11.22	0.01	0.02	0.03
F102160I1	F102160	F102163	Overland	Overland	3.93	0.00	0.00	0.00
F102163I1	F102163	10000957	Overland	Overland	35.60	0.05	0.14	0.17
F102164I1	F102164	F102163	Overland	Overland	15.92	0.10	0.16	0.19
F102168I1	F102168	F102044	Overland	Overland	1.87	0.25	0.43	0.52
F102173I1	F102173	10001173	Overland	Overland	13.84	0.00	0.00	0.00
F102175I1	F102175	GIOUT4A	Overland	Overland	27.95	0.10	0.48	0.62
F102184I1	F102184	F102175	Overland	Overland	9.31	0.09	0.30	0.39
F102187I1	F102187	F102184	Overland	Overland	2.56	0.10	0.23	0.29
F102212I1	F102212	10000979	Overland	Overland	15.51	0.00	0.00	0.00
F102214I1	F102214	F102212	Overland	Overland	17.89	0.00	0.00	0.00
F102216I1	F102216	181607	Overland	Overland	17.75	0.00	0.01	0.35
F102219I1	F102219	181617	Overland	Overland	11.69	0.00	0.00	0.00
F102221I1	F102221	F102303	Overland	Overland	4.70	0.00	0.00	0.00
F102222I1	F102222	F102221	Overland	Overland	8.58	0.00	0.00	0.00
F102224I1	F102224	F102216	Overland	Overland	13.44	0.00	0.07	0.33
F102225I1	F102225	F102226	Overland	Overland	2.61	0.20	0.52	0.61
F102226I1	F102226	10001211	Overland	Overland	9.55	0.10	0.52	0.66
F102231I1	F102231	F102225	Overland	Overland	10.51	0.17	0.36	0.43
F102234I1	F102234	F102231	Overland	Overland	4.58	0.05	0.11	0.13
F102238I1	F102238	F102224	Overland	Overland	1.25	0.00	0.39	0.59
F102240I1	F102240	F102242	Overland	Overland	0.38	0.04	0.51	0.65
F102242I1	F102242	F102238	Overland	Overland	10.74	0.02	0.53	0.68
F102260I1	F102260	F101991	Overland	Overland	5.77	0.14	0.26	0.32
F102263I1	F102263	F102260	Overland	Overland	6.36	0.01	0.02	0.02
F102265I1	F102265	F102263	Overland	Overland	3.68	0.02	0.02	0.02
F102289I1	F102289	F102242	Overland	Overland	3.40	0.02	0.19	0.25
F102302I1	F102302	10001203	Overland	Overland	39.93	0.00	0.00	0.00
F102303I1	F102303	F102302	Overland	Overland	25.79	0.00	0.00	0.00
F102307I1	F102307	181617	Overland	Overland	11.07	0.33	0.71	0.87
F102683I1	F102683	F102686	Overland	Overland	8.15	0.00	0.00	0.00
F102684I1	F102684	F102683	Overland	Overland	4.89	0.00	0.00	0.00
F102685I1	F102685	F102684	Overland	Overland	-2.77	-0.01	-0.01	-0.01
F102686I1	F102686	F103363	Overland	Overland	5.61	0.00	0.00	0.00
F102688I1	F102688	F116261	Overland	Overland	1.77	0.25	0.47	0.55
F103222I1	F103222	F100595	Overland	Overland	2.28	0.83	1.29	1.52
F103310I1	F103310	F103311	Overland	Overland	3.15	0.00	0.09	0.16
F103311I1	F103311	F99508	Overland	Overland	2.63	0.27	0.56	0.71
F103363I1	F103363	F102141	Overland	Overland	4.88	0.09	0.19	0.24
F104110I1	F104110	F104112	Overland	Overland	1.46	0.00	0.00	0.00
F104112I1	F104112	F101669	Overland	Overland	-0.09	0.00	0.00	0.00
F104114I1	F104114	10001221	Overland	Overland	12.89	0.00	0.00	0.00
F104121I1	F104121	F104123	Overland	Overland	4.00	0.00	0.00	0.00
F104123I1	F104123	F104124	Overland	Overland	-0.57	0.00	0.00	0.00

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F104124l1	F104124	F104128	Overland	Overland	5.32	0.00	0.00	0.00
F104126l1	F104126	F104125	Overland	Overland	3.80	0.00	0.00	0.00
F104127l1	F104127	F101695	Overland	Overland	2.75	0.00	0.00	0.00
F104128l1	F104128	F104130	Overland	Overland	1.50	0.13	0.29	0.37
F104130l1	F104130	F104139	Overland	Overland	0.03	0.09	0.21	0.27
F104132l1	F104132	F104136	Overland	Overland	-0.37	0.00	0.00	0.00
F104136l1	F104136	10000423	Overland	Overland	18.10	0.00	0.00	0.00
F104139l1	F104139	F101704	Overland	Overland	0.75	0.06	0.22	0.35
F104140l1	F104140	F104139	Overland	Overland	3.38	0.00	0.07	0.11
F104146l1	F104146	F104152	Overland	Overland	0.96	0.00	0.00	0.01
F104148l1	F104148	F104146	Overland	Overland	-0.81	0.00	0.02	0.05
F104149l1	F104149	F104148	Overland	Overland	-0.11	0.00	0.00	0.00
F104150l1	F104150	F104148	Overland	Overland	0.13	0.07	0.14	0.18
F104152l1	F104152	F104154	Overland	Overland	0.97	0.01	0.14	0.23
F104154l1	F104154	F104155	Overland	Overland	0.89	0.00	0.11	0.19
F104155l1	F104155	F101803	Overland	Overland	2.33	0.01	0.10	0.17
F104160l1	F104160	F104163	Overland	Overland	4.62	0.00	0.00	0.00
F104161l1	F104161	F104163	Overland	Overland	3.52	0.00	0.00	0.00
F104162l1	F104162	F101643	Overland	Overland	8.28	0.02	0.02	0.02
F104163l1	F104163	10000472	Overland	Overland	12.72	0.00	0.00	0.00
F106120l1	F106120	F106731	Overland	Overland	6.42	0.00	0.00	0.00
F106123l1	F106123	F2000005	Overland	Overland	8.11	0.00	0.00	0.00
F106135l1	F106135	F106210	Overland	Overland	5.36	0.32	0.72	0.93
F106138l1	F106138	F106135	Overland	Overland	2.41	0.35	0.79	1.00
F106145l1	F106145	F106162	Overland	Overland	-1.34	0.00	0.00	0.00
F106148l1	F106148	F106288	Overland	Overland	0.70	0.11	0.18	0.21
F106150l1	F106150	F106219	Overland	Overland	3.11	0.00	0.00	0.00
F106154l1	F106154	F106323	Overland	Overland	3.64	0.00	0.00	0.00
F106162l1	F106162	Fgi6	Overland	Overland	2.14	0.19	0.39	0.49
F106163l1	F106163	F106145	Overland	Overland	-1.08	0.00	0.00	0.00
F106164l1	F106164	F106165	Overland	Overland	2.93	0.17	0.35	0.44
F106165l1	F106165	F106138	Overland	Overland	3.15	0.40	0.87	1.09
F106167l1	F106167	F106767	Overland	Overland	0.38	0.00	0.01	0.03
F106168l1	F106168	F106167	Overland	Overland	-1.40	0.00	0.00	0.00
F106170l1	F106170	F106192	Overland	Overland	1.58	0.10	0.28	0.35
F106178l1	F106178	F106183	Overland	Overland	-1.37	0.00	0.00	0.00
F106181l1	F106181	F106168	Overland	Overland	-0.36	0.00	0.00	0.00
F106183l1	F106183	F106181	Overland	Overland	-1.78	0.00	0.00	0.00
F106187l1	F106187	F106188	Overland	Overland	2.66	0.00	0.00	0.00
F106188l1	F106188	F106208	Overland	Overland	5.18	0.00	0.00	0.00
F106191l1	F106191	F106199	Overland	Overland	6.25	0.00	0.01	0.02
F106192l1	F106192	F106196	Overland	Overland	1.18	0.10	0.25	0.35
F106196l1	F106196	F106191	Overland	Overland	-1.17	0.00	0.07	0.21
F106199l1	F106199	F106204	Overland	Overland	3.10	0.00	0.00	0.02
F106200l1	F106200	F116103	Overland	Overland	1.93	0.00	0.00	0.00
F106204l1	F106204	181782a	Overland	Overland	12.11	0.00	0.00	0.02
F106208l1	F106208	F106209	Overland	Overland	6.81	0.00	0.00	0.00
F106209l1	F106209	F101490	Overland	Overland	4.70	0.02	0.05	0.06
F106210l1	F106210	F106209	Overland	Overland	-3.23	0.00	0.00	0.00
F106214l1	F106214	F106405	Overland	Overland	2.70	0.22	0.39	0.47
F106216l1	F106216	F106304	Overland	Overland	3.33	0.00	0.00	0.00
F106219l1	F106219	F106281	Overland	Overland	2.10	0.12	0.22	0.28
F106223l1	F106223	F106251	Overland	Overland	-4.55	0.00	0.00	0.00
F106230l1	F106230	F106231	Overland	Overland	-0.09	0.09	0.20	0.18
F106231l1	F106231	F106238	Overland	Overland	0.25	0.73	1.55	1.76
F106235l1	F106235	F106236	Overland	Overland	2.78	0.00	0.00	0.01
F106236l1	F106236	F106216	Overland	Overland	5.84	0.00	0.00	0.00
F106238l1	F106238	F106243	Overland	Overland	1.76	0.89	1.76	1.96
F106243l1	F106243	F106254	Overland	Overland	-0.98	0.99	1.47	1.57
F106245l1	F106245	F106274	Overland	Overland	2.01	0.91	1.46	1.75
F106246l1	F106246	F106247	Overland	Overland	2.22	0.81	1.37	1.65
F106247l1	F106247	F106245	Overland	Overland	4.57	0.81	1.36	1.65
F106249l1	F106249	F106251	Overland	Overland	2.44	0.98	2.05	2.58
F106251l1	F106251	F106254	Overland	Overland	-1.30	0.20	1.01	1.43
F106254l1	F106254	F106263	Overland	Overland	-2.48	0.00	0.00	0.00
F106257l1	F106257	F106249	Overland	Overland	3.12	0.88	1.84	2.38
F106258l1	F106258	F106257	Overland	Overland	1.79	0.95	1.85	2.37
F106263l1	F106263	F106266	Overland	Overland	-8.90	0.00	0.00	0.00
F106266l1	F106266	F106235	Overland	Overland	-0.44	0.00	0.00	0.00
F106268l1	F106268	F106263	Overland	Overland	1.71	0.00	0.00	0.00
F106270l1	F106270	F106272	Overland	Overland	4.20	0.05	0.31	0.47
F106272l1	F106272	F106274	Overland	Overland	0.70	0.02	0.19	0.31
F106274l1	F106274	F106258	Overland	Overland	1.09	0.95	1.63	2.03
F106275l1	F106275	F106270	Overland	Overland	1.82	0.06	0.29	0.41
F106276l1	F106276	F106275	Overland	Overland	3.60	0.09	0.34	0.47
F106281l1	F106281	F106270	Overland	Overland	5.17	0.02	0.08	0.13
F106287l1	F106287	F106276	Overland	Overland	6.30	0.10	0.39	0.52
F106288l1	F106288	F106287	Overland	Overland	3.79	0.11	0.42	0.56
F106290l1	F106290	F106266	Overland	Overland	2.14	0.00	0.00	0.00
F106293l1	F106293	F106235	Overland	Overland	2.25	0.00	0.01	0.06
F106303l1	F106303	F106425	Overland	Overland	2.01	0.00	0.01	0.28
F106304l1	F106304	F106303	Overland	Overland	0.75	0.00	0.00	0.04
F106316l1	F106316	F106216	Overland	Overland	0.17	0.00	0.00	0.00

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F106319l1	F106319	F106316	Overland	Overland	4.18	0.00	0.00	0.00
F106323l1	F106323	F106319	Overland	Overland	2.52	0.00	0.00	0.00
F106325l1	F106325	F106389	Overland	Overland	1.52	0.36	0.59	0.74
F106370l1	F106370	F106452	Overland	Overland	0.42	0.00	0.00	0.00
F106371l1	F106371	F106382	Overland	Overland	0.64	0.10	0.32	0.44
F106378l1	F106378	F106325	Overland	Overland	8.53	0.10	0.19	0.25
F106382l1	F106382	F106388	Overland	Overland	3.75	0.08	0.25	0.35
F106388l1	F106388	F106325	Overland	Overland	2.48	0.06	0.21	0.31
F106389l1	F106389	F101490	Overland	Overland	0.92	0.76	1.19	1.51
F106392l1	F106392	F101490	Overland	Overland	0.44	0.00	0.00	0.00
F106395l1	F106395	F101514	Overland	Overland	3.86	0.00	0.00	0.00
F106405l1	F106405	F10000196	Overland	Overland	3.45	0.45	0.82	0.99
F106417l1	F106417	F106418	Overland	Overland	1.96	0.00	0.00	0.00
F106418l1	F106418	F106419	Overland	Overland	5.29	0.00	0.00	0.00
F106419l1	F106419	F106425	Overland	Overland	6.23	0.00	0.00	0.00
F106423l1	F106423	F106446	Overland	Overland	1.68	0.00	0.00	0.02
F106424l1	F106424	F106423	Overland	Overland	0.82	0.00	0.00	0.02
F106425l1	F106425	F106424	Overland	Overland	-0.24	0.00	0.00	0.05
F106428l1	F106428	F106432	Overland	Overland	-5.37	0.00	0.00	0.00
F106432l1	F106432	F99404	Overland	Overland	7.16	0.00	0.00	0.00
F106437l1	F106437	F106438	Overland	Overland	-0.97	0.00	0.00	0.00
F106438l1	F106438	F106371	Overland	Overland	0.86	0.00	0.00	0.03
F106442l1	F106442	F106439	Overland	Overland	0.67	0.00	0.00	0.00
F106443l1	F106443	F106438	Overland	Overland	4.71	0.00	0.00	0.13
F106446l1	F106446	F106442	Overland	Overland	-1.81	0.00	0.00	0.00
F106447l1	F106447	F106428	Overland	Overland	0.50	0.00	0.00	0.00
F106448l1	F106448	F106447	Overland	Overland	2.55	0.00	0.00	0.00
F106450l1	F106450	F106448	Overland	Overland	-0.15	0.00	0.00	0.00
F106452l1	F106452	F106453	Overland	Overland	-0.02	0.00	0.00	0.00
F106453l1	F106453	F106450	Overland	Overland	-1.13	0.00	0.00	0.00
F106723l1	F106723	F106756	Overland	Overland	-1.93	0.80	1.52	1.88
F106724l1	F106724	F106736	Overland	Overland	7.17	0.00	0.00	0.00
F106731l1	F106731	F106724	Overland	Overland	8.13	0.00	0.00	0.00
F106736l1	F106736	F106745	Overland	Overland	11.88	0.35	0.61	0.74
F106737l1	F106737	F106736	Overland	Overland	3.90	0.34	0.59	0.72
F106745l1	F106745	F106755	Overland	Overland	5.30	0.32	0.60	0.73
F106752l1	F106752	F106774	Overland	Overland	3.64	0.00	0.00	0.00
F106753l1	F106753	F106723	Overland	Overland	6.32	0.31	0.53	0.65
F106755l1	F106755	F106723	Overland	Overland	8.25	0.29	0.55	0.68
F106756l1	F106756	F106757	Overland	Overland	3.70	0.76	1.47	1.84
F106757l1	F106757	F106771	Overland	Overland	3.29	0.73	1.37	1.72
F106767l1	F106767	F106777	Overland	Overland	-1.65	0.00	0.00	0.00
F106768l1	F106768	F106170	Overland	Overland	1.84	0.12	0.33	0.41
F106771l1	F106771	F106779	Overland	Overland	1.52	0.69	1.16	1.50
F106774l1	F106774	F106776	Overland	Overland	3.20	0.00	0.00	0.00
F106776l1	F106776	F106768	Overland	Overland	0.69	0.00	0.00	0.00
F106777l1	F106777	F106776	Overland	Overland	-1.62	0.00	0.00	0.00
F106779l1	F106779	F106777	Overland	Overland	-0.93	0.15	1.32	1.77
F106785l1	F106785	F106787	Overland	Overland	8.40	0.11	0.22	0.27
F106787l1	F106787	F106768	Overland	Overland	5.14	0.09	0.19	0.24
F116096l1	F116096	182223a	Overland	Overland	11.83	0.44	1.16	1.57
F116097l1	F116097	F10001063	Overland	Overland	2.52	0.00	0.00	0.00
F116098l1	F116098	F116097	Overland	Overland	1.90	0.00	0.00	0.00
F116099l1	F116099	182226a	Overland	Overland	5.51	0.00	0.00	0.00
F116103l1	F116103	F116141	Overland	Overland	2.13	0.08	0.19	0.25
F116107l1	F116107	F116157	Overland	Overland	7.25	0.02	0.19	0.27
F116109l1	F116109	F116114	Overland	Overland	5.79	0.00	0.00	0.00
F116114l1	F116114	F116141	Overland	Overland	8.30	0.00	0.05	0.08
F116118l1	F116118	F116151	Overland	Overland	7.35	0.24	0.55	0.70
F116130l1	F116130	F116177	Overland	Overland	9.60	0.02	0.21	0.26
F116131l1	F116131	F116183	Overland	Overland	8.97	0.01	0.01	0.01
F116134l1	F116134	F116130	Overland	Overland	8.72	0.04	0.24	0.29
F116141l1	F116141	F116148	Overland	Overland	2.52	0.07	0.23	0.30
F116146l1	F116146	F116181	Overland	Overland	1.81	0.05	0.26	0.60
F116148l1	F116148	F116157	Overland	Overland	2.16	0.03	0.12	0.50
F116151l1	F116151	F116148	Overland	Overland	-3.74	-0.01	0.00	0.34
F116157l1	F116157	F116146	Overland	Overland	2.72	0.05	0.28	0.62
F116163l1	F116163	F116164	Overland	Overland	1.07	0.00	0.00	0.00
F116164l1	F116164	F116098	Overland	Overland	1.57	0.00	0.00	0.00
F116177l1	F116177	F116181	Overland	Overland	12.17	0.08	0.46	0.58
F116179l1	F116179	F116194	Overland	Overland	0.76	0.12	0.26	0.34
F116181l1	F116181	F116179	Overland	Overland	1.49	0.22	0.82	1.10
F116183l1	F116183	F116179	Overland	Overland	6.92	0.01	0.01	0.01
F116187l1	F116187	F116194	Overland	Overland	4.12	0.54	0.94	1.09
F116194l1	F116194	F116191	Overland	Overland	-1.04	0.00	0.00	0.00
F116194l2	F116194	F116096	Overland	Overland	1.41	0.66	1.49	1.93
F116196l1	F116196	F116099	Overland	Overland	1.92	0.00	0.00	0.02
F116197l1	F116197	F116224	Overland	Overland	1.84	0.48	0.81	1.03
F116198l1	F116198	F116226	Overland	Overland	8.51	0.27	0.46	0.55
F116201l1	F116201	F116197	Overland	Overland	8.16	0.21	0.55	0.84
F116202l1	F116202	F116131	Overland	Overland	11.16	0.00	0.00	0.00
F116210l1	F116210	F116226	Overland	Overland	13.18	0.02	0.02	0.02
F116215l1	F116215	F116235	Overland	Overland	7.58	0.00	0.00	0.00

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F116216I1	F116216	F116215	Overland	Overland	7.57	0.00	0.00	0.00
F116218I1	F116218	F116198	Overland	Overland	6.54	0.28	0.47	0.56
F116221I1	F116221	F116237	Overland	Overland	6.09	0.06	0.18	0.23
F116224I1	F116224	F116187	Overland	Overland	5.34	0.41	0.79	0.94
F116226I1	F116226	F116230	Overland	Overland	2.81	0.27	0.46	0.54
F116230I1	F116230	F116191	Overland	Overland	2.99	0.26	0.45	0.54
F116235I1	F116235	F116221	Overland	Overland	5.84	0.00	0.00	0.00
F116237I1	F116237	182226a	Overland	Overland	6.19	0.00	0.02	0.19
F116261I1	F116261	F116265	Overland	Overland	7.10	0.25	0.48	0.57
F116265I1	F116265	F102307	Overland	Overland	6.99	0.26	0.47	0.58
F118543I1	F118543	F118546	Overland	Overland	0.71	0.07	0.14	0.18
F118544I1	F118544	F118543	Overland	Overland	1.72	0.00	0.01	0.03
F118545I1	F118545	F118546	Overland	Overland	1.31	0.00	0.02	0.03
F118546I1	F118546	F101160	Overland	Overland	8.93	0.15	0.24	0.30
F118559I1	F118559	F118545	Overland	Overland	0.38	0.00	0.01	0.02
F118625I1	F118625	F101252	Overland	Overland	6.44	0.00	0.00	0.00
F119099I1	F119099	F5000022	Overland	Overland	9.11	0.00	0.00	0.00
F132376I1	F132376	GI1	Overland	Overland	6.39	0.44	0.78	0.93
F132377I1	F132377	F132376	Overland	Overland	0.08	0.37	0.62	0.73
F132433I1	F132433	F132377	Overland	Overland	2.78	0.31	0.49	0.58
F132438I2	F132438	F132433	Overland	Overland	4.66	0.00	0.00	0.05
F132459I1	F132459	GI3	Overland	Overland	7.27	0.25	0.51	0.63
F132461I1	F132461	F132459	Overland	Overland	4.09	0.18	0.37	0.46
F155817I1	F155817	F155797	Overland	Overland	-1.20	0.00	0.00	0.00
F155821I1	F155821	F155827	Overland	Overland	8.17	0.00	0.03	0.44
F155826I1	F155826	F155817	Overland	Overland	1.04	0.20	0.42	0.39
F155827I1	F155827	F116201	Overland	Overland	8.99	0.05	0.30	0.66
F155835I1	F155835	F155826	Overland	Overland	6.69	0.20	0.50	0.65
F155845I1	F155845	F116134	Overland	Overland	7.30	0.00	0.00	0.00
F155848I1	F155848	F155845	Overland	Overland	8.54	0.00	0.00	0.00
F155859I1	F155859	F155848	Overland	Overland	1.09	0.00	0.00	0.02
F155869I1	F155869	F155870	Overland	Overland	6.01	0.14	0.33	0.46
F155870I1	F155870	F116118	Overland	Overland	8.70	0.26	0.58	0.74
F155872I1	F155872	F116109	Overland	Overland	0.49	0.00	0.00	0.00
F155885I1	F155885	F155889	Overland	Overland	5.25	0.00	0.00	0.00
F155888I1	F155888	F155869	Overland	Overland	4.73	0.06	0.15	0.25
F155889I1	F155889	F155888	Overland	Overland	14.45	0.00	0.04	0.13
F155896I1	F155896	F106785	Overland	Overland	12.00	0.11	0.23	0.29
F155936I1	F155936	F155896	Overland	Overland	9.89	0.14	0.26	0.32
F155938I1	F155938	F155936	Overland	Overland	11.79	0.00	0.00	0.00
F155941I1	F155941	F155942	Overland	Overland	1.69	0.00	0.00	0.00
F155942I1	F155942	F155943	Overland	Overland	-0.21	0.00	0.00	0.00
F155943I1	F155943	F155938	Overland	Overland	15.27	0.00	0.00	0.00
F155944I1	F155944	F155955	Overland	Overland	1.55	0.00	0.00	0.00
F155955I1	F155955	FEX1	Overland	Overland	17.36	0.00	0.00	0.00
F155964I1	F155964	F155986	Overland	Overland	6.16	0.00	0.00	0.00
F155986I1	F155986	F106123	Overland	Overland	7.59	0.00	0.00	0.00
F181077AI1	F181077A	F101635	Overland	Overland	12.48	2.79	9.01	11.47
F181078I1	F181078	181575A	Overland	Overland	97.61	13.18	20.19	22.92
F181079I1	F181079	10000394	Overland	Overland	16.26	4.80	6.74	7.58
F181081I1	F181081	10000512	Overland	Overland	8.53	4.38	11.36	14.83
F181082I1	F181082	F181596	Overland	Overland	7.80	0.00	0.00	0.00
F181091I1	F181091	F101265	Overland	Overland	20.16	0.00	0.00	0.00
F181092I1	F181092	10000040	Overland	Overland	4.11	1.37	2.47	3.24
F181094I1	F181094	F5000010	Overland	Overland	0.85	1.78	4.88	5.77
F181095I1	F181095	10000321	Overland	Overland	30.94	0.00	0.00	0.10
F181096I1	F181096	F99384	Overland	Overland	0.80	0.48	1.71	2.48
F181098I1	F181098	F100671	Overland	Overland	1.03	0.41	1.47	2.13
F181115I1	F181115	181514A	Overland	Overland	25.47	0.00	0.00	0.00
F181160I1	F181160	F116196	Overland	Overland	0.95	0.00	0.00	0.00
F181508I1	F181508	F100030	Overland	Overland	1.44	0.10	0.73	1.05
F181510I1	F181510	f10000897	Overland	Overland	1.37	0.00	0.63	0.96
F181525I1	F181525	F5000016	Overland	Overland	44.56	0.00	0.00	0.00
F181545I1	F181545	F181077A	Overland	Overland	-1.98	0.39	0.35	0.34
F181556I1	F181556	F101376	Overland	Overland	0.31	6.79	8.35	9.01
F181574I1	F181574	10000459	Overland	Overland	42.58	0.00	0.00	0.00
F181585I1	F181585	10000547	Overland	Overland	5.55	0.00	0.00	0.00
F181596I1	F181596	F10000961	Overland	Overland	0.64	0.06	0.08	0.14
F181603I1	F181603	10000772	Overland	Overland	4.20	0.00	0.00	0.00
F181789AI1	F181789A	F181789B	Overland	Overland	0.00	0.00	0.00	0.00
F181789BI1	F181789B	F101490	Overland	Overland	4.00	0.00	0.00	0.00
F181803I1	F181803	F106767	Overland	Overland	0.96	0.00	0.01	0.01
F182227I1	F182227	F101310	Overland	Overland	2.64	0.00	0.00	0.02
F183819I1	F183819	F102164	Overland	Overland	4.50	0.00	0.00	0.00
F183821I1	F183821	F102164	Overland	Overland	6.24	0.00	0.00	0.00
F187207I1	F187207	F106254	Overland	Overland	0.67	0.15	0.31	0.33
F187208I1	F187208	F99207	Overland	Overland	2.55	0.00	0.02	0.03
F187227I1	F187227	F100428	Overland	Overland	4.69	0.00	0.00	0.00
F187234I1	F187234	F187227	Overland	Overland	0.08	0.00	0.00	0.00
F2000005I1	F2000005	F106120	Overland	Overland	6.35	0.00	0.00	0.00
F2000008I1	F2000008	F106230	Overland	Overland	-4.92	0.03	0.07	0.06
F216546I1	F216546	F216548	Overland	Overland	-0.92	0.07	0.19	0.22
F216548I1	F216548	10000431	Overland	Overland	10.80	0.09	0.24	0.26

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F216551l1	F216551	F216546	Overland	Overland	7.78	0.00	0.00	0.01
F216556l1	F216556	F216551	Overland	Overland	0.13	0.00	0.02	0.12
F216573l1	F216573	F216556	Overland	Overland	-0.37	0.00	0.02	0.03
F216582l1	F216582	F216573	Overland	Overland	3.33	0.00	0.00	0.00
F216584l1	F216584	F216582	Overland	Overland	1.64	0.00	0.00	0.00
F216589l1	F216589	F101712	Overland	Overland	2.08	0.00	0.00	0.00
F216591l1	F216591	F216589	Overland	Overland	-0.51	0.00	0.00	0.00
F216606l1	F216606	F101715	Overland	Overland	1.09	0.00	0.09	0.14
F216607l1	F216607	F216606	Overland	Overland	0.05	0.00	0.21	0.25
F216846l1	F216846	F101836	Overland	Overland	0.49	0.29	0.37	0.49
F5000002l1	F5000002	F106753	Overland	Overland	9.04	0.00	0.00	0.00
F5000003l1	F5000003	F5000002	Overland	Overland	6.00	0.00	0.00	0.00
F5000004l1	F5000004	F5000003	Overland	Overland	10.37	0.00	0.00	0.00
F5000005l1	F5000005	F5000006	Overland	Overland	10.57	0.00	0.00	0.00
F5000006l1	F5000006	F155835	Overland	Overland	10.87	0.01	0.01	0.01
F5000007l1	F5000007	F5000005	Overland	Overland	4.44	0.00	0.00	0.00
F5000008l1	F5000008	F181545	Overland	Overland	0.76	1.68	4.77	5.77
F5000010l1	F5000010	181549A	Overland	Overland	17.97	0.00	0.00	0.00
F5000011l1	F5000011	F106150	Overland	Overland	-1.03	0.16	0.29	0.37
F5000012l1	F5000012	F99441	Overland	Overland	4.25	4.66	7.73	9.40
F5000013l1	F5000013	F100255	Overland	Overland	6.37	0.14	0.69	1.04
F5000014l1	F5000014	F5000015	Overland	Overland	4.00	0.02	0.53	0.85
F5000015l1	F5000015	GIOUT10a	Overland	Overland	7.69	2.34	3.57	4.52
F5000016l1	F5000016	F100379	Overland	Overland	2.99	2.36	3.57	4.49
F5000017l1	F5000017	F99719	Overland	Overland	0.53	0.00	0.01	0.01
F5000020l1	F5000020	10000367	Overland	Overland	7.86	0.00	0.48	0.96
F5000021l1	F5000021	F216846	Overland	Overland	0.86	0.01	0.10	0.18
F5000022l1	F5000022	F101927	Overland	Overland	11.22	0.00	0.00	0.00
F5000023l1	F5000023	F116163	Overland	Overland	1.46	0.00	0.00	0.00
F5000024l1	F5000024	10000623	Overland	Overland	5.58	1.56	3.61	5.31
F5000027l1	F5000027	F5000024	Overland	Overland	3.22	1.70	3.80	5.45
F99189l1	F99189	F187207	Overland	Overland	0.10	0.20	0.27	0.36
F99197l1	F99197	F99189	Overland	Overland	1.75	0.00	0.00	0.00
F99199l1	F99199	F106231	Overland	Overland	1.24	0.50	0.84	1.03
F99207l1	F99207	F99212	Overland	Overland	-2.33	0.27	0.48	0.58
F99212l1	F99212	F99199	Overland	Overland	2.57	0.54	0.97	1.17
F99213l1	F99213	F99212	Overland	Overland	0.13	0.38	0.57	0.68
F99214l1	F99214	F99213	Overland	Overland	0.46	0.52	0.74	0.85
F99378l1	F99378	F100134	Overland	Overland	1.97	0.67	2.12	3.07
F99380l1	F99380	F99387	Overland	Overland	1.50	0.12	0.22	0.27
F99382l1	F99382	F99397	Overland	Overland	1.36	0.01	0.15	0.43
F99383l1	F99383	F99385	Overland	Overland	-0.12	0.27	0.42	0.48
F99384l1	F99384	F99378	Overland	Overland	5.79	0.31	1.46	2.24
F99385l1	F99385	F100133	Overland	Overland	2.17	0.41	0.69	0.81
F99386l1	F99386	F99383	Overland	Overland	-2.53	0.26	0.40	0.46
F99387l1	F99387	F99386	Overland	Overland	2.70	0.18	0.31	0.36
F99391l1	F99391	F99385	Overland	Overland	2.53	0.17	0.28	0.34
F99397l1	F99397	F99407	Overland	Overland	5.02	0.05	0.32	0.59
F99400l1	F99400	F181096	Overland	Overland	5.05	0.55	1.39	1.85
F99402l1	F99402	10001040	Overland	Overland	9.16	0.00	0.00	0.00
F99404l1	F99404	10001040	Overland	Overland	8.09	0.00	0.00	0.00
F99407l1	F99407	F99400	Overland	Overland	-1.78	0.57	1.38	1.88
F99413l1	F99413	F99382	Overland	Overland	-1.42	0.00	0.14	0.33
F99414l1	F99414	F99382	Overland	Overland	-0.24	0.08	0.15	0.40
F99416l1	F99416	F99397	Overland	Overland	4.24	0.07	0.24	0.31
F99422l1	F99422	F99380	Overland	Overland	1.57	0.00	0.00	0.00
F99441l1	F99441	F99508	Overland	Overland	1.11	0.14	0.31	0.40
F99446l1	F99446	F99647	Overland	Overland	3.10	0.35	0.58	0.69
F99450l1	F99450	F99501	Overland	Overland	1.08	0.28	0.45	0.56
F99457l1	F99457	F99465	Overland	Overland	-0.02	0.29	0.43	0.50
F99465l1	F99465	F99450	Overland	Overland	1.15	0.23	0.38	0.45
F99476l1	F99476	F100398	Overland	Overland	6.25	0.49	0.78	0.91
F99499l1	F99499	F99503	Overland	Overland	0.53	0.13	0.42	0.61
F99501l1	F99501	F99499	Overland	Overland	1.21	0.24	0.45	0.56
F99503l1	F99503	F99414	Overland	Overland	-0.16	0.00	0.00	0.13
F99507l1	F99507	F99416	Overland	Overland	-1.64	0.00	0.00	0.00
F99508l1	F99508	F99510	Overland	Overland	0.24	0.66	1.18	1.51
F99510l1	F99510	F99511	Overland	Overland	0.28	0.65	1.27	1.56
F99511l1	F99511	F99507	Overland	Overland	6.27	0.61	1.27	1.59
F99536l1	F99536	F99476	Overland	Overland	9.95	0.01	0.01	0.01
F99619l1	F99619	F132438	Overland	Overland	5.57	0.00	0.00	0.01
F99627l1	F99627	F100580	Overland	Overland	1.08	0.52	0.67	0.98
F99644l1	F99644	F99648	Overland	Overland	-4.60	0.00	0.00	0.02
F99645l1	F99645	F100566	Overland	Overland	3.65	0.15	0.26	0.32
F99647l1	F99647	F99627	Overland	Overland	0.74	0.31	0.47	0.71
F99648l1	F99648	F100568	Overland	Overland	2.65	0.01	0.10	0.26
F99665l1	F99665	F99645	Overland	Overland	3.34	0.00	0.00	0.00
F99670l1	F99670	F99665	Overland	Overland	3.90	0.00	0.00	0.00
F99714l1	F99714	F99627	Overland	Overland	2.74	0.00	0.00	0.00
F99716l1	F99716	F99714	Overland	Overland	-1.15	0.00	0.00	0.04
F99718l1	F99718	F99716	Overland	Overland	0.70	0.03	0.04	0.04
F99719l1	F99719	F99648	Overland	Overland	2.41	0.02	0.22	0.19
F99731l1	F99731	F99718	Overland	Overland	4.06	0.01	0.01	0.01

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F99733I1	F99733	F99731	Overland	Overland	4.19	0.00	0.00	0.00
F99784I1	F99784	F99953	Overland	Overland	4.27	0.00	0.00	0.00
F99785I1	F99785	F99948	Overland	Overland	3.74	0.00	0.03	0.07
F99791I1	F99791	F99784	Overland	Overland	5.58	0.00	0.00	0.00
F99800I1	F99800	F99869	Overland	Overland	1.22	0.03	0.13	0.16
F99804I1	F99804	F101720	Overland	Overland	2.17	0.65	1.27	1.56
F99831I1	F99831	F101718	Overland	Overland	3.24	0.22	0.50	0.65
F99833I1	F99833	F99831	Overland	Overland	4.84	0.40	0.64	0.76
F99835I1	F99835	F99831	Overland	Overland	1.99	0.00	0.00	0.00
F99840I1	F99840	F99804	Overland	Overland	3.81	0.57	1.20	1.47
F99842I1	F99842	F99840	Overland	Overland	3.39	0.14	0.36	0.46
F99843I1	F99843	F99840	Overland	Overland	4.43	0.08	0.33	0.45
F99845I1	F99845	F99848	Overland	Overland	1.08	1.16	1.88	2.30
F99848I1	F99848	F101399	Overland	Overland	2.68	1.11	1.79	2.17
F99850I1	F99850	F99869	Overland	Overland	4.29	0.00	0.01	0.03
F99851I1	F99851	10000272	Overland	Overland	7.51	0.54	0.90	1.11
F99856I1	F99856	F99851	Overland	Overland	3.21	0.21	0.44	0.55
F99858I1	F99858	F99851	Overland	Overland	4.61	0.05	0.15	0.20
F99864I1	F99864	F99856	Overland	Overland	3.99	0.19	0.41	0.52
F99869I1	F99869	F99882	Overland	Overland	7.78	0.02	0.19	0.25
F99873I1	F99873	F99845	Overland	Overland	1.83	0.84	1.51	1.84
F99878I1	F99878	F99879	Overland	Overland	1.66	0.49	1.18	1.47
F99879I1	F99879	F99873	Overland	Overland	1.20	0.78	1.51	1.83
F99882I1	F99882	F99886	Overland	Overland	1.58	0.00	0.01	0.03
F99885I1	F99885	F99882	Overland	Overland	1.07	0.00	0.00	0.00
F99886I1	F99886	F99840	Overland	Overland	2.26	0.00	0.00	0.00
F99888I1	F99888	F99891	Overland	Overland	4.63	0.06	0.20	0.27
F99891I1	F99891	F99843	Overland	Overland	4.46	0.13	0.38	0.51
F99896I1	F99896	F99898	Overland	Overland	4.24	0.51	0.94	1.14
F99898I1	F99898	F99878	Overland	Overland	2.91	0.42	1.04	1.32
F99899I1	F99899	F99898	Overland	Overland	3.14	0.10	0.27	0.35
F99912I1	F99912	F99864	Overland	Overland	4.11	0.01	0.15	0.23
F99915I1	F99915	F99912	Overland	Overland	6.00	0.01	0.09	0.14
F99919I1	F99919	F99888	Overland	Overland	7.01	0.07	0.21	0.28
F99925I1	F99925	F99919	Overland	Overland	6.41	0.00	0.00	0.00
F99936I1	F99936	F99937	Overland	Overland	5.10	0.31	0.56	0.69
F99937I1	F99937	F99896	Overland	Overland	7.17	0.28	0.55	0.68
F99947I1	F99947	181505A	Overland	Overland	5.85	0.00	0.08	0.30
F99948I1	F99948	F99947	Overland	Overland	12.27	0.00	0.04	0.27
F99951I1	F99951	F100003	Overland	Overland	0.63	0.00	0.18	0.27
F99953I1	F99953	F99951	Overland	Overland	4.47	0.00	0.00	0.00
F99954I1	F99954	F99948	Overland	Overland	3.57	0.02	0.18	0.23
F99960I1	F99960	F100098	Overland	Overland	5.98	0.01	0.18	0.24
F99994I1	F99994	F100012	Overland	Overland	4.76	0.06	0.19	0.26
FEX1I1	FEX1	F106737	Overland	Overland	8.35	0.01	0.01	0.01

D2: Future Development Scenario
Calculated Overland Flows

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F10000085l1	F10000085	F181789B	Overland	Overland	5.62	0.00	0.00	0.00
F10000196l1	F10000196	F10000252	Overland	Overland	2.90	0.03	0.25	0.37
F10000252l1	F10000252	F182227	Overland	Overland	2.82	0.00	0.05	0.19
F100003l1	F100003	F100080	Overland	Overland	3.73	0.00	0.18	0.27
F100004l1	F100004	F100007	Overland	Overland	0.37	1.66	2.48	2.91
F100007l1	F100007	F101845	Overland	Overland	1.13	1.74	2.67	3.18
f10000897l1	10000897	10000909	Overland	Overland	0.32	5.50	5.91	6.05
F10000909l1	F10000909	F5000027	Overland	Overland	-0.58	2.30	4.84	6.51
F10000915l1	F10000915	F10000909	Overland	Overland	2.19	2.38	4.00	4.73
F10000961l1	F10000961	10000585	Overland	Overland	4.15	0.18	0.22	0.35
F100009l1	F100009	F100004	Overland	Overland	0.49	1.52	2.21	2.53
F10001063l1	F10001063	F10001064	Overland	Overland	2.55	0.00	0.00	0.00
F10001064l1	F10001064	182224	Overland	Overland	2.40	0.00	0.00	0.00
F100012l1	F100012	F99842	Overland	Overland	3.52	0.17	0.35	0.44
F100023l1	F100023	F100026	Overland	Overland	0.72	0.01	0.49	0.57
F100026l1	F100026	f10000897	Overland	Overland	2.09	0.00	0.43	0.30
F100029l1	F100029	F100030	Overland	Overland	0.93	0.04	0.14	0.16
F100030l1	F100030	f10000897	Overland	Overland	1.51	0.95	1.82	2.33
F100039l1	F100039	F100042	Overland	Overland	1.27	0.23	0.40	0.49
F100042l1	F100042	F100044	Overland	Overland	0.00	0.23	0.44	0.55
F100044l1	F100044	F100023	Overland	Overland	3.56	0.19	0.38	0.50
F100050l1	F100050	181507A	Overland	Overland	3.97	0.03	0.30	0.45
F100052l1	F100052	F100050	Overland	Overland	4.21	0.12	0.30	0.63
F100065l1	F100065	F100029	Overland	Overland	4.99	0.00	0.00	0.00
F100066l1	F100066	F100065	Overland	Overland	4.72	0.00	0.00	0.00
F100069l1	F100069	F100072	Overland	Overland	3.62	0.52	0.96	1.16
F100072l1	F100072	10000772	Overland	Overland	4.59	0.70	1.30	1.74
F100073l1	F100073	F100066	Overland	Overland	5.71	0.00	0.00	0.00
F100075l1	F100075	F100085	Overland	Overland	4.54	0.11	0.36	0.47
F100076l1	F100076	F100077	Overland	Overland	3.18	0.00	0.05	0.28
F100077l1	F100077	F100052	Overland	Overland	2.65	0.00	0.08	0.36
F100080l1	F100080	181514A	Overland	Overland	8.93	0.01	0.31	0.45
F100085l1	F100085	F100069	Overland	Overland	2.93	0.17	0.48	0.62
F100087l1	F100087	F100072	Overland	Overland	4.57	0.20	0.33	0.41
F100089l1	F100089	F100087	Overland	Overland	-0.39	0.22	0.36	0.42
F100097l1	F100097	F101989	Overland	Overland	7.29	0.17	0.34	0.42
F100098l1	F100098	F100076	Overland	Overland	6.13	0.00	0.24	0.33
F100102l1	F100102	F100075	Overland	Overland	8.39	0.00	0.00	0.00
F100113l1	F100113	F100114	Overland	Overland	2.68	1.52	4.11	5.49
F100114l1	F100114	F100115	Overland	Overland	2.24	2.13	4.83	6.17
F100115l1	F100115	F100117	Overland	Overland	2.21	2.67	5.64	6.95
F100117l1	F100117	F100119	Overland	Overland	2.74	3.28	6.32	7.70
F100119l1	F100119	F5000013	Overland	Overland	-0.21	4.67	7.80	9.30
F100124l1	F100124	F100113	Overland	Overland	1.53	1.64	4.22	5.66
F100133l1	F100133	F100134	Overland	Overland	2.38	0.77	1.14	1.33
F100134l1	F100134	F100140	Overland	Overland	0.68	2.09	4.37	5.62
F100140l1	F100140	F100142	Overland	Overland	-0.34	2.18	5.51	6.04
F100142l1	F100142	F100172	Overland	Overland	1.96	1.86	4.02	5.68
F100151l1	F100151	F100165	Overland	Overland	0.93	0.09	0.20	0.25
F100162l1	F100162	F101608	Overland	Overland	0.45	0.33	0.49	0.56
F100165l1	F100165	F100206	Overland	Overland	1.68	0.08	0.28	0.39
F100172l1	F100172	F100175	Overland	Overland	0.45	2.03	4.59	6.03
F100175l1	F100175	F100124	Overland	Overland	3.08	1.80	4.38	5.81
F100203l1	F100203	F101610	Overland	Overland	-0.27	0.42	0.77	0.79
F100206l1	F100206	F100203	Overland	Overland	1.77	0.07	0.29	0.43
F100221l1	F100221	F100226	Overland	Overland	4.23	0.27	0.53	0.64
F100226l1	F100226	F100346	Overland	Overland	2.38	0.36	0.76	0.94
F100227l1	F100227	F100252	Overland	Overland	19.09	0.00	0.00	0.00
F100232l1	F100232	F100234	Overland	Overland	4.35	0.11	0.23	0.28
F100234l1	F100234	F100344	Overland	Overland	1.99	0.28	0.46	0.54
F100245l1	F100245	FGI7	Overland	Overland	1.58	0.17	0.37	0.47
F100252l1	F100252	F100255	Overland	Overland	10.87	0.38	0.48	0.49
F100255l1	F100255	F100274	Overland	Overland	-0.08	5.16	8.70	10.42
F100256l1	F100256	181520A	Overland	Overland	12.32	3.43	7.69	9.79
F100262l1	F100262	GIOUT10a	Overland	Overland	6.01	0.47	0.89	1.11
F100274l1	F100274	F100256	Overland	Overland	-7.46	3.67	7.64	9.58
F100276l1	F100276	F100256	Overland	Overland	5.51	0.48	1.18	1.58
F100286l1	F100286	F100320	Overland	Overland	0.30	0.39	0.60	0.71
F100288l1	F100288	F100320	Overland	Overland	1.04	0.18	0.27	0.32
F100294l1	F100294	F5000014	Overland	Overland	1.39	0.38	0.61	0.72
F100316l1	F100316	F100325	Overland	Overland	0.23	0.02	0.07	0.09
F100324l1	F100324	F100320	Overland	Overland	-0.09	0.00	0.00	0.00
F100324l2	F100324	F100325	Overland	Overland	0.76	0.57	0.97	1.13
F100325l1	F100325	F100338	Overland	Overland	1.30	0.65	1.17	1.39
F100330l1	F100330	GIOUT9A	Overland	Overland	53.60	0.33	0.91	1.18
F100338l1	F100338	F100330	Overland	Overland	2.00	0.48	1.07	1.34
F100344l1	F100344	F100347	Overland	Overland	2.24	0.23	0.45	0.57
F100346l1	F100346	F100276	Overland	Overland	3.31	0.54	1.28	1.67
F100347l1	F100347	F100346	Overland	Overland	3.06	0.20	0.44	0.57
F100354l1	F100354	F100363	Overland	Overland	1.69	0.01	0.10	0.14
F100363l1	F100363	FGI7	Overland	Overland	-1.29	0.00	0.00	0.00
F100377l1	F100377	F100636	Overland	Overland	-1.45	0.00	0.00	0.00
F100379l1	F100379	181527A	Overland	Overland	12.90	2.27	4.22	5.50

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F100380l1	F100380	F100379	Overland	Overland	7.09	0.00	0.00	0.00
F100393l1	F100393	F100618	Overland	Overland	3.17	1.12	1.66	1.96
F100395l1	F100395	F100393	Overland	Overland	3.90	0.58	0.85	1.01
F100398l1	F100398	F100395	Overland	Overland	4.32	0.56	0.83	0.98
F100422l1	F100422	F100440	Overland	Overland	1.91	1.76	2.79	3.38
F100425l1	F100425	F100440	Overland	Overland	4.09	0.02	0.40	0.80
F100428l1	F100428	F100431	Overland	Overland	4.06	0.19	0.30	0.34
F100431l1	F100431	F100425	Overland	Overland	2.24	0.53	0.78	0.88
F100436l1	F100436	F100425	Overland	Overland	-1.42	0.00	0.12	0.26
F100439l1	F100439	F100436	Overland	Overland	-0.86	0.00	0.00	0.00
F100440l1	F100440	F5000016	Overland	Overland	5.10	1.83	3.07	4.26
F100442l1	F100442	FEX2	Overland	Overland	4.35	0.40	0.58	0.68
F100447l1	F100447	F100494	Overland	Overland	5.39	0.47	0.73	0.86
F100448l1	F100448	F100115	Overland	Overland	9.53	0.12	0.13	0.13
F100454l1	F100454	F100460	Overland	Overland	20.10	0.13	0.27	0.32
F100460l1	F100460	F100468	Overland	Overland	2.92	0.25	0.39	0.45
F100468l1	F100468	F100447	Overland	Overland	9.40	0.56	0.83	0.95
F100470l1	F100470	F100502	Overland	Overland	7.70	0.00	0.00	0.01
F100474l1	F100474	F100477	Overland	Overland	2.20	0.02	0.02	0.02
F100477l1	F100477	F100478	Overland	Overland	1.56	0.00	0.00	0.00
F100478l2	F100478	FGI4	Overland	Overland	5.46	0.21	0.46	0.58
F100480l1	F100480	F100442	Overland	Overland	0.64	0.24	0.36	0.41
F100494l1	F100494	F100500	Overland	Overland	5.00	0.58	0.84	0.98
F100500l1	F100500	F100502	Overland	Overland	0.19	0.88	1.30	1.53
F100502l1	F100502	FGI2	Overland	Overland	7.96	1.10	1.67	2.00
F100503l1	F100503	FGI2	Overland	Overland	3.25	0.02	0.03	0.03
F100516l1	F100516	F100716	Overland	Overland	2.28	0.33	0.48	0.56
F100518l1	F100518	F100528	Overland	Overland	1.07	0.09	0.19	0.23
F100523l1	F100523	F100535	Overland	Overland	-0.93	0.70	1.43	1.75
F100528l1	F100528	F100531	Overland	Overland	3.78	0.15	0.25	0.31
F100531l1	F100531	GIOUT15	Overland	Overland	7.22	0.69	1.42	1.81
F100532l1	F100532	F100538	Overland	Overland	2.63	0.57	1.00	1.18
F100533l1	F100533	F100532	Overland	Overland	-0.50	0.00	0.00	0.00
F100535l1	F100535	F100531	Overland	Overland	3.30	0.66	1.22	1.58
F100538l1	F100538	F100713	Overland	Overland	2.48	0.23	0.56	0.76
F100544l1	F100544	F100600	Overland	Overland	2.26	0.58	0.87	1.01
F100556l1	F100556	F100590	Overland	Overland	5.60	0.00	0.02	0.07
F100559l1	F100559	F100544	Overland	Overland	4.41	0.16	0.29	0.34
F100565l1	F100565	F100559	Overland	Overland	4.27	0.13	0.26	0.30
F100566l1	F100566	F100565	Overland	Overland	3.22	0.13	0.26	0.29
F100568l1	F100568	F100556	Overland	Overland	2.63	0.00	0.03	0.07
F100570l1	F100570	F100618	Overland	Overland	2.24	0.70	1.00	1.22
F100580l1	F100580	F100570	Overland	Overland	3.92	0.68	0.93	1.18
F100582l1	F100582	F100613	Overland	Overland	0.94	0.00	0.03	0.06
F100590l1	F100590	F100601	Overland	Overland	2.27	0.48	0.70	0.80
F100595l1	F100595	GIOUT16	Overland	Overland	6.36	0.88	1.30	1.52
F100598l1	F100598	F100532	Overland	Overland	1.71	0.75	1.08	1.27
F100600l1	F100600	F100523	Overland	Overland	3.47	0.61	1.03	1.25
F100601l1	F100601	F100598	Overland	Overland	1.78	0.51	0.74	0.86
F100613l1	F100613	F100616	Overland	Overland	2.05	0.00	0.00	0.00
F100616l1	F100616	F100703	Overland	Overland	2.06	0.00	0.00	0.00
F100618l1	F100618	F100422	Overland	Overland	2.83	2.09	3.12	3.91
F100624l1	F100624	F100627	Overland	Overland	1.74	0.00	0.00	0.00
F100627l1	F100627	F100633	Overland	Overland	1.63	0.00	0.01	0.04
F100633l1	F100633	F100516	Overland	Overland	1.75	0.21	0.35	0.41
F100636l1	F100636	F100633	Overland	Overland	-0.61	0.00	0.00	0.00
F100640l1	F100640	F100654	Overland	Overland	4.07	0.14	0.30	0.38
F100650l1	F100650	FGI1	Overland	Overland	2.08	0.19	0.26	0.29
F100651l1	F100651	181531	Overland	Overland	9.92	0.56	0.90	1.10
F100654l1	F100654	F100656	Overland	Overland	1.99	0.22	0.37	0.43
F100656l1	F100656	F100671	Overland	Overland	1.34	0.47	0.72	0.82
F100668l1	F100668	GI13a	Overland	Overland	1.49	1.02	2.94	4.16
F100671l1	F100671	F100668	Overland	Overland	0.98	0.90	2.64	3.67
F100681l1	F100681	F100689	Overland	Overland	4.25	1.35	2.45	2.97
F100685l1	F100685	F100262	Overland	Overland	1.43	0.12	0.30	0.39
F100689l1	F100689	F100691	Overland	Overland	1.42	2.01	3.11	3.68
F100691l1	F100691	FGI3	Overland	Overland	9.53	2.00	3.07	3.68
F100703l1	F100703	F100709	Overland	Overland	4.39	0.00	0.00	0.00
F100709l1	F100709	F100722	Overland	Overland	3.09	0.10	0.71	1.08
F100713l1	F100713	F100709	Overland	Overland	2.26	0.10	0.32	0.62
F100716l1	F100716	F100723	Overland	Overland	3.08	0.44	0.67	0.79
F100722l1	F100722	F100731	Overland	Overland	1.81	0.41	1.39	1.96
F100723l1	F100723	F100722	Overland	Overland	2.23	0.42	0.68	0.81
F100724l1	F100724	F100722	Overland	Overland	9.46	0.00	0.07	0.12
F100728l1	F100728	F100733	Overland	Overland	2.70	0.00	0.00	0.00
F100731l1	F100731	F100732	Overland	Overland	0.54	0.71	1.76	2.35
F100732l1	F100732	GIOUT14	Overland	Overland	1.43	1.29	2.47	3.39
F100733l1	F100733	F100732	Overland	Overland	5.23	0.41	0.61	0.69
F101125l1	F101125	F101413	Overland	Overland	3.36	1.06	1.58	1.88
F101126l1	F101126	F101125	Overland	Overland	-0.13	1.04	1.47	1.70
F101131l1	F101131	F101149	Overland	Overland	11.12	0.00	0.00	0.00
F101138l1	F101138	F101139	Overland	Overland	3.37	0.58	0.90	1.06
F101139l1	F101139	F101126	Overland	Overland	2.38	0.91	1.31	1.51

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F101140l1	F101140	F101138	Overland	Overland	12.13	0.29	0.54	0.69
F101145l1	F101145	10000866	Overland	Overland	11.44	0.00	0.00	0.00
F101148l1	F101148	F101145	Overland	Overland	5.58	0.00	0.00	0.01
F101148l2	F101148	F101125	Overland	Overland	7.70	0.13	0.25	0.34
F101149l1	F101149	F101140	Overland	Overland	3.09	0.27	0.33	0.36
F101151l1	F101151	F101140	Overland	Overland	4.60	0.00	0.00	0.00
F101154l1	F101154	F101151	Overland	Overland	6.46	0.00	0.00	0.00
F101157l1	F101157	F101148	Overland	Overland	4.85	0.15	0.27	0.36
F101160l1	F101160	F101157	Overland	Overland	7.58	0.17	0.30	0.39
F101164l1	F101164	F101160	Overland	Overland	-0.81	0.00	0.00	0.00
F101167l1	F101167	F181091	Overland	Overland	-18.10	0.00	0.00	0.00
F101170l1	F101170	F101167	Overland	Overland	10.56	0.06	0.22	0.29
F101171l1	F101171	181543a	Overland	Overland	4.33	0.00	0.00	0.00
F101179l1	F101179	F101164	Overland	Overland	6.97	0.00	0.00	0.00
F101184l1	F101184	F101170	Overland	Overland	7.60	0.08	0.22	0.27
F101202l1	F101202	F101416	Overland	Overland	1.20	0.99	1.66	2.01
F101210l1	F101210	F101211	Overland	Overland	4.24	0.76	1.26	1.49
F101211l1	F101211	F101202	Overland	Overland	3.62	0.87	1.46	1.75
F101214l1	F101214	F101417	Overland	Overland	2.74	0.44	0.88	1.12
F101227l1	F101227	F101210	Overland	Overland	5.71	0.06	0.20	0.25
F101237l1	F101237	F101214	Overland	Overland	4.34	0.51	0.96	1.18
F101240l1	F101240	F101237	Overland	Overland	3.30	0.57	1.04	1.22
F101245l1	F101245	F101240	Overland	Overland	8.24	0.12	0.22	0.25
F101252l1	F101252	F101245	Overland	Overland	8.63	0.00	0.00	0.00
F101254l1	F101254	F101255	Overland	Overland	5.13	0.39	0.63	0.73
F101255l1	F101255	F101210	Overland	Overland	4.81	0.41	0.65	0.77
F101256l1	F101256	F101257	Overland	Overland	4.02	0.00	0.00	0.01
F101257l1	F101257	F101227	Overland	Overland	7.09	0.00	0.00	0.00
F101260l1	F101260	F101240	Overland	Overland	2.74	0.35	0.52	0.59
F101265l1	F101265	F101267	Overland	Overland	11.65	0.00	0.03	0.04
F101267l1	F101267	F101256	Overland	Overland	9.35	0.00	0.01	0.04
F101273l1	F101273	F101254	Overland	Overland	6.95	0.33	0.57	0.65
F101305l1	F101305	F101308	Overland	Overland	-1.42	0.00	0.00	0.00
F101308l1	F101308	F101352	Overland	Overland	1.49	0.00	0.00	0.00
F101310l1	F101310	F101308	Overland	Overland	3.78	0.00	0.00	0.00
F101313l1	F101313	F101350	Overland	Overland	3.00	0.21	0.32	0.35
F101318l1	F101318	F101327	Overland	Overland	2.50	0.00	0.00	0.00
F101323l1	F101323	F101388	Overland	Overland	2.56	0.00	0.00	0.00
F101324l1	F101324	F101327	Overland	Overland	0.31	0.00	0.00	0.00
F101327l1	F101327	F101599	Overland	Overland	0.10	0.00	0.00	0.00
F101336l1	F101336	F5000008	Overland	Overland	8.61	0.01	0.01	0.01
F101340l1	F101340	F101599	Overland	Overland	3.34	0.00	0.09	0.12
F101350l1	F101350	F101355	Overland	Overland	1.42	0.19	0.32	0.38
F101352l1	F101352	10000321	Overland	Overland	6.72	0.00	0.00	0.00
F101355l1	F101355	10000317	Overland	Overland	6.14	6.46	7.86	8.58
F101356l1	F101356	F101355	Overland	Overland	0.70	6.57	7.86	8.49
F101376l1	F101376	F101356	Overland	Overland	1.70	6.60	7.88	8.51
F101376l2	F101376	10000926	Overland	Overland	4.84	0.33	0.45	0.46
F101386l1	F101386	F101399	Overland	Overland	3.82	0.40	0.65	0.77
F101388l1	F101388	10000344	Overland	Overland	3.28	0.00	0.00	0.00
F101396l1	F101396	F5000010	Overland	Overland	2.83	0.00	0.00	0.01
F101399l1	F101399	181549A	Overland	Overland	6.46	1.44	2.66	3.38
F101405l1	F101405	F101386	Overland	Overland	8.45	0.11	0.28	0.36
F101413l1	F101413	10000004	Overland	Overland	3.12	0.02	0.04	0.07
F101413l2	F101413	F181092	Overland	Overland	1.75	1.59	2.53	3.07
F101416l1	F101416	F101413	Overland	Overland	3.65	0.66	1.23	1.56
F101417l1	F101417	F101419	Overland	Overland	2.12	1.28	2.20	2.92
F101419l1	F101419	10000040	Overland	Overland	3.52	2.20	3.27	4.04
F101424l1	F101424	F101417	Overland	Overland	3.27	0.31	0.77	1.08
F101433l1	F101433	F101436	Overland	Overland	-1.04	0.06	0.43	0.71
F101436l1	F101436	F101424	Overland	Overland	3.77	0.04	0.41	0.63
F101447l1	F101447	F101433	Overland	Overland	2.35	0.37	0.52	0.64
F101450l1	F101450	F101447	Overland	Overland	4.16	0.09	0.21	0.26
F101472l1	F101472	F101396	Overland	Overland	6.30	0.00	0.00	0.00
F101476l1	F101476	F101493	Overland	Overland	1.40	0.00	0.00	0.00
F101478l1	F101478	F101498	Overland	Overland	2.37	0.21	0.32	0.43
F101480l1	F101480	F101478	Overland	Overland	3.30	0.21	0.36	0.42
F101483l1	F101483	F101567	Overland	Overland	2.47	0.00	0.00	0.00
F101484l1	F101484	F5000020	Overland	Overland	0.85	0.00	0.00	0.00
F101487l1	F101487	F101519	Overland	Overland	0.79	0.77	1.73	2.34
F101489l1	F101489	F101515	Overland	Overland	16.05	0.00	0.00	0.00
F101490l1	F101490	F101487	Overland	Overland	3.21	0.81	1.76	2.26
F101491l1	F101491	F101519	Overland	Overland	2.03	0.00	0.01	0.04
F101493l1	F101493	F101515	Overland	Overland	-0.34	0.00	0.00	0.00
F101498l1	F101498	F101504	Overland	Overland	0.60	0.00	0.05	0.15
F101500l1	F101500	F101498	Overland	Overland	3.17	0.00	0.00	0.01
F101504l1	F101504	F101522	Overland	Overland	0.35	0.00	0.00	0.00
F101508l1	F101508	F101526	Overland	Overland	0.72	0.00	0.00	0.00
F101513l1	F101513	F101520	Overland	Overland	1.19	0.00	0.00	0.00
F101514l1	F101514	F101513	Overland	Overland	-2.30	0.00	0.00	0.00
F101515l1	F101515	F106395	Overland	Overland	-2.19	0.00	0.00	0.00
F101519l1	F101519	F101520	Overland	Overland	1.96	0.76	1.65	2.16
F101520l1	F101520	F5000020	Overland	Overland	2.72	0.35	1.27	1.81

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F101522I1	F101522	F101508	Overland	Overland	0.20	0.00	0.00	0.00
F101526I1	F101526	F101484	Overland	Overland	2.39	0.00	0.00	0.00
F101538I1	F101538	F101539	Overland	Overland	1.41	0.00	0.01	0.04
F101539I1	F101539	F101491	Overland	Overland	1.94	0.00	0.01	0.03
F101544I1	F101544	F101538	Overland	Overland	3.30	0.00	0.01	0.04
F101549I1	F101549	F101340	Overland	Overland	3.62	0.00	0.00	0.00
F101550I1	F101550	F101544	Overland	Overland	1.12	0.00	0.00	0.01
F101553I1	F101553	F101549	Overland	Overland	7.29	0.00	0.00	0.00
F101554I1	F101554	F101599	Overland	Overland	4.95	0.00	0.00	0.00
F101558I1	F101558	F101569	Overland	Overland	3.90	0.00	0.00	0.03
F101562I1	F101562	F101483	Overland	Overland	5.47	0.00	0.00	0.00
F101567I1	F101567	F101581	Overland	Overland	3.53	0.02	0.13	0.22
F101569I1	F101569	F101567	Overland	Overland	2.71	0.02	0.14	0.23
F101573I1	F101573	F101575	Overland	Overland	2.06	0.02	0.17	0.22
F101575I1	F101575	F101569	Overland	Overland	1.54	0.02	0.16	0.23
F101576I1	F101576	F101598	Overland	Overland	1.91	0.07	0.07	0.07
F101581I1	F101581	F5000020	Overland	Overland	1.51	0.02	0.12	0.24
F101587I1	F101587	F101589	Overland	Overland	2.10	0.00	0.00	0.03
F101589I1	F101589	F101558	Overland	Overland	5.41	0.01	0.01	0.03
F101595I1	F101595	F101573	Overland	Overland	2.84	0.04	0.15	0.21
F101598I1	F101598	F101604	Overland	Overland	3.23	0.23	0.32	0.38
F101599I1	F101599	F101598	Overland	Overland	1.60	0.03	0.12	0.17
F101604I1	F101604	F101635	Overland	Overland	4.33	0.20	0.29	0.36
F101608I1	F101608	FGI6	Overland	Overland	2.05	0.28	0.43	0.51
F101610I1	F101610	F101613	Overland	Overland	0.89	0.88	1.35	1.13
F101613I1	F101613	F101687	Overland	Overland	-0.91	0.00	0.41	1.02
F101635I1	F101635	10000642	Overland	Overland	1.25	7.43	12.92	15.56
F101641I1	F101641	10000400	Overland	Overland	21.98	0.00	0.00	0.00
F101643I1	F101643	10000774	Overland	Overland	10.41	0.01	0.01	0.01
F101669I1	F101669	101484	Overland	Overland	1.27	0.05	0.11	0.14
F101676I1	F101676	F104128	Overland	Overland	0.14	0.24	0.44	0.54
F101679I1	F101679	F101695	Overland	Overland	0.58	0.03	0.13	0.44
F101683I1	F101683	F101679	Overland	Overland	1.31	0.00	0.02	0.43
F101686I1	F101686	F101689	Overland	Overland	0.20	0.00	0.00	0.58
F101687I1	F101687	F101686	Overland	Overland	3.02	0.00	0.03	0.81
F101689I1	F101689	F101683	Overland	Overland	2.06	0.00	0.00	0.47
F101695I1	F101695	F101696	Overland	Overland	1.24	0.18	0.41	0.58
F101696I1	F101696	F101825	Overland	Overland	0.75	0.42	0.73	0.88
F101704I1	F101704	F104152	Overland	Overland	0.07	0.03	0.19	0.26
F101705I1	F101705	F101720	Overland	Overland	0.65	0.54	0.91	1.16
F101708I1	F101708	F101710	Overland	Overland	1.28	0.00	0.00	0.00
F101710I1	F101710	10000431	Overland	Overland	15.67	0.00	0.00	0.00
F101711I1	F101711	F101705	Overland	Overland	1.73	0.00	0.06	0.09
F101712I1	F101712	F181574	Overland	Overland	-12.97	0.00	0.00	0.00
F101715I1	F101715	F216591	Overland	Overland	-1.23	0.00	0.00	0.00
F101717I1	F101717	F101833	Overland	Overland	3.48	0.01	0.10	0.12
F101718I1	F101718	F101705	Overland	Overland	2.29	0.26	0.57	0.76
F101720I1	F101720	F101847	Overland	Overland	1.19	1.19	2.27	2.93
F101747I1	F101747	F101749	Overland	Overland	3.43	0.00	0.07	0.09
F101749I1	F101749	F101711	Overland	Overland	2.39	0.00	0.07	0.10
F101762I1	F101762	F101789	Overland	Overland	0.18	0.27	0.43	0.51
F101763I1	F101763	F101778	Overland	Overland	0.36	0.19	0.38	0.48
F101766I1	F101766	F101762	Overland	Overland	0.13	0.18	0.27	0.31
F101771I1	F101771	F101810	Overland	Overland	0.37	0.34	0.55	0.64
F101778I1	F101778	F101781	Overland	Overland	0.23	0.35	0.61	0.76
F101781I1	F101781	F101803	Overland	Overland	2.03	0.93	1.79	2.23
F101789I1	F101789	F101810	Overland	Overland	0.44	0.21	0.45	0.58
F101803I1	F101803	F101807	Overland	Overland	2.10	0.84	1.77	2.22
F101805I1	F101805	F101807	Overland	Overland	-1.09	2.80	5.50	7.12
F101807I1	F101807	10000512	Overland	Overland	13.39	3.19	7.04	9.12
F101810I1	F101810	F101812	Overland	Overland	0.25	0.42	0.75	0.97
F101812I1	F101812	GIOUT8	Overland	Overland	2.67	0.25	0.56	0.78
F101825I1	F101825	F101781	Overland	Overland	0.97	0.61	1.08	1.31
F101829I1	F101829	F101845	Overland	Overland	0.53	1.61	2.89	3.41
F101833I1	F101833	F5000021	Overland	Overland	-1.65	0.05	0.12	0.21
F101836I1	F101836	F101837	Overland	Overland	3.82	0.23	0.55	0.71
F101837I1	F101837	F101805	Overland	Overland	0.54	3.20	5.72	6.97
F101842I1	F101842	F101858	Overland	Overland	-0.80	0.00	0.00	0.00
F101845I2	F101845	F101837	Overland	Overland	0.70	3.21	5.45	6.81
F101847I1	F101847	F101849	Overland	Overland	0.67	1.30	2.31	3.06
F101849I1	F101849	F101829	Overland	Overland	0.78	1.50	2.61	3.35
F101857I1	F101857	F181585	Overland	Overland	0.20	0.00	0.00	0.00
F101858I1	F101858	F101857	Overland	Overland	0.31	0.00	0.00	0.00
F101867I1	F101867	F101873	Overland	Overland	1.47	0.00	0.00	0.00
F101873I1	F101873	10000607	Overland	Overland	2.48	0.00	0.00	0.00
F101926I1	F101926	181597a	Overland	Overland	17.00	0.17	0.40	0.49
F101927I1	F101927	F101926	Overland	Overland	5.90	0.16	0.40	0.49
F101949I1	F101949	F102110	Overland	Overland	6.87	0.06	0.12	0.14
F101952I1	F101952	F101967	Overland	Overland	1.20	0.33	0.55	0.68
F101958I1	F101958	F5000024	Overland	Overland	3.51	0.48	0.76	0.91
F101967I1	F101967	10000952	Overland	Overland	8.12	0.53	0.84	1.00
F101970I1	F101970	10001136	Overland	Overland	6.38	0.09	0.17	0.21
F101975I1	F101975	F101958	Overland	Overland	3.95	0.23	0.39	0.49

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F101978l1	F101978	F101975	Overland	Overland	3.15	0.06	0.15	0.20
F101981l1	F101981	F101967	Overland	Overland	9.29	0.04	0.10	0.12
F101989l1	F101989	10000710	Overland	Overland	6.86	0.29	0.48	0.59
F101991l1	F101991	F102059	Overland	Overland	3.45	0.22	0.34	0.40
F101998l1	F101998	F10000915	Overland	Overland	2.94	2.29	3.69	4.76
F102001l1	F102001	F101998	Overland	Overland	2.94	2.14	3.42	4.36
F102006l1	F102006	F101952	Overland	Overland	2.25	0.07	0.19	0.27
F102015l1	F102015	F102016	Overland	Overland	1.95	1.91	3.26	4.06
F102016l1	F102016	F102001	Overland	Overland	1.79	1.94	3.13	3.99
F102021l1	F102021	10000772	Overland	Overland	4.56	0.00	0.13	0.28
F102026l1	F102026	F102021	Overland	Overland	1.42	0.05	0.13	0.14
F102029l1	F102029	F102015	Overland	Overland	1.44	1.78	3.08	3.81
F102032l1	F102032	F102029	Overland	Overland	2.89	1.58	3.00	3.69
F102035l1	F102035	F102026	Overland	Overland	4.36	0.00	0.00	0.00
F102037l1	F102037	F102032	Overland	Overland	1.22	0.94	1.68	2.03
F102044l1	F102044	F102048	Overland	Overland	4.95	0.15	0.30	0.39
F102045l1	F102045	F101952	Overland	Overland	13.77	0.07	0.17	0.21
F102046l1	F102046	F101952	Overland	Overland	5.70	0.01	0.02	0.02
F102048l1	F102048	F102006	Overland	Overland	6.30	0.02	0.14	0.22
F102056l1	F102056	F102032	Overland	Overland	4.51	0.78	1.23	1.45
F102059l1	F102059	F102069	Overland	Overland	1.54	0.77	1.09	1.23
F102069l1	F102069	F102056	Overland	Overland	3.67	0.73	1.06	1.21
F102077l1	F102077	F102037	Overland	Overland	2.16	0.92	1.56	1.89
F102082l1	F102082	F102077	Overland	Overland	2.39	0.80	1.31	1.59
F102085l1	F102085	F102082	Overland	Overland	5.01	0.85	1.37	1.63
F102089l1	F102089	102044	Overland	Overland	5.58	0.00	0.00	0.03
F102098l1	F102098	F102100	Overland	Overland	2.62	0.20	0.45	0.57
F102100l1	F102100	F102085	Overland	Overland	14.64	0.63	1.14	1.38
F102106l1	F102106	F102100	Overland	Overland	9.47	0.36	0.52	0.60
F102107l1	F102107	F102114	Overland	Overland	1.25	0.00	0.01	0.03
F102109l1	F102109	F102106	Overland	Overland	1.70	0.21	0.33	0.39
F102110l1	F102110	F102109	Overland	Overland	6.96	0.24	0.38	0.43
F102114l1	F102114	F119099	Overland	Overland	1.16	0.00	0.00	0.01
F102116l1	F102116	F102234	Overland	Overland	12.05	0.05	0.09	0.11
F102117l1	F102117	F102240	Overland	Overland	2.69	0.46	0.76	0.87
F102122l1	F102122	F102117	Overland	Overland	7.12	0.20	0.33	0.38
F102133l1	F102133	F102122	Overland	Overland	5.52	0.00	0.02	0.07
F102141l1	F102141	F102688	Overland	Overland	4.66	0.15	0.27	0.33
F102150l1	F102150	F102133	Overland	Overland	11.22	0.01	0.02	0.03
F102160l1	F102160	F102163	Overland	Overland	3.93	0.00	0.00	0.00
F102163l1	F102163	10000957	Overland	Overland	35.60	0.09	0.15	0.17
F102164l1	F102164	F102163	Overland	Overland	15.92	0.11	0.17	0.19
F102168l1	F102168	F102044	Overland	Overland	1.87	0.31	0.49	0.58
F102173l1	F102173	10001173	Overland	Overland	13.84	0.00	0.00	0.00
F102175l1	F102175	GIOUT4A	Overland	Overland	27.95	0.26	0.55	0.68
F102184l1	F102184	F102175	Overland	Overland	9.31	0.17	0.35	0.44
F102187l1	F102187	F102184	Overland	Overland	2.56	0.14	0.26	0.32
F102212l1	F102212	10000979	Overland	Overland	15.51	0.00	0.00	0.00
F102214l1	F102214	F102212	Overland	Overland	17.89	0.00	0.00	0.00
F102216l1	F102216	181607	Overland	Overland	17.75	0.00	0.06	0.66
F102219l1	F102219	181617	Overland	Overland	11.69	0.00	0.00	0.00
F102221l1	F102221	F102303	Overland	Overland	4.70	0.00	0.00	0.00
F102222l1	F102222	F102221	Overland	Overland	8.58	0.00	0.00	0.00
F102224l1	F102224	F102216	Overland	Overland	13.44	0.00	0.21	0.64
F102225l1	F102225	F102226	Overland	Overland	2.61	0.32	0.54	0.62
F102226l1	F102226	10001211	Overland	Overland	9.55	0.08	0.57	0.70
F102231l1	F102231	F102225	Overland	Overland	10.51	0.22	0.38	0.43
F102234l1	F102234	F102231	Overland	Overland	4.58	0.06	0.11	0.13
F102238l1	F102238	F102224	Overland	Overland	1.25	0.04	0.48	1.14
F102240l1	F102240	F102242	Overland	Overland	0.38	0.15	0.53	1.04
F102242l1	F102242	F102238	Overland	Overland	10.74	0.07	0.56	1.33
F102260l1	F102260	F101991	Overland	Overland	5.77	0.17	0.29	0.33
F102263l1	F102263	F102260	Overland	Overland	6.36	0.01	0.02	0.02
F102265l1	F102265	F102263	Overland	Overland	3.68	0.02	0.02	0.02
F102289l1	F102289	F102242	Overland	Overland	3.40	0.04	0.21	0.25
F102302l1	F102302	10001203	Overland	Overland	39.93	0.00	0.00	0.00
F102303l1	F102303	F102302	Overland	Overland	25.79	0.00	0.00	0.00
F102307l1	F102307	181617	Overland	Overland	11.07	0.41	0.74	0.89
F102683l1	F102683	F102686	Overland	Overland	8.15	0.00	0.00	0.00
F102684l1	F102684	F102683	Overland	Overland	4.89	0.00	0.00	0.00
F102685l1	F102685	F102684	Overland	Overland	-2.77	-0.01	-0.01	-0.01
F102686l1	F102686	F103363	Overland	Overland	5.61	0.00	0.00	0.01
F102688l1	F102688	F116261	Overland	Overland	1.77	0.30	0.48	0.57
F103222l1	F103222	F100595	Overland	Overland	2.28	0.91	1.35	1.57
F103310l1	F103310	F103311	Overland	Overland	3.15	0.00	0.11	0.18
F103311l1	F103311	F99508	Overland	Overland	2.63	0.30	0.63	0.81
F103363l1	F103363	F102141	Overland	Overland	4.88	0.10	0.20	0.24
F104110l1	F104110	F104112	Overland	Overland	1.46	0.00	0.00	0.00
F104112l1	F104112	F101669	Overland	Overland	-0.09	0.00	0.00	0.00
F104114l1	F104114	10001221	Overland	Overland	12.89	0.00	0.00	0.00
F104121l1	F104121	F104123	Overland	Overland	4.00	0.00	0.00	0.00
F104123l1	F104123	F104124	Overland	Overland	-0.57	0.00	0.00	0.00
F104124l1	F104124	F104128	Overland	Overland	5.32	0.00	0.00	0.00

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F104126I1	F104126	F104125	Overland	Overland	3.80	0.00	0.00	0.00
F104127I1	F104127	F101695	Overland	Overland	2.75	0.00	0.00	0.00
F104128I1	F104128	F104130	Overland	Overland	1.50	0.15	0.32	0.41
F104130I1	F104130	F104139	Overland	Overland	0.03	0.09	0.22	0.28
F104132I1	F104132	F104136	Overland	Overland	-0.37	0.00	0.00	0.00
F104136I1	F104136	10000423	Overland	Overland	18.10	0.00	0.00	0.00
F104139I1	F104139	F101704	Overland	Overland	0.75	0.07	0.25	0.40
F104140I1	F104140	F104139	Overland	Overland	3.38	0.00	0.07	0.10
F104146I1	F104146	F104152	Overland	Overland	0.96	0.00	0.00	0.01
F104148I1	F104148	F104146	Overland	Overland	-0.81	0.00	0.02	0.05
F104149I1	F104149	F104148	Overland	Overland	-0.11	0.00	0.00	0.00
F104150I1	F104150	F104148	Overland	Overland	0.13	0.08	0.14	0.18
F104152I1	F104152	F104154	Overland	Overland	0.97	0.02	0.16	0.23
F104154I1	F104154	F104155	Overland	Overland	0.89	0.01	0.12	0.20
F104155I1	F104155	F101803	Overland	Overland	2.33	0.01	0.11	0.19
F104160I1	F104160	F104163	Overland	Overland	4.62	0.00	0.00	0.00
F104161I1	F104161	F104163	Overland	Overland	3.52	0.00	0.00	0.00
F104162I1	F104162	F101643	Overland	Overland	8.28	0.02	0.02	0.02
F104163I1	F104163	10000472	Overland	Overland	12.72	0.00	0.00	0.00
F106120I1	F106120	F106731	Overland	Overland	6.42	0.00	0.00	0.00
F106123I1	F106123	F2000005	Overland	Overland	8.11	0.00	0.00	0.00
F106135I1	F106135	F106210	Overland	Overland	5.36	0.52	0.98	1.23
F106138I1	F106138	F106135	Overland	Overland	2.41	0.57	1.05	1.31
F106145I1	F106145	F106162	Overland	Overland	-1.34	0.00	0.00	0.00
F106148I1	F106148	F106288	Overland	Overland	0.70	0.11	0.18	0.20
F106150I1	F106150	F106219	Overland	Overland	3.11	0.00	0.00	0.00
F106154I1	F106154	F106323	Overland	Overland	3.64	0.00	0.00	0.01
F106162I1	F106162	Fgi6	Overland	Overland	2.14	0.31	0.51	0.61
F106163I1	F106163	F106145	Overland	Overland	-1.08	0.00	0.00	0.00
F106164I1	F106164	F106165	Overland	Overland	2.93	0.26	0.47	0.59
F106165I1	F106165	F106138	Overland	Overland	3.15	0.64	1.14	1.39
F106167I1	F106167	F106767	Overland	Overland	0.38	0.00	0.01	0.01
F106168I1	F106168	F106167	Overland	Overland	-1.40	0.00	0.00	0.00
F106170I1	F106170	F106192	Overland	Overland	1.58	0.14	0.29	0.36
F106178I1	F106178	F106183	Overland	Overland	-1.37	0.00	0.00	0.00
F106181I1	F106181	F106168	Overland	Overland	-0.36	0.00	0.00	0.00
F106183I1	F106183	F106181	Overland	Overland	-1.78	0.00	0.00	0.00
F106187I1	F106187	F106188	Overland	Overland	2.66	0.00	0.00	0.00
F106188I1	F106188	F106208	Overland	Overland	5.18	0.00	0.00	0.00
F106191I1	F106191	F106199	Overland	Overland	6.25	0.00	0.01	0.02
F106192I1	F106192	F106196	Overland	Overland	1.18	0.11	0.26	0.41
F106196I1	F106196	F106191	Overland	Overland	-1.17	0.00	0.08	0.22
F106199I1	F106199	F106204	Overland	Overland	3.10	0.00	0.00	0.10
F106200I1	F106200	F116103	Overland	Overland	1.93	0.00	0.00	0.00
F106204I1	F106204	181782a	Overland	Overland	12.11	0.00	0.00	0.18
F106208I1	F106208	F106209	Overland	Overland	6.81	0.00	0.00	0.00
F106209I1	F106209	F101490	Overland	Overland	4.70	0.03	0.06	0.07
F106210I1	F106210	F106209	Overland	Overland	-3.23	0.00	0.00	0.00
F106214I1	F106214	F106405	Overland	Overland	2.70	0.23	0.38	0.46
F106216I1	F106216	F106304	Overland	Overland	3.33	0.00	0.00	0.00
F106219I1	F106219	F106281	Overland	Overland	2.10	0.11	0.22	0.27
F106223I1	F106223	F106251	Overland	Overland	-4.55	0.00	0.00	0.00
F106230I1	F106230	F106231	Overland	Overland	-0.09	0.10	0.27	0.25
F106231I1	F106231	F106238	Overland	Overland	0.25	0.81	1.66	1.86
F106235I1	F106235	F106236	Overland	Overland	2.78	0.00	0.00	0.03
F106236I1	F106236	F106216	Overland	Overland	5.84	0.00	0.00	0.01
F106238I1	F106238	F106243	Overland	Overland	1.76	0.99	1.85	2.07
F106243I1	F106243	F106254	Overland	Overland	-0.98	1.02	1.56	1.48
F106245I1	F106245	F106274	Overland	Overland	2.01	1.19	1.84	2.23
F106246I1	F106246	F106247	Overland	Overland	2.22	1.10	1.74	2.11
F106247I1	F106247	F106245	Overland	Overland	4.57	1.10	1.74	2.12
F106249I1	F106249	F106251	Overland	Overland	2.44	1.34	2.46	3.19
F106251I1	F106251	F106254	Overland	Overland	-1.30	0.24	1.38	2.00
F106254I1	F106254	F106263	Overland	Overland	-2.48	0.00	0.00	0.00
F106257I1	F106257	F106249	Overland	Overland	3.12	1.25	2.32	3.14
F106258I1	F106258	F106257	Overland	Overland	1.79	1.31	2.38	3.17
F106263I1	F106263	F106266	Overland	Overland	-8.90	0.00	0.00	0.00
F106266I1	F106266	F106235	Overland	Overland	-0.44	0.00	0.00	0.00
F106268I1	F106268	F106263	Overland	Overland	1.71	0.00	0.00	0.00
F106270I1	F106270	F106272	Overland	Overland	4.20	0.08	0.32	0.49
F106272I1	F106272	F106274	Overland	Overland	0.70	0.03	0.19	0.34
F106274I1	F106274	F106258	Overland	Overland	1.09	1.20	1.97	2.59
F106275I1	F106275	F106270	Overland	Overland	1.82	0.09	0.30	0.42
F106276I1	F106276	F106275	Overland	Overland	3.60	0.11	0.35	0.46
F106281I1	F106281	F106270	Overland	Overland	5.17	0.02	0.08	0.12
F106287I1	F106287	F106276	Overland	Overland	6.30	0.12	0.40	0.50
F106288I1	F106288	F106287	Overland	Overland	3.79	0.13	0.43	0.53
F106290I1	F106290	F106266	Overland	Overland	2.14	0.00	0.00	0.00
F106293I1	F106293	F106235	Overland	Overland	2.25	0.00	0.01	0.07
F106303I1	F106303	F106425	Overland	Overland	2.01	0.00	0.02	0.21
F106304I1	F106304	F106303	Overland	Overland	0.75	0.00	0.00	0.07
F106316I1	F106316	F106216	Overland	Overland	0.17	0.00	0.00	0.00
F106319I1	F106319	F106316	Overland	Overland	4.18	0.00	0.00	0.00

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F106323I1	F106323	F106319	Overland	Overland	2.52	0.00	0.00	0.00
F106325I1	F106325	F106389	Overland	Overland	1.52	0.40	0.69	0.87
F106370I1	F106370	F106452	Overland	Overland	0.42	0.00	0.00	0.00
F106371I1	F106371	F106382	Overland	Overland	0.64	0.17	0.42	0.56
F106378I1	F106378	F106325	Overland	Overland	8.53	0.09	0.19	0.24
F106382I1	F106382	F106388	Overland	Overland	3.75	0.12	0.34	0.46
F106388I1	F106388	F106325	Overland	Overland	2.48	0.10	0.28	0.42
F106389I1	F106389	F101490	Overland	Overland	0.92	0.74	1.37	1.70
F106392I1	F106392	F101490	Overland	Overland	0.44	0.00	0.00	0.00
F106395I1	F106395	F101514	Overland	Overland	3.86	0.00	0.00	0.00
F106405I1	F106405	F10000196	Overland	Overland	3.45	0.48	0.81	0.99
F106417I1	F106417	F106418	Overland	Overland	1.96	0.00	0.00	0.00
F106418I1	F106418	F106419	Overland	Overland	5.29	0.00	0.00	0.00
F106419I1	F106419	F106425	Overland	Overland	6.23	0.00	0.00	0.00
F106423I1	F106423	F106446	Overland	Overland	1.68	0.00	0.00	0.03
F106424I1	F106424	F106423	Overland	Overland	0.82	0.00	0.00	0.06
F106425I1	F106425	F106424	Overland	Overland	-0.24	0.00	0.00	0.07
F106428I1	F106428	F106432	Overland	Overland	-5.37	0.00	0.00	0.00
F106432I1	F106432	F99404	Overland	Overland	7.16	0.00	0.00	0.00
F106437I1	F106437	F106438	Overland	Overland	-0.97	0.00	0.00	0.00
F106438I1	F106438	F106371	Overland	Overland	0.86	0.00	0.00	0.07
F106442I1	F106442	F106439	Overland	Overland	0.67	0.00	0.00	0.00
F106443I1	F106443	F106438	Overland	Overland	4.71	0.00	0.03	0.29
F106446I1	F106446	F106442	Overland	Overland	-1.81	0.00	0.00	0.00
F106447I1	F106447	F106428	Overland	Overland	0.50	0.00	0.00	0.00
F106448I1	F106448	F106447	Overland	Overland	2.55	0.00	0.00	0.00
F106450I1	F106450	F106448	Overland	Overland	-0.15	0.00	0.00	0.00
F106452I1	F106452	F106453	Overland	Overland	-0.02	0.00	0.00	0.00
F106453I1	F106453	F106450	Overland	Overland	-1.13	0.00	0.00	0.00
F106723I1	F106723	F106756	Overland	Overland	-1.93	0.91	1.57	1.92
F106724I1	F106724	F106736	Overland	Overland	7.17	0.00	0.00	0.00
F106731I1	F106731	F106724	Overland	Overland	8.13	0.00	0.00	0.00
F106736I1	F106736	F106745	Overland	Overland	11.88	0.39	0.63	0.75
F106737I1	F106737	F106736	Overland	Overland	3.90	0.37	0.61	0.72
F106745I1	F106745	F106755	Overland	Overland	5.30	0.37	0.62	0.75
F106752I1	F106752	F106774	Overland	Overland	3.64	0.00	0.00	0.00
F106753I1	F106753	F106723	Overland	Overland	6.32	0.34	0.55	0.65
F106755I1	F106755	F106723	Overland	Overland	8.25	0.34	0.58	0.70
F106756I1	F106756	F106757	Overland	Overland	3.70	0.88	1.52	1.93
F106757I1	F106757	F106771	Overland	Overland	3.29	0.81	1.42	1.82
F106767I1	F106767	F106777	Overland	Overland	-1.65	0.00	0.00	0.00
F106768I1	F106768	F106170	Overland	Overland	1.84	0.16	0.33	0.42
F106771I1	F106771	F106779	Overland	Overland	1.52	0.69	1.21	1.68
F106774I1	F106774	F106776	Overland	Overland	3.20	0.00	0.00	0.00
F106776I1	F106776	F106768	Overland	Overland	0.69	0.00	0.00	0.00
F106777I1	F106777	F106776	Overland	Overland	-1.62	0.00	0.00	0.00
F106779I1	F106779	F106777	Overland	Overland	-0.93	0.16	1.40	1.95
F106785I1	F106785	F106787	Overland	Overland	8.40	0.12	0.22	0.27
F106787I1	F106787	F106768	Overland	Overland	5.14	0.10	0.19	0.25
F116096I1	F116096	182223a	Overland	Overland	11.83	0.51	1.27	1.72
F116097I1	F116097	F10001063	Overland	Overland	2.52	0.00	0.00	0.00
F116098I1	F116098	F116097	Overland	Overland	1.90	0.00	0.00	0.00
F116099I1	F116099	182226a	Overland	Overland	5.51	0.00	0.00	0.00
F116103I1	F116103	F116141	Overland	Overland	2.13	0.08	0.18	0.23
F116107I1	F116107	F116157	Overland	Overland	7.25	0.03	0.21	0.28
F116109I1	F116109	F116114	Overland	Overland	5.79	0.00	0.00	0.00
F116114I1	F116114	F116141	Overland	Overland	8.30	0.00	0.06	0.08
F116118I1	F116118	F116151	Overland	Overland	7.35	0.34	0.58	0.77
F116130I1	F116130	F116177	Overland	Overland	9.60	0.02	0.22	0.25
F116131I1	F116131	F116183	Overland	Overland	8.97	0.01	0.01	0.01
F116134I1	F116134	F116130	Overland	Overland	8.72	0.12	0.24	0.27
F116141I1	F116141	F116148	Overland	Overland	2.52	0.07	0.22	0.30
F116146I1	F116146	F116181	Overland	Overland	1.81	0.05	0.28	0.61
F116148I1	F116148	F116157	Overland	Overland	2.16	0.03	0.12	0.49
F116151I1	F116151	F116148	Overland	Overland	-3.74	-0.01	0.01	0.31
F116157I1	F116157	F116146	Overland	Overland	2.72	0.05	0.30	0.61
F116163I1	F116163	F116164	Overland	Overland	1.07	0.00	0.00	0.00
F116164I1	F116164	F116098	Overland	Overland	1.57	0.00	0.00	0.00
F116177I1	F116177	F116181	Overland	Overland	12.17	0.13	0.48	0.59
F116179I1	F116179	F116194	Overland	Overland	0.76	0.12	0.27	0.35
F116181I1	F116181	F116179	Overland	Overland	1.49	0.22	0.86	1.18
F116183I1	F116183	F116179	Overland	Overland	6.92	0.01	0.01	0.01
F116187I1	F116187	F116194	Overland	Overland	4.12	0.47	0.97	1.17
F116194I1	F116194	F116191	Overland	Overland	-1.04	0.00	0.00	0.00
F116194I2	F116194	F116096	Overland	Overland	1.41	0.71	1.60	2.10
F116196I1	F116196	F116099	Overland	Overland	1.92	0.00	0.00	0.02
F116197I1	F116197	F116224	Overland	Overland	1.84	0.77	0.98	1.15
F116198I1	F116198	F116226	Overland	Overland	8.51	0.29	0.48	0.55
F116201I1	F116201	F116197	Overland	Overland	8.16	0.33	0.57	0.85
F116202I1	F116202	F116131	Overland	Overland	11.16	0.00	0.00	0.00
F116210I1	F116210	F116226	Overland	Overland	13.18	0.02	0.02	0.02
F116215I1	F116215	F116235	Overland	Overland	7.58	0.00	0.00	0.00
F116216I1	F116216	F116215	Overland	Overland	7.57	0.00	0.00	0.00

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F116218I1	F116218	F116198	Overland	Overland	6.54	0.30	0.48	0.56
F116221I1	F116221	F116237	Overland	Overland	6.09	0.08	0.19	0.24
F116224I1	F116224	F116187	Overland	Overland	5.34	0.33	0.82	1.04
F116226I1	F116226	F116230	Overland	Overland	2.81	0.30	0.48	0.56
F116230I1	F116230	F116191	Overland	Overland	2.99	0.30	0.47	0.57
F116235I1	F116235	F116221	Overland	Overland	5.84	0.00	0.00	0.00
F116237I1	F116237	182226a	Overland	Overland	6.19	0.00	0.15	0.14
F116261I1	F116261	F116265	Overland	Overland	7.10	0.28	0.50	0.60
F116265I1	F116265	F102307	Overland	Overland	6.99	0.27	0.50	0.62
F118543I1	F118543	F118546	Overland	Overland	0.71	0.07	0.14	0.18
F118544I1	F118544	F118543	Overland	Overland	1.72	0.00	0.01	0.03
F118545I1	F118545	F118546	Overland	Overland	1.31	0.00	0.02	0.04
F118546I1	F118546	F101160	Overland	Overland	8.93	0.15	0.25	0.30
F118559I1	F118559	F118545	Overland	Overland	0.38	0.00	0.01	0.02
F118625I1	F118625	F101252	Overland	Overland	6.44	0.00	0.00	0.00
F119099I1	F119099	F5000022	Overland	Overland	9.11	0.00	0.00	0.00
F132376I1	F132376	GI1	Overland	Overland	6.39	0.48	0.80	0.95
F132377I1	F132377	F132376	Overland	Overland	0.08	0.41	0.63	0.76
F132433I1	F132433	F132377	Overland	Overland	2.78	0.33	0.51	0.61
F132438I2	F132438	F132433	Overland	Overland	4.66	0.00	0.01	0.07
F132459I1	F132459	GI3	Overland	Overland	7.27	0.31	0.55	0.67
F132461I1	F132461	F132459	Overland	Overland	4.09	0.22	0.40	0.48
F155817I1	F155817	F155797	Overland	Overland	-1.20	0.00	0.00	0.00
F155821I1	F155821	F155827	Overland	Overland	8.17	0.00	0.03	0.42
F155826I1	F155826	F155817	Overland	Overland	1.04	0.26	0.42	0.47
F155827I1	F155827	F116201	Overland	Overland	8.99	0.15	0.31	0.64
F155835I1	F155835	F155826	Overland	Overland	6.69	0.24	0.52	0.66
F155845I1	F155845	F116134	Overland	Overland	7.30	0.00	0.00	0.00
F155848I1	F155848	F155845	Overland	Overland	8.54	0.00	0.00	0.00
F155859I1	F155859	F155848	Overland	Overland	1.09	0.00	0.00	0.04
F155869I1	F155869	F155870	Overland	Overland	6.01	0.21	0.35	0.48
F155870I1	F155870	F116118	Overland	Overland	8.70	0.36	0.60	0.76
F155872I1	F155872	F116109	Overland	Overland	0.49	0.00	0.00	0.00
F155885I1	F155885	F155889	Overland	Overland	5.25	0.00	0.00	0.00
F155888I1	F155888	F155869	Overland	Overland	4.73	0.09	0.16	0.27
F155889I1	F155889	F155888	Overland	Overland	14.45	0.00	0.04	0.14
F155896I1	F155896	F106785	Overland	Overland	12.00	0.13	0.24	0.29
F155936I1	F155936	F155896	Overland	Overland	9.89	0.15	0.26	0.31
F155938I1	F155938	F155936	Overland	Overland	11.79	0.00	0.00	0.00
F155941I1	F155941	F155942	Overland	Overland	1.69	0.00	0.00	0.00
F155942I1	F155942	F155943	Overland	Overland	-0.21	0.00	0.00	0.00
F155943I1	F155943	F155938	Overland	Overland	15.27	0.00	0.00	0.00
F155944I1	F155944	F155955	Overland	Overland	1.55	0.00	0.00	0.00
F155955I1	F155955	FEX1	Overland	Overland	17.36	0.00	0.00	0.00
F155964I1	F155964	F155986	Overland	Overland	6.16	0.00	0.00	0.00
F155986I1	F155986	F106123	Overland	Overland	7.59	0.00	0.00	0.00
F181077AI1	F181077A	F101635	Overland	Overland	12.48	4.08	9.73	12.28
F181078I1	F181078	181575A	Overland	Overland	97.61	14.46	20.95	23.75
F181079I1	F181079	10000394	Overland	Overland	16.26	5.28	7.07	8.00
F181081I1	F181081	10000512	Overland	Overland	8.53	5.61	12.35	16.11
F181082I1	F181082	F181596	Overland	Overland	7.80	0.00	0.00	0.00
F181091I1	F181091	F101265	Overland	Overland	20.16	0.00	0.00	0.00
F181092I1	F181092	10000040	Overland	Overland	4.11	1.54	2.75	3.37
F181094I1	F181094	F5000010	Overland	Overland	0.85	2.51	5.15	6.05
F181095I1	F181095	10000321	Overland	Overland	30.94	0.00	0.00	0.21
F181096I1	F181096	F99384	Overland	Overland	0.80	0.61	1.95	2.73
F181098I1	F181098	F100671	Overland	Overland	1.03	0.56	1.72	2.38
F181115I1	F181115	181514A	Overland	Overland	25.47	0.00	0.00	0.00
F181160I1	F181160	F116196	Overland	Overland	0.95	0.00	0.00	0.00
F181508I1	F181508	F100030	Overland	Overland	1.44	0.19	0.85	1.16
F181510I1	F181510	f10000897	Overland	Overland	1.37	0.01	0.74	1.07
F181525I1	F181525	F5000016	Overland	Overland	44.56	0.00	0.00	0.00
F181545I1	F181545	F181077A	Overland	Overland	-1.98	0.39	0.35	0.32
F181556I1	F181556	F101376	Overland	Overland	0.31	7.14	8.57	9.20
F181574I1	F181574	10000459	Overland	Overland	42.58	0.00	0.00	0.00
F181585I1	F181585	10000547	Overland	Overland	5.55	0.00	0.00	0.00
F181596I1	F181596	F10000961	Overland	Overland	0.64	0.07	0.09	0.15
F181603I1	F181603	10000772	Overland	Overland	4.20	0.00	0.00	0.00
F181789AI1	F181789A	F181789B	Overland	Overland	0.00	0.00	0.00	0.00
F181789BI1	F181789B	F101490	Overland	Overland	4.00	0.00	0.00	0.00
F181803I1	F181803	F106767	Overland	Overland	0.96	0.00	0.02	0.01
F182227I1	F182227	F101310	Overland	Overland	2.64	0.00	0.00	0.06
F183819I1	F183819	F102164	Overland	Overland	4.50	0.00	0.00	0.00
F183821I1	F183821	F102164	Overland	Overland	6.24	0.00	0.00	0.00
F187207I1	F187207	F106254	Overland	Overland	0.67	0.21	0.49	0.53
F187208I1	F187208	F99207	Overland	Overland	2.55	0.00	0.02	0.03
F187227I1	F187227	F100428	Overland	Overland	4.69	0.00	0.00	0.00
F187234I1	F187234	F187227	Overland	Overland	0.08	0.00	0.00	0.00
F2000005I1	F2000005	F106120	Overland	Overland	6.35	0.00	0.00	0.00
F2000008I1	F2000008	F106230	Overland	Overland	-4.92	0.04	0.09	0.08
F216546I1	F216546	F216548	Overland	Overland	-0.92	0.08	0.31	0.22
F216548I1	F216548	10000431	Overland	Overland	10.80	0.12	0.35	0.24
F216551I1	F216551	F216546	Overland	Overland	7.78	0.00	0.00	0.01

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F216556l1	F216556	F216551	Overland	Overland	0.13	0.00	0.02	0.13
F216573l1	F216573	F216556	Overland	Overland	-0.37	0.00	0.02	0.02
F216582l1	F216582	F216573	Overland	Overland	3.33	0.00	0.00	0.00
F216584l1	F216584	F216582	Overland	Overland	1.64	0.00	0.00	0.00
F216589l1	F216589	F101712	Overland	Overland	2.08	0.00	0.00	0.00
F216591l1	F216591	F216589	Overland	Overland	-0.51	0.00	0.00	0.00
F216606l1	F216606	F101715	Overland	Overland	1.09	0.00	0.09	0.16
F216607l1	F216607	F216606	Overland	Overland	0.05	0.00	0.21	0.25
F216846l1	F216846	F101836	Overland	Overland	0.49	0.38	0.39	0.56
F5000002l1	F5000002	F106753	Overland	Overland	9.04	0.00	0.00	0.00
F5000003l1	F5000003	F5000002	Overland	Overland	6.00	0.00	0.00	0.00
F5000004l1	F5000004	F5000003	Overland	Overland	10.37	0.00	0.00	0.00
F5000005l1	F5000005	F5000006	Overland	Overland	10.57	0.00	0.00	0.00
F5000006l1	F5000006	F155835	Overland	Overland	10.87	0.01	0.01	0.01
F5000007l1	F5000007	F5000005	Overland	Overland	4.44	0.00	0.00	0.00
F5000010l1	F5000010	181549A	Overland	Overland	17.97	2.35	5.05	6.10
F5000011l1	F5000011	F106150	Overland	Overland	-1.03	0.00	0.00	0.00
F5000012l1	F5000012	F99441	Overland	Overland	4.25	0.17	0.32	0.40
F5000013l1	F5000013	F100255	Overland	Overland	6.37	5.06	8.25	9.83
F5000014l1	F5000014	F5000015	Overland	Overland	4.00	0.20	0.81	1.17
F5000015l1	F5000015	GIOUT10a	Overland	Overland	7.69	0.05	0.64	0.96
F5000016l1	F5000016	F100379	Overland	Overland	2.99	2.61	3.90	5.12
F5000017l1	F5000017	F99719	Overland	Overland	0.53	0.00	0.01	0.03
F5000020l1	F5000020	10000367	Overland	Overland	7.86	0.01	0.63	1.22
F5000021l1	F5000021	F216846	Overland	Overland	0.86	0.02	0.12	0.19
F5000022l1	F5000022	F101927	Overland	Overland	11.22	0.00	0.00	0.00
F5000023l1	F5000023	F116163	Overland	Overland	1.46	0.00	0.00	0.00
F5000024l1	F5000024	10000623	Overland	Overland	5.58	1.76	4.13	5.60
F5000027l1	F5000027	F5000024	Overland	Overland	3.22	1.89	4.39	5.75
F99189l1	F99189	F187207	Overland	Overland	0.10	0.22	0.36	0.42
F99197l1	F99197	F99189	Overland	Overland	1.75	0.00	0.00	0.00
F99199l1	F99199	F106231	Overland	Overland	1.24	0.56	0.89	1.11
F99207l1	F99207	F99212	Overland	Overland	-2.33	0.29	0.47	0.57
F99212l1	F99212	F99199	Overland	Overland	2.57	0.64	1.02	1.24
F99213l1	F99213	F99212	Overland	Overland	0.13	0.42	0.63	0.74
F99214l1	F99214	F99213	Overland	Overland	0.46	0.56	0.77	0.85
F99378l1	F99378	F100134	Overland	Overland	1.97	0.85	2.41	3.41
F99380l1	F99380	F99387	Overland	Overland	1.50	0.14	0.23	0.28
F99382l1	F99382	F99397	Overland	Overland	1.36	0.01	0.26	0.64
F99383l1	F99383	F99385	Overland	Overland	-0.12	0.32	0.44	0.50
F99384l1	F99384	F99378	Overland	Overland	5.79	0.43	1.70	2.53
F99385l1	F99385	F100133	Overland	Overland	2.17	0.49	0.72	0.83
F99386l1	F99386	F99383	Overland	Overland	-2.53	0.30	0.42	0.48
F99387l1	F99387	F99386	Overland	Overland	2.70	0.22	0.33	0.38
F99391l1	F99391	F99385	Overland	Overland	2.53	0.17	0.28	0.31
F99397l1	F99397	F99407	Overland	Overland	5.02	0.07	0.37	0.85
F99400l1	F99400	F181096	Overland	Overland	5.05	0.70	1.52	2.01
F99402l1	F99402	10001040	Overland	Overland	9.16	0.00	0.00	0.00
F99404l1	F99404	10001040	Overland	Overland	8.09	0.00	0.00	0.00
F99407l1	F99407	F99400	Overland	Overland	-1.78	0.69	1.50	2.06
F99413l1	F99413	F99382	Overland	Overland	-1.42	0.00	0.14	0.33
F99414l1	F99414	F99382	Overland	Overland	-0.24	0.08	0.22	0.55
F99416l1	F99416	F99397	Overland	Overland	4.24	0.13	0.27	0.35
F99422l1	F99422	F99380	Overland	Overland	1.57	0.00	0.00	0.00
F99441l1	F99441	F99508	Overland	Overland	1.11	0.17	0.35	0.45
F99446l1	F99446	F99647	Overland	Overland	3.10	0.41	0.63	0.73
F99450l1	F99450	F99501	Overland	Overland	1.08	0.18	0.47	0.60
F99457l1	F99457	F99465	Overland	Overland	-0.02	0.32	0.45	0.52
F99465l1	F99465	F99450	Overland	Overland	1.15	0.30	0.40	0.48
F99476l1	F99476	F100398	Overland	Overland	6.25	0.58	0.86	1.00
F99499l1	F99499	F99503	Overland	Overland	0.53	0.17	0.43	0.56
F99501l1	F99501	F99499	Overland	Overland	1.21	0.16	0.47	0.60
F99503l1	F99503	F99414	Overland	Overland	-0.16	0.00	0.00	0.04
F99507l1	F99507	F99416	Overland	Overland	-1.64	0.00	0.00	0.00
F99508l1	F99508	F99510	Overland	Overland	0.24	0.74	1.34	1.72
F99510l1	F99510	F99511	Overland	Overland	0.28	0.78	1.36	1.74
F99511l1	F99511	F99507	Overland	Overland	6.27	0.74	1.38	1.69
F99536l1	F99536	F99476	Overland	Overland	9.95	0.01	0.01	0.01
F99619l1	F99619	F132438	Overland	Overland	5.57	0.00	0.00	0.02
F99627l1	F99627	F100580	Overland	Overland	1.08	0.56	0.71	0.90
F99644l1	F99644	F99648	Overland	Overland	-4.60	0.00	0.00	0.01
F99645l1	F99645	F100566	Overland	Overland	3.65	0.14	0.25	0.30
F99647l1	F99647	F99627	Overland	Overland	0.74	0.39	0.53	0.68
F99648l1	F99648	F100568	Overland	Overland	2.65	0.01	0.10	0.21
F99665l1	F99665	F99645	Overland	Overland	3.34	0.00	0.00	0.00
F99670l1	F99670	F99665	Overland	Overland	3.90	0.00	0.00	0.00
F99714l1	F99714	F99627	Overland	Overland	2.74	0.00	0.00	0.00
F99716l1	F99716	F99714	Overland	Overland	-1.15	0.00	0.00	0.04
F99718l1	F99718	F99716	Overland	Overland	0.70	0.12	0.04	0.04
F99719l1	F99719	F99648	Overland	Overland	2.41	0.03	0.21	0.18
F99731l1	F99731	F99718	Overland	Overland	4.06	0.01	0.01	0.01
F99733l1	F99733	F99731	Overland	Overland	4.19	0.00	0.00	0.00
F99784l1	F99784	F99953	Overland	Overland	4.27	0.00	0.00	0.00

Link ID	Upstream Overland Flow Node	Downstream Overland Flow Node	Conduit Type	Pipe Diameter (mm)	Conduit Slope (%)	10 Year Design Storm Overland Flows (m^3/s)	50 Year Design Storm Overland Flows (m^3/s)	100 Year Design Storm Overland Flows (m^3/s)
F99785I1	F99785	F99948	Overland	Overland	3.74	0.00	0.04	0.07
F99791I1	F99791	F99784	Overland	Overland	5.58	0.00	0.00	0.00
F99800I1	F99800	F99869	Overland	Overland	1.22	0.08	0.14	0.17
F99804I1	F99804	F101720	Overland	Overland	2.17	0.79	1.40	1.72
F99831I1	F99831	F101718	Overland	Overland	3.24	0.30	0.57	0.73
F99833I1	F99833	F99831	Overland	Overland	4.84	0.46	0.69	0.80
F99835I1	F99835	F99831	Overland	Overland	1.99	0.00	0.00	0.00
F99840I1	F99840	F99804	Overland	Overland	3.81	0.74	1.31	1.61
F99842I1	F99842	F99840	Overland	Overland	3.39	0.20	0.40	0.50
F99843I1	F99843	F99840	Overland	Overland	4.43	0.14	0.37	0.50
F99845I1	F99845	F99848	Overland	Overland	1.08	1.16	1.99	2.49
F99848I1	F99848	F101399	Overland	Overland	2.68	1.11	1.89	2.40
F99850I1	F99850	F99869	Overland	Overland	4.29	0.00	0.02	0.07
F99851I1	F99851	10000272	Overland	Overland	7.51	0.55	1.00	1.22
F99856I1	F99856	F99851	Overland	Overland	3.21	0.26	0.48	0.59
F99858I1	F99858	F99851	Overland	Overland	4.61	0.07	0.17	0.21
F99864I1	F99864	F99856	Overland	Overland	3.99	0.23	0.45	0.55
F99869I1	F99869	F99882	Overland	Overland	7.78	0.03	0.21	0.32
F99873I1	F99873	F99845	Overland	Overland	1.83	0.91	1.61	2.00
F99878I1	F99878	F99879	Overland	Overland	1.66	0.68	1.27	1.60
F99879I1	F99879	F99873	Overland	Overland	1.20	0.93	1.60	1.98
F99882I1	F99882	F99886	Overland	Overland	1.58	0.00	0.01	0.04
F99885I1	F99885	F99882	Overland	Overland	1.07	0.00	0.00	0.00
F99886I1	F99886	F99840	Overland	Overland	2.26	0.00	0.00	0.00
F99888I1	F99888	F99891	Overland	Overland	4.63	0.08	0.22	0.27
F99891I1	F99891	F99843	Overland	Overland	4.46	0.17	0.42	0.54
F99896I1	F99896	F99898	Overland	Overland	4.24	0.59	1.00	1.20
F99898I1	F99898	F99878	Overland	Overland	2.91	0.56	1.13	1.42
F99899I1	F99899	F99898	Overland	Overland	3.14	0.12	0.29	0.35
F99912I1	F99912	F99864	Overland	Overland	4.11	0.03	0.17	0.23
F99915I1	F99915	F99912	Overland	Overland	6.00	0.01	0.10	0.13
F99919I1	F99919	F99888	Overland	Overland	7.01	0.08	0.22	0.28
F99925I1	F99925	F99919	Overland	Overland	6.41	0.00	0.00	0.00
F99936I1	F99936	F99937	Overland	Overland	5.10	0.36	0.60	0.72
F99937I1	F99937	F99896	Overland	Overland	7.17	0.34	0.59	0.72
F99947I1	F99947	181505A	Overland	Overland	5.85	0.01	0.14	0.35
F99948I1	F99948	F99947	Overland	Overland	12.27	0.01	0.12	0.31
F99951I1	F99951	F100003	Overland	Overland	0.63	0.02	0.21	0.30
F99953I1	F99953	F99951	Overland	Overland	4.47	0.00	0.00	0.00
F99954I1	F99954	F99948	Overland	Overland	3.57	0.05	0.19	0.23
F99960I1	F99960	F100098	Overland	Overland	5.98	0.02	0.20	0.26
F99994I1	F99994	F100012	Overland	Overland	4.76	0.09	0.22	0.28
FEX1I1	FEX1	F106737	Overland	Overland	8.35	0.01	0.01	0.01

D3: Existing Development Scenario
Calculated Overland Flood Levels

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F10000085l1	20.7	24.23	3.5	24.23	3.5	24.23	3.5
F10000196l1	23.4	23.45	0.1	23.61	0.2	23.62	0.2
F10000252l1	22.9	23.45	0.6	23.61	0.7	23.62	0.7
F100003l1	21.5	21.53	0.0	21.58	0.1	21.59	0.1
F100004l1	7.2	7.64	0.4	7.68	0.5	7.69	0.5
F100007l1	6.2	6.47	0.2	6.52	0.3	6.54	0.3
f10000897l1	4.4	6.54	2.2	6.75	2.4	6.80	2.4
F10000909l1	4.4	5.36	0.9	5.46	1.0	5.50	1.1
F10000915l1	4.4	7.19	2.8	7.25	2.8	7.27	2.9
F10000961l1	1.4	3.46	2.0	3.69	2.3	3.76	2.3
F100009l1	7.4	7.99	0.6	8.02	0.6	8.03	0.6
F10001063l1	24.7	24.71	0.0	24.71	0.0	24.71	0.0
F10001064l1	23.7	24.71	1.0	24.71	1.0	24.71	1.0
F100012l1	12.1	12.16	0.0	12.18	0.0	12.19	0.1
F100023l1	8.3	8.88	0.5	9.01	0.7	9.02	0.7
F100026l1	6.8	7.06	0.2	7.17	0.3	7.15	0.3
F100029l1	8.9	9.33	0.5	9.43	0.6	9.43	0.6
F100030l1	6.8	7.06	0.2	7.17	0.3	7.15	0.3
F100039l1	11.0	11.49	0.4	11.52	0.5	11.53	0.5
F100042l1	11.0	11.13	0.1	11.16	0.1	11.17	0.1
F100044l1	8.7	11.12	2.4	11.14	2.5	11.15	2.5
F100050l1	12.0	12.08	0.1	12.22	0.2	12.24	0.2
F100052l1	13.5	16.76	3.2	16.79	3.3	16.80	3.3
F100065l1	9.2	9.33	0.1	9.43	0.2	9.43	0.2
F100066l1	11.1	12.57	1.5	12.57	1.5	12.57	1.5
F100069l1	10.9	11.26	0.3	11.32	0.4	11.35	0.4
F100072l1	9.0	11.26	2.3	11.32	2.3	11.35	2.3
F100073l1	12.6	12.57	0.0	12.57	0.0	12.57	0.0
F100075l1	16.2	19.65	3.4	19.73	3.5	19.74	3.5
F100076l1	18.3	18.33	0.0	18.56	0.2	18.58	0.3
F100077l1	16.7	18.33	1.6	18.56	1.8	18.58	1.8
F100080l1	20.0	20.01	0.0	20.02	0.0	20.04	0.0
F100085l1	14.1	16.44	2.4	16.49	2.4	16.51	2.4
F100087l1	10.9	11.26	0.3	11.32	0.4	11.35	0.4
F100089l1	15.1	15.23	0.1	15.27	0.1	15.28	0.1
F100097l1	19.2	19.51	0.3	19.53	0.3	19.54	0.3
F100098l1	20.4	23.78	3.4	23.98	3.6	23.99	3.6
F100102l1	19.5	19.65	0.2	19.73	0.3	19.74	0.3
F100113l1	8.5	10.11	1.6	10.22	1.7	10.25	1.7
F100114l1	7.9	8.25	0.4	8.34	0.5	8.36	0.5
F100115l1	6.8	8.25	1.5	8.34	1.6	8.36	1.6
F100117l1	4.9	6.32	1.4	6.43	1.5	6.47	1.6
F100119l1	4.9	6.32	1.4	6.43	1.5	6.47	1.6
F100124l1	9.8	10.11	0.3	10.22	0.4	10.25	0.4
F100133l1	13.5	15.72	2.2	15.73	2.2	15.74	2.2
F100134l1	13.0	13.57	0.6	13.66	0.7	13.67	0.7
F100140l1	13.0	13.57	0.6	13.66	0.7	13.67	0.7
F100142l1	11.4	11.83	0.4	11.93	0.5	11.97	0.5
F100151l1	17.0	17.42	0.4	17.46	0.4	17.47	0.4
F100162l1	17.9	18.01	0.1	18.03	0.1	18.04	0.1
F100165l1	16.0	17.03	1.0	17.06	1.0	17.07	1.0
F100172l1	11.2	11.52	0.3	11.62	0.4	11.65	0.4
F100175l1	10.5	11.52	1.0	11.62	1.1	11.65	1.1
F100203l1	15.1	15.24	0.2	15.54	0.5	15.64	0.6
F100206l1	15.2	16.04	0.8	16.10	0.9	16.13	0.9
F100221l1	14.8	14.78	0.0	14.80	0.0	14.81	0.1
F100226l1	11.6	14.78	3.1	14.80	3.2	14.81	3.2
F100227l1	11.0	11.01	0.0	11.01	0.0	11.01	0.0
F100232l1	16.2	19.60	3.4	19.62	3.4	19.63	3.4

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F100234l1	14.5	14.54	0.1	14.56	0.1	14.57	0.1
F100245l1	12.0	13.59	1.6	13.62	1.6	13.63	1.6
F100252l1	4.0	6.32	2.3	6.43	2.4	6.47	2.5
F100255l1	4.0	6.32	2.3	6.43	2.4	6.47	2.5
F100256l1	5.0	5.30	0.3	5.42	0.4	5.44	0.4
F100262l1	2.0	3.18	1.2	3.21	1.2	3.23	1.2
F100274l1	4.0	6.31	2.3	6.42	2.4	6.45	2.4
F100276l1	6.0	8.53	2.6	8.57	2.6	8.58	2.6
F100286l1	9.5	9.69	0.2	9.73	0.2	9.75	0.2
F100288l1	9.5	10.61	1.1	10.63	1.1	10.64	1.1
F100294l1	3.4	3.63	0.2	3.70	0.3	3.73	0.3
F100316l1	9.1	9.32	0.2	9.36	0.2	9.37	0.2
F100324l1	9.5	9.69	0.2	9.73	0.3	9.75	0.3
F100324l2	9.1	9.56	0.4	9.61	0.5	9.63	0.5
F100325l1	7.6	7.83	0.3	7.88	0.3	7.90	0.3
F100330l1	1.4	6.57	5.2	6.59	5.2	6.60	5.2
F100338l1	6.4	6.59	0.2	6.64	0.3	6.66	0.3
F100344l1	13.1	14.53	1.4	14.56	1.5	14.57	1.5
F100346l1	8.5	8.54	0.1	8.57	0.1	8.58	0.1
F100347l1	11.6	13.18	1.5	13.21	1.6	13.22	1.6
F100354l1	11.0	11.43	0.4	11.71	0.7	11.85	0.9
F100363l1	11.0	11.43	0.4	11.71	0.7	11.85	0.9
F100377l1	11.4	11.46	0.1	11.51	0.1	11.56	0.2
F100379l1	4.3	5.39	1.0	5.44	1.1	5.48	1.1
F100380l1	4.3	5.39	1.0	5.44	1.1	5.48	1.1
F100393l1	18.6	18.68	0.1	18.71	0.1	18.73	0.2
F100395l1	18.6	18.68	0.1	18.71	0.1	18.73	0.2
F100398l1	22.3	22.37	0.1	22.39	0.1	22.40	0.1
F100422l1	11.8	12.10	0.3	12.15	0.4	12.18	0.4
F100425l1	14.6	14.71	0.1	14.83	0.2	14.86	0.3
F100428l1	16.0	16.20	0.2	16.22	0.2	16.23	0.2
F100431l1	16.0	16.11	0.1	16.13	0.1	16.14	0.1
F100436l1	13.7	14.71	1.0	14.83	1.1	14.86	1.1
F100439l1	13.5	14.61	1.1	14.83	1.4	14.86	1.4
F100440l1	8.0	8.36	0.4	8.41	0.4	8.43	0.4
F100442l1	13.4	13.45	0.1	13.47	0.1	13.48	0.1
F100447l1	16.3	16.49	0.2	16.51	0.3	16.52	0.3
F100448l1	14.1	14.31	0.2	14.31	0.2	14.31	0.2
F100454l1	25.9	26.19	0.2	26.22	0.3	26.23	0.3
F100460l1	25.9	26.19	0.3	26.22	0.3	26.23	0.3
F100468l1	20.0	20.29	0.3	20.32	0.3	20.33	0.3
F100470l1	26.6	26.62	0.0	26.62	0.0	26.64	0.0
F100474l1	21.9	21.87	0.0	21.87	0.0	21.87	0.0
F100477l1	21.9	21.87	0.0	21.87	0.0	21.87	0.0
F100478l2	10.0	10.22	0.2	10.26	0.3	10.27	0.3
F100480l1	13.7	13.82	0.1	13.84	0.1	13.85	0.1
F100494l1	12.9	13.18	0.2	13.22	0.3	13.24	0.3
F100500l1	12.9	13.18	0.2	13.22	0.3	13.24	0.3
F100502l1	8.0	8.37	0.4	8.42	0.4	8.43	0.4
F100503l1	11.5	11.71	0.2	11.71	0.2	11.72	0.2
F100516l1	8.1	8.19	0.1	8.21	0.1	8.22	0.1
F100518l1	10.7	10.73	0.1	10.75	0.1	10.76	0.1
F100523l1	9.6	10.53	0.9	10.60	1.0	10.62	1.0
F100528l1	9.9	9.98	0.1	10.00	0.1	10.01	0.1
F100531l1	1.4	1.42	0.0	1.42	0.0	1.49	0.1
F100532l1	10.5	10.80	0.3	10.82	0.3	10.84	0.3
F100533l1	10.2	10.80	0.6	10.82	0.6	10.84	0.6
F100535l1	10.4	10.50	0.1	10.54	0.1	10.56	0.1
F100538l1	6.9	7.12	0.2	7.15	0.2	7.17	0.3

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F100544l1	15.9	16.01	0.1	16.03	0.1	16.04	0.1
F100556l1	14.7	14.80	0.1	14.82	0.1	14.82	0.1
F100559l1	17.6	17.58	0.0	17.60	0.0	17.60	0.1
F100565l1	17.6	17.58	0.0	17.60	0.0	17.60	0.0
F100566l1	21.3	21.34	0.0	21.35	0.0	21.36	0.1
F100568l1	20.0	20.01	0.0	20.09	0.1	20.20	0.2
F100570l1	17.5	17.60	0.1	17.61	0.1	17.62	0.1
F100580l1	17.5	17.60	0.1	17.62	0.1	17.62	0.1
F100582l1	12.8	12.83	0.0	13.06	0.2	13.10	0.3
F100590l1	13.1	13.19	0.1	13.21	0.1	13.22	0.1
F100595l1	11.1	11.19	0.1	11.21	0.1	11.22	0.1
F100598l1	10.5	10.80	0.3	10.82	0.3	10.84	0.3
F100600l1	13.5	13.58	0.1	13.61	0.1	13.62	0.1
F100601l1	12.6	12.73	0.1	12.75	0.2	12.76	0.2
F100613l1	12.3	12.30	0.0	12.32	0.0	12.36	0.1
F100616l1	10.0	10.00	0.0	10.00	0.0	10.00	0.0
F100618l1	13.3	15.74	2.5	15.77	2.5	15.78	2.5
F100624l1	13.7	13.71	0.0	13.71	0.0	13.75	0.0
F100627l1	12.3	13.71	1.4	13.71	1.4	13.75	1.5
F100633l1	10.6	10.64	0.1	10.66	0.1	10.66	0.1
F100636l1	11.4	11.46	0.1	11.51	0.1	11.56	0.2
F100640l1	4.9	4.98	0.1	5.02	0.1	5.04	0.1
F100650l1	7.0	9.81	2.8	9.82	2.8	9.82	2.8
F100651l1	6.5	6.76	0.3	6.79	0.3	6.81	0.3
F100654l1	4.0	4.98	0.9	5.02	1.0	5.04	1.0
F100656l1	3.1	3.47	0.4	3.57	0.5	3.61	0.5
F100668l1	1.4	2.88	1.5	2.96	1.5	3.01	1.6
F100671l1	2.5	2.88	0.4	2.96	0.4	3.01	0.5
F100681l1	4.1	6.90	2.8	6.94	2.8	6.97	2.8
F100685l1	3.1	3.18	0.1	3.22	0.1	3.23	0.1
F100689l1	3.9	4.44	0.5	4.49	0.6	4.52	0.6
F100691l1	1.4	1.42	0.0	1.42	0.0	1.42	0.0
F100703l1	10.0	10.00	0.0	10.00	0.0	10.00	0.0
F100709l1	5.0	5.05	0.1	5.21	0.2	5.23	0.2
F100713l1	5.8	7.12	1.4	7.15	1.4	7.17	1.4
F100716l1	5.6	5.64	0.1	5.67	0.1	5.68	0.1
F100722l1	5.0	5.03	0.1	5.10	0.1	5.12	0.1
F100723l1	5.0	5.03	0.0	5.10	0.1	5.12	0.1
F100724l1	6.5	6.53	0.0	6.57	0.0	6.58	0.1
F100728l1	5.1	5.37	0.2	5.38	0.3	5.39	0.3
F100731l1	3.0	3.34	0.3	3.43	0.4	3.45	0.4
F100732l1	1.4	1.60	0.2	1.65	0.2	1.67	0.3
F100733l1	5.1	5.37	0.2	5.38	0.3	5.39	0.3
F101125l1	20.0	20.13	0.2	20.16	0.2	20.17	0.2
F101126l1	22.9	23.40	0.5	23.45	0.5	23.46	0.6
F101131l1	31.2	31.50	0.3	31.51	0.3	31.51	0.3
F101138l1	25.4	25.64	0.3	25.66	0.3	25.67	0.3
F101139l1	22.9	23.40	0.5	23.45	0.5	23.46	0.6
F101140l1	29.5	29.73	0.2	29.75	0.3	29.77	0.3
F101145l1	29.0	29.01	0.0	29.01	0.0	29.01	0.0
F101148l1	34.2	34.21	0.0	34.23	0.1	34.24	0.1
F101148l2	23.0	23.10	0.1	23.12	0.1	23.13	0.2
F101149l1	31.2	31.50	0.3	31.51	0.3	31.51	0.3
F101151l1	29.5	29.73	0.2	29.75	0.2	29.77	0.3
F101154l1	34.3	34.30	0.0	34.30	0.0	34.30	0.0
F101157l1	34.2	34.21	0.0	34.23	0.1	34.25	0.1
F101160l1	38.4	47.24	8.8	47.26	8.8	47.27	8.9
F101164l1	47.2	47.24	0.0	47.26	0.1	47.27	0.1
F101167l1	45.4	45.81	0.4	46.21	0.8	46.44	1.0

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F101170l1	45.4	45.81	0.4	46.21	0.8	46.44	1.0
F101171l1	57.0	58.01	1.0	58.01	1.0	58.01	1.0
F101179l1	51.3	51.32	0.0	51.32	0.0	51.32	0.0
F101184l1	48.8	48.93	0.2	49.00	0.2	49.01	0.2
F101202l1	23.0	24.56	1.6	24.61	1.6	24.63	1.7
F101210l1	25.6	25.86	0.3	25.89	0.3	25.91	0.3
F101211l1	24.2	25.86	1.6	25.89	1.6	25.91	1.7
F101214l1	19.5	19.66	0.1	19.71	0.2	19.73	0.2
F101227l1	28.1	31.92	3.9	31.92	3.9	31.94	3.9
F101237l1	24.2	24.26	0.1	24.29	0.1	24.30	0.1
F101240l1	28.0	29.55	1.6	29.58	1.6	29.59	1.6
F101245l1	29.4	29.55	0.1	29.58	0.1	29.59	0.1
F101252l1	32.4	37.01	4.6	37.01	4.6	37.01	4.6
F101254l1	31.2	31.44	0.2	31.46	0.2	31.48	0.3
F101255l1	28.1	31.31	3.2	31.33	3.3	31.34	3.3
F101256l1	35.2	35.24	0.0	35.24	0.0	35.27	0.0
F101257l1	31.7	35.24	3.5	35.24	3.5	35.26	3.6
F101260l1	29.4	29.68	0.2	29.70	0.3	29.71	0.3
F101265l1	38.1	42.34	4.2	42.49	4.4	42.53	4.4
F101267l1	36.3	36.32	0.0	36.36	0.0	36.43	0.1
F101273l1	35.3	37.29	2.0	37.31	2.1	37.32	2.1
F101305l1	16.6	16.77	0.2	16.77	0.2	16.77	0.2
F101308l1	16.2	16.77	0.6	16.77	0.6	16.77	0.6
F101310l1	16.8	16.77	0.0	16.77	0.0	16.77	0.0
F101313l1	16.6	18.39	1.7	18.41	1.8	18.41	1.8
F101318l1	15.2	15.17	0.0	15.18	0.0	15.18	0.0
F101323l1	15.8	16.07	0.3	16.07	0.3	16.07	0.3
F101324l1	15.2	15.17	0.0	15.18	0.0	15.18	0.0
F101327l1	15.1	15.17	0.1	15.18	0.1	15.18	0.1
F101336l1	13.2	13.22	0.0	13.22	0.0	13.22	0.0
F101340l1	15.1	15.14	0.0	15.18	0.1	15.19	0.1
F101350l1	15.9	16.74	0.9	16.76	0.9	16.77	0.9
F101352l1	15.0	15.01	0.0	15.01	0.0	15.01	0.0
F101355l1	14.0	16.45	2.4	16.57	2.6	16.64	2.6
F101356l1	15.9	16.45	0.6	16.57	0.7	16.64	0.8
F101376l1	16.6	17.18	0.6	17.20	0.6	17.21	0.7
F101376l2	15.5	15.73	0.2	15.75	0.2	16.00	0.5
F101386l1	18.3	18.40	0.1	18.43	0.1	18.44	0.1
F101388l1	13.0	13.48	0.5	13.65	0.6	13.68	0.7
F101396l1	13.0	13.41	0.4	13.41	0.4	13.41	0.4
F101399l1	12.0	13.55	1.5	13.59	1.6	13.61	1.6
F101405l1	18.3	18.40	0.1	18.43	0.1	18.44	0.1
F101413l1	18.5	20.13	1.6	20.16	1.7	20.17	1.7
F101413l2	17.8	17.94	0.2	17.99	0.2	18.01	0.2
F101416l1	20.0	23.24	3.3	23.27	3.3	23.28	3.3
F101417l1	17.8	18.21	0.4	18.24	0.4	18.26	0.4
F101419l1	16.5	18.21	1.7	18.24	1.7	18.26	1.8
F101424l1	19.5	19.66	0.1	19.71	0.2	19.73	0.2
F101433l1	25.3	25.84	0.5	25.98	0.7	26.00	0.7
F101436l1	22.3	22.39	0.0	22.43	0.1	22.45	0.1
F101447l1	25.3	26.37	1.1	26.41	1.1	26.42	1.1
F101450l1	26.1	26.37	0.2	26.41	0.3	26.42	0.3
F101472l1	13.4	14.04	0.6	14.04	0.6	14.04	0.6
F101476l1	14.9	14.93	0.0	14.93	0.0	14.93	0.0
F101478l1	14.1	16.15	2.0	16.20	2.1	16.19	2.1
F101480l1	15.9	16.15	0.2	16.20	0.3	16.19	0.3
F101483l1	13.9	14.84	1.0	14.84	1.0	14.84	1.0
F101484l1	11.0	11.06	0.0	11.29	0.3	11.34	0.3
F101487l1	16.1	16.49	0.4	16.57	0.4	16.58	0.4

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F101489l1	15.7	15.75	0.0	15.75	0.0	15.75	0.0
F101490l1	16.4	17.77	1.4	17.82	1.4	17.84	1.5
F101491l1	16.1	16.24	0.1	16.29	0.2	16.32	0.2
F101493l1	14.9	14.93	0.0	14.93	0.0	14.93	0.0
F101498l1	13.7	13.73	0.0	13.82	0.1	13.92	0.2
F101500l1	14.1	15.18	1.1	15.18	1.1	15.18	1.1
F101504l1	13.4	13.45	0.0	13.45	0.0	13.46	0.0
F101508l1	12.8	13.31	0.5	13.31	0.5	13.31	0.6
F101513l1	14.6	14.87	0.2	15.00	0.4	15.04	0.4
F101514l1	15.1	15.09	0.0	15.09	0.0	15.09	0.0
F101515l1	15.7	16.01	0.3	16.01	0.3	16.01	0.3
F101519l1	14.6	16.24	1.6	16.29	1.6	16.32	1.7
F101520l1	11.0	11.14	0.1	11.32	0.3	11.36	0.3
F101522l1	13.3	13.45	0.1	13.45	0.1	13.46	0.2
F101526l1	11.2	11.22	0.0	11.25	0.0	11.27	0.1
F101538l1	18.4	19.36	1.0	19.37	1.0	19.38	1.0
F101539l1	17.2	17.17	0.0	17.17	0.0	17.18	0.0
F101544l1	19.4	21.10	1.7	21.10	1.7	21.12	1.8
F101549l1	17.2	17.21	0.0	17.26	0.1	17.27	0.1
F101550l1	21.1	22.04	0.9	22.04	0.9	22.06	1.0
F101553l1	18.8	18.80	0.0	18.80	0.0	18.80	0.0
F101554l1	15.1	18.32	3.2	18.32	3.2	18.32	3.2
F101558l1	14.6	14.57	0.0	14.61	0.1	14.63	0.1
F101562l1	14.8	16.33	1.5	16.33	1.5	16.33	1.5
F101567l1	11.8	11.77	0.0	11.80	0.0	11.82	0.1
F101569l1	13.9	14.57	0.7	14.61	0.7	14.63	0.8
F101573l1	15.4	15.42	0.0	15.47	0.1	15.50	0.1
F101575l1	14.6	15.42	0.9	15.46	0.9	15.47	0.9
F101576l1	14.3	14.36	0.1	14.38	0.1	14.38	0.1
F101581l1	11.0	11.77	0.8	11.80	0.8	11.82	0.8
F101587l1	17.1	17.11	0.0	17.11	0.0	17.14	0.0
F101589l1	15.4	17.11	1.7	17.11	1.7	17.11	1.7
F101595l1	15.8	15.91	0.1	16.03	0.2	16.03	0.2
F101598l1	11.7	14.36	2.6	14.38	2.7	14.38	2.7
F101599l1	14.3	14.36	0.1	14.38	0.1	14.38	0.1
F101604l1	10.0	11.77	1.8	11.79	1.8	11.80	1.8
F101608l1	16.5	16.62	0.1	16.64	0.1	16.65	0.1
F101610l1	14.5	15.24	0.7	15.54	1.0	15.64	1.1
F101613l1	15.4	15.37	0.0	15.54	0.2	15.63	0.3
F101635l1	8.5	9.52	1.0	9.84	1.3	9.95	1.4
F101641l1	8.0	8.01	0.0	8.01	0.0	8.01	0.0
F101643l1	7.0	8.66	1.7	8.66	1.7	8.66	1.7
F101669l1	9.5	10.13	0.7	10.60	1.1	10.77	1.3
F101676l1	11.5	11.73	0.2	11.77	0.3	11.78	0.3
F101679l1	11.7	11.74	0.1	11.77	0.1	11.78	0.1
F101683l1	12.0	12.33	0.3	12.36	0.3	12.43	0.4
F101686l1	13.9	13.87	0.0	13.87	0.0	14.08	0.2
F101687l1	14.0	15.37	1.4	15.54	1.5	15.63	1.6
F101689l1	12.3	12.33	0.0	12.36	0.0	12.43	0.1
F101695l1	11.2	11.74	0.5	11.77	0.5	11.78	0.6
F101696l1	10.6	10.74	0.1	10.77	0.2	10.78	0.2
F101704l1	10.4	10.51	0.1	10.57	0.2	10.58	0.2
F101705l1	8.4	8.51	0.2	8.55	0.2	8.57	0.2
F101708l1	10.0	10.37	0.3	10.37	0.3	10.37	0.3
F101710l1	9.0	9.01	0.0	9.01	0.0	9.01	0.0
F101711l1	8.9	10.13	1.2	10.16	1.2	10.17	1.2
F101712l1	9.4	15.75	6.4	15.75	6.4	15.75	6.4
F101715l1	9.3	9.27	0.0	9.41	0.1	9.54	0.3
F101717l1	6.8	7.27	0.4	7.32	0.5	7.33	0.5

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F101718l1	8.9	10.32	1.4	10.35	1.4	10.37	1.4
F101720l1	7.7	7.84	0.2	7.87	0.2	7.89	0.2
F101747l1	10.7	11.37	0.7	11.42	0.7	11.43	0.7
F101749l1	10.1	10.13	0.0	10.18	0.1	10.19	0.1
F101762l1	8.9	9.16	0.3	9.19	0.3	9.20	0.3
F101763l1	9.9	10.01	0.1	10.04	0.2	10.05	0.2
F101766l1	9.0	9.25	0.2	9.27	0.2	9.27	0.2
F101771l1	8.4	8.53	0.1	8.59	0.2	8.61	0.2
F101778l1	9.7	10.01	0.3	10.04	0.4	10.05	0.4
F101781l1	7.3	8.60	1.3	8.63	1.4	8.64	1.4
F101789l1	8.4	8.72	0.3	8.77	0.4	8.79	0.4
F101803l1	5.0	5.45	0.4	5.57	0.6	5.63	0.6
F101805l1	4.7	5.45	0.8	5.59	0.9	5.64	1.0
F101807l1	4.0	4.42	0.4	4.60	0.6	4.91	0.9
F101810l1	8.0	8.53	0.5	8.59	0.5	8.61	0.6
F101812l1	3.0	3.18	0.2	3.22	0.2	3.23	0.2
F101825l1	9.7	10.74	1.1	10.77	1.1	10.78	1.1
F101829l1	6.2	6.47	0.2	6.52	0.3	6.54	0.3
F101833l1	6.8	7.27	0.4	7.32	0.5	7.33	0.5
F101836l1	5.2	5.46	0.2	5.57	0.4	5.63	0.4
F101837l1	4.7	5.46	0.8	5.57	0.9	5.63	1.0
F101842l1	5.0	5.18	0.2	5.18	0.2	5.18	0.2
F101845l2	6.2	6.47	0.2	6.52	0.3	6.54	0.3
F101847l1	7.2	7.43	0.2	7.47	0.2	7.48	0.2
F101849l1	6.7	7.43	0.8	7.47	0.8	7.48	0.8
F101857l1	5.0	5.01	0.0	5.01	0.0	5.01	0.0
F101858l1	5.1	5.18	0.1	5.18	0.1	5.18	0.1
F101867l1	5.2	5.25	0.0	5.25	0.0	5.25	0.0
F101873l1	4.5	5.25	0.7	5.25	0.7	5.25	0.7
F101926l1	25.5	25.78	0.3	25.83	0.3	25.85	0.3
F101927l1	33.0	33.78	0.8	33.82	0.8	33.83	0.9
F101949l1	36.2	39.55	3.4	39.56	3.4	39.56	3.4
F101952l1	8.5	8.72	0.3	8.75	0.3	8.76	0.3
F101958l1	4.0	7.40	3.4	7.42	3.4	7.42	3.4
F101967l1	4.5	4.78	0.2	4.80	0.3	4.82	0.3
F101970l1	11.3	11.51	0.2	11.52	0.2	11.52	0.2
F101975l1	7.3	7.40	0.1	7.42	0.1	7.42	0.1
F101978l1	13.7	13.70	0.0	13.72	0.1	13.73	0.1
F101981l1	8.5	8.72	0.3	8.75	0.3	8.76	0.3
F101989l1	17.0	19.51	2.5	19.53	2.5	19.54	2.5
F101991l1	19.9	20.17	0.3	20.20	0.3	20.21	0.3
F101998l1	8.3	8.60	0.3	8.66	0.4	8.68	0.4
F102001l1	8.3	8.60	0.3	8.66	0.4	8.68	0.4
F102006l1	9.1	10.03	1.0	10.05	1.0	10.07	1.0
F102015l1	10.8	11.12	0.3	11.19	0.4	11.20	0.4
F102016l1	9.4	11.12	1.8	11.19	1.8	11.20	1.8
F102021l1	10.0	10.01	0.0	10.20	0.2	10.22	0.2
F102026l1	11.5	12.47	1.0	12.50	1.0	12.51	1.0
F102029l1	12.2	12.50	0.3	12.56	0.4	12.58	0.4
F102032l1	15.0	15.34	0.3	15.40	0.4	15.42	0.4
F102035l1	12.2	12.47	0.2	12.50	0.3	12.51	0.3
F102037l1	15.0	16.33	1.3	16.38	1.4	16.40	1.4
F102044l1	13.3	13.55	0.2	13.57	0.2	13.57	0.2
F102045l1	13.1	13.27	0.2	13.32	0.2	13.32	0.2
F102046l1	9.1	9.35	0.3	9.39	0.3	9.41	0.3
F102048l1	13.3	13.49	0.1	13.56	0.2	13.57	0.2
F102056l1	15.0	15.34	0.3	15.40	0.4	15.42	0.4
F102059l1	19.3	20.17	0.9	20.20	0.9	20.21	0.9
F102069l1	16.7	16.93	0.2	16.95	0.3	16.95	0.3

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F102077l1	16.1	17.05	0.9	17.12	1.0	17.13	1.0
F102082l1	16.9	17.14	0.2	17.17	0.3	17.18	0.3
F102085l1	21.3	21.60	0.3	21.64	0.3	21.65	0.3
F102089l1	12.3	12.93	0.6	13.38	1.1	13.58	1.3
F102098l1	24.1	26.54	2.4	26.58	2.5	26.60	2.5
F102100l1	21.6	21.60	0.0	21.64	0.1	21.65	0.1
F102106l1	33.8	34.02	0.2	34.04	0.3	34.05	0.3
F102107l1	43.1	43.14	0.0	43.16	0.0	43.18	0.0
F102109l1	33.8	34.88	1.1	34.90	1.1	34.91	1.1
F102110l1	34.8	34.88	0.1	34.90	0.1	34.91	0.1
F102114l1	42.4	43.14	0.8	43.16	0.8	43.17	0.8
F102116l1	23.0	23.17	0.2	23.18	0.2	23.19	0.2
F102117l1	24.5	24.77	0.3	24.77	0.3	24.78	0.3
F102122l1	24.5	24.77	0.3	24.77	0.3	24.78	0.3
F102133l1	32.9	32.89	0.0	33.01	0.2	33.06	0.2
F102141l1	30.2	30.22	0.1	30.24	0.1	30.25	0.1
F102150l1	41.1	41.12	0.1	41.19	0.1	41.22	0.2
F102160l1	11.2	11.44	0.2	11.45	0.2	11.45	0.2
F102163l1	11.2	11.44	0.2	11.45	0.2	11.45	0.2
F102164l1	11.2	11.44	0.2	11.45	0.2	11.45	0.2
F102168l1	15.3	15.39	0.1	15.41	0.1	15.42	0.1
F102173l1	11.0	11.01	0.0	11.01	0.0	11.01	0.0
F102175l1	8.7	8.89	0.2	8.92	0.2	8.93	0.2
F102184l1	8.7	8.89	0.2	8.92	0.2	8.93	0.2
F102187l1	14.3	15.89	1.6	15.91	1.6	15.92	1.7
F102212l1	7.0	7.01	0.0	7.01	0.0	7.01	0.0
F102214l1	14.9	14.86	0.0	14.86	0.0	14.86	0.0
F102216l1	9.0	9.01	0.0	9.04	0.0	9.21	0.2
F102219l1	16.0	16.02	0.0	16.02	0.0	16.02	0.0
F102221l1	11.1	11.13	0.0	11.13	0.0	11.13	0.0
F102222l1	13.9	13.94	0.0	13.94	0.0	13.94	0.0
F102224l1	11.0	11.03	0.0	11.21	0.2	11.26	0.2
F102225l1	16.2	16.48	0.2	16.53	0.3	16.54	0.3
F102226l1	6.6	7.02	0.5	7.08	0.5	7.10	0.5
F102231l1	19.4	19.65	0.2	19.67	0.2	19.67	0.2
F102234l1	19.4	19.65	0.2	19.67	0.2	19.67	0.2
F102238l1	20.6	20.59	0.0	20.69	0.1	20.70	0.1
F102240l1	22.7	22.78	0.1	22.89	0.2	22.90	0.2
F102242l1	20.6	22.70	2.1	22.75	2.2	22.76	2.2
F102260l1	23.0	23.22	0.2	23.23	0.2	23.24	0.2
F102263l1	27.6	28.53	0.9	28.55	1.0	28.56	1.0
F102265l1	28.4	28.53	0.1	28.55	0.1	28.56	0.2
F102289l1	22.7	24.46	1.8	24.50	1.8	24.51	1.8
F102302l1	5.0	5.01	0.0	5.01	0.0	5.01	0.0
F102303l1	11.1	11.13	0.0	11.13	0.0	11.13	0.0
F102307l1	1.4	1.57	0.1	1.62	0.2	1.64	0.2
F102683l1	39.4	43.83	4.4	43.83	4.4	43.83	4.4
F102684l1	43.8	43.83	0.0	43.83	0.0	43.83	0.0
F102685l1	46.4	46.43	0.0	46.43	0.0	46.43	0.0
F102686l1	36.1	36.10	0.0	36.12	0.0	36.12	0.0
F102688l1	28.5	30.22	1.8	30.24	1.8	30.25	1.8
F103222l1	11.1	11.19	0.1	11.22	0.1	11.24	0.1
F103310l1	28.9	33.21	4.3	33.25	4.3	33.26	4.4
F103311l1	26.6	26.72	0.2	26.77	0.2	26.78	0.2
F103363l1	33.1	36.10	3.0	36.12	3.0	36.12	3.0
F104110l1	11.9	11.93	0.0	11.94	0.0	11.94	0.0
F104112l1	11.9	11.93	0.0	11.94	0.0	11.94	0.0
F104114l1	9.0	9.01	0.0	9.01	0.0	9.01	0.0
F104121l1	13.1	13.71	0.7	13.71	0.7	13.71	0.7

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F104123l1	13.1	13.14	0.1	13.14	0.1	13.14	0.1
F104124l1	11.5	13.14	1.7	13.14	1.7	13.14	1.7
F104126l1	13.6	13.59	0.0	13.59	0.0	13.59	0.0
F104127l1	11.7	15.95	4.3	15.95	4.3	15.95	4.3
F104128l1	10.9	10.96	0.1	11.00	0.1	11.02	0.1
F104130l1	10.8	10.96	0.1	11.00	0.2	11.02	0.2
F104132l1	10.8	10.94	0.1	10.94	0.1	10.94	0.1
F104136l1	9.0	10.94	1.9	10.94	1.9	10.94	1.9
F104139l1	10.4	10.51	0.1	10.57	0.1	10.58	0.1
F104140l1	10.8	12.60	1.8	12.79	1.9	12.80	2.0
F104146l1	10.4	10.43	0.0	10.48	0.1	10.50	0.1
F104148l1	10.6	10.75	0.1	10.97	0.3	11.03	0.4
F104149l1	10.6	10.75	0.1	10.97	0.4	11.03	0.4
F104150l1	10.6	10.99	0.3	11.01	0.4	11.04	0.4
F104152l1	10.0	10.01	0.0	10.05	0.1	10.07	0.1
F104154l1	9.5	10.00	0.5	10.05	0.5	10.07	0.6
F104155l1	7.3	7.40	0.1	7.43	0.2	7.45	0.2
F104160l1	9.8	9.76	0.0	9.76	0.0	9.76	0.0
F104161l1	8.6	8.65	0.0	8.65	0.0	8.65	0.0
F104162l1	10.3	10.32	0.0	10.32	0.0	10.32	0.0
F104163l1	7.0	7.01	0.0	7.01	0.0	7.01	0.0
F106120l1	60.3	60.27	0.0	60.27	0.0	60.27	0.0
F106123l1	62.6	62.64	0.0	62.64	0.0	62.64	0.0
F106135l1	32.3	32.34	0.1	32.37	0.1	32.38	0.1
F106138l1	32.3	32.36	0.1	32.38	0.1	32.39	0.1
F106145l1	39.0	39.08	0.1	39.10	0.1	39.10	0.1
F106148l1	39.4	39.50	0.1	39.53	0.1	39.55	0.1
F106150l1	38.3	39.86	1.6	39.86	1.6	39.86	1.6
F106154l1	37.7	37.68	0.0	37.68	0.0	37.69	0.0
F106162l1	39.8	39.84	0.1	39.86	0.1	39.87	0.1
F106163l1	38.3	39.08	0.8	39.10	0.8	39.10	0.8
F106164l1	35.8	35.93	0.1	35.96	0.1	35.96	0.1
F106165l1	35.8	35.93	0.1	35.96	0.1	35.96	0.1
F106167l1	39.7	39.82	0.1	40.30	0.6	40.35	0.6
F106168l1	39.8	39.95	0.2	39.99	0.2	40.02	0.2
F106170l1	37.7	37.70	0.0	37.74	0.1	37.77	0.1
F106178l1	37.5	38.25	0.8	39.12	1.7	39.58	2.1
F106181l1	39.5	39.95	0.4	39.99	0.4	40.02	0.5
F106183l1	38.7	38.80	0.1	39.12	0.5	39.58	0.9
F106187l1	35.4	35.39	0.0	35.39	0.0	35.39	0.0
F106188l1	34.0	33.98	0.0	33.98	0.0	33.98	0.0
F106191l1	35.1	37.45	2.3	37.51	2.4	37.60	2.5
F106192l1	37.1	37.27	0.1	37.52	0.4	37.60	0.5
F106196l1	37.1	37.27	0.1	37.52	0.4	37.60	0.5
F106199l1	33.2	33.22	0.0	33.22	0.0	33.38	0.2
F106200l1	33.3	34.11	0.8	34.11	0.8	34.11	0.8
F106204l1	31.0	31.01	0.0	31.01	0.0	31.08	0.1
F106208l1	31.7	33.98	2.3	33.98	2.3	33.98	2.3
F106209l1	28.9	28.90	0.0	28.91	0.0	28.92	0.0
F106210l1	29.8	31.71	1.9	31.72	1.9	31.72	1.9
F106214l1	28.9	29.18	0.2	29.21	0.3	29.22	0.3
F106216l1	30.5	30.46	0.0	30.46	0.0	30.52	0.1
F106219l1	38.3	38.54	0.2	38.56	0.3	38.57	0.3
F106223l1	28.7	30.21	1.5	30.91	2.2	31.13	2.4
F106230l1	30.5	30.82	0.3	30.93	0.4	31.13	0.6
F106231l1	30.5	30.71	0.2	30.92	0.4	31.13	0.6
F106235l1	34.9	34.88	0.0	34.89	0.0	34.91	0.0
F106236l1	31.6	31.62	0.0	31.62	0.0	31.63	0.0
F106238l1	30.3	30.71	0.4	30.92	0.6	31.13	0.8

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
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F106243l1	28.9	30.21	1.3	30.91	2.0	31.13	2.2
F106245l1	33.4	33.77	0.4	33.79	0.4	33.80	0.4
F106246l1	34.4	34.55	0.1	34.58	0.2	34.59	0.2
F106247l1	34.4	34.54	0.1	34.56	0.1	34.57	0.2
F106249l1	29.5	30.21	0.7	30.91	1.4	31.13	1.6
F106251l1	29.5	30.21	0.7	30.91	1.4	31.13	1.6
F106254l1	31.7	31.70	0.0	31.70	0.0	31.70	0.0
F106257l1	32.0	32.14	0.1	32.17	0.2	32.19	0.2
F106258l1	32.0	32.14	0.1	32.18	0.2	32.20	0.2
F106263l1	31.7	31.70	0.0	31.70	0.0	31.70	0.0
F106266l1	34.5	34.88	0.4	34.89	0.4	34.91	0.4
F106268l1	33.0	33.03	0.0	33.03	0.0	33.03	0.0
F106270l1	33.6	33.68	0.1	33.73	0.1	33.76	0.1
F106272l1	33.6	33.68	0.1	33.73	0.1	33.76	0.1
F106274l1	32.6	32.69	0.1	32.73	0.2	32.75	0.2
F106275l1	35.4	35.49	0.1	35.53	0.1	35.55	0.1
F106276l1	35.4	35.49	0.1	35.53	0.1	35.55	0.1
F106281l1	37.7	37.87	0.2	37.93	0.2	37.94	0.2
F106287l1	36.0	36.08	0.0	36.14	0.1	36.15	0.1
F106288l1	39.4	39.50	0.1	39.53	0.1	39.55	0.1
F106290l1	34.5	34.48	0.0	34.48	0.0	34.48	0.0
F106293l1	36.9	36.88	0.0	36.91	0.0	36.93	0.1
F106303l1	25.6	25.60	0.0	25.60	0.0	25.79	0.2
F106304l1	30.5	30.46	0.0	30.46	0.0	30.52	0.1
F106316l1	31.6	31.62	0.0	31.62	0.0	31.63	0.0
F106319l1	35.2	35.22	0.0	35.22	0.0	35.22	0.0
F106323l1	35.2	35.22	0.0	35.22	0.0	35.22	0.0
F106325l1	20.7	20.96	0.3	20.98	0.3	21.00	0.3
F106370l1	22.0	21.97	0.0	21.97	0.0	21.97	0.0
F106371l1	23.2	23.30	0.1	23.36	0.2	23.37	0.2
F106378l1	20.7	20.96	0.3	20.98	0.3	21.00	0.3
F106382l1	22.7	22.81	0.1	22.85	0.1	22.86	0.1
F106388l1	20.7	20.96	0.3	20.98	0.3	21.00	0.3
F106389l1	18.6	18.92	0.3	18.96	0.4	18.99	0.4
F106392l1	17.7	17.77	0.1	17.82	0.1	17.84	0.2
F106395l1	16.0	16.01	0.0	16.01	0.0	16.01	0.0
F106405l1	25.8	26.03	0.2	26.07	0.3	26.09	0.3
F106417l1	32.0	31.96	0.0	31.96	0.0	31.96	0.0
F106418l1	29.6	29.57	0.0	29.57	0.0	29.57	0.0
F106419l1	29.6	29.57	0.0	29.57	0.0	29.57	0.0
F106423l1	24.0	24.23	0.2	24.35	0.3	24.42	0.4
F106424l1	25.7	25.68	0.0	25.68	0.0	25.70	0.0
F106425l1	25.7	25.68	0.0	25.68	0.0	25.70	0.0
F106428l1	21.4	21.40	0.0	21.40	0.0	21.40	0.0
F106432l1	22.7	22.67	0.0	22.67	0.0	22.67	0.0
F106437l1	23.4	23.43	0.0	23.43	0.0	23.48	0.1
F106438l1	23.2	23.30	0.1	23.36	0.2	23.37	0.2
F106442l1	24.6	24.61	0.0	24.61	0.0	24.61	0.0
F106443l1	23.8	26.46	2.7	26.50	2.7	26.68	2.9
F106446l1	24.0	24.61	0.6	24.61	0.6	24.61	0.6
F106447l1	21.4	21.58	0.2	21.58	0.2	21.58	0.2
F106448l1	21.6	21.58	0.0	21.58	0.0	21.58	0.0
F106450l1	22.8	22.80	0.0	22.80	0.0	22.80	0.0
F106452l1	22.0	21.98	0.0	21.98	0.0	21.98	0.0
F106453l1	22.0	21.98	0.0	21.98	0.0	21.98	0.0
F106723l1	42.3	42.39	0.1	42.44	0.2	42.45	0.2
F106724l1	50.6	56.30	5.7	56.30	5.7	56.30	5.7
F106731l1	56.3	56.30	0.0	56.30	0.0	56.30	0.0
F106736l1	46.8	50.64	3.8	50.67	3.8	50.67	3.8

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F106737l1	50.6	50.64	0.1	50.67	0.1	50.67	0.1
F106745l1	43.7	46.91	3.2	46.94	3.2	46.94	3.2
F106752l1	43.8	43.83	0.0	43.83	0.0	43.83	0.0
F106753l1	42.3	45.32	3.1	45.33	3.1	45.34	3.1
F106755l1	42.2	42.46	0.2	42.51	0.3	42.52	0.3
F106756l1	42.0	42.39	0.4	42.44	0.4	42.45	0.5
F106757l1	40.8	40.97	0.1	41.00	0.2	41.03	0.2
F106767l1	39.7	39.88	0.1	40.30	0.6	40.35	0.6
F106768l1	38.8	38.85	0.0	38.88	0.1	38.89	0.1
F106771l1	39.9	40.97	1.1	41.00	1.1	41.03	1.1
F106774l1	40.7	40.68	0.0	40.68	0.0	40.68	0.0
F106776l1	40.2	40.68	0.4	40.68	0.4	40.68	0.4
F106777l1	40.1	40.37	0.2	40.52	0.4	40.57	0.4
F106779l1	40.1	46.32	6.2	46.34	6.2	46.35	6.2
F106785l1	40.3	40.29	0.0	40.31	0.0	40.31	0.0
F106787l1	26.2	26.24	0.0	26.31	0.1	26.34	0.1
F116096l1	25.0	25.86	0.9	25.86	0.9	25.86	0.9
F116097l1	25.9	27.62	1.8	27.62	1.8	27.62	1.8
F116098l1	27.4	27.43	0.0	27.43	0.0	27.43	0.0
F116099l1	23.0	24.66	1.7	24.66	1.7	24.70	1.7
F116103l1	32.4	32.42	0.1	32.44	0.1	32.45	0.1
F116107l1	29.5	35.48	5.9	35.56	6.0	35.57	6.0
F116109l1	38.9	38.94	0.0	38.98	0.0	38.98	0.0
F116114l1	32.4	38.94	6.6	38.98	6.6	38.98	6.6
F116118l1	29.4	29.74	0.3	30.16	0.7	30.23	0.8
F116130l1	36.7	43.56	6.9	43.65	7.0	43.66	7.0
F116131l1	32.7	32.69	0.0	32.69	0.0	32.69	0.0
F116134l1	43.4	45.84	2.4	45.87	2.4	45.87	2.4
F116141l1	30.1	30.16	0.0	30.18	0.0	30.22	0.1
F116146l1	27.6	28.70	1.1	28.74	1.1	28.78	1.2
F116148l1	29.5	29.55	0.0	29.58	0.0	29.62	0.1
F116151l1	29.4	29.74	0.3	30.16	0.7	30.23	0.8
F116157l1	28.7	28.70	0.0	28.74	0.1	28.78	0.1
F116163l1	28.6	28.59	0.0	28.59	0.0	28.59	0.0
F116164l1	27.6	27.62	0.0	27.62	0.0	27.62	0.0
F116177l1	27.6	36.88	9.3	36.92	9.3	36.93	9.3
F116179l1	26.4	26.72	0.3	26.79	0.4	26.82	0.4
F116181l1	26.9	26.92	0.1	26.96	0.1	26.98	0.1
F116183l1	32.7	32.69	0.0	32.69	0.0	32.69	0.0
F116187l1	26.4	26.72	0.3	26.79	0.4	26.82	0.4
F116194l1	26.4	26.72	0.3	26.79	0.4	26.82	0.4
F116194l2	26.0	26.24	0.3	26.31	0.3	26.34	0.4
F116196l1	24.9	24.94	0.0	24.94	0.0	24.98	0.0
F116197l1	32.0	32.24	0.3	32.28	0.3	32.30	0.3
F116198l1	39.2	39.27	0.0	39.28	0.0	39.29	0.0
F116201l1	33.1	33.41	0.3	33.45	0.3	33.45	0.3
F116202l1	44.6	44.64	0.0	44.64	0.0	44.64	0.0
F116210l1	31.6	31.65	0.0	31.67	0.1	31.67	0.1
F116215l1	47.7	47.72	0.0	47.72	0.0	47.72	0.0
F116216l1	47.7	47.72	0.0	47.72	0.0	47.72	0.0
F116218l1	42.1	42.36	0.2	42.38	0.3	42.39	0.3
F116221l1	28.9	29.01	0.1	29.15	0.2	29.18	0.3
F116224l1	32.0	32.24	0.3	32.28	0.3	32.30	0.3
F116226l1	29.3	29.35	0.0	29.36	0.0	29.36	0.0
F116230l1	29.3	29.35	0.0	29.36	0.0	29.36	0.0
F116235l1	33.4	33.45	0.0	33.48	0.1	33.49	0.1
F116237l1	28.9	29.01	0.1	29.15	0.2	29.18	0.3
F116261l1	25.4	25.45	0.0	25.47	0.1	25.47	0.1
F116265l1	25.4	25.45	0.0	25.47	0.1	25.47	0.1

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F118543l1	57.9	58.00	0.1	58.02	0.1	58.03	0.1
F118544l1	58.5	58.48	0.0	58.50	0.0	58.52	0.0
F118545l1	57.9	57.98	0.0	58.00	0.1	58.01	0.1
F118546l1	57.9	57.98	0.0	58.00	0.1	58.01	0.1
F118559l1	58.5	58.53	0.0	58.55	0.0	58.56	0.0
F118625l1	39.0	38.98	0.0	38.98	0.0	38.98	0.0
F119099l1	36.6	36.61	0.0	36.61	0.0	36.61	0.0
F132376l1	12.8	12.90	0.1	12.92	0.1	12.93	0.1
F132377l1	12.8	12.91	0.1	12.94	0.1	12.94	0.1
F132433l1	12.8	12.98	0.2	13.00	0.2	13.01	0.2
F132438l2	14.3	18.06	3.8	18.07	3.8	18.10	3.8
F132459l1	14.1	14.33	0.2	14.35	0.2	14.36	0.2
F132461l1	14.1	14.33	0.2	14.35	0.2	14.36	0.2
F155817l1	53.8	54.03	0.2	54.41	0.6	54.47	0.6
F155821l1	47.0	47.22	0.2	47.25	0.2	47.29	0.3
F155826l1	54.3	54.31	0.1	54.40	0.1	54.47	0.2
F155827l1	39.6	47.22	7.6	47.25	7.6	47.29	7.7
F155835l1	54.3	54.31	0.1	54.40	0.1	54.47	0.2
F155845l1	45.6	48.77	3.1	48.77	3.1	48.78	3.1
F155848l1	48.8	48.77	0.0	48.77	0.0	48.78	0.0
F155859l1	55.1	55.51	0.5	55.51	0.5	55.69	0.6
F155869l1	41.2	41.36	0.2	41.38	0.2	41.39	0.2
F155870l1	35.9	41.23	5.3	41.25	5.3	41.26	5.3
F155872l1	41.5	41.51	0.0	41.51	0.0	41.51	0.0
F155885l1	49.0	50.42	1.4	50.42	1.4	50.42	1.4
F155888l1	44.0	44.25	0.2	44.27	0.2	44.29	0.3
F155889l1	47.0	49.04	2.1	49.21	2.3	49.25	2.3
F155896l1	46.3	46.35	0.1	46.36	0.1	46.37	0.1
F155936l1	50.0	57.89	7.9	57.91	7.9	57.91	7.9
F155938l1	57.8	57.89	0.1	57.91	0.1	57.91	0.1
F155941l1	77.2	77.90	0.7	77.90	0.7	77.90	0.7
F155942l1	77.2	77.25	0.1	77.25	0.1	77.25	0.1
F155943l1	68.3	77.25	8.9	77.25	8.9	77.25	8.9
F155944l1	75.8	75.79	0.0	75.79	0.0	75.79	0.0
F155955l1	64.0	75.79	11.7	75.79	11.7	75.79	11.7
F155964l1	72.5	72.48	0.0	72.48	0.0	72.48	0.0
F155986l1	67.7	72.48	4.8	72.48	4.8	72.48	4.8
F181077Al1	8.7	9.52	0.9	9.84	1.2	9.95	1.3
F181078l1	7.0	8.21	1.2	8.38	1.4	8.44	1.4
F181079l1	7.6	7.62	0.1	7.90	0.3	8.00	0.4
F181081l1	4.1	4.66	0.6	4.94	0.9	5.13	1.1
F181082l1	2.8	3.46	0.7	3.69	0.9	3.76	1.0
F181091l1	42.3	51.87	9.5	51.87	9.5	51.87	9.5
F181092l1	16.0	16.11	0.1	16.37	0.4	16.50	0.5
F181094l1	13.0	13.46	0.5	13.57	0.6	13.59	0.6
F181095l1	14.0	14.01	0.0	14.01	0.0	14.21	0.2
F181096l1	17.0	17.32	0.3	17.40	0.4	17.43	0.4
F181098l1	3.1	3.47	0.4	3.57	0.5	3.61	0.5
F181115l1	23.0	25.82	2.8	25.82	2.8	25.82	2.8
F181160l1	24.9	24.94	0.0	24.94	0.0	24.98	0.0
F181508l1	8.9	9.56	0.7	9.64	0.8	9.67	0.8
F181510l1	6.8	7.06	0.2	7.17	0.3	7.15	0.3
F181525l1	17.0	20.61	3.6	20.61	3.6	20.61	3.6
F181545l1	10.8	12.47	1.6	12.71	1.9	12.79	2.0
F181556l1	16.9	17.40	0.5	17.43	0.5	17.44	0.5
F181574l1	10.0	10.01	0.0	10.01	0.0	10.01	0.0
F181585l1	4.0	5.01	1.0	5.01	1.0	5.01	1.0
F181596l1	2.8	3.46	0.7	3.69	0.9	3.76	1.0
F181603l1	8.5	9.42	0.9	9.42	0.9	9.42	0.9

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F181789Al1	20.7	20.70	0.0	20.70	0.0	20.70	0.0
F181789Bl1	17.7	20.70	3.0	20.70	3.0	20.70	3.0
F181803l1	39.9	39.82	0.0	40.30	0.4	40.35	0.5
F182227l1	21.7	22.91	1.2	22.98	1.3	23.11	1.4
F183819l1	13.3	13.51	0.2	13.52	0.2	13.52	0.2
F183821l1	13.3	15.43	2.1	15.43	2.1	15.43	2.1
F187207l1	30.6	30.21	-0.4	30.91	0.3	31.13	0.5
F187208l1	33.7	34.11	0.4	34.13	0.4	34.14	0.4
F187227l1	19.2	19.41	0.2	19.42	0.2	19.43	0.3
F187234l1	21.1	21.15	0.1	21.15	0.1	21.15	0.1
F2000005l1	60.3	60.27	0.0	60.27	0.0	60.27	0.0
F2000008l1	30.4	30.82	0.4	30.93	0.5	31.13	0.7
F216546l1	6.4	6.93	0.5	7.24	0.8	7.36	0.9
F216548l1	6.0	6.93	0.9	7.24	1.2	7.36	1.4
F216551l1	6.4	6.93	0.5	7.24	0.8	7.36	0.9
F216556l1	11.1	11.19	0.1	11.45	0.3	11.52	0.4
F216573l1	11.1	11.19	0.1	11.45	0.4	11.52	0.4
F216582l1	11.1	11.55	0.4	11.55	0.4	11.55	0.4
F216584l1	11.5	11.55	0.0	11.55	0.0	11.55	0.0
F216589l1	9.4	9.76	0.4	9.76	0.4	9.76	0.4
F216591l1	9.6	9.76	0.1	9.76	0.1	9.76	0.1
F216606l1	9.3	9.50	0.2	9.75	0.5	9.75	0.5
F216607l1	9.5	9.50	0.0	9.75	0.2	9.75	0.2
F216846l1	6.0	6.88	0.9	6.86	0.9	6.86	0.9
F5000002l1	45.2	45.32	0.1	45.33	0.1	45.34	0.1
F5000003l1	49.0	51.18	2.2	51.18	2.2	51.18	2.2
F5000004l1	51.2	51.18	0.0	51.18	0.0	51.18	0.0
F5000005l1	62.4	67.25	4.8	67.25	4.8	67.25	4.8
F5000006l1	59.7	59.69	0.0	59.72	0.1	59.73	0.1
F5000007l1	67.2	70.95	3.7	70.95	3.7	70.95	3.7
F5000010l1	13.0	13.02	0.0	13.18	0.2	13.22	0.2
F5000011l1	39.7	39.69	0.0	39.69	0.0	39.69	0.0
F5000012l1	27.3	27.46	0.2	27.48	0.2	27.49	0.2
F5000013l1	5.0	6.32	1.3	6.43	1.4	6.47	1.5
F5000014l1	3.0	3.21	0.2	3.27	0.3	3.31	0.3
F5000015l1	1.4	3.19	1.8	3.25	1.8	3.27	1.9
F5000016l1	4.3	5.39	1.0	5.44	1.1	5.48	1.1
F5000017l1	23.8	24.10	0.3	24.12	0.3	24.13	0.3
F5000020l1	7.0	9.15	2.1	9.52	2.5	9.68	2.7
F5000021l1	6.6	7.26	0.7	7.31	0.8	7.32	0.8
F5000022l1	33.6	33.78	0.2	33.82	0.3	33.83	0.3
F5000023l1	28.6	28.99	0.4	28.99	0.4	28.99	0.4
F5000024l1	1.4	3.45	2.0	3.68	2.3	3.74	2.3
F5000027l1	4.0	5.33	1.3	5.42	1.4	5.45	1.4
F99189l1	30.7	30.84	0.1	30.92	0.2	31.13	0.4
F99197l1	30.7	31.53	0.8	31.53	0.8	31.53	0.8
F99199l1	30.5	30.85	0.4	30.93	0.4	31.13	0.6
F99207l1	33.6	33.82	0.3	33.84	0.3	33.85	0.3
F99212l1	31.5	31.63	0.1	31.66	0.1	31.67	0.2
F99213l1	33.6	34.02	0.5	34.06	0.5	34.07	0.5
F99214l1	33.9	34.02	0.2	34.06	0.2	34.07	0.2
F99378l1	13.5	14.72	1.2	14.82	1.3	14.85	1.4
F99380l1	17.0	17.21	0.2	17.22	0.2	17.23	0.2
F99382l1	21.9	23.54	1.7	23.57	1.7	23.60	1.7
F99383l1	17.1	17.18	0.1	17.19	0.1	17.20	0.1
F99384l1	14.4	17.24	2.8	17.30	2.9	17.33	2.9
F99385l1	15.4	15.72	0.3	15.73	0.3	15.74	0.3
F99386l1	17.1	17.21	0.1	17.22	0.2	17.23	0.2
F99387l1	17.0	17.21	0.2	17.22	0.2	17.23	0.2

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F99391I1	17.1	18.02	0.9	18.04	1.0	18.05	1.0
F99397I1	19.3	20.13	0.9	20.18	0.9	20.20	0.9
F99400I1	17.2	20.06	2.9	20.11	2.9	20.13	2.9
F99402I1	17.0	17.04	0.0	17.67	0.7	17.86	0.9
F99404I1	17.0	22.67	5.7	22.67	5.7	22.67	5.7
F99407I1	19.3	20.12	0.8	20.16	0.9	20.18	0.9
F99413I1	23.5	23.52	0.0	23.74	0.2	23.77	0.2
F99414I1	23.3	23.54	0.3	23.73	0.5	23.75	0.5
F99416I1	21.9	24.59	2.7	24.62	2.7	24.64	2.8
F99422I1	17.3	17.40	0.1	17.42	0.1	17.42	0.1
F99441I1	26.6	27.34	0.8	27.37	0.8	27.38	0.8
F99446I1	22.1	22.45	0.3	22.46	0.3	22.45	0.3
F99450I1	24.1	24.83	0.8	24.86	0.8	24.83	0.8
F99457I1	25.0	25.33	0.3	25.30	0.3	25.31	0.3
F99465I1	24.5	25.33	0.8	25.30	0.8	25.31	0.8
F99476I1	22.3	22.37	0.1	22.39	0.1	22.40	0.1
F99499I1	23.2	23.60	0.4	23.76	0.6	23.82	0.7
F99501I1	23.4	23.60	0.2	23.76	0.4	23.82	0.4
F99503I1	23.3	23.55	0.3	23.76	0.5	23.82	0.5
F99507I1	23.1	24.59	1.5	24.62	1.6	24.64	1.6
F99508I1	26.4	26.72	0.3	26.77	0.4	26.78	0.4
F99510I1	26.4	26.45	0.0	26.48	0.1	26.49	0.1
F99511I1	23.1	26.43	3.4	26.46	3.4	26.47	3.4
F99536I1	28.8	28.90	0.1	28.92	0.1	28.93	0.1
F99619I1	18.1	22.45	4.4	22.45	4.4	22.47	4.4
F99627I1	21.7	21.72	0.1	21.73	0.1	21.74	0.1
F99644I1	22.7	22.85	0.2	22.92	0.2	22.95	0.3
F99645I1	21.3	22.13	0.8	22.15	0.8	22.15	0.8
F99647I1	21.7	21.88	0.2	21.89	0.2	21.90	0.2
F99648I1	21.7	22.85	1.2	22.92	1.2	22.95	1.3
F99665I1	22.1	22.13	0.0	22.15	0.0	22.15	0.0
F99670I1	25.0	25.03	0.0	25.03	0.0	25.03	0.0
F99714I1	21.7	21.72	0.1	21.73	0.1	21.74	0.1
F99716I1	23.1	23.67	0.6	23.92	0.8	24.05	1.0
F99718I1	23.1	23.67	0.6	23.92	0.8	24.05	1.0
F99719I1	23.8	24.05	0.2	24.08	0.2	24.08	0.2
F99731I1	23.5	23.67	0.2	23.92	0.4	24.05	0.5
F99733I1	26.5	26.47	0.0	26.47	0.0	26.47	0.0
F99784I1	26.5	26.50	0.0	26.50	0.0	26.50	0.0
F99785I1	30.9	30.91	0.0	30.96	0.1	30.97	0.1
F99791I1	28.6	28.59	0.0	28.59	0.0	28.59	0.0
F99800I1	19.5	19.78	0.2	19.82	0.3	19.82	0.3
F99804I1	8.4	8.51	0.2	8.55	0.2	8.57	0.2
F99831I1	11.6	11.82	0.2	11.86	0.3	11.88	0.3
F99833I1	11.6	11.82	0.2	11.86	0.3	11.88	0.3
F99835I1	13.3	13.35	0.0	13.35	0.0	13.35	0.0
F99840I1	10.0	10.15	0.1	10.18	0.2	10.19	0.2
F99842I1	12.1	12.16	0.0	12.18	0.0	12.19	0.1
F99843I1	11.1	11.22	0.1	11.25	0.1	11.26	0.2
F99845I1	17.6	17.96	0.3	18.01	0.4	18.03	0.4
F99848I1	14.8	15.09	0.3	15.12	0.3	15.14	0.3
F99850I1	22.8	22.82	0.0	22.93	0.1	23.02	0.2
F99851I1	12.0	12.48	0.5	12.72	0.7	12.80	0.8
F99856I1	16.0	17.78	1.8	17.80	1.8	17.80	1.8
F99858I1	16.0	16.27	0.3	16.28	0.3	16.30	0.3
F99864I1	17.7	19.79	2.0	19.81	2.1	19.82	2.1
F99869I1	14.7	14.78	0.1	14.90	0.2	14.93	0.2
F99873I1	17.6	18.73	1.1	18.78	1.2	18.80	1.2
F99878I1	19.1	19.40	0.3	19.46	0.4	19.48	0.4

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F99879l1	18.4	19.40	1.0	19.46	1.0	19.48	1.0
F99882l1	13.8	13.83	0.0	13.87	0.0	13.94	0.1
F99885l1	14.7	15.17	0.5	15.17	0.5	15.17	0.5
F99886l1	12.5	12.47	0.0	12.47	0.0	12.47	0.0
F99888l1	18.4	18.51	0.1	18.54	0.1	18.55	0.1
F99891l1	18.4	18.51	0.1	18.54	0.1	18.55	0.1
F99896l1	21.6	21.85	0.3	21.89	0.3	21.91	0.3
F99898l1	21.6	21.85	0.3	21.89	0.3	21.91	0.3
F99899l1	21.6	21.85	0.3	21.89	0.3	21.91	0.3
F99912l1	23.6	23.65	0.0	23.70	0.1	23.71	0.1
F99915l1	23.6	23.65	0.0	23.70	0.1	23.71	0.1
F99919l1	24.6	24.59	0.0	24.60	0.0	24.61	0.0
F99925l1	24.6	24.59	0.0	24.60	0.0	24.61	0.0
F99936l1	29.1	29.38	0.2	29.41	0.3	29.43	0.3
F99937l1	22.4	22.69	0.3	22.73	0.3	22.75	0.3
F99947l1	24.8	24.88	0.1	25.04	0.2	25.08	0.3
F99948l1	24.8	24.88	0.1	25.04	0.2	25.08	0.3
F99951l1	23.9	23.92	0.0	24.02	0.1	24.03	0.1
F99953l1	23.9	23.92	0.0	24.02	0.1	24.03	0.1
F99954l1	30.4	30.43	0.0	30.48	0.1	30.49	0.1
F99960l1	23.7	28.74	5.0	28.87	5.1	28.88	5.1
F99994l1	14.7	14.72	0.0	14.74	0.0	14.74	0.0
FEX1l1	64.0	64.04	0.0	64.04	0.0	64.04	0.0
FEX2l1	7.9	8.19	0.3	8.22	0.3	8.24	0.3
FGI1l1	7.0	7.22	0.2	7.22	0.2	7.23	0.2
FGI2l1	6.8	7.44	0.7	7.49	0.7	7.50	0.7
FGI3l1	1.4	1.42	0.0	1.42	0.0	1.42	0.0
FGI4l1	9.0	9.72	0.7	9.75	0.7	9.76	0.8
Fgi6l1	35.1	36.16	1.0	36.18	1.0	36.20	1.1
FGI6l1	15.1	15.86	0.8	15.88	0.8	15.89	0.8
FGI7l2	10.2	10.27	0.1	10.29	0.1	10.30	0.1

D4: Future Development Scenario
Calculated Overland Flood Levels

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F10000085l1	20.70	24.23	3.5	24.23	3.5	24.23	3.5
F10000196l1	23.38	23.46	0.1	23.61	0.2	23.62	0.2
F10000252l1	22.90	23.43	0.5	23.61	0.7	23.62	0.7
F100003l1	21.53	21.53	0.0	21.58	0.1	21.60	0.1
F100004l1	7.23	7.65	0.4	7.68	0.5	7.70	0.5
F100007l1	6.24	6.48	0.2	6.53	0.3	6.56	0.3
f10000897l1	4.39	6.59	2.2	6.77	2.4	6.82	2.4
F10000909l1	4.42	5.34	0.9	5.43	1.0	5.46	1.0
F10000915l1	4.42	7.21	2.8	7.26	2.8	7.28	2.9
F10000961l1	1.42	3.49	2.1	3.72	2.3	3.77	2.4
F100009l1	7.44	8.00	0.6	8.03	0.6	8.04	0.6
F10001063l1	24.71	24.71	0.0	24.71	0.0	24.71	0.0
F10001064l1	23.71	24.71	1.0	24.71	1.0	24.71	1.0
F100012l1	12.14	12.16	0.0	12.18	0.0	12.19	0.1
F100023l1	8.34	8.89	0.6	9.01	0.7	9.02	0.7
F100026l1	6.83	7.10	0.3	7.17	0.3	7.19	0.4
F100029l1	8.88	9.36	0.5	9.43	0.6	9.43	0.6
F100030l1	6.83	7.10	0.3	7.17	0.3	7.19	0.4
F100039l1	11.05	11.49	0.4	11.52	0.5	11.53	0.5
F100042l1	11.05	11.14	0.1	11.16	0.1	11.17	0.1
F100044l1	8.68	11.12	2.4	11.14	2.5	11.15	2.5
F100050l1	12.01	12.10	0.1	12.23	0.2	12.24	0.2
F100052l1	13.52	16.77	3.3	16.79	3.3	16.82	3.3
F100065l1	9.21	9.36	0.2	9.43	0.2	9.43	0.2
F100066l1	11.06	12.57	1.5	12.57	1.5	12.57	1.5
F100069l1	10.94	11.27	0.3	11.34	0.4	11.36	0.4
F100072l1	9.01	9.28	0.3	9.33	0.3	9.37	0.4
F100073l1	12.57	17.36	4.8	17.36	4.8	17.36	4.8
F100075l1	16.22	16.45	0.2	16.50	0.3	16.52	0.3
F100076l1	18.33	20.38	2.1	20.60	2.3	20.62	2.3
F100077l1	16.75	16.77	0.0	16.94	0.2	16.96	0.2
F100080l1	20.01	21.53	1.5	21.58	1.6	21.60	1.6
F100085l1	14.08	14.33	0.3	14.36	0.3	14.37	0.3
F100087l1	10.94	15.17	4.2	15.18	4.2	15.19	4.3
F100089l1	15.14	15.22	0.1	15.24	0.1	15.25	0.1
F100097l1	19.25	22.08	2.8	22.10	2.9	22.10	2.9
F100098l1	20.37	20.39	0.0	20.60	0.2	20.62	0.3
F100102l1	19.48	23.59	4.1	23.59	4.1	23.59	4.1
F100113l1	8.55	8.91	0.4	9.00	0.4	9.02	0.5
F100114l1	7.88	8.91	1.0	9.00	1.1	9.02	1.1
F100115l1	6.78	7.21	0.4	7.30	0.5	7.33	0.6
F100117l1	4.89	7.21	2.3	7.30	2.4	7.33	2.4
F100119l1	4.89	6.34	1.5	6.44	1.6	6.48	1.6
F100124l1	9.81	10.90	1.1	11.00	1.2	11.03	1.2
F100133l1	13.50	13.94	0.4	14.03	0.5	14.07	0.6
F100134l1	13.00	13.94	0.9	14.03	1.0	14.07	1.1
F100140l1	13.00	13.49	0.5	13.57	0.6	13.60	0.6
F100142l1	11.43	13.49	2.1	13.57	2.1	13.60	2.2
F100151l1	17.03	17.09	0.1	17.11	0.1	17.12	0.1
F100162l1	17.92	18.26	0.3	18.27	0.4	18.28	0.4
F100165l1	16.03	16.06	0.0	16.12	0.1	16.14	0.1
F100172l1	11.21	11.85	0.6	11.95	0.7	11.99	0.8
F100175l1	10.55	10.90	0.4	11.00	0.5	11.03	0.5
F100203l1	15.07	15.38	0.3	15.58	0.5	15.65	0.6
F100206l1	15.23	15.38	0.2	15.58	0.4	15.65	0.4

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F100221I1	14.76	18.40	3.6	18.42	3.7	18.42	3.7
F100226I1	11.65	11.75	0.1	11.78	0.1	11.79	0.1
F100227I1	11.01	11.91	0.9	11.91	0.9	11.91	0.9
F100232I1	16.22	16.31	0.1	16.33	0.1	16.34	0.1
F100234I1	14.46	16.31	1.9	16.33	1.9	16.34	1.9
F100245I1	12.01	12.08	0.1	12.11	0.1	12.12	0.1
F100252I1	3.99	6.34	2.4	6.44	2.5	6.48	2.5
F100255I1	4.02	6.34	2.3	6.44	2.4	6.48	2.5
F100256I1	5.01	6.29	1.3	6.38	1.4	6.40	1.4
F100262I1	2.01	2.03	0.0	2.06	0.1	2.08	0.1
F100274I1	4.02	6.34	2.3	6.44	2.4	6.48	2.5
F100276I1	5.96	6.29	0.3	6.38	0.4	6.40	0.4
F100286I1	9.52	10.15	0.6	10.17	0.6	10.17	0.7
F100288I1	9.52	9.70	0.2	9.74	0.2	9.76	0.2
F100294I1	3.41	4.73	1.3	4.76	1.4	4.78	1.4
F100316I1	9.14	9.24	0.1	9.29	0.2	9.31	0.2
F100324I1	9.46	9.57	0.1	9.61	0.2	9.63	0.2
F100324I2	9.14	9.24	0.1	9.29	0.2	9.31	0.2
F100325I1	7.58	7.84	0.3	7.88	0.3	7.90	0.3
F100330I1	1.41	6.57	5.2	6.59	5.2	6.60	5.2
F100338I1	6.37	6.60	0.2	6.64	0.3	6.67	0.3
F100344I1	13.11	14.54	1.4	14.57	1.5	14.58	1.5
F100346I1	8.46	8.56	0.1	8.58	0.1	8.59	0.1
F100347I1	11.65	13.19	1.5	13.21	1.6	13.22	1.6
F100354I1	11.00	11.47	0.5	11.75	0.8	11.88	0.9
F100363I1	11.00	11.47	0.5	11.75	0.8	11.88	0.9
F100377I1	11.41	11.47	0.1	11.52	0.1	11.58	0.2
F100379I1	4.35	5.40	1.1	5.46	1.1	5.51	1.2
F100380I1	4.35	5.40	1.1	5.46	1.1	5.51	1.2
F100393I1	15.58	18.69	3.1	18.72	3.1	18.73	3.2
F100395I1	18.58	18.69	0.1	18.72	0.1	18.73	0.2
F100398I1	19.77	22.38	2.6	22.40	2.6	22.41	2.6
F100422I1	11.80	12.11	0.3	12.16	0.4	12.19	0.4
F100425I1	11.80	14.72	2.9	14.84	3.0	14.87	3.1
F100428I1	16.00	16.21	0.2	16.22	0.2	16.23	0.2
F100431I1	14.60	16.12	1.5	16.13	1.5	16.14	1.5
F100436I1	13.75	14.72	1.0	14.84	1.1	14.87	1.1
F100439I1	13.49	14.69	1.2	14.84	1.4	14.87	1.4
F100440I1	8.01	8.38	0.4	8.42	0.4	8.44	0.4
F100442I1	10.73	13.46	2.7	13.47	2.7	13.48	2.8
F100447I1	16.26	16.49	0.2	16.52	0.3	16.53	0.3
F100448I1	14.10	14.31	0.2	14.31	0.2	14.31	0.2
F100454I1	25.95	26.20	0.3	26.22	0.3	26.23	0.3
F100460I1	23.35	26.20	2.9	26.22	2.9	26.23	2.9
F100468I1	20.04	20.30	0.3	20.33	0.3	20.34	0.3
F100470I1	21.98	26.62	4.6	26.62	4.6	26.64	4.7
F100474I1	21.86	21.87	0.0	21.87	0.0	21.87	0.0
F100477I1	20.90	21.87	1.0	21.87	1.0	21.87	1.0
F100478I2	13.64	13.68	0.0	13.71	0.1	13.73	0.1
F100480I1	13.37	13.46	0.1	13.47	0.1	13.48	0.1
F100494I1	16.26	16.39	0.1	16.41	0.2	16.41	0.2
F100500I1	12.72	12.99	0.3	13.01	0.3	13.02	0.3
F100502I1	12.72	12.99	0.3	13.01	0.3	13.02	0.3
F100503I1	8.01	9.90	1.9	9.92	1.9	9.93	1.9
F100516I1	8.14	8.20	0.1	8.22	0.1	8.23	0.1

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
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F100518I1	9.92	10.73	0.8	10.75	0.8	10.75	0.8
F100523I1	9.64	10.54	0.9	10.60	1.0	10.63	1.0
F100528I1	8.38	9.99	1.6	10.00	1.6	10.01	1.6
F100531I1	1.42	1.42	0.0	1.42	0.0	1.46	0.0
F100532I1	9.66	10.80	1.1	10.83	1.2	10.84	1.2
F100533I1	10.21	10.80	0.6	10.83	0.6	10.84	0.6
F100535I1	8.38	10.51	2.1	10.55	2.2	10.57	2.2
F100538I1	6.91	7.13	0.2	7.15	0.2	7.18	0.3
F100544I1	13.51	16.01	2.5	16.03	2.5	16.04	2.5
F100556I1	14.69	14.80	0.1	14.82	0.1	14.82	0.1
F100559I1	15.93	17.58	1.7	17.60	1.7	17.60	1.7
F100565I1	17.56	17.58	0.0	17.60	0.0	17.60	0.0
F100566I1	20.67	21.33	0.7	21.35	0.7	21.35	0.7
F100568I1	20.00	20.01	0.0	20.09	0.1	20.19	0.2
F100570I1	15.58	17.60	2.0	17.62	2.0	17.63	2.1
F100580I1	17.49	17.60	0.1	17.62	0.1	17.63	0.1
F100582I1	12.30	12.83	0.5	13.06	0.8	13.10	0.8
F100590I1	13.08	13.20	0.1	13.22	0.1	13.22	0.1
F100595I1	11.12	11.19	0.1	11.21	0.1	11.22	0.1
F100598I1	10.54	10.80	0.3	10.83	0.3	10.84	0.3
F100600I1	11.57	13.58	2.0	13.61	2.0	13.62	2.1
F100601I1	12.60	12.74	0.1	12.75	0.2	12.76	0.2
F100613I1	12.29	12.30	0.0	12.32	0.0	12.38	0.1
F100616I1	10.00	10.00	0.0	10.00	0.0	10.00	0.0
F100618I1	13.29	15.74	2.5	15.77	2.5	15.79	2.5
F100624I1	13.71	13.71	0.0	13.73	0.0	13.76	0.1
F100627I1	12.30	13.71	1.4	13.73	1.4	13.76	1.5
F100633I1	10.59	10.64	0.1	10.66	0.1	10.67	0.1
F100636I1	11.41	11.47	0.1	11.52	0.1	11.58	0.2
F100640I1	4.90	4.99	0.1	5.03	0.1	5.04	0.1
F100650I1	7.01	9.81	2.8	9.82	2.8	9.82	2.8
F100651I1	6.51	6.76	0.3	6.80	0.3	6.82	0.3
F100654I1	4.04	4.99	1.0	5.03	1.0	5.04	1.0
F100656I1	3.12	3.50	0.4	3.59	0.5	3.63	0.5
F100668I1	1.42	2.90	1.5	2.98	1.6	3.02	1.6
F100671I1	2.53	2.90	0.4	2.98	0.5	3.02	0.5
F100681I1	4.15	6.90	2.8	6.96	2.8	6.98	2.8
F100685I1	3.13	3.20	0.1	3.23	0.1	3.24	0.1
F100689I1	3.94	4.45	0.5	4.51	0.6	4.53	0.6
F100691I1	1.42	1.42	0.0	1.42	0.0	1.42	0.0
F100703I1	10.00	10.00	0.0	10.00	0.0	10.00	0.0
F100709I1	4.99	5.18	0.2	5.22	0.2	5.24	0.3
F100713I1	5.77	7.13	1.4	7.15	1.4	7.18	1.4
F100716I1	5.59	5.65	0.1	5.68	0.1	5.69	0.1
F100722I1	3.02	5.04	2.0	5.11	2.1	5.14	2.1
F100723I1	4.99	5.04	0.1	5.11	0.1	5.14	0.1
F100724I1	4.99	6.53	1.5	6.57	1.6	6.58	1.6
F100728I1	5.13	6.42	1.3	6.42	1.3	6.42	1.3
F100731I1	2.77	3.12	0.4	3.17	0.4	3.20	0.4
F100732I1	1.41	3.12	1.7	3.17	1.8	3.20	1.8
F100733I1	2.77	3.12	0.4	3.17	0.4	3.20	0.4
F101125I1	19.97	23.10	3.1	23.12	3.2	23.13	3.2
F101126I1	22.91	23.23	0.3	23.25	0.3	23.27	0.4
F101131I1	39.01	39.01	0.0	39.01	0.0	39.01	0.0
F101138I1	23.55	23.85	0.3	23.88	0.3	23.89	0.3

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F101139l1	22.91	23.85	0.9	23.88	1.0	23.89	1.0
F101140l1	25.39	25.65	0.3	25.67	0.3	25.68	0.3
F101145l1	29.01	31.26	2.3	31.27	2.3	31.28	2.3
F101148l1	31.26	31.26	0.0	31.27	0.0	31.28	0.0
F101148l2	34.18	34.21	0.0	34.23	0.1	34.25	0.1
F101149l1	29.51	29.74	0.2	29.76	0.3	29.77	0.3
F101151l1	29.51	32.45	2.9	32.45	2.9	32.45	2.9
F101154l1	32.45	32.45	0.0	32.45	0.0	32.45	0.0
F101157l1	34.18	38.46	4.3	38.49	4.3	38.50	4.3
F101160l1	38.42	38.46	0.0	38.49	0.1	38.50	0.1
F101164l1	47.20	47.00	-0.2	47.16	0.0	47.25	0.1
F101167l1	51.87	51.87	0.0	51.87	0.0	51.87	0.0
F101170l1	45.43	48.98	3.6	49.00	3.6	49.01	3.6
F101171l1	57.01	57.01	0.0	57.01	0.0	57.01	0.0
F101179l1	51.32	51.32	0.0	51.32	0.0	51.32	0.0
F101184l1	48.78	48.98	0.2	49.00	0.2	49.01	0.2
F101202l1	22.98	24.60	1.6	24.62	1.6	24.64	1.7
F101210l1	25.59	25.86	0.3	25.90	0.3	25.91	0.3
F101211l1	24.25	25.86	1.6	25.90	1.7	25.91	1.7
F101214l1	19.52	19.66	0.1	19.72	0.2	19.74	0.2
F101227l1	28.07	31.92	3.9	31.93	3.9	31.93	3.9
F101237l1	24.17	24.27	0.1	24.30	0.1	24.31	0.1
F101240l1	27.97	29.56	1.6	29.59	1.6	29.59	1.6
F101245l1	29.45	29.56	0.1	29.59	0.1	29.59	0.1
F101252l1	32.39	37.01	4.6	37.01	4.6	37.01	4.6
F101254l1	31.22	31.45	0.2	31.47	0.3	31.48	0.3
F101255l1	28.07	31.31	3.2	31.33	3.3	31.34	3.3
F101256l1	35.24	35.24	0.0	35.24	0.0	35.27	0.0
F101257l1	31.71	35.24	3.5	35.24	3.5	35.26	3.6
F101260l1	29.45	29.68	0.2	29.70	0.3	29.71	0.3
F101265l1	38.11	42.34	4.2	42.49	4.4	42.53	4.4
F101267l1	36.32	36.32	0.0	36.37	0.1	36.44	0.1
F101273l1	35.26	37.29	2.0	37.31	2.1	37.32	2.1
F101305l1	16.77	16.77	0.0	16.77	0.0	16.77	0.0
F101308l1	16.20	16.77	0.6	16.77	0.6	16.77	0.6
F101310l1	16.77	16.77	0.0	16.77	0.0	16.77	0.0
F101313l1	16.65	18.39	1.7	18.41	1.8	18.41	1.8
F101318l1	15.17	15.17	0.0	15.18	0.0	15.18	0.0
F101323l1	15.79	16.07	0.3	16.07	0.3	16.07	0.3
F101324l1	15.17	15.17	0.0	15.18	0.0	15.18	0.0
F101327l1	15.11	15.17	0.1	15.18	0.1	15.18	0.1
F101336l1	13.21	13.22	0.0	13.22	0.0	13.22	0.0
F101340l1	15.11	15.15	0.0	15.18	0.1	15.19	0.1
F101350l1	15.89	16.75	0.9	16.76	0.9	16.77	0.9
F101352l1	15.01	15.01	0.0	15.01	0.0	15.01	0.0
F101355l1	14.01	16.47	2.5	16.59	2.6	16.67	2.7
F101356l1	15.89	16.47	0.6	16.59	0.7	16.67	0.8
F101376l1	16.56	17.19	0.6	17.21	0.7	17.22	0.7
F101376l2	15.51	15.74	0.2	15.75	0.2	16.10	0.6
F101386l1	18.32	18.41	0.1	18.43	0.1	18.44	0.1
F101388l1	13.01	13.53	0.5	13.66	0.7	13.70	0.7
F101396l1	13.01	13.41	0.4	13.41	0.4	13.41	0.4
F101399l1	12.01	12.54	0.5	12.75	0.7	12.83	0.8
F101405l1	18.32	21.79	3.5	21.81	3.5	21.82	3.5
F101413l1	18.51	18.59	0.1	18.62	0.1	18.70	0.2

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F101413l2	17.79	20.13	2.3	20.17	2.4	20.18	2.4
F101416l1	19.97	20.20	0.2	20.23	0.3	20.25	0.3
F101417l1	17.82	19.66	1.8	19.72	1.9	19.74	1.9
F101419l1	16.51	16.82	0.3	16.87	0.4	16.89	0.4
F101424l1	19.52	22.39	2.9	22.43	2.9	22.46	2.9
F101433l1	25.31	25.88	0.6	25.96	0.7	25.97	0.7
F101436l1	25.74	25.78	0.0	25.83	0.1	25.85	0.1
F101447l1	25.31	25.88	0.6	25.98	0.7	26.01	0.7
F101450l1	26.14	27.85	1.7	27.87	1.7	27.88	1.7
F101472l1	13.41	13.41	0.0	13.41	0.0	13.41	0.0
F101476l1	14.93	16.23	1.3	16.23	1.3	16.23	1.3
F101478l1	14.13	14.32	0.2	14.40	0.3	14.44	0.3
F101480l1	15.92	16.85	0.9	16.87	1.0	16.88	1.0
F101483l1	13.88	13.88	0.0	13.90	0.0	13.91	0.0
F101484l1	11.02	11.22	0.2	11.27	0.3	11.33	0.3
F101487l1	16.14	16.26	0.1	16.31	0.2	16.34	0.2
F101489l1	15.75	17.71	2.0	17.71	2.0	17.71	2.0
F101490l1	16.38	16.52	0.1	16.58	0.2	16.59	0.2
F101491l1	16.14	17.17	1.0	17.17	1.0	17.19	1.1
F101493l1	15.75	15.75	0.0	15.75	0.0	15.75	0.0
F101498l1	13.72	14.29	0.6	14.40	0.7	14.44	0.7
F101500l1	14.13	14.29	0.2	14.40	0.3	14.44	0.3
F101504l1	13.45	13.73	0.3	13.82	0.4	13.90	0.5
F101508l1	12.76	12.76	0.0	12.76	0.0	12.76	0.0
F101513l1	14.65	15.55	0.9	15.55	0.9	15.55	0.9
F101514l1	15.07	15.55	0.5	15.55	0.5	15.55	0.5
F101515l1	15.75	15.75	0.0	15.75	0.0	15.75	0.0
F101519l1	14.65	14.92	0.3	15.02	0.4	15.06	0.4
F101520l1	14.65	14.92	0.3	15.02	0.4	15.06	0.4
F101522l1	13.31	13.31	0.0	13.31	0.0	13.31	0.0
F101526l1	11.22	12.76	1.5	12.76	1.5	12.76	1.5
F101538l1	18.38	18.38	0.0	18.38	0.0	18.40	0.0
F101539l1	17.17	18.38	1.2	18.38	1.2	18.40	1.2
F101544l1	19.36	19.36	0.0	19.37	0.0	19.38	0.0
F101549l1	17.21	18.80	1.6	18.80	1.6	18.80	1.6
F101550l1	21.10	21.10	0.0	21.10	0.0	21.13	0.0
F101553l1	21.25	21.25	0.0	21.25	0.0	21.25	0.0
F101554l1	15.11	15.15	0.0	15.18	0.1	15.19	0.1
F101558l1	14.56	15.45	0.9	15.45	0.9	15.46	0.9
F101562l1	14.84	14.84	0.0	14.84	0.0	14.84	0.0
F101567l1	11.77	13.88	2.1	13.90	2.1	13.91	2.1
F101569l1	13.88	13.88	0.0	13.91	0.0	13.94	0.1
F101573l1	15.42	15.84	0.4	15.89	0.5	15.91	0.5
F101575l1	14.56	14.57	0.0	14.61	0.1	14.63	0.1
F101576l1	14.30	16.05	1.8	16.06	1.8	16.06	1.8
F101581l1	11.02	11.16	0.1	11.31	0.3	11.37	0.4
F101587l1	17.11	17.91	0.8	17.91	0.8	17.95	0.8
F101589l1	15.45	15.45	0.0	15.45	0.0	15.46	0.0
F101595l1	15.83	18.63	2.8	18.66	2.8	18.67	2.8
F101598l1	11.72	11.78	0.1	11.79	0.1	11.80	0.1
F101599l1	14.30	15.15	0.9	15.18	0.9	15.19	0.9
F101604l1	10.01	10.05	0.0	10.07	0.1	10.09	0.1
F101608l1	16.54	18.01	1.5	18.03	1.5	18.04	1.5
F101610l1	14.51	15.29	0.8	15.58	1.1	15.66	1.2
F101613l1	15.37	15.29	-0.1	15.58	0.2	15.66	0.3

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F101635I1	8.51	9.40	0.9	9.69	1.2	9.80	1.3
F101641I1	8.01	9.73	1.7	9.73	1.7	9.76	1.8
F101643I1	7.01	7.01	0.0	7.01	0.0	7.11	0.1
F101669I1	9.46	11.97	2.5	11.99	2.5	11.99	2.5
F101676I1	11.49	11.58	0.1	11.60	0.1	11.61	0.1
F101679I1	11.67	12.09	0.4	12.13	0.5	12.17	0.5
F101683I1	12.04	12.09	0.1	12.13	0.1	12.17	0.1
F101686I1	13.87	14.01	0.1	14.06	0.2	14.42	0.6
F101687I1	14.01	14.01	0.0	14.09	0.1	14.42	0.4
F101689I1	12.33	13.87	1.5	13.87	1.5	13.98	1.7
F101695I1	11.23	11.34	0.1	11.37	0.1	11.38	0.2
F101696I1	10.62	11.34	0.7	11.37	0.8	11.38	0.8
F101704I1	10.40	10.44	0.0	10.48	0.1	10.50	0.1
F101705I1	8.36	9.07	0.7	9.10	0.7	9.12	0.8
F101708I1	10.05	10.05	0.0	10.05	0.0	10.05	0.0
F101710I1	9.01	10.05	1.0	10.05	1.0	10.05	1.0
F101711I1	8.94	9.07	0.1	9.10	0.2	9.12	0.2
F101712I1	9.39	9.39	0.0	9.39	0.0	9.39	0.0
F101715I1	9.27	9.63	0.4	9.63	0.4	9.63	0.4
F101717I1	8.43	8.56	0.1	8.64	0.2	8.64	0.2
F101718I1	8.94	9.07	0.1	9.10	0.2	9.12	0.2
F101720I1	7.66	8.52	0.9	8.56	0.9	8.58	0.9
F101747I1	10.69	10.69	0.0	10.74	0.1	10.75	0.1
F101749I1	10.13	10.69	0.6	10.74	0.6	10.75	0.6
F101762I1	8.89	8.98	0.1	9.01	0.1	9.03	0.1
F101763I1	9.88	10.27	0.4	10.30	0.4	10.31	0.4
F101766I1	9.04	9.17	0.1	9.20	0.2	9.20	0.2
F101771I1	8.41	8.83	0.4	8.86	0.5	8.87	0.5
F101778I1	9.67	9.80	0.1	9.83	0.2	9.85	0.2
F101781I1	9.67	9.80	0.1	9.83	0.2	9.85	0.2
F101789I1	8.41	8.54	0.1	8.60	0.2	8.62	0.2
F101803I1	7.28	7.40	0.1	7.44	0.2	7.45	0.2
F101805I1	4.67	5.47	0.8	5.60	0.9	5.65	1.0
F101807I1	4.01	5.47	1.5	5.60	1.6	5.65	1.6
F101810I1	8.05	8.28	0.2	8.29	0.2	8.30	0.3
F101812I1	8.05	8.28	0.2	8.29	0.2	8.30	0.3
F101825I1	9.67	9.80	0.1	9.83	0.2	9.85	0.2
F101829I1	6.24	6.89	0.7	6.93	0.7	6.94	0.7
F101833I1	6.84	7.27	0.4	7.31	0.5	7.33	0.5
F101836I1	5.22	6.18	1.0	6.21	1.0	6.23	1.0
F101837I1	4.67	5.48	0.8	5.61	0.9	5.66	1.0
F101842I1	4.99	4.99	0.0	4.99	0.0	5.01	0.0
F101845I2	6.24	5.48	-0.8	5.60	-0.6	5.65	-0.6
F101847I1	7.25	7.84	0.6	7.88	0.6	7.90	0.7
F101849I1	6.68	6.89	0.2	6.93	0.3	6.94	0.3
F101857I1	5.01	5.11	0.1	5.11	0.1	5.11	0.1
F101858I1	5.11	5.11	0.0	5.11	0.0	5.11	0.0
F101867I1	5.25	6.26	1.0	6.26	1.0	6.26	1.0
F101873I1	4.51	5.00	0.5	5.00	0.5	5.00	0.5
F101926I1	25.51	25.80	0.3	25.84	0.3	25.86	0.4
F101927I1	32.98	33.79	0.8	33.82	0.8	33.83	0.9
F101949I1	36.19	36.26	0.1	36.27	0.1	36.27	0.1
F101952I1	8.47	9.36	0.9	9.40	0.9	9.42	1.0
F101958I1	4.01	5.76	1.8	5.77	1.8	5.78	1.8
F101967I1	4.55	4.78	0.2	4.81	0.3	4.84	0.3

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F101970l1	11.29	11.50	0.2	11.51	0.2	11.52	0.2
F101975l1	7.31	7.41	0.1	7.42	0.1	7.43	0.1
F101978l1	13.66	13.71	0.1	13.73	0.1	13.73	0.1
F101981l1	8.47	8.73	0.3	8.75	0.3	8.76	0.3
F101989l1	17.01	19.51	2.5	19.54	2.5	19.55	2.5
F101991l1	19.89	20.18	0.3	20.21	0.3	20.21	0.3
F101998l1	8.26	8.62	0.4	8.67	0.4	8.69	0.4
F102001l1	8.26	8.62	0.4	8.67	0.4	8.69	0.4
F102006l1	9.08	10.03	1.0	10.06	1.0	10.08	1.0
F102015l1	10.78	11.14	0.4	11.19	0.4	11.22	0.4
F102016l1	9.37	11.14	1.8	11.19	1.8	11.22	1.9
F102021l1	10.01	10.01	0.0	10.21	0.2	10.22	0.2
F102026l1	11.51	12.50	1.0	12.50	1.0	12.52	1.0
F102029l1	12.16	12.52	0.4	12.57	0.4	12.59	0.4
F102032l1	15.02	15.34	0.3	15.41	0.4	15.43	0.4
F102035l1	12.25	12.50	0.3	12.50	0.3	12.52	0.3
F102037l1	15.02	16.35	1.3	16.39	1.4	16.40	1.4
F102044l1	13.35	13.55	0.2	13.57	0.2	13.58	0.2
F102045l1	13.11	13.31	0.2	13.32	0.2	13.33	0.2
F102046l1	9.08	9.36	0.3	9.40	0.3	9.42	0.3
F102048l1	13.35	13.52	0.2	13.57	0.2	13.58	0.2
F102056l1	15.02	15.34	0.3	15.41	0.4	15.43	0.4
F102059l1	19.30	20.18	0.9	20.21	0.9	20.21	0.9
F102069l1	16.70	16.93	0.2	16.95	0.3	16.96	0.3
F102077l1	16.15	17.07	0.9	17.12	1.0	17.14	1.0
F102082l1	16.91	17.15	0.2	17.18	0.3	17.19	0.3
F102085l1	21.35	21.61	0.3	21.64	0.3	21.65	0.3
F102089l1	12.31	13.02	0.7	13.46	1.2	13.62	1.3
F102098l1	24.11	26.55	2.4	26.59	2.5	26.60	2.5
F102100l1	21.58	21.61	0.0	21.64	0.1	21.65	0.1
F102106l1	33.79	34.03	0.2	34.04	0.3	34.05	0.3
F102107l1	43.14	43.14	0.0	43.16	0.0	43.18	0.0
F102109l1	33.79	34.89	1.1	34.90	1.1	34.91	1.1
F102110l1	34.80	34.89	0.1	34.90	0.1	34.91	0.1
F102114l1	42.38	43.14	0.8	43.16	0.8	43.18	0.8
F102116l1	22.97	23.18	0.2	23.19	0.2	23.19	0.2
F102117l1	24.50	24.75	0.3	24.78	0.3	24.78	0.3
F102122l1	24.50	24.75	0.3	24.78	0.3	24.78	0.3
F102133l1	32.86	32.91	0.1	33.03	0.2	33.07	0.2
F102141l1	30.17	30.22	0.1	30.24	0.1	30.25	0.1
F102150l1	41.06	41.12	0.1	41.19	0.1	41.22	0.2
F102160l1	11.24	11.44	0.2	11.45	0.2	11.45	0.2
F102163l1	11.24	11.44	0.2	11.45	0.2	11.45	0.2
F102164l1	11.24	11.44	0.2	11.45	0.2	11.45	0.2
F102168l1	15.34	15.40	0.1	15.42	0.1	15.43	0.1
F102173l1	11.01	11.01	0.0	11.01	0.0	11.01	0.0
F102175l1	8.69	8.90	0.2	8.92	0.2	8.93	0.2
F102184l1	8.69	8.90	0.2	8.92	0.2	8.93	0.2
F102187l1	14.27	15.90	1.6	15.92	1.7	15.92	1.7
F102212l1	7.01	7.01	0.0	7.01	0.0	7.01	0.0
F102214l1	14.86	14.86	0.0	14.86	0.0	14.86	0.0
F102216l1	9.01	9.01	0.0	9.13	0.1	9.23	0.2
F102219l1	16.02	16.02	0.0	16.02	0.0	16.02	0.0
F102221l1	11.13	11.13	0.0	11.13	0.0	11.13	0.0
F102222l1	13.94	13.94	0.0	13.94	0.0	13.94	0.0

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F102224I1	11.03	11.04	0.0	11.23	0.2	11.27	0.2
F102225I1	16.24	16.51	0.3	16.53	0.3	16.54	0.3
F102226I1	6.57	7.03	0.5	7.09	0.5	7.11	0.5
F102231I1	19.43	19.65	0.2	19.67	0.2	19.67	0.2
F102234I1	19.43	19.65	0.2	19.67	0.2	19.67	0.2
F102238I1	20.57	20.62	0.1	20.69	0.1	20.73	0.2
F102240I1	22.67	22.86	0.2	22.89	0.2	22.92	0.3
F102242I1	20.57	22.71	2.1	22.76	2.2	22.79	2.2
F102260I1	23.00	23.22	0.2	23.24	0.2	23.24	0.2
F102263I1	27.60	28.53	0.9	28.55	1.0	28.56	1.0
F102265I1	28.41	28.53	0.1	28.55	0.1	28.56	0.2
F102289I1	22.67	24.47	1.8	24.50	1.8	24.51	1.8
F102302I1	5.01	5.01	0.0	5.01	0.0	5.01	0.0
F102303I1	11.13	11.13	0.0	11.13	0.0	11.13	0.0
F102307I1	8.87	8.90	0.0	8.92	0.1	8.93	0.1
F102683I1	39.39	39.39	0.0	39.39	0.0	39.41	0.0
F102684I1	47.89	47.89	0.0	47.89	0.0	47.89	0.0
F102685I1	46.41	47.89	1.5	47.89	1.5	47.89	1.5
F102686I1	36.09	39.39	3.3	39.39	3.3	39.41	3.3
F102688I1	28.46	28.49	0.0	28.51	0.1	28.51	0.1
F103222I1	12.45	12.55	0.1	12.58	0.1	12.60	0.2
F103310I1	28.91	29.45	0.5	29.47	0.6	29.48	0.6
F103311I1	29.36	29.45	0.1	29.47	0.1	29.48	0.1
F103363I1	33.09	33.11	0.0	33.13	0.0	33.13	0.0
F104110I1	12.54	12.54	0.0	12.54	0.0	12.54	0.0
F104112I1	11.93	11.97	0.0	11.99	0.1	11.99	0.1
F104114I1	10.72	10.72	0.0	10.72	0.0	10.72	0.0
F104121I1	13.06	13.06	0.0	13.06	0.0	13.06	0.0
F104123I1	13.06	13.06	0.0	13.06	0.0	13.06	0.0
F104124I1	11.49	11.57	0.1	11.59	0.1	11.61	0.1
F104126I1	14.23	14.23	0.0	14.23	0.0	14.23	0.0
F104127I1	11.67	11.75	0.1	11.78	0.1	11.79	0.1
F104128I1	11.49	11.57	0.1	11.59	0.1	11.61	0.1
F104130I1	10.85	10.92	0.1	10.96	0.1	10.98	0.1
F104132I1	10.80	10.80	0.0	10.80	0.0	10.80	0.0
F104136I1	9.01	9.01	0.0	9.01	0.0	9.01	0.0
F104139I1	10.85	10.92	0.1	10.96	0.1	10.98	0.1
F104140I1	10.85	10.92	0.1	11.04	0.2	11.05	0.2
F104146I1	10.85	10.85	0.0	10.90	0.1	11.01	0.2
F104148I1	10.65	10.85	0.2	10.93	0.3	11.01	0.4
F104149I1	10.62	10.65	0.0	10.97	0.4	11.03	0.4
F104150I1	10.65	10.84	0.2	10.97	0.3	11.03	0.4
F104152I1	10.40	10.44	0.0	10.48	0.1	10.50	0.1
F104154I1	9.52	10.01	0.5	10.06	0.5	10.07	0.6
F104155I1	7.28	7.40	0.1	7.44	0.2	7.45	0.2
F104160I1	9.76	9.76	0.0	9.76	0.0	9.76	0.0
F104161I1	8.65	8.65	0.0	8.65	0.0	8.65	0.0
F104162I1	10.32	10.32	0.0	10.32	0.0	10.32	0.0
F104163I1	7.01	7.01	0.0	7.01	0.0	7.01	0.0
F106120I1	60.27	60.27	0.0	60.27	0.0	60.27	0.0
F106123I1	62.64	62.64	0.0	62.64	0.0	62.64	0.0
F106135I1	32.27	32.37	0.1	32.38	0.1	32.39	0.1
F106138I1	33.15	32.37	-0.8	32.39	-0.8	32.40	-0.7
F106145I1	38.99	39.09	0.1	39.11	0.1	39.11	0.1
F106148I1	39.44	39.50	0.1	39.53	0.1	39.54	0.1

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F106150I1	38.31	39.86	1.6	39.86	1.6	39.86	1.6
F106154I1	37.68	37.68	0.0	37.68	0.0	37.70	0.0
F106162I1	39.76	39.85	0.1	39.87	0.1	39.88	0.1
F106163I1	38.29	39.09	0.8	39.11	0.8	39.11	0.8
F106164I1	35.84	35.95	0.1	35.97	0.1	35.97	0.1
F106165I1	35.84	35.95	0.1	35.97	0.1	35.97	0.1
F106167I1	39.94	39.97	0.0	40.31	0.4	40.36	0.4
F106168I1	39.79	39.97	0.2	40.00	0.2	40.03	0.2
F106170I1	37.67	37.70	0.0	37.74	0.1	37.77	0.1
F106178I1	37.46	38.46	1.0	39.26	1.8	39.71	2.3
F106181I1	39.55	39.97	0.4	40.00	0.5	40.03	0.5
F106183I1	38.66	38.81	0.2	39.26	0.6	39.71	1.1
F106187I1	35.39	35.39	0.0	35.39	0.0	35.39	0.0
F106188I1	33.98	35.39	1.4	35.39	1.4	35.39	1.4
F106191I1	35.14	35.14	0.0	35.22	0.1	35.36	0.2
F106192I1	37.67	37.70	0.0	37.74	0.1	37.77	0.1
F106196I1	37.13	37.45	0.3	37.53	0.4	37.62	0.5
F106199I1	35.14	35.14	0.0	35.22	0.1	35.36	0.2
F106200I1	33.33	33.39	0.1	33.41	0.1	33.41	0.1
F106204I1	33.22	33.22	0.0	33.25	0.0	33.44	0.2
F106208I1	31.70	31.71	0.0	31.72	0.0	31.73	0.0
F106209I1	31.70	31.71	0.0	31.72	0.0	31.73	0.0
F106210I1	29.82	31.71	1.9	31.72	1.9	31.73	1.9
F106214I1	28.94	29.18	0.2	29.21	0.3	29.22	0.3
F106216I1	30.46	30.46	0.0	30.46	0.0	30.55	0.1
F106219I1	38.31	38.53	0.2	38.56	0.3	38.57	0.3
F106223I1	28.75	30.40	1.7	31.04	2.3	31.24	2.5
F106230I1	30.49	30.86	0.4	31.04	0.6	31.24	0.8
F106231I1	30.49	30.74	0.3	31.04	0.6	31.24	0.8
F106235I1	34.88	34.88	0.0	34.89	0.0	34.92	0.0
F106236I1	31.59	31.62	0.0	31.62	0.0	31.64	0.0
F106238I1	30.32	30.74	0.4	31.04	0.7	31.24	0.9
F106243I1	28.90	30.40	1.5	31.04	2.1	31.24	2.3
F106245I1	33.39	33.78	0.4	33.81	0.4	33.82	0.4
F106246I1	34.42	34.57	0.2	34.59	0.2	34.60	0.2
F106247I1	34.42	34.55	0.1	34.57	0.2	34.58	0.2
F106249I1	29.51	30.40	0.9	31.04	1.5	31.24	1.7
F106251I1	29.51	30.40	0.9	31.04	1.5	31.24	1.7
F106254I1	31.70	31.70	0.0	31.70	0.0	31.70	0.0
F106257I1	32.02	32.15	0.1	32.18	0.2	32.21	0.2
F106258I1	32.02	32.16	0.1	32.20	0.2	32.22	0.2
F106263I1	31.70	31.70	0.0	31.70	0.0	31.70	0.0
F106266I1	34.48	34.88	0.4	34.89	0.4	34.92	0.4
F106268I1	33.03	33.03	0.0	33.03	0.0	33.03	0.0
F106270I1	33.63	33.68	0.1	33.74	0.1	33.76	0.1
F106272I1	33.63	33.68	0.1	33.74	0.1	33.76	0.1
F106274I1	32.56	32.71	0.2	32.75	0.2	32.76	0.2
F106275I1	35.44	35.50	0.1	35.54	0.1	35.55	0.1
F106276I1	35.44	35.50	0.1	35.54	0.1	35.55	0.1
F106281I1	37.72	37.87	0.2	37.93	0.2	37.94	0.2
F106287I1	36.05	36.09	0.0	36.14	0.1	36.15	0.1
F106288I1	39.44	39.50	0.1	39.53	0.1	39.54	0.1
F106290I1	34.48	34.48	0.0	34.48	0.0	34.48	0.0
F106293I1	36.88	36.88	0.0	36.91	0.0	36.93	0.1
F106303I1	25.59	25.59	0.0	25.61	0.0	25.79	0.2

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F106304l1	30.46	30.46	0.0	30.46	0.0	30.55	0.1
F106316l1	31.62	31.62	0.0	31.62	0.0	31.63	0.0
F106319l1	35.22	35.22	0.0	35.22	0.0	35.22	0.0
F106323l1	35.22	35.22	0.0	35.22	0.0	35.22	0.0
F106325l1	20.70	20.97	0.3	20.99	0.3	21.00	0.3
F106370l1	21.97	21.97	0.0	21.97	0.0	21.97	0.0
F106371l1	23.21	23.33	0.1	23.37	0.2	23.38	0.2
F106378l1	20.70	20.97	0.3	20.99	0.3	21.00	0.3
F106382l1	22.75	22.83	0.1	22.86	0.1	22.88	0.1
F106388l1	20.70	20.97	0.3	20.99	0.3	21.00	0.3
F106389l1	18.61	18.97	0.4	18.97	0.4	19.00	0.4
F106392l1	17.68	17.79	0.1	17.83	0.2	17.85	0.2
F106395l1	16.01	16.01	0.0	16.01	0.0	16.01	0.0
F106405l1	25.79	26.03	0.2	26.07	0.3	26.09	0.3
F106417l1	31.96	31.96	0.0	31.96	0.0	31.96	0.0
F106418l1	29.57	29.57	0.0	29.57	0.0	29.57	0.0
F106419l1	29.57	29.57	0.0	29.57	0.0	29.57	0.0
F106423l1	24.03	24.23	0.2	24.36	0.3	24.43	0.4
F106424l1	25.68	25.68	0.0	25.68	0.0	25.72	0.0
F106425l1	25.68	25.68	0.0	25.68	0.0	25.72	0.0
F106428l1	21.40	21.40	0.0	21.40	0.0	21.40	0.0
F106432l1	22.67	22.67	0.0	22.67	0.0	22.67	0.0
F106437l1	23.43	23.43	0.0	23.44	0.0	23.56	0.1
F106438l1	23.21	23.33	0.1	23.37	0.2	23.38	0.2
F106442l1	24.61	24.61	0.0	24.61	0.0	24.61	0.0
F106443l1	23.81	23.81	0.0	23.88	0.1	24.02	0.2
F106446l1	24.03	24.23	0.2	24.36	0.3	24.43	0.4
F106447l1	21.40	21.40	0.0	21.40	0.0	21.40	0.0
F106448l1	22.90	22.90	0.0	22.90	0.0	22.90	0.0
F106450l1	22.90	22.90	0.0	22.90	0.0	22.90	0.0
F106452l1	21.97	21.97	0.0	21.97	0.0	21.97	0.0
F106453l1	22.80	22.80	0.0	22.80	0.0	22.80	0.0
F106723l1	42.26	42.47	0.2	42.51	0.3	42.52	0.3
F106724l1	50.58	50.64	0.1	50.67	0.1	50.67	0.1
F106731l1	58.20	58.20	0.0	58.20	0.0	58.20	0.0
F106736l1	46.84	46.92	0.1	46.94	0.1	46.94	0.1
F106737l1	52.26	52.31	0.1	52.33	0.1	52.33	0.1
F106745l1	43.74	43.81	0.1	43.84	0.1	43.84	0.1
F106752l1	46.69	46.69	0.0	46.69	0.0	46.69	0.0
F106753l1	42.26	42.47	0.2	42.51	0.3	42.52	0.3
F106755l1	43.74	43.81	0.1	43.83	0.1	43.84	0.1
F106756l1	42.00	42.13	0.1	42.16	0.2	42.18	0.2
F106757l1	42.00	42.11	0.1	42.14	0.1	42.15	0.2
F106767l1	40.13	40.38	0.3	40.53	0.4	40.57	0.4
F106768l1	40.24	40.27	0.0	40.30	0.1	40.31	0.1
F106771l1	39.89	40.38	0.5	40.54	0.7	40.58	0.7
F106774l1	43.83	43.83	0.0	43.83	0.0	43.83	0.0
F106776l1	40.24	40.27	0.0	40.30	0.1	40.31	0.1
F106777l1	40.13	40.38	0.3	40.53	0.4	40.57	0.4
F106779l1	40.13	40.38	0.3	40.53	0.4	40.57	0.4
F106785l1	46.30	46.33	0.0	46.34	0.0	46.35	0.1
F106787l1	40.24	40.29	0.1	40.31	0.1	40.31	0.1
F116096l1	25.97	26.24	0.3	26.31	0.3	26.35	0.4
F116097l1	25.86	25.86	0.0	25.86	0.0	25.86	0.0
F116098l1	27.62	27.62	0.0	27.62	0.0	27.62	0.0

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F116099l1	23.01	23.01	0.0	23.01	0.0	23.36	0.4
F116103l1	33.33	33.39	0.1	33.41	0.1	33.41	0.1
F116107l1	29.54	29.63	0.1	29.74	0.2	29.75	0.2
F116109l1	41.51	41.51	0.0	41.51	0.0	41.51	0.0
F116114l1	32.36	32.37	0.0	32.40	0.0	32.41	0.1
F116118l1	35.93	35.97	0.0	35.98	0.1	36.00	0.1
F116130l1	36.68	36.89	0.2	36.92	0.2	36.93	0.3
F116131l1	40.15	40.15	0.0	40.15	0.0	40.15	0.0
F116134l1	43.43	43.63	0.2	43.65	0.2	43.66	0.2
F116141l1	32.36	32.37	0.0	32.40	0.0	32.41	0.1
F116146l1	27.61	27.66	0.1	27.73	0.1	27.75	0.1
F116148l1	30.15	30.16	0.0	30.17	0.0	30.22	0.1
F116151l1	30.15	30.16	0.0	30.17	0.0	30.22	0.1
F116157l1	29.54	29.55	0.0	29.59	0.1	29.62	0.1
F116163l1	28.34	28.34	0.0	28.34	0.0	28.34	0.0
F116164l1	28.34	28.34	0.0	28.34	0.0	28.34	0.0
F116177l1	27.61	27.80	0.2	27.83	0.2	27.84	0.2
F116179l1	26.87	26.92	0.1	26.96	0.1	26.98	0.1
F116181l1	26.87	26.92	0.1	26.96	0.1	26.98	0.1
F116183l1	32.69	32.69	0.0	32.69	0.0	32.69	0.0
F116187l1	26.44	26.73	0.3	26.80	0.4	26.83	0.4
F116194l1	26.44	26.73	0.3	26.80	0.4	26.83	0.4
F116194l2	25.97	26.24	0.3	26.31	0.3	26.35	0.4
F116196l1	24.94	24.94	0.0	24.94	0.0	24.99	0.1
F116197l1	31.99	32.24	0.3	32.29	0.3	32.30	0.3
F116198l1	39.25	39.27	0.0	39.28	0.0	39.29	0.0
F116201l1	33.14	33.42	0.3	33.44	0.3	33.45	0.3
F116202l1	44.64	44.64	0.0	44.64	0.0	44.64	0.0
F116210l1	31.62	31.65	0.0	31.67	0.1	31.67	0.1
F116215l1	47.72	47.72	0.0	47.72	0.0	47.72	0.0
F116216l1	47.72	47.72	0.0	47.72	0.0	47.72	0.0
F116218l1	42.12	42.36	0.2	42.38	0.3	42.39	0.3
F116221l1	28.93	29.02	0.1	29.16	0.2	29.19	0.3
F116224l1	31.99	32.24	0.3	32.29	0.3	32.30	0.3
F116226l1	29.33	29.35	0.0	29.36	0.0	29.36	0.0
F116230l1	29.33	29.35	0.0	29.36	0.0	29.36	0.0
F116235l1	33.43	33.45	0.0	33.48	0.1	33.49	0.1
F116237l1	28.93	29.02	0.1	29.16	0.2	29.19	0.3
F116261l1	25.42	25.45	0.0	25.47	0.1	25.48	0.1
F116265l1	25.42	25.45	0.0	25.47	0.1	25.48	0.1
F118543l1	57.95	58.00	0.1	58.02	0.1	58.03	0.1
F118544l1	58.48	58.48	0.0	58.51	0.0	58.52	0.0
F118545l1	57.95	57.99	0.0	58.00	0.1	58.01	0.1
F118546l1	57.95	57.99	0.0	58.00	0.1	58.01	0.1
F118559l1	58.51	58.53	0.0	58.55	0.0	58.56	0.1
F118625l1	38.98	38.98	0.0	38.98	0.0	38.98	0.0
F119099l1	36.61	36.61	0.0	36.61	0.0	36.61	0.0
F132376l1	12.81	12.90	0.1	12.92	0.1	12.93	0.1
F132377l1	12.81	12.92	0.1	12.94	0.1	12.95	0.1
F132433l1	14.30	14.39	0.1	14.41	0.1	14.42	0.1
F132438l2	14.30	14.39	0.1	14.41	0.1	14.42	0.1
F132459l1	14.12	14.34	0.2	14.36	0.2	14.36	0.2
F132461l1	14.12	14.34	0.2	14.36	0.2	14.36	0.2
F155817l1	53.83	54.05	0.2	54.42	0.6	54.47	0.6
F155821l1	47.02	47.23	0.2	47.25	0.2	47.28	0.3

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F155826l1	54.26	54.33	0.1	54.43	0.2	54.47	0.2
F155827l1	39.61	39.83	0.2	39.85	0.2	39.86	0.3
F155835l1	59.67	59.70	0.0	59.72	0.1	59.73	0.1
F155845l1	45.64	45.85	0.2	45.87	0.2	45.87	0.2
F155848l1	55.06	55.06	0.0	55.06	0.0	55.10	0.0
F155859l1	55.06	55.06	0.0	55.06	0.0	55.17	0.1
F155869l1	44.03	44.26	0.2	44.28	0.3	44.29	0.3
F155870l1	35.93	36.01	0.1	36.02	0.1	36.03	0.1
F155872l1	41.62	41.62	0.0	41.62	0.0	41.62	0.0
F155885l1	49.04	49.04	0.0	49.24	0.2	49.25	0.2
F155888l1	46.96	47.17	0.2	47.18	0.2	47.20	0.2
F155889l1	46.96	47.17	0.2	47.18	0.2	47.20	0.2
F155896l1	49.99	50.04	0.1	50.05	0.1	50.06	0.1
F155936l1	49.99	50.04	0.1	50.06	0.1	50.06	0.1
F155938l1	68.35	68.35	0.0	68.35	0.0	68.35	0.0
F155941l1	77.17	77.17	0.0	77.17	0.0	77.17	0.0
F155942l1	77.17	77.17	0.0	77.17	0.0	77.17	0.0
F155943l1	68.35	68.35	0.0	68.35	0.0	68.35	0.0
F155944l1	76.85	76.85	0.0	76.85	0.0	76.85	0.0
F155955l1	64.04	64.04	0.0	64.04	0.0	64.04	0.0
F155964l1	75.17	75.17	0.0	75.17	0.0	75.17	0.0
F155986l1	67.69	67.69	0.0	67.69	0.0	67.69	0.0
F181077Al1	12.27	12.40	0.1	12.51	0.2	12.55	0.3
F181078l1	7.01	7.82	0.8	7.98	1.0	8.05	1.0
F181079l1	7.57	8.00	0.4	8.09	0.5	8.14	0.6
F181081l1	4.06	4.33	0.3	4.66	0.6	5.06	1.0
F181082l1	4.03	4.03	0.0	4.03	0.0	4.03	0.0
F181091l1	42.34	42.34	0.0	42.49	0.2	42.53	0.2
F181092l1	17.79	17.94	0.2	18.00	0.2	18.02	0.2
F181094l1	13.01	13.33	0.3	13.43	0.4	13.45	0.4
F181095l1	15.75	15.75	0.0	15.76	0.0	15.96	0.2
F181096l1	17.01	17.25	0.2	17.31	0.3	17.34	0.3
F181098l1	3.74	4.03	0.3	4.16	0.4	4.20	0.5
F181115l1	23.01	23.01	0.0	23.01	0.0	23.01	0.0
F181160l1	25.14	25.14	0.0	25.14	0.0	25.14	0.0
F181508l1	8.88	9.18	0.3	9.17	0.3	9.20	0.3
F181510l1	8.19	8.39	0.2	8.49	0.3	8.50	0.3
F181525l1	17.01	17.01	0.0	17.01	0.0	17.01	0.0
F181545l1	10.84	12.53	1.7	12.73	1.9	12.81	2.0
F181556l1	16.92	17.23	0.3	17.26	0.3	17.28	0.4
F181574l1	15.75	15.75	0.0	15.75	0.0	15.75	0.0
F181585l1	4.01	4.01	0.0	4.16	0.2	4.73	0.7
F181596l1	2.78	3.49	0.7	3.72	0.9	3.77	1.0
F181603l1	8.51	8.51	0.0	8.91	0.4	9.09	0.6
F181789Al1	20.70	20.70	0.0	20.70	0.0	20.81	0.1
F181789Bl1	17.68	17.79	0.1	17.83	0.2	17.85	0.2
F181803l1	39.87	39.92	0.1	40.31	0.4	40.36	0.5
F182227l1	21.69	21.69	0.0	21.71	0.0	21.79	0.1
F183819l1	13.76	13.76	0.0	13.76	0.0	13.76	0.0
F183821l1	13.31	13.51	0.2	13.52	0.2	13.52	0.2
F187207l1	30.64	30.74	0.1	31.04	0.4	31.25	0.6
F187208l1	33.71	33.82	0.1	33.84	0.1	33.85	0.1
F187227l1	21.09	21.09	0.0	21.09	0.0	21.09	0.0
F187234l1	21.09	21.09	0.0	21.09	0.0	21.09	0.0
F2000005l1	62.64	62.64	0.0	62.64	0.0	62.64	0.0

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F2000008l1	30.44	30.86	0.4	31.04	0.6	31.24	0.8
F216546l1	6.45	6.98	0.5	7.28	0.8	7.40	0.9
F216548l1	6.01	6.98	1.0	7.28	1.3	7.40	1.4
F216551l1	11.14	11.14	0.0	11.18	0.0	11.26	0.1
F216556l1	11.14	11.14	0.0	11.21	0.1	11.33	0.2
F216573l1	11.10	11.10	0.0	11.46	0.4	11.52	0.4
F216582l1	11.10	11.10	0.0	11.46	0.4	11.52	0.4
F216584l1	12.19	12.19	0.0	12.19	0.0	12.19	0.0
F216589l1	9.39	9.39	0.0	9.39	0.0	9.39	0.0
F216591l1	9.63	9.63	0.0	9.63	0.0	9.63	0.0
F216606l1	9.27	9.27	0.0	9.47	0.2	9.58	0.3
F216607l1	9.51	9.66	0.2	9.84	0.3	9.86	0.4
F216846l1	5.96	6.18	0.2	6.21	0.3	6.23	0.3
F5000002l1	49.01	49.01	0.0	49.01	0.0	49.01	0.0
F5000003l1	49.01	49.01	0.0	49.01	0.0	49.01	0.0
F5000004l1	56.20	56.20	0.0	56.20	0.0	56.20	0.0
F5000005l1	62.43	62.43	0.0	62.43	0.0	62.43	0.0
F5000006l1	62.43	62.43	0.0	62.43	0.0	62.43	0.0
F5000007l1	67.25	67.25	0.0	67.25	0.0	67.25	0.0
F5000010l1	13.01	13.23	0.2	13.36	0.4	13.40	0.4
F5000011l1	39.69	39.86	0.2	39.86	0.2	39.86	0.2
F5000012l1	32.01	32.25	0.2	32.26	0.3	32.27	0.3
F5000013l1	5.01	6.34	1.3	6.44	1.4	6.48	1.5
F5000014l1	3.01	3.64	0.6	3.71	0.7	3.74	0.7
F5000015l1	1.41	1.72	0.3	1.86	0.4	1.89	0.5
F5000016l1	8.01	8.38	0.4	8.42	0.4	8.44	0.4
F5000017l1	23.84	24.05	0.2	24.08	0.2	24.08	0.2
F5000020l1	11.02	11.16	0.1	11.31	0.3	11.37	0.4
F5000021l1	6.56	6.87	0.3	6.85	0.3	6.87	0.3
F5000022l1	36.61	36.61	0.0	36.61	0.0	36.61	0.0
F5000023l1	28.59	28.59	0.0	28.59	0.0	28.59	0.0
F5000024l1	4.01	4.37	0.4	4.46	0.5	4.50	0.5
F5000027l1	4.01	4.37	0.4	4.46	0.5	4.50	0.5
F99189l1	30.70	31.03	0.3	31.06	0.4	31.25	0.6
F99197l1	30.70	31.03	0.3	31.06	0.4	31.25	0.6
F99199l1	31.52	31.64	0.1	31.66	0.1	31.67	0.2
F99207l1	33.56	33.67	0.1	33.68	0.1	33.69	0.1
F99212l1	33.56	33.67	0.1	33.68	0.1	33.69	0.1
F99213l1	33.56	33.78	0.2	33.79	0.2	33.80	0.2
F99214l1	33.86	34.16	0.3	34.19	0.3	34.20	0.3
F99378l1	13.50	13.94	0.4	14.03	0.5	14.07	0.6
F99380l1	17.32	17.40	0.1	17.42	0.1	17.43	0.1
F99382l1	21.89	21.94	0.1	21.98	0.1	22.01	0.1
F99383l1	17.07	17.21	0.1	17.22	0.2	17.23	0.2
F99384l1	14.44	14.74	0.3	14.83	0.4	14.86	0.4
F99385l1	17.09	17.16	0.1	17.19	0.1	17.19	0.1
F99386l1	17.07	17.21	0.1	17.22	0.2	17.23	0.2
F99387l1	16.99	17.21	0.2	17.23	0.2	17.23	0.2
F99391l1	17.09	17.16	0.1	17.19	0.1	17.19	0.1
F99397l1	21.89	21.94	0.1	21.98	0.1	22.01	0.1
F99400l1	17.19	17.34	0.2	17.41	0.2	17.44	0.3
F99402l1	20.92	20.92	0.0	20.92	0.0	20.92	0.0
F99404l1	17.01	17.19	0.2	17.74	0.7	17.92	0.9
F99407l1	19.28	20.14	0.9	20.19	0.9	20.20	0.9
F99413l1	23.54	23.54	0.0	23.74	0.2	23.75	0.2

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F99414l1	23.28	23.61	0.3	23.79	0.5	23.84	0.6
F99416l1	21.89	21.94	0.1	21.98	0.1	22.01	0.1
F99422l1	18.28	18.28	0.0	18.28	0.0	18.28	0.0
F99441l1	26.56	26.73	0.2	26.77	0.2	26.79	0.2
F99446l1	25.14	25.24	0.1	25.26	0.1	25.26	0.1
F99450l1	24.07	24.27	0.2	24.29	0.2	24.30	0.2
F99457l1	25.03	25.38	0.4	25.41	0.4	25.42	0.4
F99465l1	24.55	24.86	0.3	24.86	0.3	24.83	0.3
F99476l1	28.85	28.90	0.1	28.92	0.1	28.93	0.1
F99499l1	23.16	23.60	0.4	23.79	0.6	23.84	0.7
F99501l1	24.07	24.10	0.0	24.14	0.1	24.16	0.1
F99503l1	23.28	23.61	0.3	23.79	0.5	23.84	0.6
F99507l1	23.06	23.49	0.4	24.11	1.1	24.43	1.4
F99508l1	26.41	26.57	0.2	26.61	0.2	26.62	0.2
F99510l1	26.41	26.57	0.2	26.61	0.2	26.62	0.2
F99511l1	23.06	23.49	0.4	24.11	1.1	24.43	1.4
F99536l1	35.51	35.51	0.0	35.51	0.0	35.51	0.0
F99619l1	18.06	18.06	0.0	18.08	0.0	18.11	0.1
F99627l1	21.67	21.72	0.1	21.73	0.1	21.74	0.1
F99644l1	22.70	22.86	0.2	22.92	0.2	22.94	0.2
F99645l1	21.31	21.33	0.0	21.35	0.0	21.35	0.0
F99647l1	22.14	22.45	0.3	22.47	0.3	22.46	0.3
F99648l1	21.68	21.75	0.1	21.89	0.2	21.92	0.2
F99665l1	23.33	23.33	0.0	23.33	0.0	23.33	0.0
F99670l1	25.03	25.03	0.0	25.03	0.0	25.03	0.0
F99714l1	21.67	21.72	0.1	21.73	0.1	21.74	0.1
F99716l1	23.09	23.70	0.6	23.96	0.9	24.08	1.0
F99718l1	23.09	23.70	0.6	23.96	0.9	24.08	1.0
F99719l1	23.84	24.05	0.2	24.08	0.2	24.08	0.2
F99731l1	23.51	23.70	0.2	23.96	0.5	24.08	0.6
F99733l1	26.47	26.47	0.0	26.47	0.0	26.47	0.0
F99784l1	26.50	26.50	0.0	26.50	0.0	26.50	0.0
F99785l1	30.91	30.91	0.0	30.96	0.1	30.97	0.1
F99791l1	28.59	28.59	0.0	28.59	0.0	28.59	0.0
F99800l1	19.55	19.81	0.3	19.82	0.3	19.80	0.3
F99804l1	8.36	8.52	0.2	8.56	0.2	8.58	0.2
F99831l1	11.58	11.83	0.3	11.87	0.3	11.88	0.3
F99833l1	11.58	11.83	0.3	11.87	0.3	11.88	0.3
F99835l1	13.35	13.35	0.0	13.35	0.0	13.35	0.0
F99840l1	10.03	10.16	0.1	10.19	0.2	10.20	0.2
F99842l1	12.14	12.16	0.0	12.18	0.0	12.19	0.1
F99843l1	11.11	11.23	0.1	11.25	0.1	11.26	0.2
F99845l1	17.62	17.96	0.3	18.01	0.4	18.03	0.4
F99848l1	14.83	15.09	0.3	15.12	0.3	15.15	0.3
F99850l1	22.82	22.82	0.0	22.97	0.2	23.03	0.2
F99851l1	14.01	14.26	0.3	14.29	0.3	14.30	0.3
F99856l1	16.01	16.26	0.3	16.29	0.3	16.30	0.3
F99858l1	17.28	17.33	0.1	17.35	0.1	17.35	0.1
F99864l1	17.75	17.78	0.0	17.80	0.1	17.81	0.1
F99869l1	19.06	19.24	0.2	19.29	0.2	19.30	0.2
F99873l1	17.62	17.96	0.3	18.01	0.4	18.03	0.4
F99878l1	19.77	20.05	0.3	20.10	0.3	20.12	0.4
F99879l1	18.44	18.74	0.3	18.79	0.4	18.81	0.4
F99882l1	14.70	14.78	0.1	14.90	0.2	14.94	0.2
F99885l1	14.70	14.78	0.1	14.90	0.2	14.94	0.2

		10 Year Design Storm		50 Year Design Storm		100 Year Design Storm	
Overland Flow Link ID	Ground Level (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)	Peak Water Level (m RL)	Depth (m)
F99886l1	13.83	13.83	0.0	13.84	0.0	13.88	0.1
F99888l1	18.45	18.52	0.1	18.54	0.1	18.55	0.1
F99891l1	18.45	18.52	0.1	18.54	0.1	18.55	0.1
F99896l1	21.60	21.86	0.3	21.90	0.3	21.91	0.3
F99898l1	21.60	21.86	0.3	21.90	0.3	21.91	0.3
F99899l1	21.60	21.86	0.3	21.90	0.3	21.91	0.3
F99912l1	23.65	23.66	0.0	23.70	0.1	23.71	0.1
F99915l1	23.65	23.66	0.0	23.70	0.1	23.71	0.1
F99919l1	24.58	24.59	0.0	24.61	0.0	24.61	0.0
F99925l1	24.58	24.59	0.0	24.61	0.0	24.61	0.0
F99936l1	29.14	29.39	0.3	29.42	0.3	29.43	0.3
F99937l1	22.42	22.70	0.3	22.74	0.3	22.76	0.3
F99947l1	24.83	24.94	0.1	25.05	0.2	25.09	0.3
F99948l1	24.83	24.94	0.1	25.05	0.2	25.09	0.3
F99951l1	23.92	23.96	0.0	24.02	0.1	24.04	0.1
F99953l1	23.92	23.96	0.0	24.02	0.1	24.04	0.1
F99954l1	30.39	30.44	0.1	30.48	0.1	30.49	0.1
F99960l1	23.75	23.83	0.1	23.98	0.2	23.99	0.2
F99994l1	19.26	19.26	0.0	19.27	0.0	19.27	0.0
FEX1l1	64.04	64.04	0.0	64.04	0.0	64.04	0.0
FEX2l1	7.90	8.19	0.3	8.23	0.3	8.25	0.4
FGI1l1	7.01	7.22	0.2	7.22	0.2	7.23	0.2
FGI2l1	6.79	7.04	0.3	7.08	0.3	7.09	0.3
FGI3l1	1.42	1.42	0.0	1.42	0.0	1.42	0.0
FGI4l1	9.01	9.15	0.1	9.22	0.2	9.23	0.2
Fgi6l1	37.01	37.11	0.1	37.13	0.1	37.14	0.1
FGI6l1	15.07	16.60	1.5	16.62	1.6	16.63	1.6
FGI7l2	10.17	10.27	0.1	10.30	0.1	10.31	0.1

Appendix E: Calculated Pond Volumes

Tamaki Campus Pond

Document Status: Finished and Awaiting Q-A
From Maunsell drawing file name:
I:\Dept_34\3462735 ICS Project\x16_Pond Survey\Catob 2003.10.06\Tamaki Campus Pond.dxf
Client File Name: CatoBolam File Name: W15797.dxf
Client File Revision Date: 23-Sep-03

Method of Area Calculation *Areas taken using AutoCad's "pline" enclosed area calculation.*
Method of Length Calculation *Length taken using AutoCad's "dist" command*
Engineer: Nathan Shaw
Date: 17/10/2003 **Length** 58.5 m

R.L. (m)	Volume (m3)	X-Section Area (m2)	Surface Area (m2)
21.5	0	0	0
22	292.5	5.0	1170
22.5	1005.0	17.2	1680
23.5	2827.5	48.3	1965

Comments:
Dist West 67 m *Dist East 49 m*
Using average dist from inlet to outlet = 58.5m
Refer project folder for diagram of line of length measurement

INPUT FOR MOUSE

H(m)	Ac(m2)	As(m2)
21.5	0	0
22	5	1170
22.5	17.2	1680
23.5	48.3	1965

Questions:
Between: Marco Van Winden (Maunsell) and John Wisker (Cato Bolam consultants)

Q
What was the water level (and date/time)?

A.
Water level was 22.10 a.m. 12-9-03 and the same each time I was back there. This is the level on the sills on each side of the outlet structure.

Q
How does the outlet structure work?

A.
It is a concrete block "well" below the wooden viewing platform with a lower sill on each side adjacent to the bank. From the bottom of the well the water escapes through a large concrete pipe. As I recall, it is not an easy one to get into for measurement of invert height and pipe size.

I now know where the outlet is and could pick that up (position and pipe size) when I'm doing the next culvert downstream (part of the batch of water course culverts that I'm about to start).

Q
Which level at the outlet structure defines the weir and what was the width of the weir or weirs?

Answered above

Q
Provide a statement on depth – what depth below normal water level should we assume for the purpose of water volume calculations?

A.
0.6m on average. I'm slightly puzzled by the thrust of this and similar questions as I have waded or taken sample spot heights in ponds and shown the results in the CAD drawings and spreadsheet files as heights within the ponds. In most cases the heights represent the top of a layer of silt, quite a deep layer in many cases. In the future if any pond gets a routine dredging of accumulated silt then the depth / volume will alter accordingly.

Verbal Communication
Between Bryan Pulham and Marco V; Large pipe is a 1200mm diameter pipe
suiffit is below weir level

Point England Pond (Ellstree Ave, or Omaru Creek)

Document Status: Finished and Awaiting Q-A

From drawing No. 2508559 / C003
Method of Area Calculation *Areas scaled off 1:1000 (A3) photocopy using non-digital planimeter*
Method of Length Calculation *Length scaled off 1:1000 (A3) scale drawing*
Engineer: Nathan Shaw
Date: 16/10/2003

Length 170 m

R.L. (m)	Volume (m3)	X-Section Area (m2)
0.3	0.0	0.0
1.0	232.8	1.4
1.4	885.8	5.2
2.2	3241.8	19.1
2.5	4491.3	26.4
3.5	10261.3	60.4
4.0	13733.8	80.8

Comments:
170 m was scaled off the drawing at the length of the pond
170m is taken from the Elstree Ave Road inlet to 1/2 way between the fish pass and the high flow weir

Surface Area (m2)	
0	from drawing No. 2508559 / C006
665	
2600	
3290	
5040	2.5 and 3.5 m R.L. are the critical levels for the model and were
6500	correspondingly planimetered with greater care (3 x to get an average area)
7390	

Comments:
S.Area only taken up to 4.0 m R.L.. Because are contour line for higher R.L.'s are illegible on the photocopy. If higher R.L.'s are required, it may be possible to get them off GIS contour maps

Additional Information for Modeller

The fish pass is tidal, and therefore effected by backwater effects. MOUSE should be used to calculate the flow through the fish pass as opposed to a specified Q-H relationship for the high-flow weir.

Refer project folder for diagram of line of length measurement

Questions:
No questions at this time

INPUT FOR MOUSE

H(m)	Ac(m2)	As(m2)
0.3	0.0	0
1.0	1.4	665
1.4	5.2	2600
2.2	19.1	3290
2.5	26.4	5040
3.5	60.4	6500
4.0	80.8	7390

Appendix F: MOUSE Model Parameters

Table F1 MOUSE Hydrological Parameters- Existing

Stormwater SubArea Name	*Stormwater Node Attachment*	*Area*	*Pervious*	*Impervious*	*Length m*	*Slope 0/00*
ENG001S017	99399	6.63	55.04	44.96	434	3.7
ENG001S018	99391	1.49	31.44	68.56	124	0.1
ENG001S019	101766	1.10	58.31	41.69	101	0.1
ENG001S002	100436	2.27	53.10	46.90	317	5.7
ENG001S020	100286	3.03	63.79	36.21	195	2.1
ENG001S021	101762	0.74	63.75	36.25	104	0.0
ENG001S0022	100325	1.78	53.62	46.38	231	0.9
ENG001S0023	100320	1.15	48.67	51.33	108	0.1
ENG001S024	101771	1.62	50.12	49.88	203	0.1
ENG001S025	100262	3.72	71.37	28.63	233	3.4
ENG001S026	100334	2.69	47.19	52.81	214	0.1
ENG001S027	100256	4.41	51.09	48.91	351	4.0
ENG001S028	100346	1.12	63.22	36.78	141	1.4
ENG001S029	100221	3.52	63.24	36.76	180	4.5
ENG001S030	100344	0.93	63.21	36.79	80	2.5
ENG001S031	100234	0.70	70.98	29.02	98	2.0
ENG001S032	100232	1.53	62.00	38.01	124	4.9
ENG001S033	100140	2.09	59.38	40.62	211	5.7
ENG001S034	100172	2.19	85.21	14.79	80	10.0
ENG001S035	100226	2.08	59.90	40.10	289	2.8
ENG001S036	100115	2.60	82.17	17.83	201	6.0
ENG001S037	100274	3.09	85.34	14.66	265	4.5
ENG001S038	99380	1.45	58.65	41.35	120	0.1
ENG001S039	100133	1.90	66.25	33.75	175	3.4
ENG001S004	100294	3.21	59.74	40.26	253	3.2
ENG001S040	100175	1.13	68.03	31.97	181	11.1
ENG001S041	100478	3.43	67.17	32.83	213	6.6
ENG001S042	99446	3.07	57.54	42.46	294	4.8
ENG001S043	103310	1.81	41.80	58.20	265	3.0
ENG001S044	99536	0.67	52.27	47.73	136	2.9
ENG001S045	100545	3.65	56.30	43.70	261	3.1
ENG001S046	100393	4.12	56.69	43.31	291	3.4
ENG001S047	100480	1.61	66.93	33.07	160	5.0
ENG001S048	100440	2.71	73.79	26.21	174	2.3
ENG001S049	181527	4.81	81.33	18.67	125	4.8
ENG001S005	99501	2.07	21.70	78.30	170	2.4
ENG001S050	100651	2.54	56.12	43.88	245	2.4
ENG001S051	100417	0.53	52.95	47.05	112	1.8
ENG001S052	100681	7.93	68.30	31.70	362	1.7
ENG001S053	100502	1.82	42.49	57.51	172	7.0
ENG001S054	100431	1.78	62.19	37.82	145	5.5
ENG001S055	99733	0.47	46.05	53.96	119	1.7
ENG001S056	99476	3.46	70.26	29.74	351	4.0
ENG001S057	100454	1.87	59.05	40.95	206	5.8
ENG001S058	100429	1.43	60.46	39.54	159	5.0
ENG001S059	100500	2.37	58.83	41.17	212	4.7
ENG001S006	99417	2.52	4.41	95.59	250	0.8
ENG001S060	100671	2.34	49.08	50.92	347	1.7
ENG001S061	100650	0.89	58.63	41.37	122	3.3
ENG001S062	100636	1.94	56.07	43.93	272	0.7
ENG001S063	100656	2.41	56.81	43.19	223	2.7
ENG001S064	100685	2.65	59.17	40.83	283	2.8
ENG001S065	99711	0.92	21.57	78.43	105	1.9
ENG001S066	100580	0.87	48.67	51.33	161	3.7
ENG001S067	100590	2.91	56.09	43.91	167	6.0
ENG001S068	100600	1.97	45.16	54.84	159	1.3
ENG001S069	100709	3.12	71.60	28.40	184	2.2
ENG001S007	103311	2.84	62.05	37.95	259	3.9

Stormwater SubArea Name	*Stormwater Node Attachment*	*Area*	*Pervious*	*Impervious*	*Length m*	*Slope 0/00*
ENG001S070	100724	1.73	41.67	58.33	410	1.0
ENG001S071	100523	2.03	49.62	50.38	135	1.5
ENG001S072	100532	1.75	65.63	34.37	120	1.7
ENG001S073	132433	1.25	40.39	59.61	189	6.3
ENG001S074	100640	2.43	61.98	38.02	306	2.0
ENG001S075	100633	2.28	50.45	49.55	192	0.1
ENG001S078	100582	0.66	52.70	47.30	34	5.8
ENG001S008	99508	2.38	50.47	49.54	194	3.1
ENG001S080	100716	1.35	52.94	47.06	157	1.3
ENG001S082	103222	6.64	47.80	52.20	419	4.8
ENG001S083	100595	2.23	46.06	53.94	75	0.0
ENG001S084	100518	1.32	42.03	57.97	77	0.0
ENG001S085	100544	2.24	43.54	56.46	167	3.6
ENG001S086	100598	1.40	61.10	38.90	121	0.0
ENG001S087	100624	0.90	58.29	41.71	165	2.4
ENG001S088	99716	2.30	55.53	44.47	135	1.5
ENG001S089	132376	1.88	45.44	54.56	134	9.0
ENG001S009	99416	3.79	59.68	40.32	271	4.4
ENG001S090	100470	0.26	28.77	71.23	98	4.1
ENG001S091	100703	0.44	57.19	42.81	68	2.9
ENG001S092	101789	0.97	50.03	49.97	107	1.9
ENG001S093	132461	2.59	51.54	48.46	322	3.7
ENG001S094	132459	0.95	51.51	48.49	190	7.4
ENG001S095	99619	1.36	49.59	50.41	164	7.3
ENG001S096	132376A	0.96	62.63	37.37	223	0.1
ENG001S097	GI2	1.05	49.66	50.35	141	0.1
ENG001S098	99645	1.33	36.50	63.50	75	5.3
ENG001S099	99670	0.22	18.53	81.47	69	2.9
GLI001S001	106210	2.37	78.52	21.48	294	2.0
GLI001S010	106371	3.44	64.73	35.27	368	5.4
GLI001S100	101978	1.37	55.01	45.00	253	2.4
GLI001S101	101975	1.02	61.37	38.63	122	3.3
GLI001S102	100007	1.27	61.98	38.02	129	3.1
GLI001S103	181609	2.71	72.28	27.72	190	11.6
GLI001S104	102225	0.65	57.24	42.76	97	12.4
GLI001S105	102187	1.64	64.64	35.36	184	3.3
GLI001S106	181611	2.88	92.03	7.97	134	13.5
GLI001S107	102175	1.43	86.80	13.20	115	7.0
GLI001S108	10001211	0.34	77.58	22.43	129	12.4
GLI001S109	102224	0.28	44.19	55.81	166	2.4
GLI001S011	99960	1.89	48.82	51.18	224	1.8
GLI001S110	10001195	2.85	78.12	21.88	212	9.5
GLI001S111	102219	0.24	25.53	74.47	112	3.6
GLI001S112	10001173	2.24	80.81	19.19	158	11.4
GLI001S113	10001205	2.71	82.06	17.94	77	13.0
GLI001S114	102214	0.26	70.98	29.02	39	5.2
GLI001S115	102222	0.20	66.88	33.12	41	4.9
GLI001S116	116261	0.57	50.62	49.38	115	1.7
GLI001S117	10000642	5.00	66.12	33.88	119	6.7
GLI001S118	101331	1.34	27.52	72.48	178	3.4
GLI001S119	102688	0.51	39.25	60.75	71	2.8
GLI001S012	101544	0.42	22.17	77.83	77	2.6
GLI001S120	99951	1.73	74.79	25.21	176	5.7
GLI001S121	101747	0.94	51.89	48.11	94	2.1
GLI001S122	216607	1.14	52.43	47.57	79	0.0
GLI001S123	10000395	2.87	74.96	25.04	176	3.4
GLI001S124	101643	0.41	47.17	52.83	142	2.8
GLI001S125	104140	0.94	51.19	48.81	82	0.0
GLI001S126	101803	1.78	47.21	52.79	157	2.6
GLI001S127	181081	2.96	65.42	34.58	179	2.2
GLI001S128	104160	1.07	40.09	59.91	74	0.0

Stormwater SubArea Name	Stormwater Node Attachment	Area	Pervious	Impervious	Length m	Slope 0/00
GLI001S129	101689	0.78	48.74	51.26	83	4.8
GLI001S013	101587	1.36	4.97	95.03	151	2.6
GLI001S130	101683	1.12	55.03	44.97	132	3.0
GLI001S131	101613	5.36	54.45	45.55	279	3.6
GLI001S132	101686	0.58	49.02	50.98	116	1.7
GLI001S133	101695	1.35	47.22	52.78	182	2.2
GLI001S134	104155	0.67	41.80	58.20	85	0.0
GLI001S135	101825	2.70	76.78	23.22	263	2.3
GLI001S136	104150	0.60	50.49	49.51	44	0.0
GLI001S137	101781	1.44	43.93	56.07	117	0.0
GLI001S138	181589	0.80	60.36	39.64	112	1.8
GLI001S139	101837	1.53	35.63	64.37	93	0.0
GLI001S014	101340	0.99	9.97	90.03	109	3.7
GLI001S140	101500	1.21	47.66	52.34	152	1.3
GLI001S141	101504	3.68	63.66	36.34	220	0.9
GLI001S142	10000547	3.41	66.49	33.51	274	2.2
GLI001S144	101526	1.41	64.32	35.68	181	2.2
GLI001S145	101610	2.33	49.29	50.72	161	1.2
GLI001S146	101676	3.25	45.76	54.24	270	2.2
GLI001S147	216846	1.44	63.32	36.68	87	2.3
GLI001S148	101717	0.86	41.18	58.82	76	0.0
GLI001S149	104146	0.60	38.72	61.28	81	2.5
GLI001S015	101595	1.59	4.08	95.92	46	4.4
GLI001S151	101805	0.22	17.65	82.35	90	2.2
GLI001S152	101873	0.97	48.65	51.35	148	0.1
GLI001S153	102216	0.31	60.43	39.57	53	11.4
GLI001S154	101484	0.93	53.95	46.05	192	1.0
GLI001S155	101214	0.65	62.02	37.98	52	11.5
GLI001S156	101211	1.15	54.49	45.51	170	5.9
GLI001S157	101237	0.73	62.10	37.90	85	7.0
GLI001S158	101508	0.32	48.37	51.63	96	2.1
GLI001S159	101416	0.47	53.92	46.08	105	7.6
GLI001S016	101538	0.57	38.22	61.78	61	3.3
GLI001S160	101202	0.79	72.01	27.99	133	4.5
GLI001S161	101582	1.15	52.15	47.86	101	2.0
GLI001S162	99879	1.58	44.43	55.57	202	5.9
GLI001S163	102238	1.11	61.57	38.43	138	5.8
GLI001S164	101167	0.50	43.53	56.47	53	11.4
GLI001S165	102117	1.35	60.34	39.67	145	9.7
GLI001S166	106214	2.20	14.47	85.53	190	2.1
GLI001S167	106405	2.39	21.19	78.81	146	4.1
GLI001S168	106378	1.29	20.18	79.82	74	0.0
GLI001S017	216556	1.47	44.23	55.77	81	0.0
GLI001S170	181496	14.78	38.57	61.43	528	0.8
GLI001S171	101480	2.06	55.99	44.01	123	1.6
GLI001S172	101522	0.40	70.89	29.11	75	2.7
GLI001S173	101491	0.51	96.63	3.37	99	4.0
GLI001S174	101519	0.99	23.41	76.59	156	1.3
GLI001S175	106389	1.31	26.02	73.98	75	2.7
GLI001S176	101184	1.87	48.96	51.04	146	4.1
GLI001S177	101164	1.34	52.54	47.46	200	6.0
GLI001S178	101273	3.12	53.98	46.02	182	8.8
GLI001S179	101125	0.68	61.99	38.01	143	5.6
GLI001S018	216546	0.55	68.32	31.68	70	5.7
GLI001S180	101413	1.97	55.57	44.43	142	5.6
GLI001S181	101139	1.24	64.85	35.15	125	8.0
GLI001S182	116196	1.09	23.66	76.34	409	1.5
GLI001S183	10000866	3.53	90.51	9.49	199	8.0
GLI001S184	101419	1.99	66.70	33.30	235	3.4
GLI001S185	101245	0.81	57.53	42.47	100	6.0
GLI001S186	101447	1.49	59.94	40.06	285	4.2

Stormwater SubArea Name	Stormwater Node Attachment	Area	Pervious	Impervious	Length m	Slope 0/00
GLI001S187	101240	1.59	66.77	33.23	76	5.3
GLI001S188	118625	0.40	23.15	76.85	132	3.0
GLI001S189	101260	2.22	53.25	46.75	171	9.3
GLI001S019	104110	0.62	51.58	48.42	70	2.8
GLI001S190	101424	2.25	61.23	38.77	244	4.9
GLI001S191	101417	1.02	53.16	46.84	191	4.2
GLI001S192	101210	1.40	69.13	30.87	133	7.5
GLI001S193	101227	1.34	61.85	38.15	244	2.5
GLI001S194	101265	0.39	56.18	43.82	44	9.2
GLI001S195	99936	3.56	52.91	47.09	259	3.1
GLI001S196	99785	0.80	49.89	50.11	83	2.4
GLI001S197	99791	0.44	25.83	74.17	180	2.2
GLI001S198	101450	1.55	61.52	38.48	195	6.2
GLI001S199	100102	0.76	41.30	58.70	156	6.4
GLI001S020	104117	0.58	41.30	58.70	100	4.0
GLI001S200	119099	0.96	32.82	67.18	227	2.6
GLI001S201	101926	2.37	65.91	34.10	149	4.0
GLI001S202	100097	2.36	65.67	34.33	283	7.8
GLI001S203	102110	0.98	48.06	51.94	141	5.7
GLI001S204	102106	0.53	55.61	44.39	90	2.2
GLI001S205	116265	0.39	49.45	50.55	62	6.5
GLI001S206	101436	1.08	56.46	43.54	147	2.7
GLI001S207	101318	0.64	5.75	94.25	132	3.0
GLI001S208	181547	1.96	56.89	43.11	161	5.0
GLI001S209	10000926	2.42	57.20	42.80	242	5.8
GLI0010S21	101669	0.47	64.07	35.93	122	3.3
GLI001S210	101405	2.54	67.03	32.97	267	2.2
GLI001S211	10000344	6.54	44.95	55.05	174	6.9
GLI001S212	10000317	1.70	65.77	34.23	193	5.2
GLI001S213	101355	0.97	32.34	67.66	147	4.1
GLI001S214	101313	1.43	30.05	69.95	114	5.3
GLI001S215	101376	1.72	58.98	41.02	165	3.6
GLI001S216	10000040	1.92	61.87	38.13	112	7.1
GLI001S217	102683	0.36	29.21	70.79	95	4.2
GLI001S218	102107	0.43	32.14	67.86	117	3.4
GLI001S219	103363	0.72	50.67	49.33	112	5.4
GLI001S022	104126	0.53	51.79	48.21	32	6.2
GLI001S220	102289	1.48	56.58	43.42	165	10.9
GLI001S221	102133	1.09	65.94	34.06	127	7.9
GLI001S222	102685	0.31	43.11	56.89	51	0.0
GLI001S223	102122	1.21	74.68	25.32	156	10.3
GLI001S224	102116	0.50	66.40	33.60	68	11.7
GLI001S225	102141	0.24	44.74	55.26	54	3.7
GLI001S226	102307	1.08	50.46	49.54	63	12.8
GLI001S227	106226	3.67	84.97	15.03	197	7.1
GLI001S228	155889	1.51	50.59	49.41	265	9.1
GLI001S229	101149	0.76	56.43	43.57	121	11.6
GLI001S023	104121	0.50	51.18	48.82	68	0.0
GLI001S231	106723	2.45	40.70	59.30	113	5.3
GLI001S232	106774	0.86	63.08	36.92	139	8.7
GLI001S233	106779	3.01	70.71	29.29	210	1.9
GLI001S234	106768	0.92	42.91	57.09	191	8.4
GLI001S235	106193	0.82	42.51	57.49	203	2.0
GLI001S236	106769	0.88	50.72	49.28	212	7.6
GLI001S237	106168	6.15	77.93	22.07	406	0.5
GLI001S238	106196	1.34	42.10	57.90	229	0.9
GLI001S239	106148	0.72	42.87	57.13	123	0.1
GLI001S024	104132	0.84	38.00	62.00	88	2.3
GLI001S240	106246	8.56	83.19	16.81	521	2.3
GLI001S241	106204	6.06	57.86	42.14	337	0.6
GLI001S242	106288	2.21	27.93	72.07	108	3.7

Stormwater SubArea Name	Stormwater Node Attachment	Area	Pervious	Impervious	Length m	Slope 0/00
GLI001S243	106219	1.46	5.34	94.66	102	2.0
GLI001S244	106202	0.42	31.99	68.02	78	2.6
GLI001S245	106199	0.47	56.14	43.86	108	1.8
GLI001S246	106183	1.01	67.90	32.10	158	1.3
GLI001S247	99214	2.74	64.96	35.04	158	24.0
GLI001S248	99207	2.61	8.49	91.51	247	0.8
GLI001S249	106263	2.77	3.33	96.67	184	2.2
GLI001S025	216591	0.95	44.91	55.09	64	0.1
GLI001S250	106233	1.46	5.16	94.84	158	2.5
GLI001S251	106293	0.77	16.38	83.63	103	3.9
GLI001S252	106438	4.28	66.73	33.27	238	5.9
GLI001S253	106439	1.82	64.59	35.41	232	2.6
GLI001S254	106446	1.63	32.67	67.33	59	0.1
GLI001S255	106425	2.58	54.56	45.44	198	5.1
GLI001S256	118559	0.28	24.00	76.00	106	1.9
GLI001S257	116235	0.72	38.76	61.25	155	7.8
GLI001S258	10000070	16.47	77.59	22.41	344	5.2
GLI001S259	116216	0.72	32.27	67.73	193	9.3
GLI001S026	99864	1.01	55.92	44.08	107	3.7
GLI001S260	116103	1.21	70.86	29.14	248	5.6
GLI001S261	155859	0.85	42.55	57.45	172	9.3
GLI001S262	106753	2.80	49.77	50.23	284	10.6
GLI001S263	106737	3.26	42.01	57.99	257	8.6
GLI001S264	155936	0.95	39.48	60.52	159	11.3
GLI001S265	116134	1.06	43.14	56.86	133	7.5
GLI001S266	116107	2.07	52.14	47.86	409	10.8
GLI001S267	155835	3.98	42.59	57.41	297	6.7
GLI001S268	155941	0.37	18.04	81.96	55	0.1
GLI001S269	155797	1.70	50.78	49.22	170	8.2
GLI001S027	101386	1.06	59.85	40.16	86	4.6
GLI001S270	155817	0.85	42.21	57.79	135	11.8
GLI001S271	155870	1.03	43.64	56.36	164	13.4
GLI001S272	116118	0.54	51.30	48.70	82	9.7
GLI001S274	116178	1.96	47.34	52.66	357	9.0
GLI001S275	116211	1.76	49.89	50.11	192	6.2
GLI001S276	116201	0.76	60.88	39.12	89	17.9
GLI001S277	118544	0.67	40.56	59.44	158	3.8
GLI001S278	101160	0.76	46.00	54.00	97	10.3
GLI001S279	118543	0.48	32.59	67.41	71	0.1
GLI001S028	99845	1.98	57.08	42.92	139	4.3
GLI001S280	182219	6.27	31.85	68.15	235	2.5
GLI001S281	116152	0.78	45.90	54.10	111	9.0
GLI001S282	116141	0.73	41.03	58.97	102	7.9
GLI001S283	116146	1.35	47.50	52.50	164	9.8
GLI001S284	116179	0.64	52.78	47.22	78	5.1
GLI001S285	116194	0.49	53.65	46.35	111	3.6
GLI001S286	116221	0.76	45.32	54.68	122	4.9
GLI001S287	116237	0.79	40.24	59.76	86	6.9
GLI001S288	116191	0.62	43.39	56.61	84	4.7
GLI001S289	116230	0.82	61.62	38.38	160	3.7
GLI001S029	99896	2.17	58.21	41.79	155	5.2
GLI001S290	116224	1.20	55.40	44.60	120	11.7
GLI001S291	116183	0.23	31.52	68.49	130	9.2
GLI001S292	101778	0.90	61.96	38.04	123	0.1
GLI001S293	101763	0.98	56.08	43.92	147	1.4
GLI001S294	100363	1.56	62.17	37.83	174	4.6
GLI001S295	100354	1.08	55.67	44.33	162	4.9
GLI001S296	100165	2.25	60.25	39.75	314	2.5
GLI001S297	100203	1.36	67.71	32.29	111	0.0
GLI001S298	100151	1.22	62.33	37.67	189	4.2
GLI001S299	100288	1.18	50.02	49.98	146	2.7

Stormwater SubArea Name	Stormwater Node Attachment	Area	Pervious	Impervious	Length m	Slope 0/00
GLI001S003	101140	3.40	55.81	44.19	245	9.0
GLI001S030	99843	0.86	63.71	36.29	121	5.0
GLI001S300	100245	2.92	52.70	47.30	328	3.7
GLI001S301	100162	2.18	55.84	44.16	292	0.0
GLI001S302	106254	5.58	37.94	62.07	142	5.6
GLI001S303	106304	3.73	4.40	95.60	167	1.2
GLI001S304	106238	3.19	49.71	50.29	266	0.1
GLI001S305	106258	4.39	88.70	11.30	252	0.1
GLI001S306	99210	4.20	60.48	39.52	167	1.2
GLI001S307	102150	0.47	68.03	31.97	51	11.7
GLI001S308	101490	4.45	45.13	54.87	242	5.0
GLI001S309	182227	2.27	92.03	7.97	135	4.5
GLI001S031	99994	1.81	62.09	37.91	208	2.9
GLI001S310	101562	0.81	7.68	92.32	94	4.2
GLI001S311	101515	1.46	49.47	50.53	99	0.1
GLI001S312	101836	1.85	77.83	22.17	148	1.4
GLI001S313	101573	0.27	7.60	92.40	59	3.4
GLI001S314	101550	0.39	60.70	39.30	107	1.9
GLI001S315	99925	0.46	34.25	65.75	56	7.2
GLI001S316	106162	5.60	82.95	17.05	423	0.5
GLI001S317	106165	4.52	76.26	23.75	299	2.7
GLI001S318	101845	2.34	44.00	56.00	216	0.9
GLI001S032	100012	0.75	64.62	35.38	93	4.3
GLI001S320	10000012	3.91	87.44	12.56	293	3.4
GLI001S321	181543	4.78	82.09	17.91	194	10.3
GLI001S033	99840	1.37	62.46	37.54	109	1.8
GLI001S034	101849	2.27	55.94	44.06	159	3.8
GLI001S035	101720	1.61	58.61	41.39	184	1.1
GLI001S036	99833	3.24	59.78	40.22	198	3.0
GLI001S037	99919	1.42	52.19	47.81	211	3.8
GLI001S038	99885	0.81	56.43	43.57	100	8.0
GLI001S039	99915	1.18	59.00	41.00	119	5.0
GLI001S004	101148	0.14	25.76	74.24	60	3.4
GLI001S040	99912	0.64	69.16	30.84	76	7.9
GLI001S041	99899	2.23	55.35	44.65	128	3.1
GLI001S042	181115	3.55	97.64	2.36	267	3.8
GLI001S043	181505	1.61	74.53	25.47	141	5.7
GLI001S044	99948	0.93	50.09	49.91	56	7.2
GLI001S045	99954	1.40	54.76	45.24	124	6.5
GLI001S046	100080	1.67	47.95	52.05	165	6.0
GLI001S047	99891	1.10	56.31	43.69	127	4.7
GLI001S048	99850	0.85	61.19	38.81	102	5.9
GLI001S049	101399	1.36	50.35	49.66	100	6.0
GLI001S005	116202	0.23	28.48	71.52	139	10.1
GLI001S050	99851	1.34	70.41	29.59	93	2.1
GLI001S051	99800	0.99	59.18	40.82	160	2.5
GLI001S052	101635	2.27	42.73	57.27	393	3.1
GLI001S053	99858	1.32	50.16	49.84	135	3.0
GLI001S054	10000461	1.43	75.00	25.00	98	10.2
GLI001S055	10000272	1.45	80.05	19.96	81	7.4
GLI001S056	100009	1.26	58.43	41.57	174	2.3
GLI001S057	100023	1.27	59.21	40.79	151	2.7
GLI001S058	100039	2.77	72.97	27.03	169	4.7
GLI001S059	100075	2.80	59.15	40.85	224	6.3
GLI001S006	155827	2.04	47.16	52.84	259	7.7
GLI001S060	100030	2.90	57.76	42.24	362	5.0
GLI001S061	100026	0.78	72.12	27.88	98	0.0
GLI001S062	10000799	3.56	77.03	22.97	147	4.1
GLI001S063	100004	2.22	72.62	27.38	242	5.0
GLI001S064	100052	1.76	57.21	42.79	204	4.9
GLI001S065	100098	0.76	61.07	38.93	79	7.6

Stormwater SubArea Name	Stormwater Node Attachment	Area	Pervious	Impervious	Length m	Slope 0/00
GLI001S066	100050	1.17	53.48	46.52	190	2.1
GLI001S067	100072	1.10	51.74	48.26	123	4.9
GLI001S068	10000710	2.47	87.67	12.33	152	6.6
GLI001S069	100089	1.81	67.29	32.71	199	6.0
GLI001S007	155869	0.94	50.05	49.96	216	9.3
GLI001S070	181603	4.40	74.23	25.77	225	3.6
GLI001S071	102077	1.62	73.79	26.21	110	7.3
GLI001S072	102059	1.81	70.65	29.35	136	4.4
GLI001S073	102037	0.52	62.62	37.38	43	0.0
GLI001S074	102021	1.20	64.42	35.58	213	1.9
GLI001S075	102032	0.94	61.04	38.96	119	3.4
GLI001S076	10000686	2.72	66.83	33.17	144	9.7
GLI001S077	101989	0.58	55.46	44.54	123	6.5
GLI001S078	102100	1.25	69.30	30.70	114	8.8
GLI001S079	102098	3.63	55.77	44.23	283	5.7
GLI001S008	116114	0.72	46.72	53.28	132	7.6
GLI001S080	102260	1.48	60.14	39.86	141	4.3
GLI001S081	102015	1.54	78.87	21.13	129	4.6
GLI001S082	100087	1.57	63.54	36.46	174	4.6
GLI001S083	10000772	4.00	71.53	28.47	94	4.3
GLI001S084	101998	1.80	60.20	39.80	103	5.8
GLI001S086	102001	1.85	63.45	36.55	296	3.4
GLI001S087	102056	1.97	60.54	39.46	258	3.1
GLI001S088	102044	1.11	58.60	41.40	109	5.5
GLI001S089	10001136	48.26	98.61	1.39	180	4.4
GLI001S009	106154	0.86	44.31	55.69	99	2.0
GLI001S090	101970	1.16	62.23	37.77	88	2.3
GLI001S091	101958	1.49	58.24	41.76	98	2.0
GLI001S092	101981	0.84	58.63	41.37	91	4.4
GLI001S093	181606	2.33	95.37	4.63	65	15.3
GLI001S094	102045	1.26	72.17	27.83	121	1.7
GLI001S095	102184	0.74	50.91	49.09	90	2.2
GLI001S096	102164	0.78	55.70	44.30	107	3.7
GLI001S097	102231	1.29	67.67	32.33	125	9.6
GLI001S098	102168	2.72	64.46	35.54	339	4.1
GLI001S099	102089	1.02	55.99	44.01	181	4.4
ENG001S001	100468	1.47	64.60	35.34	172	4.6
ENG001S081	100668	10.37	81.12	18.88	450	0.5
ENG001S010	101887	1.30	44.14	55.86	249	0.8
ENG001S011	101771	0.96	48.63	51.37	106	1.0
ENG001S013	99457	1.85	45.52	54.48	135	3.0
ENG001S014	187210	29.70	64.22	35.78	396	1.5
ENG001S015	5000012	2.26	50.90	49.10	220	1.8
ENG001S016	99413	2.84	6.72	93.28	210	1.0
ENG001S100	100681	0.98	56.50	43.50	221	1.8
ENG001S102	100732	4.92	94.21	5.79	485	1.0
ENG001S104	100733	2.48	51.78	48.22	97	12.4
ENG001S105	99414	5.44	42.16	51.84	184	3.3
GLI001S143	10000577	0.66	65.68	34.32	72	5.5
GLI001S150	10000459	2.18	92.78	7.22	57	7.0
GLI001S169	10000085	2.41	77.36	22.64	187	5.4
GLI001S230	101157	0.25	25.58	74.42	99	8.1
GLI001S273	155944	0.15	22.73	77.27	71	1.0
GLI001S319	101949	0.40	9.34	90.66	49	1.0
GLI001S002	181785	7.07	30.74	69.26	396	4.0
GLI001S085	100009	8.43	67.69	32.31	192	2.1

Table F2 MOUSE Hydrological Parameters - MPD

Stormwater SubArea Name	*Stormwater Node Attachment*	*Area*	*Pervious*	*Impervious*	*Length m*	*Slope 0/00*
ENG001S017	99399	6.63	28.2	71.8	434	3.7
ENG001S018	99391	1.49	8.9	91.1	124	0.1
ENG001S019	101766	1.10	32.3	67.7	101	0.1
ENG001S002	100436	2.27	25.2	74.8	317	5.7
ENG001S020	100286	3.03	34.7	65.3	195	2.1
ENG001S021	101762	0.74	32.3	67.7	104	0.0
ENG001S0022	100325	1.78	31.8	68.2	231	0.9
ENG001S0023	100320	1.15	26.0	74.0	108	0.1
ENG001S024	101771	1.62	31.7	68.3	203	0.1
ENG001S025	100262	3.72	46.1	53.9	233	3.4
ENG001S026	100334	2.69	25.1	74.9	214	0.1
ENG001S027	100256	4.41	28.5	71.5	351	4.0
ENG001S028	100346	1.12	39.4	60.6	141	1.4
ENG001S029	100221	3.52	33.1	66.9	180	4.5
ENG001S030	100344	0.93	16.6	83.4	80	2.5
ENG001S031	100234	0.70	40.6	59.4	98	2.0
ENG001S032	100232	1.53	31.0	69.0	124	4.9
ENG001S033	100140	2.09	29.2	70.8	211	5.7
ENG001S034	100172	2.19	65.4	34.6	80	10.0
ENG001S035	100226	2.08	25.9	74.1	289	2.8
ENG001S036	100115	2.60	57.1	42.9	201	6.0
ENG001S037	100274	3.09	57.6	42.4	265	4.5
ENG001S038	99380	1.45	16.8	83.2	120	0.1
ENG001S039	100133	1.90	32.8	67.2	175	3.4
ENG001S004	100294	3.21	33.2	66.8	253	3.2
ENG001S040	100175	1.13	33.1	66.9	181	11.1
ENG001S041	100478	3.43	36.3	63.7	213	6.6
ENG001S042	99446	3.07	27.7	72.3	294	4.8
ENG001S043	103310	1.81	18.3	81.7	265	3.0
ENG001S044	99536	0.67	29.9	70.1	136	2.9
ENG001S045	100545	3.65	37.7	62.3	261	3.1
ENG001S046	100393	4.12	31.8	68.2	291	3.4
ENG001S047	100480	1.61	0.0	100.0	160	5.0
ENG001S048	100440	2.71	59.8	40.2	174	2.3
ENG001S049	181527	4.81	62.3	37.7	125	4.8
ENG001S005	99501	2.07	9.6	90.4	170	2.4
ENG001S050	100651	2.54	32.6	67.4	245	2.4
ENG001S051	100417	0.53	0.0	100.0	112	1.8
ENG001S052	100681	7.93	29.4	70.6	362	1.7
ENG001S053	100502	1.82	18.6	81.4	172	7.0
ENG001S054	100431	1.78	35.2	64.8	145	5.5
ENG001S055	99733	0.47	37.0	63.0	119	1.7
ENG001S056	99476	3.46	43.6	56.4	351	4.0
ENG001S057	100454	1.87	30.9	69.1	206	5.8
ENG001S058	100429	1.43	34.7	65.3	159	5.0
ENG001S059	100500	2.37	0.0	100.0	212	4.7
ENG001S006	99417	2.52	0.0	100.0	250	0.8
ENG001S060	100671	2.34	25.3	74.7	347	1.7
ENG001S061	100650	0.89	31.1	68.9	122	3.3
ENG001S062	100636	1.94	29.7	70.3	272	0.7
ENG001S063	100656	2.41	29.1	70.9	223	2.7
ENG001S064	100685	2.65	30.4	69.6	283	2.8
ENG001S065	99711	0.92	9.0	91.0	105	1.9
ENG001S066	100580	0.87	24.7	75.3	161	3.7
ENG001S067	100590	2.91	36.5	63.5	167	6.0
ENG001S068	100600	1.97	35.3	64.7	159	1.3
ENG001S069	100709	3.12	46.5	53.5	184	2.2
ENG001S007	103311	2.84	30.3	69.7	259	3.9

Stormwater SubArea Name	Stormwater Node Attachment	Area	Pervious	Impervious	Length m	Slope 0/00
ENG001S070	100724	1.73	22.7	77.3	410	1.0
ENG001S071	100523	2.03	34.6	65.4	135	1.5
ENG001S072	100532	1.75	41.2	58.8	120	1.7
ENG001S073	132433	1.25	30.0	70.0	189	6.3
ENG001S074	100640	2.43	34.8	65.2	306	2.0
ENG001S075	100633	2.28	28.3	71.7	192	0.1
ENG001S078	100582	0.66	40.0	60.0	34	5.8
ENG001S008	99508	2.38	27.2	72.8	194	3.1
ENG001S080	100716	1.35	28.8	71.2	157	1.3
ENG001S082	103222	6.64	31.4	68.6	419	4.8
ENG001S083	100595	2.23	26.6	73.4	75	0.0
ENG001S084	100518	1.32	27.9	72.1	77	0.0
ENG001S085	100544	2.24	36.1	63.9	167	3.6
ENG001S086	100598	1.40	39.4	60.6	121	0.0
ENG001S087	100624	0.90	28.9	71.1	165	2.4
ENG001S088	99716	2.30	29.9	70.1	135	1.5
ENG001S089	132376	1.88	30.5	69.5	134	9.0
ENG001S009	99416	3.79	29.1	70.9	271	4.4
ENG001S090	100470	0.26	0.0	100.0	98	4.1
ENG001S091	100703	0.44	41.6	58.4	68	2.9
ENG001S092	101789	0.97	24.8	75.2	107	1.9
ENG001S093	132461	2.59	30.0	70.0	322	3.7
ENG001S094	132459	0.95	31.2	68.8	190	7.4
ENG001S095	99619	1.36	29.4	70.6	164	7.3
ENG001S096	132376A	0.96	38.8	61.2	223	0.1
ENG001S097	GI2	1.05	35.3	64.7	141	0.1
ENG001S098	99645	1.33	38.0	62.0	75	5.3
ENG001S099	99670	0.22	0.1	99.9	69	2.9
GLI001S001	106210	2.37	21.0	79.0	294	2.0
GLI001S010	106371	3.44	15.5	84.5	368	5.4
GLI001S100	101978	1.37	25.8	74.2	253	2.4
GLI001S101	101975	1.02	30.2	69.8	122	3.3
GLI001S102	100007	1.27	31.5	68.5	129	3.1
GLI001S103	181609	2.71	53.6	46.4	190	11.6
GLI001S104	102225	0.65	40.0	60.0	97	12.4
GLI001S105	102187	1.64	33.0	67.0	184	3.3
GLI001S106	181611	2.88	64.6	35.4	134	13.5
GLI001S107	102175	1.43	43.4	56.6	115	7.0
GLI001S108	10001211	0.34	20.1	79.9	129	12.4
GLI001S109	102224	0.28	13.7	86.3	166	2.4
GLI001S011	99960	1.89	28.4	71.6	224	1.8
GLI001S110	10001195	2.85	76.9	23.1	212	9.5
GLI001S111	102219	0.24	0.0	100.0	112	3.6
GLI001S112	10001173	2.24	105.3	-5.3	158	11.4
GLI001S113	10001205	2.71	64.0	36.0	77	13.0
GLI001S114	102214	0.26	40.1	59.9	39	5.2
GLI001S115	102222	0.20	40.0	60.0	41	4.9
GLI001S116	116261	0.57	25.8	74.2	115	1.7
GLI001S117	10000642	5.00	46.2	53.8	119	6.7
GLI001S118	101331	1.34	23.3	76.7	178	3.4
GLI001S119	102688	0.51	23.5	76.5	71	2.8
GLI001S012	101544	0.42	0.0	100.0	77	2.6
GLI001S120	99951	1.73	50.8	49.2	176	5.7
GLI001S121	101747	0.94	28.3	71.7	94	2.1
GLI001S122	216607	1.14	40.0	60.0	79	0.0
GLI001S123	10000395	2.87	51.4	48.6	176	3.4
GLI001S124	101643	0.41	41.7	58.3	142	2.8
GLI001S125	104140	0.94	33.3	66.7	82	0.0
GLI001S126	101803	1.78	28.3	71.7	157	2.6
GLI001S127	181081	2.96	55.9	44.1	179	2.2
GLI001S128	104160	1.07	31.3	68.7	74	0.0

Stormwater SubArea Name	Stormwater Node Attachment	Area	Pervious	Impervious	Length m	Slope 0/00
GLI001S129	101689	0.78	28.4	71.6	83	4.8
GLI001S013	101587	1.36	1.4	98.6	151	2.6
GLI001S130	101683	1.12	34.6	65.4	132	3.0
GLI001S131	101613	5.36	31.7	68.3	279	3.6
GLI001S132	101686	0.58	39.8	60.2	116	1.7
GLI001S133	101695	1.35	25.2	74.8	182	2.2
GLI001S134	104155	0.67	40.0	60.0	85	0.0
GLI001S135	101825	2.70	54.8	45.2	263	2.3
GLI001S136	104150	0.60	40.0	60.0	44	0.0
GLI001S137	101781	1.44	27.5	72.5	117	0.0
GLI001S138	181589	0.80	29.5	70.5	112	1.8
GLI001S139	101837	1.53	24.8	75.2	93	0.0
GLI001S014	101340	0.99	0.0	100.0	109	3.7
GLI001S140	101500	1.21	30.4	69.6	152	1.3
GLI001S141	101504	3.68	42.0	58.0	220	0.9
GLI001S142	10000547	3.41	31.4	68.6	274	2.2
GLI001S144	101526	1.41	40.0	60.0	181	2.2
GLI001S145	101610	2.33	27.6	72.4	161	1.2
GLI001S146	101676	3.25	26.6	73.4	270	2.2
GLI001S147	216846	1.44	40.0	60.0	87	2.3
GLI001S148	101717	0.86	31.3	68.7	76	0.0
GLI001S149	104146	0.60	38.5	61.5	81	2.5
GLI001S015	101595	1.59	0.0	100.0	46	4.4
GLI001S151	101805	0.22	0.0	100.0	90	2.2
GLI001S152	101873	0.97	26.2	73.8	148	0.1
GLI001S153	102216	0.31	32.0	68.0	53	11.4
GLI001S154	101484	0.93	24.6	75.4	192	1.0
GLI001S155	101214	0.65	33.0	67.0	52	11.5
GLI001S156	101211	1.15	29.3	70.7	170	5.9
GLI001S157	101237	0.73	26.9	73.1	85	7.0
GLI001S158	101508	0.32	30.3	69.7	96	2.1
GLI001S159	101416	0.47	39.2	60.8	105	7.6
GLI001S016	101538	0.57	0.0	100.0	61	3.3
GLI001S160	101202	0.79	39.3	60.7	133	4.5
GLI001S161	101582	1.15	34.1	65.9	101	2.0
GLI001S162	99879	1.58	34.3	65.7	202	5.9
GLI001S163	102238	1.11	29.9	70.1	138	5.8
GLI001S164	101167	0.50	40.0	60.0	53	11.4
GLI001S165	102117	1.35	30.9	69.1	145	9.7
GLI001S166	106214	2.20	0.0	100.0	190	2.1
GLI001S167	106405	2.39	0.0	100.0	146	4.1
GLI001S168	106378	1.29	0.0	100.0	74	0.0
GLI001S017	216556	1.47	34.6	65.4	81	0.0
GLI001S170	181496	14.78	5.1	94.9	528	0.8
GLI001S171	101480	2.06	32.3	67.7	123	1.6
GLI001S172	101522	0.40	40.0	60.0	75	2.7
GLI001S173	101491	0.51	25.8	74.2	99	4.0
GLI001S174	101519	0.99	0.0	100.0	156	1.3
GLI001S175	106389	1.31	0.0	100.0	75	2.7
GLI001S176	101184	1.87	34.2	65.8	146	4.1
GLI001S177	101164	1.34	35.6	64.4	200	6.0
GLI001S178	101273	3.12	32.1	67.9	182	8.8
GLI001S179	101125	0.68	29.8	70.2	143	5.6
GLI001S018	216546	0.55	47.6	52.4	70	5.7
GLI001S180	101413	1.97	31.4	68.6	142	5.6
GLI001S181	101139	1.24	40.0	60.0	125	8.0
GLI001S182	116196	1.09	0.1	99.9	409	1.5
GLI001S183	10000866	3.53	72.0	28.0	199	8.0
GLI001S184	101419	1.99	30.0	70.0	235	3.4
GLI001S185	101245	0.81	33.9	66.1	100	6.0
GLI001S186	101447	1.49	34.2	65.8	285	4.2

Stormwater SubArea Name	Stormwater Node Attachment	Area	Pervious	Impervious	Length m	Slope 0/00
GLI001S187	101240	1.59	34.2	65.8	76	5.3
GLI001S188	118625	0.40	0.0	100.0	132	3.0
GLI001S189	101260	2.22	36.2	63.8	171	9.3
GLI001S019	104110	0.62	39.9	60.1	70	2.8
GLI001S190	101424	2.25	33.3	66.7	244	4.9
GLI001S191	101417	1.02	25.4	74.6	191	4.2
GLI001S192	101210	1.40	35.7	64.3	133	7.5
GLI001S193	101227	1.34	35.9	64.1	244	2.5
GLI001S194	101265	0.39	29.9	70.1	44	9.2
GLI001S195	99936	3.56	33.1	66.9	259	3.1
GLI001S196	99785	0.80	33.1	66.9	83	2.4
GLI001S197	99791	0.44	0.0	100.0	180	2.2
GLI001S198	101450	1.55	34.5	65.5	195	6.2
GLI001S199	100102	0.76	15.6	84.4	156	6.4
GLI001S020	104117	0.58	25.7	74.3	100	4.0
GLI001S200	119099	0.96	8.8	91.2	227	2.6
GLI001S201	101926	2.37	38.8	61.2	149	4.0
GLI001S202	100097	2.36	32.7	67.3	283	7.8
GLI001S203	102110	0.98	20.2	79.8	141	5.7
GLI001S204	102106	0.53	32.5	67.5	90	2.2
GLI001S205	116265	0.39	19.3	80.7	62	6.5
GLI001S206	101436	1.08	30.1	69.9	147	2.7
GLI001S207	101318	0.64	0.0	100.0	132	3.0
GLI001S208	181547	1.96	27.2	72.8	161	5.0
GLI001S209	10000926	2.42	34.9	65.1	242	5.8
GLI0010S21	101669	0.47	27.5	72.5	122	3.3
GLI001S210	101405	2.54	27.7	72.3	267	2.2
GLI001S211	10000344	6.54	32.1	67.9	174	6.9
GLI001S212	10000317	1.70	52.7	47.3	193	5.2
GLI001S213	101355	0.97	0.0	100.0	147	4.1
GLI001S214	101313	1.43	0.0	100.0	114	5.3
GLI001S215	101376	1.72	0.0	100.0	165	3.6
GLI001S216	10000040	1.92	49.9	50.1	112	7.1
GLI001S217	102683	0.36	0.0	100.0	95	4.2
GLI001S218	102107	0.43	16.4	83.6	117	3.4
GLI001S219	103363	0.72	29.6	70.4	112	5.4
GLI001S022	104126	0.53	40.0	60.0	32	6.2
GLI001S220	102289	1.48	29.2	70.8	165	10.9
GLI001S221	102133	1.09	33.9	66.1	127	7.9
GLI001S222	102685	0.31	23.3	76.7	51	0.0
GLI001S223	102122	1.21	40.0	60.0	156	10.3
GLI001S224	102116	0.50	40.0	60.0	68	11.7
GLI001S225	102141	0.24	26.3	73.7	54	3.7
GLI001S226	102307	1.08	36.0	64.0	63	12.8
GLI001S227	106226	3.67	0.0	100.0	197	7.1
GLI001S228	155889	1.51	29.2	70.8	265	9.1
GLI001S229	101149	0.76	40.0	60.0	121	11.6
GLI001S023	104121	0.50	40.0	60.0	68	0.0
GLI001S231	106723	2.45	46.9	53.1	113	5.3
GLI001S232	106774	0.86	40.0	60.0	139	8.7
GLI001S233	106779	3.01	49.8	50.2	210	1.9
GLI001S234	106768	0.92	30.9	69.1	191	8.4
GLI001S235	106193	0.82	27.0	73.0	203	2.0
GLI001S236	106769	0.88	40.8	59.2	212	7.6
GLI001S237	106168	6.15	30.9	69.1	406	0.5
GLI001S238	106196	1.34	27.6	72.4	229	0.9
GLI001S239	106148	0.72	33.8	66.2	123	0.1
GLI001S024	104132	0.84	29.3	70.7	88	2.3
GLI001S240	106246	8.56	45.0	55.0	521	2.3
GLI001S241	106204	6.06	41.7	58.3	337	0.6
GLI001S242	106288	2.21	16.0	84.0	108	3.7

Stormwater SubArea Name	Stormwater Node Attachment	Area	Pervious	Impervious	Length m	Slope 0/00
GLI001S243	106219	1.46	0.0	100.0	102	2.0
GLI001S244	106202	0.42	22.1	77.9	78	2.6
GLI001S245	106199	0.47	40.0	60.0	108	1.8
GLI001S246	106183	1.01	25.7	74.3	158	1.3
GLI001S247	99214	2.74	0.0	100.0	158	24.0
GLI001S248	99207	2.61	0.0	100.0	247	0.8
GLI001S249	106263	2.77	0.0	100.0	184	2.2
GLI001S025	216591	0.95	34.4	65.6	64	0.1
GLI001S250	106233	1.46	0.0	100.0	158	2.5
GLI001S251	106293	0.77	0.0	100.0	103	3.9
GLI001S252	106438	4.28	14.1	85.9	238	5.9
GLI001S253	106439	1.82	7.4	92.6	232	2.6
GLI001S254	106446	1.63	0.0	100.0	59	0.1
GLI001S255	106425	2.58	0.6	99.4	198	5.1
GLI001S256	118559	0.28	0.0	100.0	106	1.9
GLI001S257	116235	0.72	22.7	77.3	155	7.8
GLI001S258	10000070	16.47	18.9	81.1	344	5.2
GLI001S259	116216	0.72	17.7	82.3	193	9.3
GLI001S026	99864	1.01	27.6	72.4	107	3.7
GLI001S260	116103	1.21	112.7	-12.7	248	5.6
GLI001S261	155859	0.85	24.6	75.4	172	9.3
GLI001S262	106753	2.80	37.9	62.1	284	10.6
GLI001S263	106737	3.26	24.5	75.5	257	8.6
GLI001S264	155936	0.95	25.4	74.6	159	11.3
GLI001S265	116134	1.06	32.0	68.0	133	7.5
GLI001S266	116107	2.07	37.5	62.5	409	10.8
GLI001S267	155835	3.98	31.0	69.0	297	6.7
GLI001S268	155941	0.37	0.0	100.0	55	0.1
GLI001S269	155797	1.70	35.4	64.6	170	8.2
GLI001S027	101386	1.06	36.4	63.6	86	4.6
GLI001S270	155817	0.85	32.7	67.3	135	11.8
GLI001S271	155870	1.03	32.0	68.0	164	13.4
GLI001S272	116118	0.54	32.4	67.6	82	9.7
GLI001S274	116178	1.96	40.0	60.0	357	9.0
GLI001S275	116211	1.76	31.9	68.1	192	6.2
GLI001S276	116201	0.76	40.0	60.0	89	17.9
GLI001S277	118544	0.67	0.0	100.0	158	3.8
GLI001S278	101160	0.76	26.8	73.2	97	10.3
GLI001S279	118543	0.48	0.1	99.9	71	0.1
GLI001S028	99845	1.98	42.1	57.9	139	4.3
GLI001S280	182219	6.27	10.6	89.4	235	2.5
GLI001S281	116152	0.78	24.8	75.2	111	9.0
GLI001S282	116141	0.73	26.8	73.2	102	7.9
GLI001S283	116146	1.35	23.3	76.7	164	9.8
GLI001S284	116179	0.64	27.4	72.6	78	5.1
GLI001S285	116194	0.49	30.3	69.7	111	3.6
GLI001S286	116221	0.76	30.9	69.1	122	4.9
GLI001S287	116237	0.79	29.0	71.0	86	6.9
GLI001S288	116191	0.62	21.2	78.8	84	4.7
GLI001S289	116230	0.82	40.0	60.0	160	3.7
GLI001S029	99896	2.17	45.9	54.1	155	5.2
GLI001S290	116224	1.20	40.0	60.0	120	11.7
GLI001S291	116183	0.23	0.0	100.0	130	9.2
GLI001S292	101778	0.90	32.2	67.8	123	0.1
GLI001S293	101763	0.98	34.9	65.1	147	1.4
GLI001S294	100363	1.56	34.3	65.7	174	4.6
GLI001S295	100354	1.08	29.7	70.3	162	4.9
GLI001S296	100165	2.25	25.5	74.5	314	2.5
GLI001S297	100203	1.36	37.7	62.3	111	0.0
GLI001S298	100151	1.22	29.7	70.3	189	4.2
GLI001S299	100288	1.18	24.2	75.8	146	2.7

Stormwater SubArea Name	Stormwater Node Attachment	Area	Pervious	Impervious	Length m	Slope 0/00
GLI001S003	101140	3.40	21.2	78.8	245	9.0
GLI001S030	99843	0.86	31.4	68.6	121	5.0
GLI001S300	100245	2.92	24.5	75.5	328	3.7
GLI001S301	100162	2.18	24.4	75.6	292	0.0
GLI001S302	106254	5.58	2.9	97.1	142	5.6
GLI001S303	106304	3.73	0.0	100.0	167	1.2
GLI001S304	106238	3.19	0.0	100.0	266	0.1
GLI001S305	106258	4.39	22.0	78.0	252	0.1
GLI001S306	99210	4.20	0.0	100.0	167	1.2
GLI001S307	102150	0.47	40.0	60.0	51	11.7
GLI001S308	101490	4.45	0.0	100.0	242	5.0
GLI001S309	182227	2.27	0.0	100.0	135	4.5
GLI001S031	99994	1.81	39.1	60.9	208	2.9
GLI001S310	101562	0.81	0.0	100.0	94	4.2
GLI001S311	101515	1.46	15.1	84.9	99	0.1
GLI001S312	101836	1.85	40.0	60.0	148	1.4
GLI001S313	101573	0.27	0.0	100.0	59	3.4
GLI001S314	101550	0.39	0.0	100.0	107	1.9
GLI001S315	99925	0.46	16.5	83.5	56	7.2
GLI001S316	106162	5.60	27.1	72.9	423	0.5
GLI001S317	106165	4.52	27.0	73.0	299	2.7
GLI001S318	101845	2.34	25.2	74.8	216	0.9
GLI001S032	100012	0.75	33.6	66.4	93	4.3
GLI001S320	10000012	3.91	54.3	45.7	293	3.4
GLI001S321	181543	4.78	68.2	31.8	194	10.3
GLI001S033	99840	1.37	32.4	67.6	109	1.8
GLI001S034	101849	2.27	27.7	72.3	159	3.8
GLI001S035	101720	1.61	28.5	71.5	184	1.1
GLI001S036	99833	3.24	33.9	66.1	198	3.0
GLI001S037	99919	1.42	28.6	71.4	211	3.8
GLI001S038	99885	0.81	31.1	68.9	100	8.0
GLI001S039	99915	1.18	26.2	73.8	119	5.0
GLI001S004	101148	0.14	0.0	100.0	60	3.4
GLI001S040	99912	0.64	35.9	64.1	76	7.9
GLI001S041	99899	2.23	31.7	68.3	128	3.1
GLI001S042	181115	3.55	59.4	40.6	267	3.8
GLI001S043	181505	1.61	56.2	43.8	141	5.7
GLI001S044	99948	0.93	32.2	67.8	56	7.2
GLI001S045	99954	1.40	33.2	66.8	124	6.5
GLI001S046	100080	1.67	28.6	71.4	165	6.0
GLI001S047	99891	1.10	32.4	67.6	127	4.7
GLI001S048	99850	0.85	32.5	67.5	102	5.9
GLI001S049	101399	1.36	31.1	68.9	100	6.0
GLI001S005	116202	0.23	0.0	100.0	139	10.1
GLI001S050	99851	1.34	36.8	63.2	93	2.1
GLI001S051	99800	0.99	32.0	68.0	160	2.5
GLI001S052	101635	2.27	22.8	77.2	393	3.1
GLI001S053	99858	1.32	27.3	72.7	135	3.0
GLI001S054	10000461	1.43	60.7	39.3	98	10.2
GLI001S055	10000272	1.45	71.7	28.3	81	7.4
GLI001S056	100009	1.26	33.7	66.3	174	2.3
GLI001S057	100023	1.27	28.2	71.8	151	2.7
GLI001S058	100039	2.77	76.7	23.3	169	4.7
GLI001S059	100075	2.80	34.8	65.2	224	6.3
GLI001S006	155827	2.04	32.6	67.4	259	7.7
GLI001S060	100030	2.90	49.8	50.2	362	5.0
GLI001S061	100026	0.78	40.0	60.0	98	0.0
GLI001S062	10000799	3.56	88.2	11.8	147	4.1
GLI001S063	100004	2.22	76.3	23.7	242	5.0
GLI001S064	100052	1.76	35.2	64.8	204	4.9
GLI001S065	100098	0.76	34.3	65.7	79	7.6

Stormwater SubArea Name	Stormwater Node Attachment	Area	Pervious	Impervious	Length m	Slope 0/00
GLI001S066	100050	1.17	26.7	73.3	190	2.1
GLI001S067	100072	1.10	23.1	76.9	123	4.9
GLI001S068	10000710	2.47	47.2	52.8	152	6.6
GLI001S069	100089	1.81	35.4	64.6	199	6.0
GLI001S007	155869	0.94	37.0	63.0	216	9.3
GLI001S070	181603	4.40	32.1	67.9	225	3.6
GLI001S071	102077	1.62	37.3	62.7	110	7.3
GLI001S072	102059	1.81	35.1	64.9	136	4.4
GLI001S073	102037	0.52	34.7	65.3	43	0.0
GLI001S074	102021	1.20	30.2	69.8	213	1.9
GLI001S075	102032	0.94	30.3	69.7	119	3.4
GLI001S076	10000686	2.72	42.6	57.4	144	9.7
GLI001S077	101989	0.58	30.4	69.6	123	6.5
GLI001S078	102100	1.25	31.2	68.8	114	8.8
GLI001S079	102098	3.63	30.5	69.5	283	5.7
GLI001S008	116114	0.72	30.0	70.0	132	7.6
GLI001S080	102260	1.48	27.6	72.4	141	4.3
GLI001S081	102015	1.54	40.0	60.0	129	4.6
GLI001S082	100087	1.57	35.0	65.0	174	4.6
GLI001S083	10000772	4.00	48.8	51.2	94	4.3
GLI001S084	101998	1.80	27.0	73.0	103	5.8
GLI001S086	102001	1.85	31.6	68.4	296	3.4
GLI001S087	102056	1.97	27.8	72.2	258	3.1
GLI001S088	102044	1.11	26.0	74.0	109	5.5
GLI001S089	10001136	48.26	76.1	23.9	180	4.4
GLI001S009	106154	0.86	30.0	70.0	99	2.0
GLI001S090	101970	1.16	30.7	69.3	88	2.3
GLI001S091	101958	1.49	26.7	73.3	98	2.0
GLI001S092	101981	0.84	27.0	73.0	91	4.4
GLI001S093	181606	2.33	76.0	24.0	65	15.3
GLI001S094	102045	1.26	36.7	63.3	121	1.7
GLI001S095	102184	0.74	26.1	73.9	90	2.2
GLI001S096	102164	0.78	29.5	70.5	107	3.7
GLI001S097	102231	1.29	35.3	64.7	125	9.6
GLI001S098	102168	2.72	32.2	67.8	339	4.1
GLI001S099	102089	1.02	24.9	75.1	181	4.4
ENG001S001	100468	1.47	33.3	66.7	172	4.6
ENG001S081	100668	10.37	69.1	30.9	450	0.5
ENG001S010	101887	1.30	19.0	81.0	249	0.8
ENG001S011	101771	0.96	27.0	73.0	106	1.0
ENG001S013	99457	1.85	21.7	78.3	135	3.0
ENG001S014	187210	29.70	46.0	54.0	396	1.5
ENG001S015	5000012	2.26	23.7	76.3	220	1.8
ENG001S016	99413	2.84	0.0	100.0	210	1.0
ENG001S100	100681	0.98	32.9	67.1	221	1.8
ENG001S102	100732	4.92	80.9	19.1	485	1.0
ENG001S104	100733	2.48	34.8	65.2	97	12.4
ENG001S105	99414	5.44	0.0	100.0	184	3.3
GLI001S143	10000577	0.66	40.0	60.0	72	5.5
GLI001S150	10000459	2.18	85.0	15.0	57	7.0
GLI001S169	10000085	2.41	11.0	89.1	187	5.4
GLI001S230	101157	0.25	0.0	100.0	99	8.1
GLI001S273	155944	0.15	0.0	100.0	71	1.0
GLI001S319	101949	0.40	0.2	99.8	49	1.0
GLI001S002	181785	7.07	28.9	71.1	396	4.0
GLI001S085	100009	8.43	31.2	68.8	192	2.1

Appendix G: Model Run Log

MODEL RUN LOG

Draft

Model Type:	FHM
Catchment/DMA Name:	Glen Innes/Point England
SuperCatchment Name:	Area 5

Project File Name:	GLENINNESFHM.MPR

For a more detailed description of what is required in the Model Run Log, see the "User Guide" on the previous worksheet.

Start a new row each time a file name (any type of file) is changed.
Add columns where necessary when more than the number of specified file types exist.
For irrelevant file types enter "N/A"

Date Updated	Default File/s (e.g. .ini file)			
	File Name	Reason for Change	Original values	Changes Made
10/08/2004	DHIAPP.INI	no change	n/a	Metrowater Default. No changes made

Date Updated	Additional Files (e.g. .ADP file)		
	File Name	Reason for Change	Changes Made
N/A	No additional files		n/a

Date and Time Updated	Run Objective	Changes to Metadata (Y/N)	INPUTS												PROCESS								OUTPUT			Checked	
			Network Data (e.g. .UND file)		Hydrological Data (e.g. .HGF)		Boundary Conditions (e.g Rain, Tidal, .DWF)						Water Quality Data (e.g. .TRP)		Runoff File		Hotstart Files		Run Time					Results (e.g. .PRF)		Sensibility Checks (e.g. Continuity Balance, Instabilities)	Signed	Date
			File Name	File Description	File Name	File Description	File Name	File Description	File Name	File Description	File Name	File Description	File Name	File Description	File Name	File Description	File Name	File Description	Timestep	Start Time	End Time	Minimum Timestep	Maximum Timestep	Saving time	File Name	Comments			
	Stormwater Model																										
11 07 2002	Flood Hazard mapping Draft A model	n/a	GlenInnesFHM.UND	Draft Glen Innes/ Point England FHM model submitted to Metrowater for review	GIExisting _.HGF	HGF compiled using 1999 impervious data							n/a	n/a	10year_EXIST 100year_EXIST 10year_FUTURE 100year_FUTURE	Design storm simulations			10	varies	varies	10	60	5	10Existing 100Existing 10Future 100Future	Design Storm Simulations	See FHM Model and Report	SAD	Jul-02
31/12/2003	Flood Hazard mapping Draft B model	n/a	GlenInnesFHM_Nov2003.UND	Model data updated to included asset data collected in the field , Model updated from version 2001 to 2003b, some topography features added	GIExisting _update.HGF	HGF From FHM model updated for 2002 Impervious data, model changed form using UHM method to model B, calibration attempted							n/a	n/a	10year_EXISTING 100year_EXISTING 10year_FUTURE 100year_FUTURE	Design storm simulations			10	varies	varies				GLI_10yr Existing GLI_100yr Existing GLI_10yrFuture GLI_100yrFuture	Design Storm Simulations	See FHM Model and Report	SAD/MA	Dec-03
9/12/2003	Flood Hazard mapping Draft C model	n/a	GlenInnesFHM_Nov2004.UND	Model data updated to included asset data collected in the field (floor level surveys, culvert information)	GI FHM Exist _NOV 2004.HGF	impervious data updated							n/a	n/a	10year_EXIST_NOV2004 50year_EXIST_NOV2004 100year_EXIST_NOV2004	Design storm simulations for FHM Existing scenario			5	varies	varies	5	10	5	GLI_10year_EXIST_NOV2004 GLI_ 50year_EXIST_NOV2004 GLI_100year_EXIST_NOV2004	Design storm simulations for FHM Existing scenario	See FHM Model and Report	SAD	Nov-04
9/12/2003	Flood Hazard mapping Draft C model	n/a	GlenInnesFHM_Nov2004.UND	Model data updated to included asset data collected in the field (floor level surveys, culvert information)	GI FHM MPD _NOV 2004.HGF	impervious data updated							n/a	n/a	10year_MPD_NOV2004 50year_MPD_NOV2004 100year_MPD_NOV2004	Design storms simulations for FHM MPD scenario			5	varies	varies	5	10	5	GLI_10year_MPD_NOV2004 GLI_ 50year_MPD_NOV2004 GLI_ 100year_MPD_NOV2004	Design storms simulations for FHM MPD scenario	See FHM Model and Report	SAD	Nov-04

Appendix H: Sample Questionnaires and Responses

1. What do you use this property for?

☐ Business ☐ Residential ☐ Both

2. Has your property or neighbourhood been affected by flooding or erosion in the last 10 years?

☐ Yes ☐ No

3. How many times has your property / neighbourhood flooded in the last 10 years?

☐ 1 – 2 ☐ 3 – 5 ☐ 6 – 10 ☐ 11 – 20 ☐ more than 20

What part of your property / neighbourhood floods?

☐ Front Section ☐ Living area of residence ☐ Street

☐ Rear Section ☐ Garage / Outbuilding ☐ Other_____

Where does the water seem to come from?

☐ Street ☐ Streams or open drains ☐ Blocked cesspits

☐ Pipes ☐ Run-off from other properties ☐ Other_____

FOLD FOL

4. In what way does stormwater flooding affect you?

☐ Damages building ☐ Damages items in building ☐ Unable to use parts of building

☐ Inconvenience of cleaning up ☐ Is a health risk ☐ Has no impact

5. Please describe briefly the problem (e.g. depth of flooding, extent of erosion, water quality issues, relevant dates and locations).

_____

_____

_____

_____

6. Have you noticed any wastewater (sewage) discharging from the drains on your property?

☐ Yes ☐ No

Comments _____

7. Additional Comments (if any)

_____

FOLD FOLI

We would like your name and contact details because we may like to contact you to discuss your individual comments. You do not have to include them, although we ask you to mention your street address so we can identify where any problem areas are.

Your Name: .....

Your Address: .....

.....

Daytime Phone Number: ..... How long have you lived / worked at this address? .....

Please note that, in accordance with the Resource Management Act and the Local Government Act, we are required to retain the information on our records.

What is stormwater?

Stormwater is all rain that falls on the ground and is either absorbed into the ground or enters the stormwater network and makes its way to the sea. Stormwater is different to wastewater, which comes from toilets, sinks, dishwashers and baths and often uses a different pipe network.

If the local drainage network cannot cope with the amount of stormwater that enters into it through drains, then flooding can occur. This might be stormwater or sewage.

Best solutions to protect our environment

This work is part of our long-term planning to alleviate flooding, protect the receiving environment (such as local creeks, waterways and the harbours) and allow better environmental protection and management now and in the future.

Reviewing our stormwater systems

Our consultants are preparing the 'Catchment Management Plan' for your area. **A very important part of this project is to obtain information from local residents and business owners.** We need your help because you know the amount of flooding that occurs on and around your property. You may also have an opinion on stream channel erosion and stormwater quality. It is equally important that we know if you have no problems at all.

Please complete this questionnaire and post back the completed form within two weeks of receiving it. No stamp is required.

Please note that we are collecting this information for **long-term** planning and stormwater management in the area. If you have stormwater problems on your property that require urgent investigation please call 0800 FOR WATER (0800 367 928).

Auckland City and Metrowater are committed to good environmental solutions for Auckland's stormwater and we thank you for your help.

PLEASE FOLD AND SEAL

AUCKLAND CITY

metroWater

I·C·S PROGRAMME

AUCKLAND CITY AND METROWATER'S INTEGRATED CATCHMENT STUDY
PLANNING FOR THE FUTURE OF AUCKLAND'S STORMWATER AND WASTEWATER NETWORKS

To The Property Owner or Occupier:

Are you getting flooded in heavy downpours?

Ever experience sewage overflows?

Getting your feet wet?

Or are you sitting high and dry?

Auckland City and Metrowater consultants are currently investigating the stormwater and wastewater networks in your area and we would like your help in finding out about local conditions.

I·C·S PROGRAMME

AUCKLAND CITY AND METROWATER'S INTEGRATED CATCHMENT STUDY
PLANNING FOR THE FUTURE OF AUCKLAND'S STORMWATER AND WASTEWATER NETWORKS

freepost

FREEPOST 102783
Auckland City/Metrowater
Stormwater Review
AWTNZ
PO Box 109-601
Newmarket
Auckland

Address	Street No.	Length of Occupation (years)	Address			Affected		Problem				Frequency in the last 10 years					Location						Source						Comments
			B	R	BO	Y	N	Flooding	Erosion	Quality	None	1-2	3-5	6-10	11-20	> 20	FS	L	S	RS	GO	O	S	OC	CP	P	R	O	
Abraham Pl	4/3	5		✓		✓		✓					✓									✓						✓		Surface flooding after heavy rain. Drains seem unable to cope with the water
Abraham Pl	5C	1		✓			✓																						
Alamein Rd	12	18		✓			✓																						
Alamein Rd		4			✓	✓								✓								✓		✓					Park area if flooded
Allenby Rd	2/3	5.5			✓		✓	✓														✓						✓	Other: driveway floods. Other source:rain.
Allenby Rd	2-38			✓			✓																						
Allenby Rd	3/5	1/12																											moved recently to this place and has no idea
Allenby Rd	4/3	32		✓		✓		✓						✓			✓	✓		✓	✓					✓	✓		Flooding-washhouse, garage, games room, bedroom
Allenby Rd	7	18		✓		✓		✓							✓		✓			✓							✓		
Anderson Ave	21	4		✓			✓																						
Apirana Ave	44	1.1		✓		✓		✓								✓	✓			✓		✓					✓		Anytime there is heavy rain (even after 1 day) the property floods due runoff and overflooded stormwater which comes out of the drain. This is no doubt affecting the foundation of the house. Approx 2 feet of water under the house in places.
Apirana Ave	111	5	✓				✓																						But the manhole smells terrible on occasion.
Apirana Ave	160	15	✓				✓																						Creek behind has bamboo on banks+has rubbish dumped into it esp 100 yards ds
Apirana Ave	16a	2.5		✓		✓		✓					✓				✓			✓	✓						✓		When we have heavy rain there is a lot of water coming from the properties above which makes a 'mini' stream along & under the front of house which blocks the stormwater drain or drain can't cope with amount of water then floods garage
Apirana Ave	294	8	✓			✓		✓							✓							✓			✓				Open drain in courtyard at the hotel which can't handle heavy rain
Armein Rd	1	49		✓		✓		✓						✓					✓							✓			Pipes burst when pressure builds up in the night - water supply interrupted
Armein Rd	2	6				✓								✓						✓						✓			
Armein Rd	10	8		✓		✓		✓					✓						✓							✓			Overflows Footpath
Armein Rd	31	20		✓			✓																						
Bellona Rd	7	30		✓			✓																						
Benghazi Rd	7a	17	✓				✓																						
Bomby Place	16	27		✓			✓																						
Bridge St	2/12	13		✓		✓		✓						✓				✓		✓							✓		3 properties have drainage into the concreted backyard, 1st storey flooded, noticed washing powder in run off
Bridge St	6	41		✓			✓																						
Caen Rd	16																												
Caen Rd		7		✓		✓		✓						✓			✓		✓	✓			✓					✓	Source=rain. Muddy and soggy
Castledine C	30	1.5		✓		✓		✓				✓					✓										✓		Front yard underwater 1 ft of water after a good rain - driveway becomes river
Castledine C	36	4		✓		✓		✓		✓						✓	✓			✓							✓	✓	Broken sewage pipe FS, broken concert driveway, no pipes, rainwater flowing on driveway and from house roof
Castledine C	18	6		✓		✓		✓							✓						✓						✓		Run off from neighbours driveway goes in carport and brings a lot of mud
Castledine C	23	39		✓		✓		✓						✓						✓	✓		✓		✓		✓		Illegal buildings on Hurstwood Street block runs off of properties drainage
Castledine C	32	12		✓		✓										✓				✓	✓			✓			✓		Creek overflows in winter an water runs through garage 2" deep
Castledine C	66	27		✓		✓		✓					✓							✓								✓		Water spurting up from manhole
Caulton St	49	27.5		✓		✓		✓							✓					✓		✓					✓		Basement floods. Runoff from concrete pad immediately behind property causes rear section to quagmire spilling over into carport and entering basement
Caulton St	33	1.5		✓			✓																						
Caulton St	33B	4		✓		✓		✓							✓		✓	✓		✓							✓		Also damages lawn. Water runs through from neighbours property.
Caulton St		6		✓			✓																						
Chiltern Cres	29	49		✓		✓		✓								✓	✓										✓		

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Address	Street No.	Length of Occupation (years)	Address			Affected		Problem				Frequency in the last 10 years					Location						Source						Comments
			B	R	BO	Y	N	Flooding	Erosion	Quality	None	1-2	3-5	6-10	11-20	> 20	FS	L	S	RS	GO	O	S	OC	CP	P	R	O	
Clairville Cres.	7	1.5		✓																									
College Rd	11	24		✓			✓	✓											✓										Water meter cover appears to flood intermittently
College Rd	1/53	.4		✓																									New owners-previous flooding unknown
Coral Cres.	18	14		✓			✓																						
Coral Cres.	33a	.3		✓																									recently bought house and don't know about past flooding
Coral Cres.	41	36	✓				✓																						
Corner of Elstree Ave and Taniwha St		7			✓	✓		✓							✓		✓		✓	✓	✓		✓		✓	✓	✓		Caretakers property gets flooded (124 Taniwha St) road frontage next to stream. School Marae floods each winter season and has water trapped around it all winter+spring. School field has many areas of flooding
Cotton St	25	12		✓		✓		✓	✓							✓				✓							✓		In heavy rains fast flowing water through the section and at times leaving debris behind & some erosion occurs
Cotton St	23	22		✓		✓		✓							✓					✓	✓				✓		✓		Driveway built sloping down towards garage-inadequate ducting of runoff from section & driveway. No outlet from drive to stormwater drain-only a backpit. Garage and downstairs floor flood in heavy rain & carpet ruined.
Cotton St	29	29		✓		✓		✓							✓					✓							✓		Whenever we have heavy rain the back of the section floods - also area outside laundry door-often comes into laundry
Cotton St	31A	5.5		✓		✓		✓								✓				✓							✓		Live at bottom of hill and runoff causes bad flooding up to front steps like a stream
Cotton St	33	11		✓		✓		✓					✓							✓							✓		Flooded bedroom and other damages
Court Cres	33	3		✓			✓																						
Court Cres	49	12			✓	✓									✓			✓		✓			✓		✓	✓			Drains flooding into classrooms
Court Cres	76	36		✓			✓																						
Court Cres	15	12		✓			✓																						
Court Cres	37	45		✓			✓																						
Court Cres	40	4		✓			✓																						
Court Cres	7	5.5		✓			✓																						
Coval Cres	31B			✓			✓																						
Dunkirk Rd	3	18		✓			✓																						
Dunkirk Rd	5	8		✓		✓		✓				✓								✓								✓	Burst main - one-time occurrence
Dunkirk Rd	6	12		✓			✓																						
Dunkirk Rd	94	50		✓																✓								✓	Source=school grounds. Flooding with heavy rain
Dunkirk Rd	113	42		✓			✓																						
Dunkirk Rd	4	34		✓			✓																						
Dunkirk Rd	61	50		✓		✓		✓								✓			✓									✓	Source:rain. Ponding during rain events on street causing hazard + flooding
Eastview Rd	33	1.5		✓		✓		✓				✓										✓	✓		✓	✓			water remains under the house, becomes very sloggy
Elizabeth Knox Pl	25-31	7	✓				✓																						
Elstner Ave	3	5		✓			✓																				✓		
Elstree Ave	25	22		✓			✓																						
Elstree Ave	27			✓			✓																						
Elstree Ave	28	7		✓		✓		✓	✓								✓					✓	✓						waterlogged soil-some erosion-would appreciate advise about situation
Elstree Ave	56	4/12		✓		✓		✓									✓			✓			✓				✓		Water accumulates under the house and takes 3-4 days to disappear.
Elstree Ave	73	3		✓		✓		✓								✓	✓			✓							✓		We are unable to walk outside the back door in about 200cm of water
Elstree Ave			✓				✓																						
Epping St	11	51		✓		✓		✓						✓							✓	✓				✓			Depth up to 150mm. Local stormwater pipe unable to cope with volume of discharge
Epping St	27	21		✓		✓		✓							✓		✓					✓	✓				✓		Water runs off neighbour's property across the front of mine down the front path andunder the house too 4 inches of water grows fungus on wood and smelly. Smell comes into house through cupboard
Epping St	29	40		✓		✓		✓								✓				✓			✓				✓		
Epping St	42 d	15		✓		✓		✓							✓		✓										✓		Fast run off from front section. It´s not too bad.
Eppling St	46	14			✓		✓	✓				✓								✓								✓	Failure to drain quickly enough in heavy rain - not a big problem
Eric Paton Way	14	3	✓				✓																						
Erima Ave	56	40		✓			✓																						
Erima Ave	38	4			✓	✓		✓								✓				✓						✓			Everytime it rains, water comes up from the ground
Evandale St	12	23		✓		✓		✓						✓			✓			✓							✓	✓	Ankle deep side of house + sloshy near front door from neighbours
Evandale St	27	2.5		✓		✓		✓								✓				✓							✓		Flooding of section of about 10 cm depth. Stays wet for days.
Felton Mathew Ave	103	3	✓			✓		✓							✓				✓				✓						Street drains appear to be blocked or can't handle heavy rain with resulting road flooding
Felton Mathew Ave	27	35		✓		✓		✓									✓					✓					✓		Blocked pipes and pits, ground is sloped towards her basement.
Felton Mathew Ave	32A	5		✓			✓																						
Felton Mathew Ave	58 a	29		✓		✓		✓														✓					✓		Soggy property in winter sine the neighbour house has been built. Water stays under the house
Felton Mathew Ave	70	20		✓		✓		✓								✓	✓										✓		Drains can't cope. Water brings all sort of rubbish and soil.
Felton Mathew Ave	75	6	✓				✓																						

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			B	R	BO	Y	N	Flooding	Erosion	Quality	None	1-2	3-5	6-10	11-20	> 20	FS	L	S	RS	GO	O	S	OC	CP	P	R	O	
Felton Matthew Ave	1/24	1.1		✓		✓		✓												✓	✓		✓				✓		In heavy rain stormwater flows from street down driveway and into carport. Depth of flooding minimal. There's a stormwater drain in the driveway but flow of water avoids it. Also the property is on a hill (we get large amounts of runoff from neighbouring properties)
Felton Matthew Ave	40	1.5		✓		✓		✓							✓						✓						✓		✓	Other: guttering. Garage floods with every downpour
Felton Matthew Ave	48+50	40		✓		✓		✓								✓					✓						✓			Water from property above 48 sends water down driveway. Velocity and volume force under double garage door.
Fenchurch St	6/8	28		✓		✓		✓								✓	✓		✓	✓			✓		✓		✓			Excessive run off from neighbours property. Drains overloaded and sewage seeps out of manhole on property.
Fernwood Pl	11	1		✓		✓		✓				✓								✓				✓						Very waterlogged soil at end of garden (small stream)
Fernwood Place	23	9/12		✓		✓		✓								✓	✓		✓	✓			✓	✓		✓	✓			End of Cul De Sac, Street run off comes down and open drain at rear of property overflows
Guildford Place	12	30		✓			✓																						
Hilton Pl	5	31		✓		✓										✓	✓				✓						✓			Water coming off the church property beside us rushes down-floods out garage and turns part of our section into a muddy mess
Hinaki St	12	30		✓			✓																						
Hobson Drive	23	38		✓			✓																						
Hobson Drive	44	15		✓			✓																						
Holland Ave	16	30		✓			✓																						
Holland Ave	4	40		✓			✓																						
Howard Hin. Ave	2/46	1		✓			✓																						Poor drainage asset
Howard Hunter Ave	394	2		✓		✓		✓				✓					✓	✓					✓			✓				Back up of water from street flooding
Howard Hunter Ave	41	4/12		✓			✓																						
Inglewood St	42	4		✓		✓		✓				✓										✓								Water under the house
Inglewood St	46	6		✓			✓																						
Inglewood St	8	4		✓			✓																						
John Shaw Dr	17	13		✓		✓		✓								✓					✓						✓			Run off from prop. behind flows into garage during heavy rain.
Kahu Rd	8	52		✓																✓						✓		✓	Water overflows from down pipes, to drains when rain about
Kapuni Rd	1b	1		✓			✓																						Does not see any problems.
Kawiti Ave	7	7		✓		✓		✓								✓	✓			✓							✓			Every time there is prolonged rain FS&RS&under house flood (incl neighbours' lawn) - depth is 100-150mm nad have to wade through water to get to house
Kawiti Ave	13	50		✓		✓		✓							✓					✓	✓			✓					While heavy or long rain water comes from underground stream
Kawiti Ave	36	20		✓			✓																						

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			B	R	BO	Y	N	Flooding	Erosion	Quality	None	1-2	3-5	6-10	11-20	> 20	FS	L	S	RS	GO	O	S	OC	CP	P	R	O	
Kestrel Place	12	46		✓		✓														✓	✓						✓		Run off from neighbour's driveway stays on fenceline.
Khwiti Ave	35	26		✓		✓		✓								✓	✓												Like a duck pond & makes my front steps very slippery. I'm elderly and I've hurt myself once
Kings Rd	1/72	20		✓			✓																						
Kings Rd	10a			✓																	✓						✓		Water overflowing drain by the back door of the house in front at 100 Kings Rd, downpipe does not go into drain - water flows into my garden shed
Kings Rd	2/21	.9		✓			✓																						New owner only there for 10 months
Kings Rd	2/29	16		✓		✓		✓							✓		✓								✓				2 stormwater drains in common servicing 3 units while heavy rain
Kings Rd	27	5		✓			✓																						
Kings Rd	3/29	3		✓		✓							✓				✓			✓							✓		Heavy rain causes driveway to flood - SW drain unable to cope (RS)
Kings Rd	33a	14		✓			✓																						
Kings Rd	34	12		✓		✓		✓								✓	✓			✓							✓		Neighbourhood does not have stormwater drains. Complained before !
Kings Rd	41	3		✓		✓		✓															✓						Water is running from gutters on to property
Kings Rd	44a	2		✓			✓																						
Kings Rd	56	7		✓			✓																						
Kings Rd	6/17	12		✓			✓																						
Kings Rd	60 e	14		✓			✓																						
Kings Rd	69			✓			✓																						
Kings Rd	76	12	✓			✓		✓							✓							✓			✓	✓	✓		Drains periodically overflow (some sewage). Footpath outside Kings Rd enterance floods
Kings Rd	84	25		✓			✓																						
Kings Rd	81			✓			✓					✓							✓				✓						Everything is excellent
Kitson Pl	7	13	✓			✓		✓								✓			✓	✓					✓				Building is not on stormwater system but uses soak holes which overflow during heavy rains
Lamalia Ave	13	50		✓			✓																						
Larsen Rd	24	53		✓		✓		✓					✓						✓				✓				✓		Only floods in heavy rain-either blocked drains or drains unable to cope-lays there until council unblocks drains. Usual depth about 300-400mm
Larsen Rd	4	6		✓			✓																						
Leybourne Circle		9	✓			✓		✓								✓	✓			✓		✓					✓		Our playground+top fields flood every winter. Top fields can't be used in winter. Caused by runoff from other properties&poor drainage
Line Rd	3/48	5		✓		✓		✓							✓		✓				✓						✓		During heavy rain water blocks front of house and floods garage
Line Rd	39	12		✓		✓		✓								✓	✓									✓		✓	Other: School at rear. Water floods out of stormwater vent every time it rains. Heavy rains-floods to about 500mm deep.Also come off school at rear of property
Line Rd	41	48		✓		✓		✓								✓				✓	✓						✓		Next door neighbour at 43 + GI Primary school at rear of section
Line Rd	79	8	✓				✓																						
Line Rd	9/118	8/12		✓			✓																						
Line Rd				✓			✓																						
Line Road		5		✓			✓																						
Lintaine Place	13	9/12		✓		✓		✓								✓	✓				✓				✓	✓	✓		Most soak holes in street are probably blocked, because of age.
Litten Cres	14-6	49		✓			✓													✓	✓								
Lush Ave	1/18	16		✓			✓																				✓		
Lush Ave	1/25	3		✓			✓																						
Lush Ave	2/18	12		✓		✓		✓							✓			✓		✓							✓		Water comes down from higher properties in Lush Ave and Strong St. The ground gets wet + in a downpour water comes into basement+floods surface
Lush Ave	4A	12		✓		✓		✓				✓								✓								✓	Neighbour raised ground level and increased runoff to property esp. in winter.
Lyndale Place	11	47		✓		✓		✓							✓				✓			✓					✓		Run off from neighbour prop. Water gathers on side section and under the house.
Lyndhurst St	27	3		✓		✓		✓								✓				✓		✓				✓	✓	✓	75mm flooding mainly, building seems to sink slightly+jams doors as under house floods. Water doesn't flow down pipes+overflows (Jul-Oct2000+Aug-Nov 2001)
Mareth St	11			✓			✓																						
Maybury St	33	2		✓			✓																						
Maybury St	12-unit 1	3.5		✓		✓		✓		✓				✓			✓		✓	✓		✓	✓		✓				Has been in contact with Council Water People + have visited site
Maybury St	76a	5		✓		✓		✓								✓		✓										✓	Flooding comes from rain itself in a poor drainage area. Makes house damp. After complaining to HNZ they put in two 'drainages' + problem is not so bad. Drainages are always full
McCulloch Rd	31	17		✓			✓					✓																	Downward sloping section, near to front
Melling St	14	13		✓		✓		✓					✓						✓				✓						half way down at intersection, dangerous for cars at night, every 2nd year
Merfield Rd	30	20		✓			✓																						
Merfield St	13	20		✓			✓																						
Merton Rd	74	3		✓		✓		✓						✓			✓			✓							✓		Rear section floods and frontsection does not drain well.
Merton Rd	75	60			✓		✓																						
Merton Rd	76	4		✓		✓		✓				✓					✓	✓								✓	✓		Flooding sewage after plumbing works in village, but rectified.

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			B	R	BO	Y	N	Flooding	Erosion	Quality	None	1-2	3-5	6-10	11-20	> 20	FS	L	S	RS	GO	O	S	OC	CP	P	R	O	
Merton Rd	64	29		✓			✓																						
Morrin Rd	66a	17	✓				✓								✓				✓				✓							
Morrin Rd	71		✓			✓		✓						✓			✓								✓					
Oran Rd	11	20		✓		✓		✓								✓	✓		✓	✓			✓		✓				Cesspits block & water cascades over garden, front lawn with gobi blocks (washing away soil) Water like a waterfall runs downhill down drive like a small river + dissipates at end of drive cascading into neighbour property.
Oran Rd	27	6		✓			✓																						
Overlea Rd	10a	8		✓		✓		✓								✓	✓			✓	✓						✓		Run off of neighbours property washes sand and debris on driveway
Paddington St	17	21		✓		✓		✓				✓							✓					✓					Sometimes drain is blocked with tree debrislled. Installed grill helps a lot.
Paddington St	21	7		✓			✓	✓											✓		✓		✓				✓		Minor flooding of garage
Paddington St	3	7		✓		✓		✓								✓					✓	✓				✓	✓		Water stays for month, also on sides of section.
Paddington St	4	8		✓			✓																						
Paddington St	43	46		✓		✓		✓								✓	✓			✓							✓		Nxt door property-owned by HNZ-continually floods.Run from school.When school was built drainage at boundary area was to be channeled to the creak in reserve
Paddington St	47	53		✓			✓																						
Pickington Rd	182	29		✓			✓																						
Pilkington Rd	168	48		✓			✓																						
PO Box 14-393		4		✓		✓		✓				✓								✓								✓	other:rain. Water on back lawn
Point England Rd	117	30		✓			✓													✓		✓						✓	Only rain when winter rain. No flooding
Potiki Place	6	40		✓		✓		✓									✓				✓						✓		Run off from prop. above. Lawn not usable. Some flooding inside the house due to blocked spouting.
Pt. England Rd	29	30		✓			✓																						
Pt. England Rd	3/77	11		✓		✓		✓												✓							✓		Flooding occurs with no impact during heavy rain events
Pt. England Rd	63	6		✓			✓																						
Queens Rd	224	42		✓			✓																						
Queens Rd	240	21		✓			✓																						
Riddel Rd	1/315	40		✓		✓		✓								✓	✓					✓	✓	✓				✓	Run off from road & neighbours. All banks up under our unit & front lawn
Ridgeway Pl	22	9.5		✓		✓		✓								✓	✓		✓	✓	✓		✓			✓	✓		Every time we get a good downpour we loss the enterance to the driveway, runoff from other house floods garage and stormwater drains overflow - creek behind the house floods
Riki Rd	7	45		✓		✓			✓																				Bank alongside Tamaki Estuary has been eroding over a period of several years. Some attempt to solve problem 2-3 years ago - some success
Riki Rd	3	22		✓		✓		✓						✓						✓	✓						✓	✓	Source:guttering on neighbours property. Runoff from No1 Road + paving and concrete put down without adequate care to dispose of surface water
Riverside Ave	171	18		✓		✓																							
Riverside Ave	216	10		✓		✓		✓								✓		✓		✓								✓	Source=rain. No provision for stormwater (flooding during heavy rain
Riverside Ave	189			✓		✓		✓								✓				✓	✓						✓		Flooding when rains in garage and has to be dried out each time
Riverside Ave	193	3.5		✓		✓		✓						✓						✓							✓		Surface flooding in backyard and under the house.
Riverside Ave	200	1.5		✓		✓		✓								✓	✓	✓					✓				✓		With every heavy downpour downstairs (laundry, gym, rumpus) floods up to 20cm deep-one insurance claim lodged so far. Have already paid once to clear drains but leaves from neighbour's trees continue to block drains
Riverside Ave	208	11		✓		✓		✓							✓		✓					✓					✓	✓	basement floods-up to 10cm in basement garage during heavy rains
Riverside Ave	224	5		✓			✓					✓										✓						✓	Only during heavy rain
Riverview Rd	1/19	6		✓			✓																						
Riverview Rd	1A	35		✓			✓																						
Riverview Rd	2/15	20		✓			✓																						
Riverview Rd	32	36		✓		✓		✓					✓					✓									✓		Gets water from 2 neigbour properties. Existing pipes are to small to cope.
Riverview Rd	4/34	23		✓			✓					✓								✓								✓	We were promised a Council-installed sewerage gully for units 3&4 twenty years ago+when stream beside us was turned into a reserve. This was done over parts of unit 4s property
Riverview Rd	40	30		✓		✓		✓						✓			✓			✓			✓		✓		✓		2-4 inches
Riverview Rd	6	5			✓		✓																						
Rowena Cres.	18a	3.5		✓			✓																						
Rowena Cres.		4		✓		✓		✓							✓				✓	✓							✓		Back section is flooded after heavy rain
Shadwell Place	1/18	6		✓			✓																						Some run off problems in open channel next to property
Shadwell Place	17	2		✓			✓																						No Problems
Silverton Ave	20	5		✓			✓																						
Silverton Ave	3 b	21		✓		✓		✓							✓		✓										✓		Water lies on lawn 10-15 mm deep
Silverton Ave	34	47		✓			✓																						
Silvertow Ave	26	45		✓			✓																						
Simkin Ave	2/23	.5		✓								✓					✓					✓				✓	✓		other:path down side/driveway. Occurs after prolonged rain. Continuous leak from pipes/meter
Simkin Ave	2/45	9		✓		✓		✓						✓			✓			✓	✓						✓		Run off from neighbour prop. Water gathers in our garage.
Simkin Ave	3/43	3		✓		✓		✓						✓						✓								✓	other source: down the path from the section above

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Address	Street No.	Length of Occupation (years)	Address			Affected		Problem				Frequency in the last 10 years					Location						Source						Comments
			B	R	BO	Y	N	Flooding	Erosion	Quality	None	1-2	3-5	6-10	11-20	> 20	FS	L	S	RS	GO	O	S	OC	CP	P	R	O	
Simkin Ave	51	5		✓		✓		✓							✓							✓							other:basement. Water comes in from under the house, can't find source. Water is brown from running through clay
Sloane St	11	26		✓		✓		✓						✓			✓		✓								✓		Front section of gate becomes waterlogged and hedges have died as water runs over path to road. Fence is also rotting - soak-holes have been installed
Sollum Rd	2	53		✓			✓																						
St Heliers Bay Rd	235	8/12		✓		✓										✓			✓				✓						Stormwater gets overloaded from a downpour
St Heliers Bay Rd	246	15		✓		✓		✓						✓			✓						✓						Drain in road floods- water flows into garden and under french doors to lunge. Destroys parts of garden.
St Heliers Bay Rd	248	21		✓		✓		✓							✓				✓		✓		✓		✓				During heavy rain, drains of either sides of street block
St Heliers Bay Rd	265	7		✓		✓		✓								✓				✓							✓		Water table 2 cm above section. Blocked drainage.
St Heliers Bay Rd	270a	5		✓			✓																						Neighbour concentrating and discharging flows over boundary
St Heliers Bay Rd	276	6/12		✓		✓		✓				✓								✓						✓	✓		Run off from neighbours, who are probably not connecte to network
St Heliers Bay Rd	281a	1		✓		✓		✓								✓				✓			✓						Rear Section is lower than storm drain in street
St Heliers Bay Rd	284	20		✓			✓																						Do not have any flooding.
St Heliers Bay Rd	312	4		✓		✓		✓						✓			✓						✓						Water comes over footpath an floods driveway, garage & basement area. 80-120 mm high.
St Heliers Bay Rd	320	10	✓			✓		✓							✓			✓		✓					✓	✓	✓	✓	Inches high inside the building in downstairs area
St Helliers Bay Rd	287		✓				✓																						
St Helliers Bay Rd	287E	8	✓				✓																						
St Helliers Bay Rd	291	46		✓		✓		✓						✓						✓				✓			✓		On days with very heavy downpours water from St Helliers Bay Rd pours down the open stormwater drain which runs along our boundary. Added to this is the surface water from sections on Graupian Rd Nos.2-16. Original owner laid 8" pipe but still floods in heavy rains
St Helliers Bay Rd	341	50		✓			✓																						
St Johns Rd	2/273	.5		✓			✓																						
St Johns Rd	217	40		✓			✓																						
St. Helliers Bay Rd	287	8.5	✓				✓																						
St. Helliers Bay Rd	287A	9	✓				✓																						
St. Johns Rd	1/237	16		✓		✓		✓									✓										✓		Water seepage from higher property does not drain away + sits (flooding parts of garden) + makes access to front door difficult at times
St. Johns Rd	2/271	6/12		✓			✓																						
St. Johns Rd	251	6			✓	✓		✓						✓			✓	✓			✓		✓						Spent 26,000 $ for redesign of front section. Drain has to be renewed to keep water away from property.
Stewart Ave	31	30		✓			✓																						
Strong St	34C	10		✓			✓															✓					✓		Stormwater backs up in very heavy rain (on driveway + has not entered building)
Strong Street	34a	1.25		✓		✓		✓								✓				✓							✓		The designed soak pit is not able to deal with the volume of water.
Strong Street	45	22		✓			✓																				✓		No flooding but run off goes from property to property and rinse the soil.
Suda Pl	3	18		✓		✓		✓							✓							✓	✓	✓		✓	✓		The problem is Johnson Reserve when it rains heavy it floods up to the pathways the pipes cannot take the rain.
Suda Place	7	27		✓			✓																						
Sunnymead Rd	19	42		✓		✓		✓								✓				✓							✓		The bottom of rear section is like a small lake all winter
Sunnymead Rd	25	50		✓		✓																					✓		Front and back lawn are to sodden to mow in winter.
Sunnymead Rd		20		✓		✓		✓							✓		✓		✓	✓	✓		✓		✓	✓	✓		
Swainston Rd	22	23		✓			✓																						
Swainston Rd	42	12		✓		✓		✓								✓				✓	✓			✓			✓		Runs off park under house-seeps into garage now turned into clinic-carpet+wall ruined
Swainston Rd	31	26		✓		✓		✓								✓	✓			✓	✓						✓		Whenever there is a very heavy downpour of rain or long periods of rain the section can only take so much before water on the section & runoff from other properties comes into the front of the house where the internal garage is. Everything we have tried to fix the problem permanantly was failed.
Swainston Rd	49	4			✓	✓		✓						✓			✓		✓	✓	✓				✓	✓	✓		Up tp 20 cm deep (see foto). Comes from neighbours drive way 49A. Water bubbles up out of neighbours drain. Drains are definitly too small.
Swainston Rd	49 a	6		✓		✓		✓								✓				✓		✓		✓			✓		Water gathers in stormwater drain along the drive.
Swainston Rd	57	15		✓			✓																						
Swainston Rd	5A	12		✓			✓																						
Tamatea Ave	22	4.5		✓		✓		✓								✓				✓							✓		Water collects along fence line + outward toward garden. Floods trees + plants growing in an area making it impossible to use for garden. Depth would be 150mm at highest point. HNZ has done work on property next door + this has improved situation somewhat
Taniwha St	147	2.5		✓			✓																						
Taniwha St	149	0.5		✓			✓																						
Taniwha St	154	30		✓			✓																						
Taniwha St	18	44		✓			✓																						

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			B	R	BO	Y	N	Flooding	Erosion	Quality	None	1-2	3-5	6-10	11-20	> 20	FS	L	S	RS	GO	O	S	OC	CP	P	R	O	
Taniwha St	19	4		✓		✓		✓								✓	✓										✓		
Taniwha St	202	16		✓			✓																						
Taniwha St	21a	3		✓			✓																						
Taniwha St	225	9	✓				✓																						
Taniwha St	33	47		✓		✓		✓						✓						✓							✓		Varries in depth
Taniwha St	44	1.5		✓		✓		✓								✓	✓		✓	✓							✓	✓	
Taniwha St	54	30		✓		✓		✓						✓			✓											✓	other:blocked manhole. When manhole is overflood stops me use toilet as backflow up from bucom
Taniwha St	54	30		✓		✓		✓						✓			✓											✓	Blocked manhole sometimes overfloods. Stops him use the toilet as backflow up from bucom.
Taratoa St	8	2		✓			✓																						only occupied by resident for past 2 years (no other data)
Taratoa St	27	1		✓			✓					✓											✓				✓	✓	Bit of runoff to the rear - nothing much though
Taratoa St	10a	23	✓				✓																						
Taratoa St	25	26		✓			✓																						
Taurima Ave	1/2	11		✓			✓																						
Te Koa Rd	13	40		✓			✓																						
Te Koa Rd	32	12		✓		✓		✓						✓				✓		✓							✓		In heavy rains it floods outside back flat (runoff from adjacent carpark)
Te Koa Rd	18	21		✓			✓																						
Te Koa Rd	64	20	✓			✓		✓								✓				✓	✓		✓			✓	✓		Every time it rains heavilly the back section floods to a point where gumboots are needed to enter the premesis. Drains+stormwater overflow and come under the back fence. This is our main access to open the business.
Te Koa Rd	8	5.5		✓		✓		✓							✓		✓			✓							✓		Front lawn and drive flooded and can not be used.
Thompson Rd	7	9		✓			✓																						
Tisdale Cres	23	28		✓		✓		✓								✓	✓			✓	✓	✓					✓	✓	Runoff-excessive mould,moss,etc. Local spring-heavy rain brings to surface. Unfill housing-almost triple runoff than normal
Tisdall Cres	13	2		✓		✓		✓								✓	✓				✓						✓		Water comes from properties located above and washes topsoil away
Tisdall Cres	4			✓		✓		✓							✓					✓							✓		Water runs down from Swanston Rd and neighbour's property
Tobruk Rd		7		✓		✓		✓								✓	✓					✓			✓	✓	✓		Section flooded to the point where lawn mowing can't be done
Tobruk Rd		6		✓		✓		✓							✓		✓			✓					✓				
Torino St	50	40		✓			✓																						
Torino St	13	4		✓		✓		✓								✓								✓		✓			Drainpipes to soakholes are blocked & inopperable
Torino St	29	21		✓			✓																						
Torrington Cres	14	22		✓			✓																				✓		Minor erosion with prolonged heavy rain
Trent Rd	5	15		✓		✓		✓							✓		✓		✓							✓			We go without water while pipes are being fixed (3-4hrs) Have rung ACC and they say cost of water is added to bill - is that true?
Tripoli Rd	1/99	9		✓			✓																		✓				
Tripoli Rd	8/4	4		✓			✓																						Previous drainage problem was fixed by ACC by installing a larger drain
Tripoli Rd	161	20		✓		✓		✓				✓					✓		✓				✓			✓			Broken pipes and flooding on street+mahole leaks.no one managed to fix problem
Tripoli Rd	216	7		✓		✓		✓							✓				✓				✓					✓	Other: blockage of stormwater drains. When street floods it causes flooding on road and grass and footpath + is deep + can stay flooded for a long time
Tripoli Rd	217	12		✓		✓		✓								✓			✓						✓				Very deep flooding, dangerous for traffic.
Tripoli Rd	23/14	20		✓			✓												✓										
Tripoli Rd	51	11		✓			✓							✓					✓							✓			Flooding was due to a burst water main by gate (twice in 11 yrs)
Tripoli Rd	94a	3/12		✓			✓												✓						✓				Road flooded at the bottom of Hubson Drive up to 400 mm
Tripoli Rd		10		✓			✓																						
Tunis Rd	21	50		✓		✓		✓					✓					✓	✓				✓		✓				5-6 inches of flooding in heavy rains - street floods
Tunis Rd	39	5		✓			✓					✓																	
Tunis Rd	44	20		✓		✓		✓											✓	✓			✓				✓		Water overlows from neighbours sump pipe onto property to the garage.
Upham Rd		2.5		✓																									
Uphan Rd	10	54		✓			✓																						
Waddell Ave	11a	2.5		✓			✓																						
Waddell Ave	21A	5		✓		✓		✓				✓							✓									✓	Source=rain
Waddell Ave	6	50		✓		✓		✓				✓								✓	✓	✓				✓			Sewage blocks up and flows back through drains
Waddell Ave	7	55		✓			✓																						
West Tamaki Rd	16			✓																			✓			✓	✓		
West Tamaki Rd	22	6		✓			✓													✓							✓		Flooding affects 22B
West Tamaki Rd	106	13	✓				✓																						
West Tamaki Rd	335	38		✓			✓																						
West Tamaki Rd	1/69			✓		✓		✓									✓					✓	✓					✓	Side of house flooded
West Tamaki Rd	12	40			✓	✓		✓									✓			✓		✓	✓		✓		✓		Runoff from blocked drainage of flats at No.10 and the street creates flooding of the lower levels of garden and drive in front (in spite of our efforts with own drains). Runoff at the rear from St Helliers Bay Rd properties-we try to divert this to natural water flow areas
West Tamaki Rd	131	23		✓			✓			✓																	✓		

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			B	R	BO	Y	N	Flooding	Erosion	Quality	None	1-2	3-5	6-10	11-20	> 20	FS	L	S	RS	GO	O	S	OC	CP	P	R	O	
West Tamaki Rd	14	50		✓			✓													✓			✓				✓		Quite a large flow after heavy rain. We have cut a drain to help dispose into main pipes-this water comes from both front and back of section. Tennis court on property is often a lake
West Tamaki Rd	147	30		✓		✓		✓					✓							✓						✓			Backed up water stormwater from vent trap.
West Tamaki Rd	162a	5/12		✓			✓																						Not able to comment on the question.
West Tamaki Rd	18 a	27		✓		✓		✓	✓				✓				✓						✓	✓			✓		Max 15 cm. Minor erosion. Water appears to be stormwater only.
West Tamaki Rd	182	46		✓			✓																						
West Tamaki Rd	188	33		✓		✓								✓			✓			✓			✓						Footpath is too high. Gets some sewage from neighbours several doors away.
West Tamaki Rd	2/253	9.75		✓		✓		✓								✓				✓							✓		Ancle Depth, water cause pockets of swamping.
West Tamaki Rd	20a	21			✓		✓																						
West Tamaki Rd	217	11		✓			✓																						Water on the road without causing damages.
West Tamaki Rd	279	26		✓		✓		✓								✓		✓						✓					Whenever it rains heavily the water accumulates in the area and it seeps in into the downstairs bedroom and starts to seep into the carpet. I am unable to give dates but have claimed from NZI
West Tamaki Rd	287a	5		✓		✓		✓					✓				✓										✓		Water runs into drive & house
West Tamaki Rd	289	41		✓		✓		✓								✓				✓	✓		✓				✓		My garage is below the road+the water comes off the road+through garage in heavy rain. Also large lakes in back of section
West Tamaki Rd	291	17		✓		✓		✓								✓				✓							✓		Gets all the surface rainwater from top of the hill. Water damages driveway.
West Tamaki Rd	299	10		✓		✓		✓								✓	✓			✓		✓	✓				✓		No stormwater drains on the prop. Only soak pits.
West Tamaki Rd	3	16		✓			✓																						Concerned about Madill's Farm outlet - is polluted!
West Tamaki Rd	3/42	12		✓			✓																						
West Tamaki Rd	301	3		✓		✓		✓				✓						✓		✓	✓								✓	House has no public stormwater discharge and is lower than the street
West Tamaki Rd	309	6		✓		✓		✓				✓								✓					✓				Soakaway trench is blocked. Wet and soggy garden and cause elevation of ground as water swells upwards.
West Tamaki Rd	30c	8	✓			✓			✓											✓				✓			✓		Water runoff stream underneath decking at rear of house. Due to different property levels surrounding section, have needed to build retaining walls/lanscaping to keep the waterway clear of destruction from soil erosion
West Tamaki Rd	316	43		✓			✓					✓					✓										✓		Flooded only after prolonged rain - has not occurred for a long time
West Tamaki Rd	323	41		✓		✓		✓					✓				✓			✓			✓			✓	✓		Run off from up hill property flows in garden and garage. Sometimes water comes from the street, too.
West Tamaki Rd	332	31		✓			✓																						
West Tamaki Rd	38 a	8		✓			✓																						No problems with flow or water.
West Tamaki Rd	43	1.5		✓																									Nothing has happened in the last 18 months
West Tamaki Rd	51	2		✓			✓																						
West Tamaki Rd	51a	8			✓		✓																						
West Tamaki Rd	59	18		✓		✓		✓					✓				✓						✓						Floods front lawn & garden. Footpath drain blocked.
West Tamaki Rd	80A	3		✓		✓		✓				✓								✓			✓		✓	✓	✓		No 78 had flood in back section, No 80 B had flooding 2 y ago with item damage
Weybridge Cres.	19	40		✓		✓		✓								✓				✓							✓		Run off from two properties above and from West Tamaki Road
Weybridge Cres.	27	10		✓			✓																						
Weybridge Cres.	3	15		✓		✓										✓	✓			✓							✓		Surface water rushes through property to a lower property
Weybridge Cres.	8	1		✓			✓																						Winter time , soggy lawn.
Strong St	3/40	78		✓		✓		✓								✓				✓							✓		Rainwater is coming downhill an washes out the garden & floods the courtyard. Neighbour has no drain pipes.
West Tamaki Rd	134	6		✓		✓		✓					✓				✓	✓							✓		✓		Flooding - Water came 2 steps high inside. Carpet replacement.
Silverton Ave	56	10		✓		✓			✓				✓						✓	✓				✓	✓				Erosion of area behind property. Only little erosion protection done. Needs to be fixed urgently.
West Tamaki Rd	221	16		✓			✓																						
Queens Rd	219 b	10.5		✓			✓																						
St Johns Rd	2/275	6		✓		✓		✓									✓						✓				✓		Run off from the road. Front lawn up to the front door at times several inches deep.
Taniwha St	137	16		✓		✓		✓						✓						✓	✓		✓				✓		House moved several times.
Kawiti Ave	42	45		✓		✓										✓				✓							✓		Annoying when water lies in the back section.
Cotton Rd	1/6	6.5		✓		✓		✓								✓	✓			✓			✓						Water stays under the house and makes it damp.
Ronald Algie Place	9 a	9		✓			✓																						
Line Rd		10		✓		✓		✓							✓		✓			✓			✓		✓		✓		Floods driveway, rotten fence. Neighbours had raw sewage in backyard.
Castledine Cres.	42	34		✓		✓		✓								✓		✓			✓						✓		High run off from neighbours property. Water comes into the house and goes into basement. Fire service called to pump water off.
Abraham Place	3/23	9		✓		✓		✓							✓					✓		✓					✓		Severe run off from other properties, chanelling down a small valley type situation. Causes major wash out.
John Shaw Drive	9	1		✓		✓		✓					✓				✓												Front part flooded in heavy rain.
Court Cres	28	5		✓			✓																						Drains on the streets are sometimes blocked with leaves.
Swainston Rd	2/23	7.5		✓		✓		✓					✓				✓			✓	✓					✓	✓		New stormwater pipe is placed. But neighbours' run off is still a problem, in spite of a new kerbing (water partially dirverted). ACC Ref No.:59808 IW EMR

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Address	Street No.	Length of Occupation (years)	Address			Affected		Problem				Frequency in the last 10 years					Location						Source						Comments
			B	R	BO	Y	N	Flooding	Erosion	Quality	None	1-2	3-5	6-10	11-20	> 20	FS	L	S	RS	GO	O	S	OC	CP	P	R	O	
Wimbledon Cres	25	6		✓		✓		✓						✓						✓	✓		✓				✓		Because of the lie of the land the stormwater flows thru' our garage from next door. Out back lawn floods + then drains away to section on our other side. This occurs whenever we have heavy rain or prolonged rain

B=Business, R = Residence, BO = Both
FS = Front Section, RS = Rear Section, L= Living Area, GO = Outbuilding, S = Street, O = Other, P = Pipes, OC = Channels, R = Runoff, CP = Blocked Cesspits

Appendix I: Building Floor Levels in Flood Prone Areas

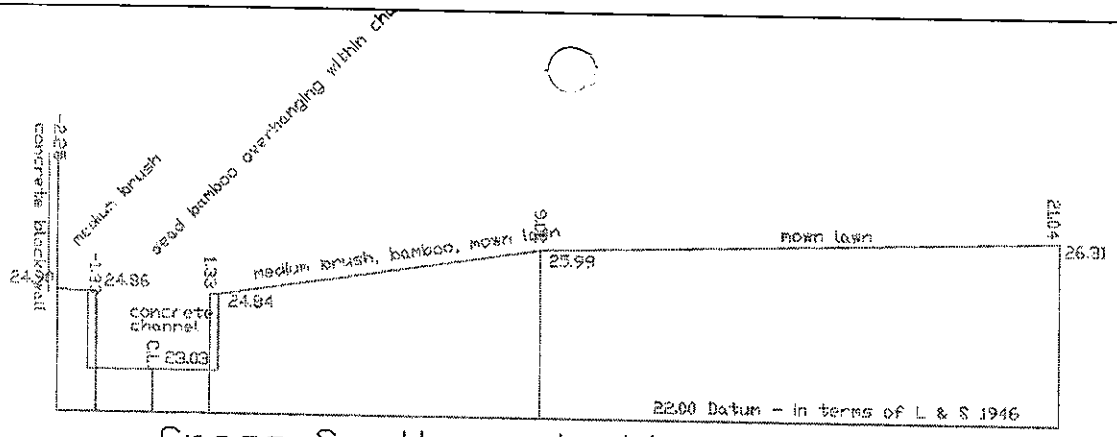
Apirana Avenue				
Point	Northing	Easting	Height	Code
1000	6479181.78	2675659.77	17.78	FL 124 NOVA
1001	6479184.60	2675671.96	17.75	FL 124 REAR
1002	6479177.30	2675684.11	18.30	FL 124 END
1003	6479177.82	2675686.93	17.77	FL 124 END
1004	6479169.33	2675656.54	17.52	FL 128 FRONT
1005	6479162.79	2675660.91	18.46	FL8128 LOAD BAY
1006	6479132.87	2675692.30	17.83	FL 140 TOTAL LDY
1007	6479116.93	2675669.43	17.39	FL 150 APP WORLD
1008	6479135.47	2675676.92	17.84	FL 140 APP WORLD
1009	6479136.43	2675681.60	17.82	FL 140 APP WORLD
1010	6479102.11	2675669.54	17.16	DAWSONS FURN
1012	6479096.29	2675688.48	17.18	43 DAWSON FURN
1013	6479101.90	2675715.29	17.13	FL DAWSON FUN LB
1014	6479080.81	2675705.60	16.61	FL DAWSON REAR
1015	6479074.39	2675686.06	16.61	FL DAWSON FRONT
1017	6479056.61	2675690.02	16.41	FL FRANK ALLEN
1018	6479064.56	2675696.24	16.40	FL FRANK ALLEN
1019	6479054.01	2675711.53	16.38	FL ACRY FAB
1020	6479043.10	2675718.70	16.09	FL 180 REAR
1021	6479032.32	2675692.25	16.15	FL 180 FRONT
1022	6479021.77	2675691.00	16.15	FL 180 FRONT
1023	6479001.81	2675732.31	16.38	FL PAK N SAVE
1024	6478952.82	2675751.44	16.40	FL PAK N SAVE
1025	6478941.86	2675777.60	16.40	FL PAK N SAVE
1026	6478881.44	2675780.94	16.47	FL MITRE 10
1027	6478872.49	2675773.29	16.48	FL MITRE 10
1028	6478863.36	2675765.58	16.51	FL MITRE 10
Alamein Road /Dunkirk Road				
Point	Northing	Easting	Height	Code
1000	6476661.63	2676678.81	6.69	FL 38
1001	6476662.74	2676682.56	6.05	SH 38
1002	6476646.32	2676688.90	5.62	FL 40
1003	6476648.97	2676695.82	5.10	SH 40
1004	6476631.67	2676683.17	3.53	FL 49
1005	6476631.48	2676683.46	3.48	SH 49
Waterview/ Kings Road				
Point	Northing	Easting	Height	Code
1000	6476017.07	2676391.77	10.50	FL 65
1001	6476021.55	2676394.83	10.40	SH 65
1002	6476018.28	2676377.39	10.28	G 65
1003	6476001.49	2676379.23	10.57	FL 33
1004	6475995.59	2676377.61	7.91	G 33
1005	6475993.59	2676382.26	8.28	SH 33
Line Road				
Point	Northing	Easting	Height	Code
1000	6478742.92	2676005.23	11.80	FL SCOUT HALL (185)
1001	6478754.07	2675985.28	11.87	FL SCOUT GARAGE (185)
1002	6478761.12	2675977.81	12.11	FL GARAGE
1003	6478756.25	2675964.34	12.60	CAR PARK - REAR
1004	6478756.65	2675954.11	14.10	FL 197 UPPER LEVEL
1005	6478792.47	2675963.01	14.13	FL 209 UPPER LEVEL
1006	6478776.65	2675958.98	14.11	FL 201 UPPER LEVEL

1007	6478786.23	2675970.43	10.79	MANHOLE
1008	6478792.03	2675948.57	11.38	SH FRONT-LINE Rd
1009	6478783.27	2675946.55	11.48	SH FRONT-LINE Rd
1010	6478774.40	2675944.30	13.56	SH FRONT-LINE Rd
1011	6478759.83	2675939.51	13.63	SH FRONT-LINE Rd
1012	6478784.02	2675951.50	11.47	FL 203 LOWER LEVEL
1013	6478796.24	2675954.42	11.46	FL 209 LOWER LEVEL
1016	6478856.22	2675960.26	14.37	10G
1017	6478855.08	2675964.97	14.38	9G
1018	6478852.84	2675974.38	14.40	8G
1019	6478851.62	2675979.49	14.39	7G
1020	6478848.92	2675990.69	14.39	6G
1021	6478858.22	2675988.86	14.39	5G
1022	6478864.46	2675977.25	14.39	4G
1023	6478865.77	2675974.85	14.38	3G
1024	6478870.72	2675965.71	14.38	2G
1025	6478873.36	2675960.84	14.37	1G
1026	6478865.11	2675955.54	14.23	SH DRIVEWAY
1027	6478861.63	2675969.71	14.26	SH DRIVEWAY
1028	6478885.10	2675960.73	14.59	FL UNIT 1
1029	6478880.81	2675958.86	14.33	SH UNIT1
1030	6478874.64	2675970.23	14.30	CP UNIT 2
1031	6478872.22	2675974.73	14.30	SH UNIT 3
1032	6478867.35	2675983.48	14.30	CP UNIT 4
1033	6478847.22	2675954.82	14.31	FL UNIT 10
1034	6478852.73	2675954.16	14.21	SH UNIT 10
1035	6478847.21	2675967.95	14.22	SH UNIT 9
1036	6478855.23	2675984.74	14.18	SH DRIVEWAY
1037	6478853.13	2675991.77	14.10	CP END OF DW
1039	6478867.96	2675989.62	14.60	FL UNIT 5
1040	6478865.14	2675987.85	14.30	CP UNIT 5
1041	6478840.01	2675984.94	14.30	FL UNIT 6
1042	6478846.51	2675983.87	14.31	SH UNIT 7
1043	6478870.64	2675985.04	14.59	FL UNIT 4

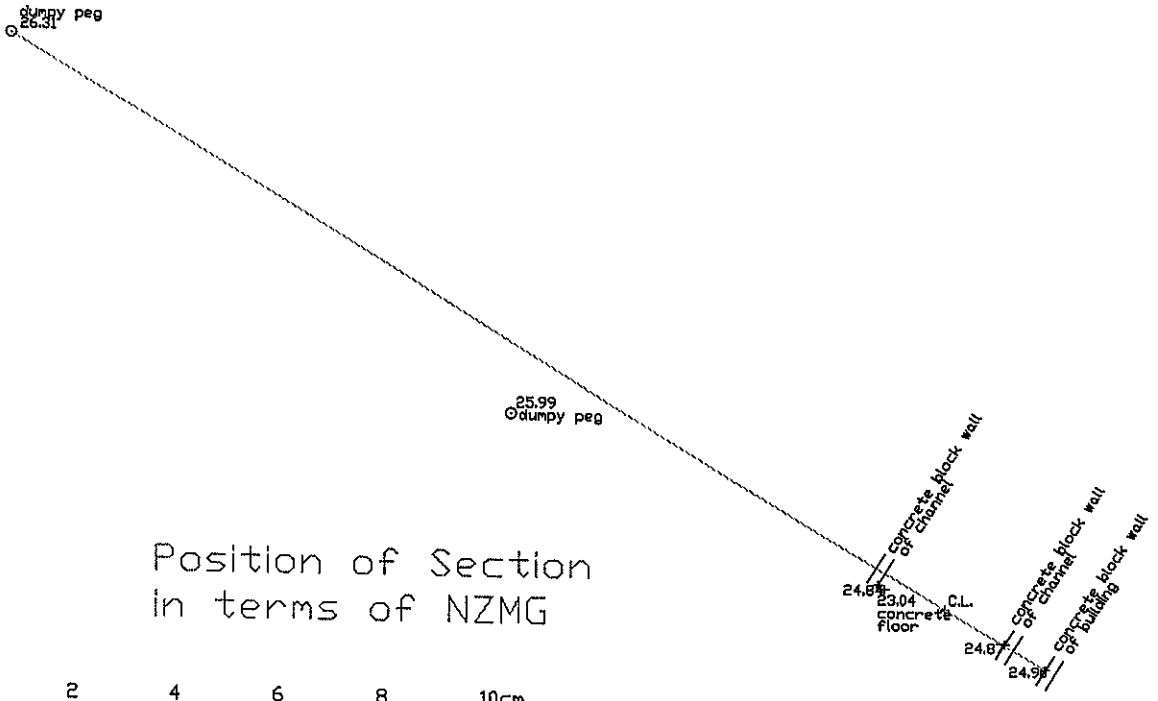
Sloane Street

Point	Northing	Easting	Height	Code
1000	6479275.62	2676583.48	17.25	SH
1001	6479254.50	2676586.91	16.90	1G
1002	6479267.47	2676588.58	17.81	FL1

Key
FL - Floor Level
G - Garage
SH - Spot Height
CP- Catch pit



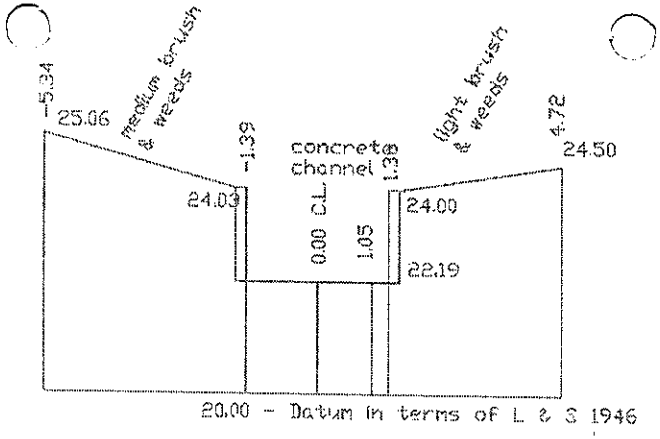
Cross Section - looking upstream



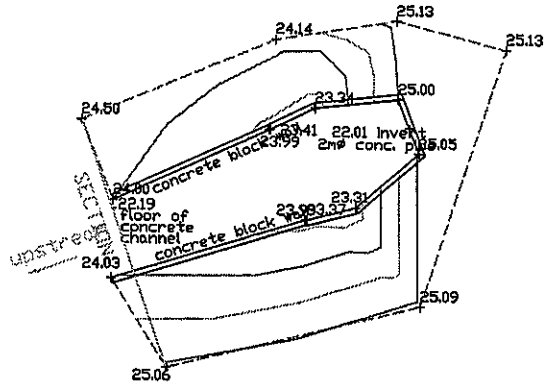
Position of Section
in terms of NZMG

0 2 4 6 8 10cm

W16043
Maunsell
Cross Section
at rear of
16 Howard Hunter Avenue
Glen Innes
Scale 1:100 (A3)



Cross Section - looking upstream
Scale 1:100

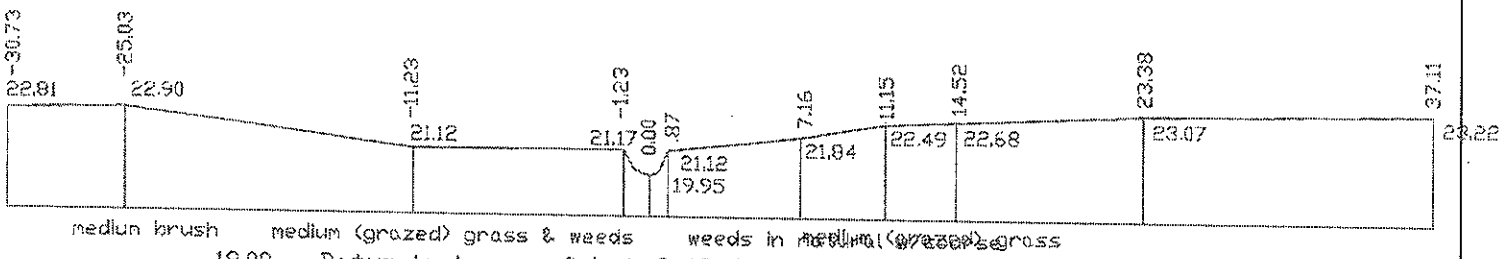


Position in terms of NZMG

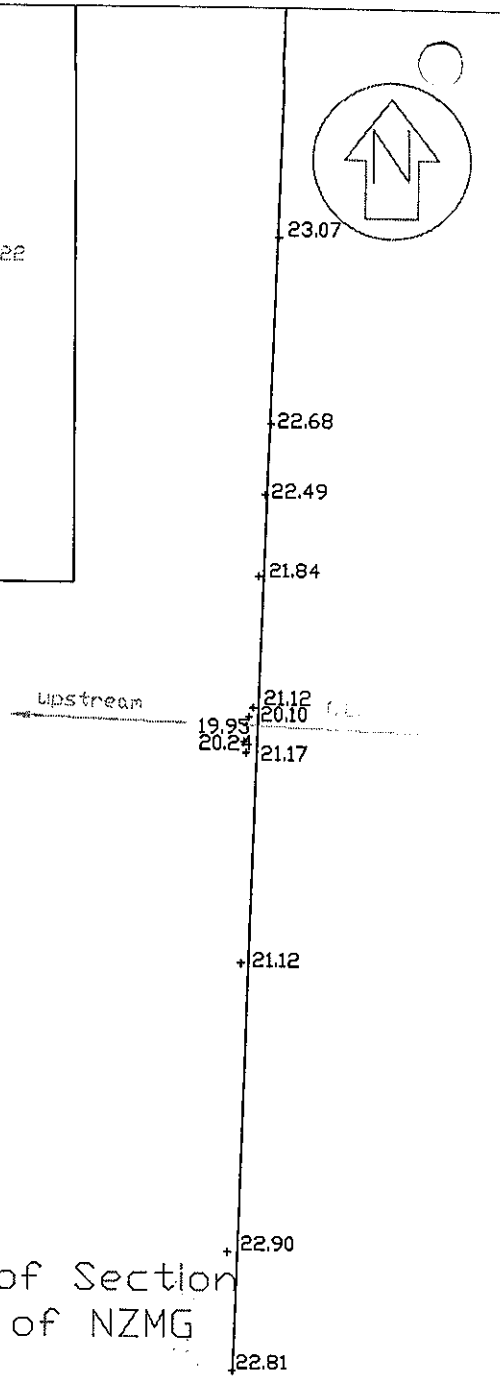
25.27
25.26 road c.l.
24.68 manhole
25.11
25.11 concrete nail
25.06 road c.l.
24.95 manhole
25.10
FELTON MATHEW AVENUE
25.01 road c.l.

W16044
Maunsell
Culvert Survey
NS1159
Felton Mathew Avenue
Glen Innes
Scale 1:200 (A3)

0 2 4 6 8 10cm



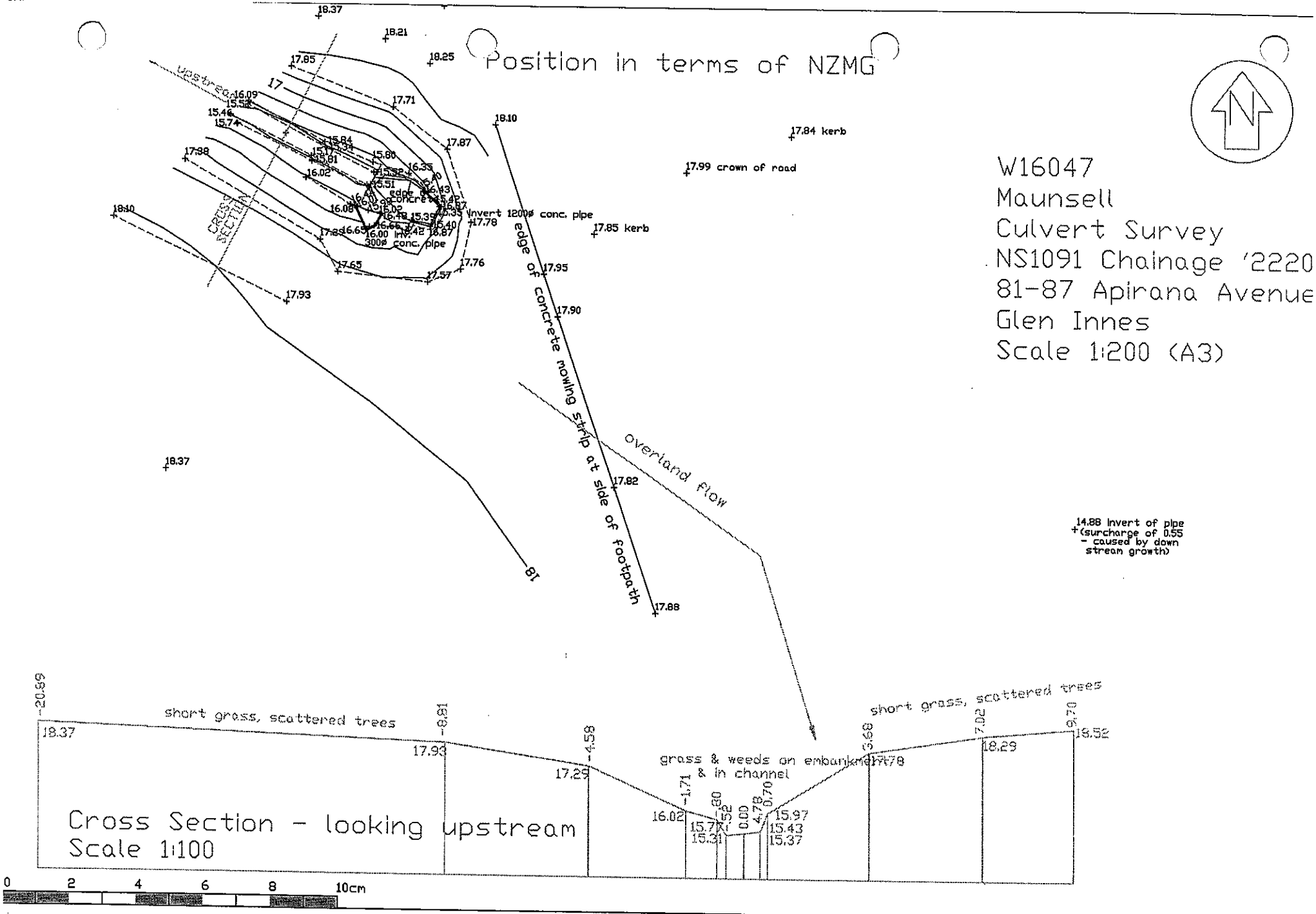
Cross Section - looking upstream

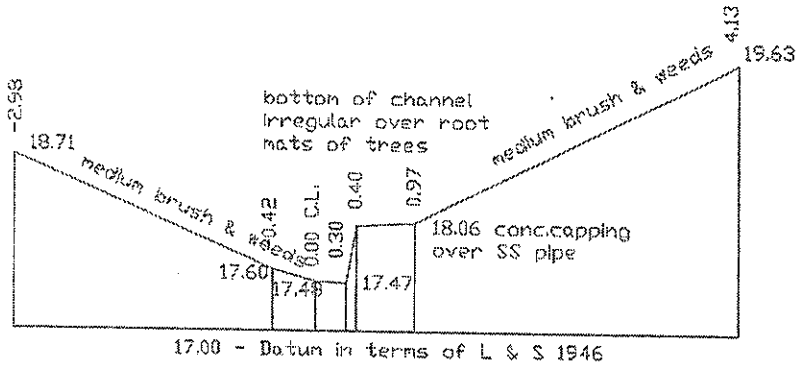


W16045
Maunsell
Cross Section
at rear of
90-104 Felton Mathew Avenue
Glen Innes
Scale 1:250 (A3)

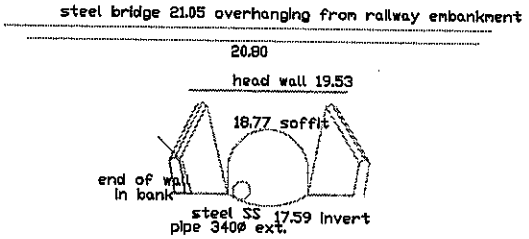
Position of Section
in terms of NZMG

0 2 4 6 8 10cm

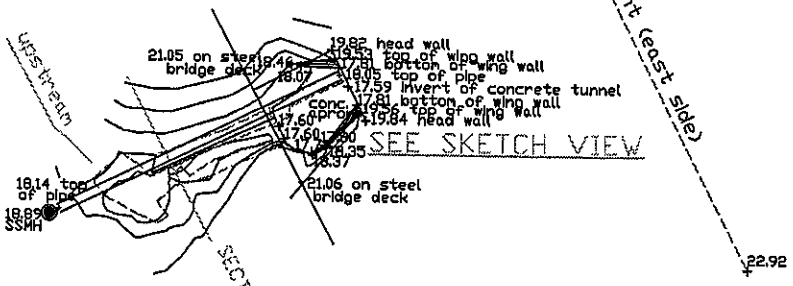

Position in terms of NZMG
W16047
Maunsell
Culvert Survey
NS1091 Chainage '2220
81-87 Apirana Avenue
Glen Innes
Scale 1:200 (A3)
upstream
CROSS SECTION
edge of concrete
Invert 1200ø conc. pipe
300ø conc. pipe
17.84 kerb
17.99 crown of road
17.85 kerb
edge of concrete mowing strip at side of footpath
overland flow
81
14.88 Invert of pipe
+(surcharge of 0.55
- caused by down
stream growth)
short grass, scattered trees
grass & weeds on embankment & in channel
short grass, scattered trees
Cross Section - looking upstream
Scale 1:100
0 2 4 6 8 10cm



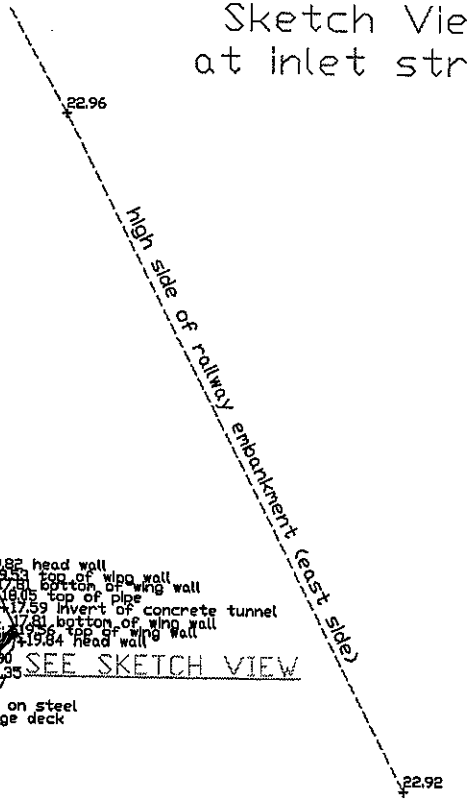
Cross Section - looking upstream
Scale 1:50



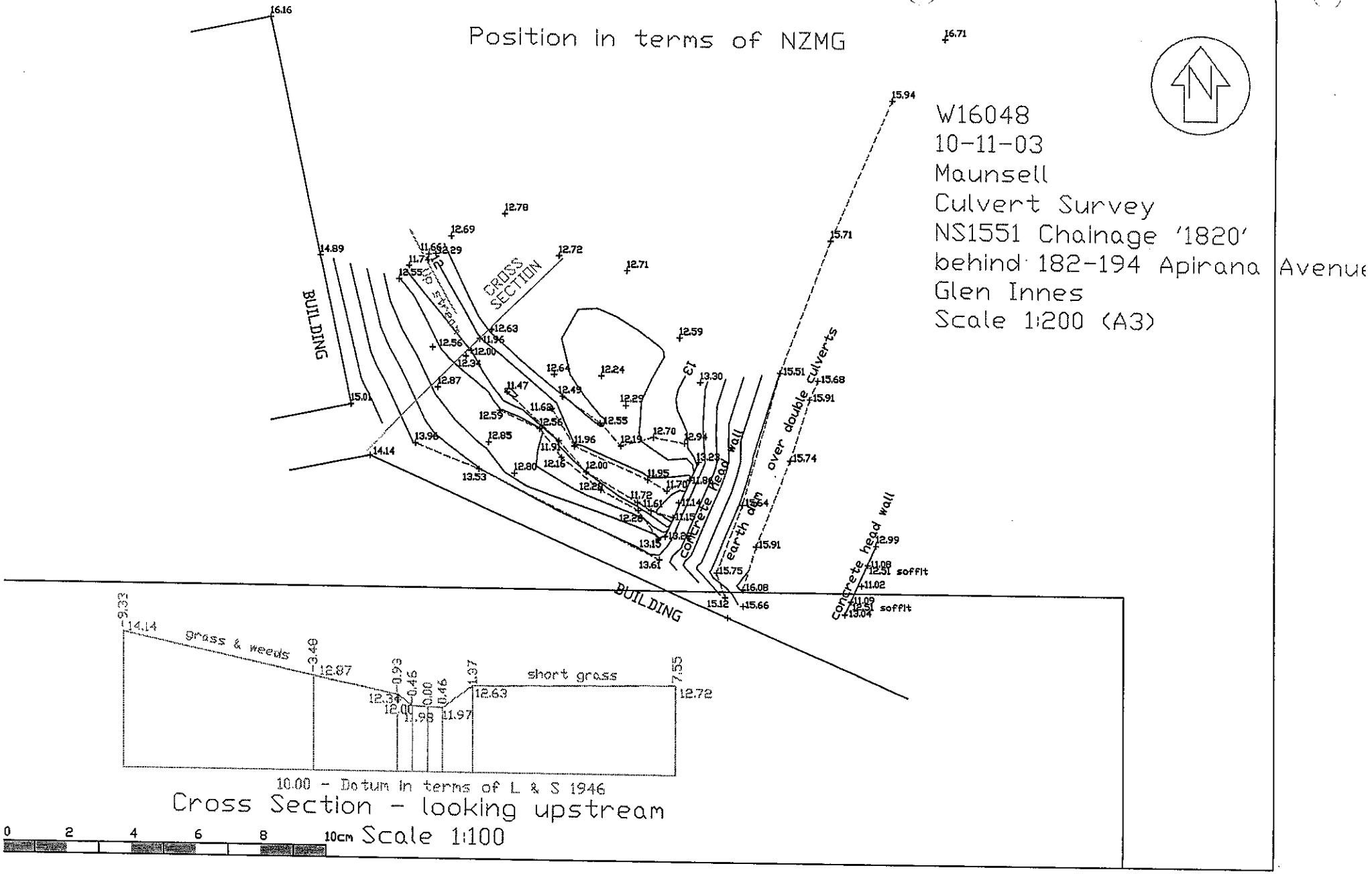
Sketch View - looking downstream
at inlet structure - Approx Scale 1:100



Position in terms of NZMG

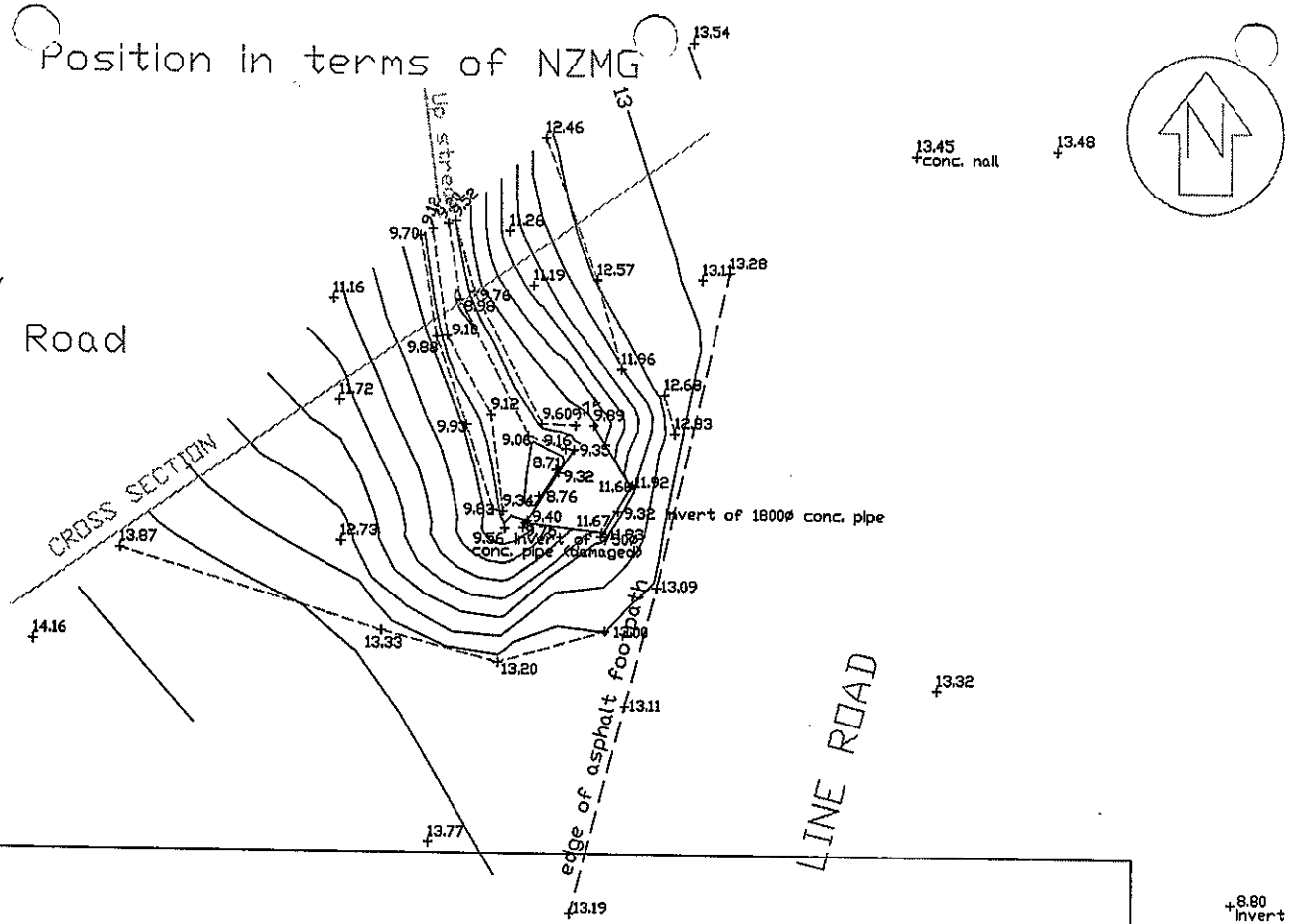


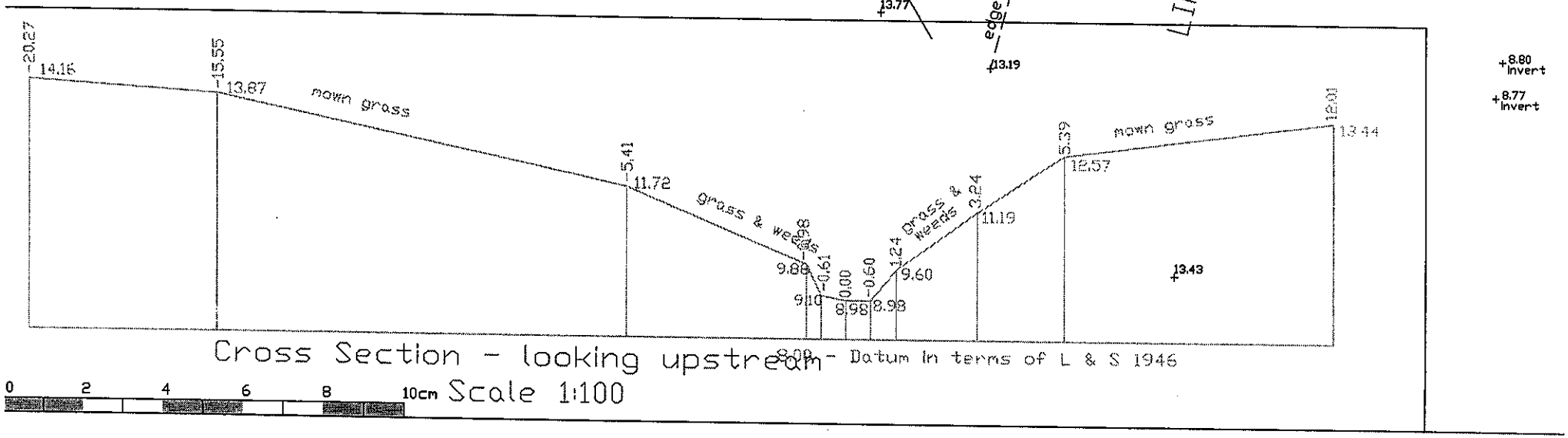
W16046
6-11-03
Maunsell
Culvert Survey
NL6259, Chainage '2150
behind 90-104
Felton Mathew Avenue
Glen Innes
Scale 1:200 (A3)


Position in terms of NZMG
W16048
10-11-03
Maunsell
Culvert Survey
NS1551 Chainage '1820'
behind 182-194 Apirana Avenue
Glen Innes
Scale 1:200 (A3)
BUILDING
CROSS SECTION
Concrete head wall
earth dam over double culverts
Concrete head wall
BUILDING
grass & weeds
short grass
10.00 - Datum in terms of L & S 1946
Cross Section - looking upstream
0 2 4 6 8 10cm Scale 1:100

W16049
10-11-03
Maunsell
Culvert Survey
NS1093 Chainage '1570'
between 71 & 79 Line Road
Glen Innes
Scale 1:200 (A3)

Position in terms of NZMG



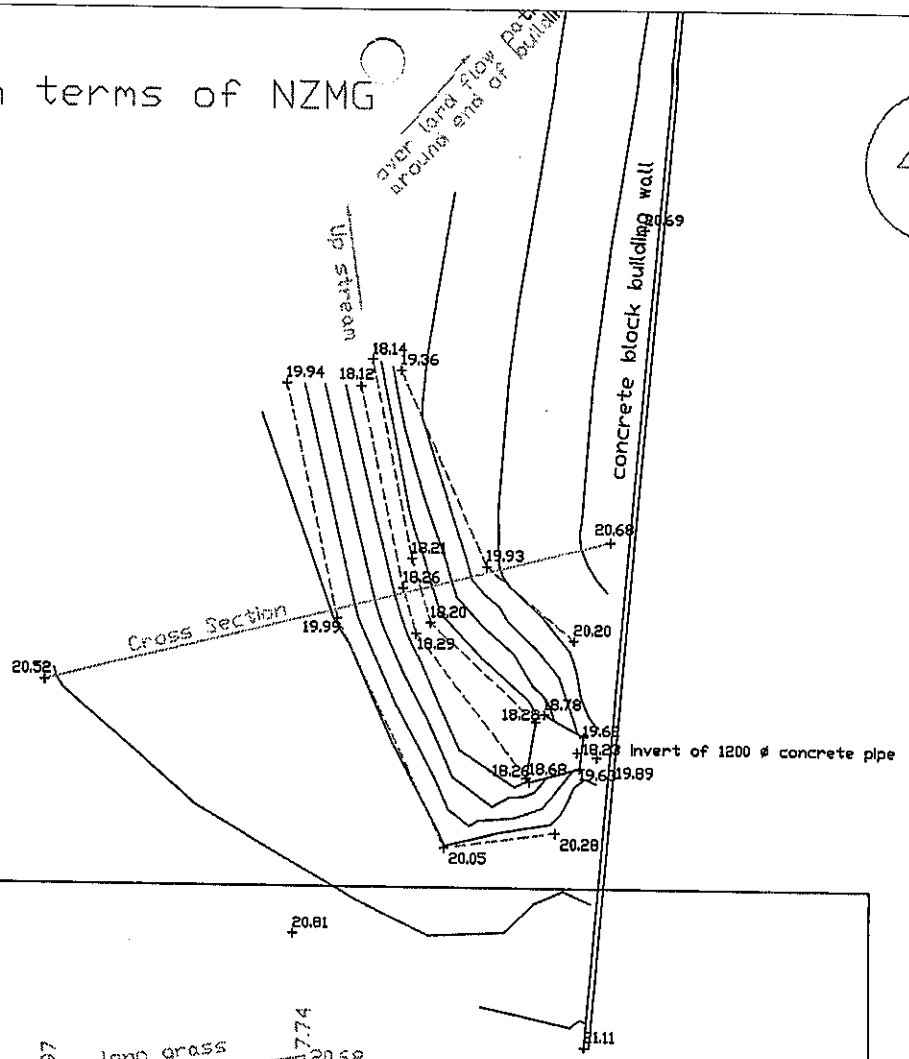


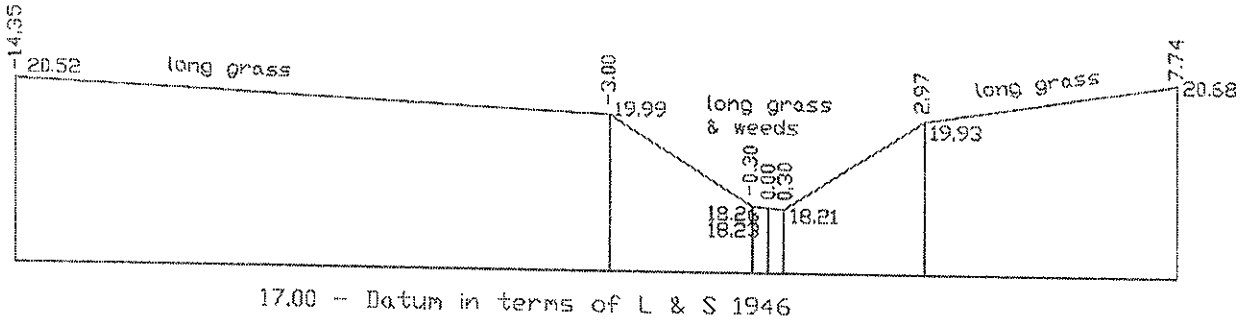
Cross Section - looking upstream - Datum in terms of L & S 1946

0 2 4 6 8 10cm Scale 1:100

W16050
11-11-03
Maunsell
Culvert Survey
NS1788 Chainage '1610'
west of 207 Merton Road
Glen Innes
Scale 1:200 (A3)

Position in terms of NZMG

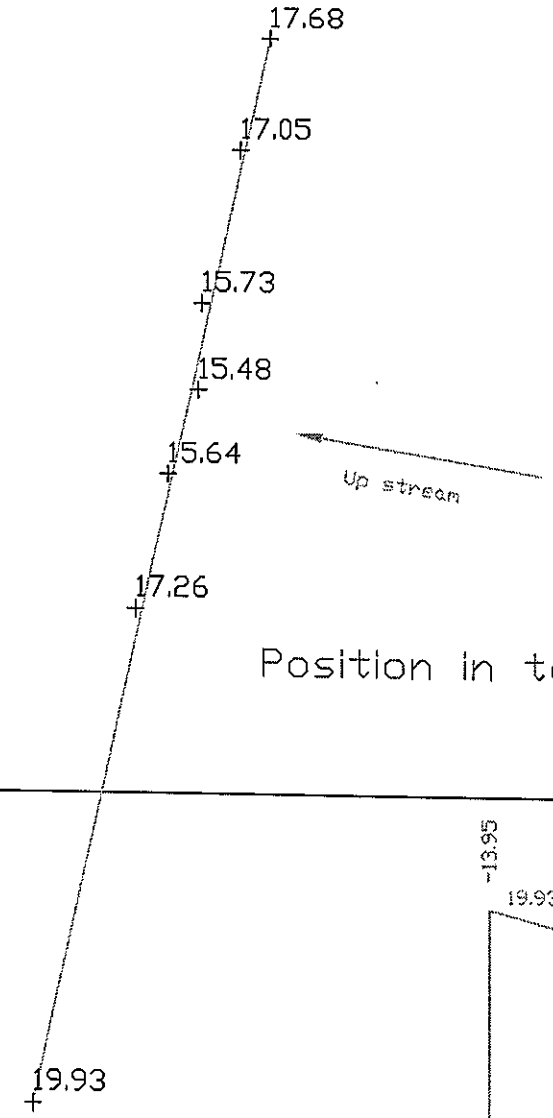




17.00 – Datum in terms of L & S 1946

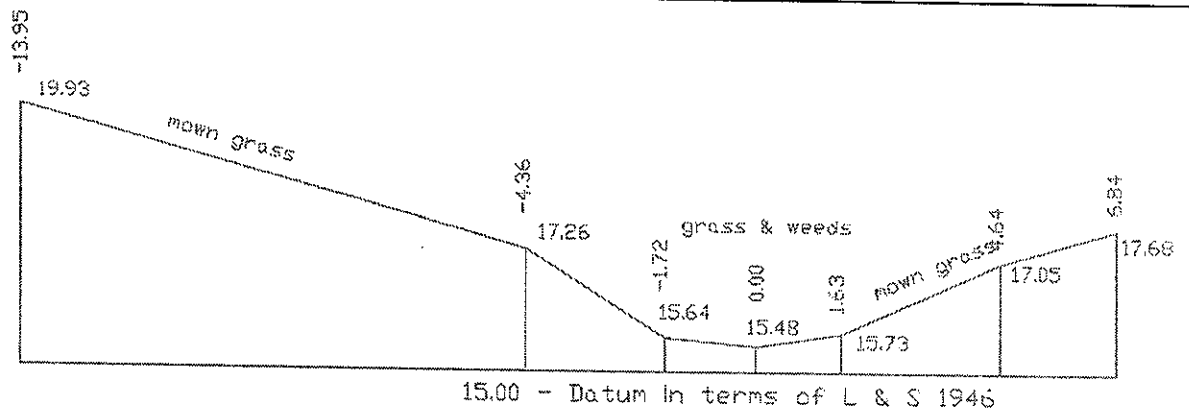
Cross Section – looking upstream
Scale 1:100

0 2 4 6 8 10cm



W16050
11-11-03
Maunsell
Cross Section
NS1495 Chainage '1120'
beween 147 & 151 Pikington Road
Glen Innes
Scale 1:100 (A3)

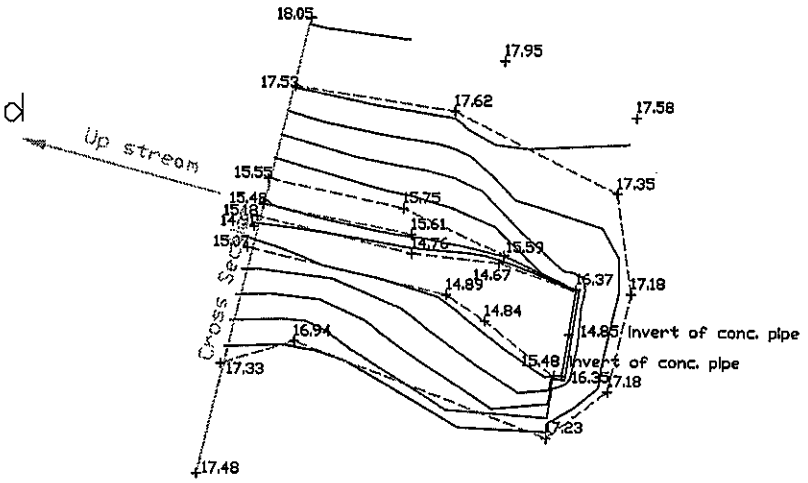
Position in terms of NZMG

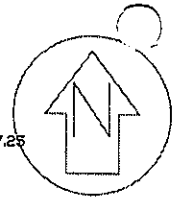


Cross Section - looking upstream
Scale 1:100

W16050
11-11-03
Maunsell
Cross Section
NS1095 Chainage '1060'
beween 147 & 151 Pilkington Road
Glen Innes
Scale 1:200 (A3)

Position in terms of NZMG





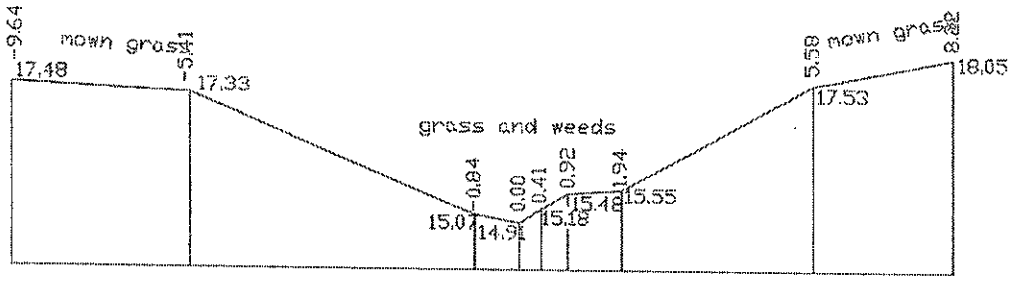
PILKINGTON ROAD

17.17

16.98 Manhole Lid

17.23

17.50



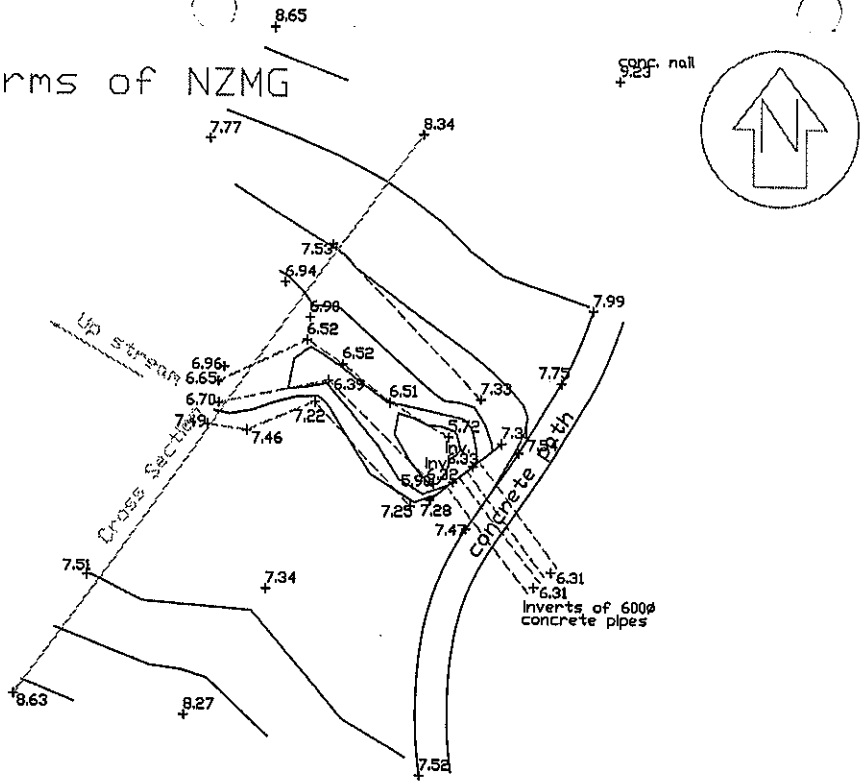
14.00 - Datum in terms of L & S 1946

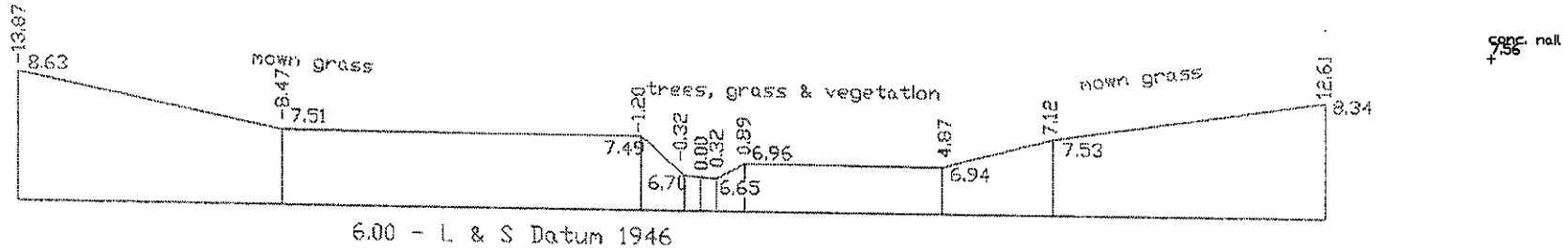
Cross Section - looking upstream

Scale 1:100

W16050
11-11-03
Maunsell
Cross Section
NS1077 Chainage '1030'
Reserve behind 38 Maybury Street
Glen Innes
Scale 1:200 (A3)

Position in terms of NZMG

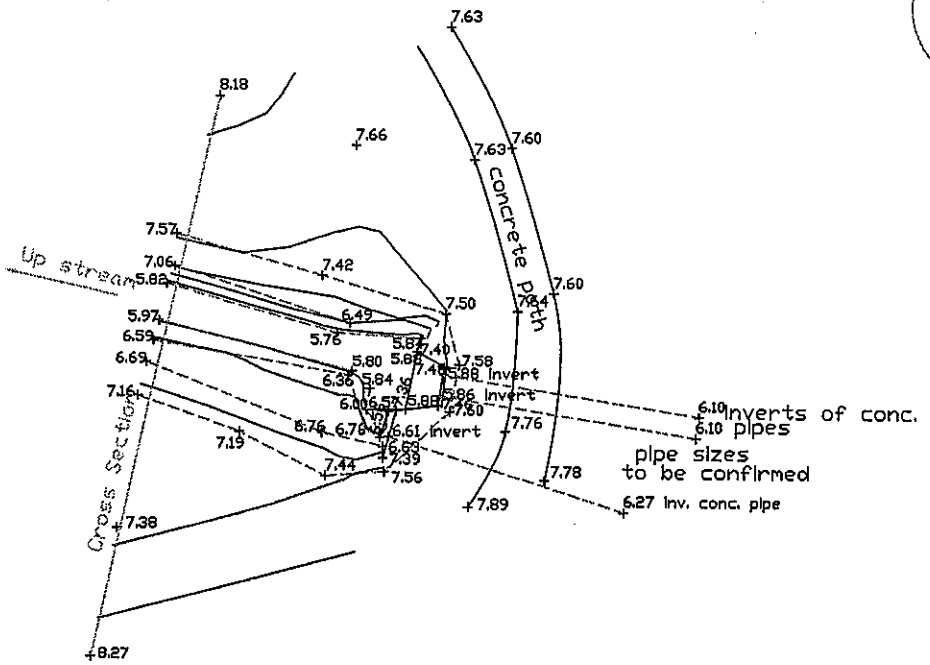


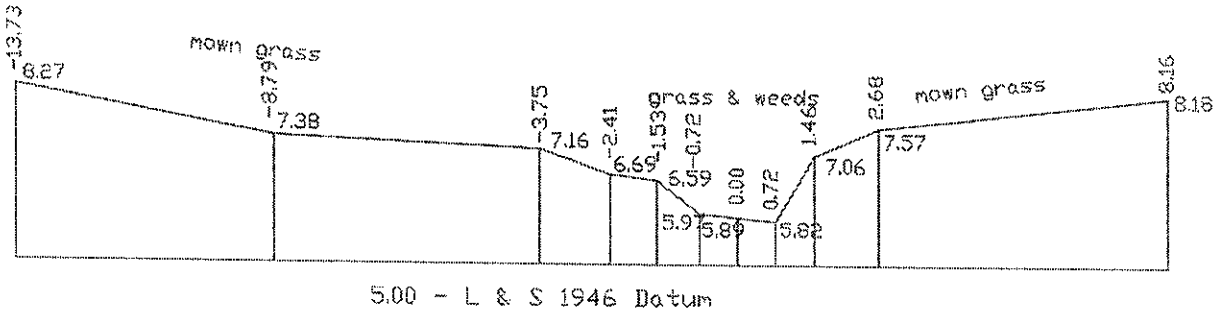


Cross Section - looking upstream
Scale 1:100

W16054
12-11-03
Maunsell
Culvert Survey
NS1078 Chainage '980'
Reserve behind 42 Maybury Street
Glen Innes
Scale 1:200 (A3)

Position in terms of NZMG



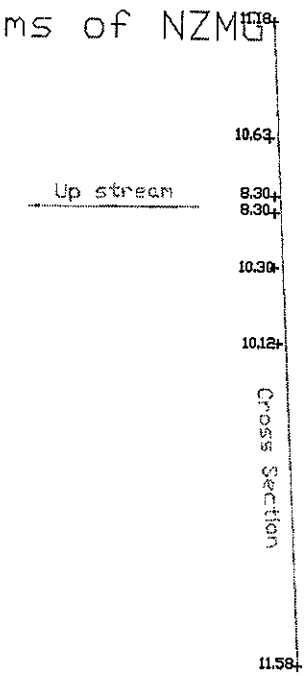


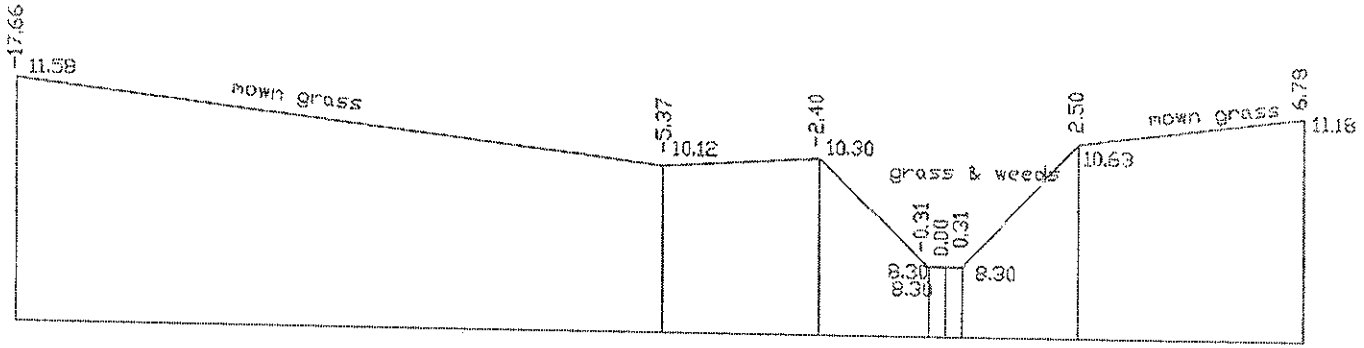
Cross Section - looking upstream
Scale 1:100

0 2 4 6 8 10cm

W16055
12-11-03
Maunsell
Cross Section
NS1506 Chainage '630'
Reserve behind 17 Sloane Street
Glen Innes
Scale 1:200 (A3)

Position in terms of NZMG





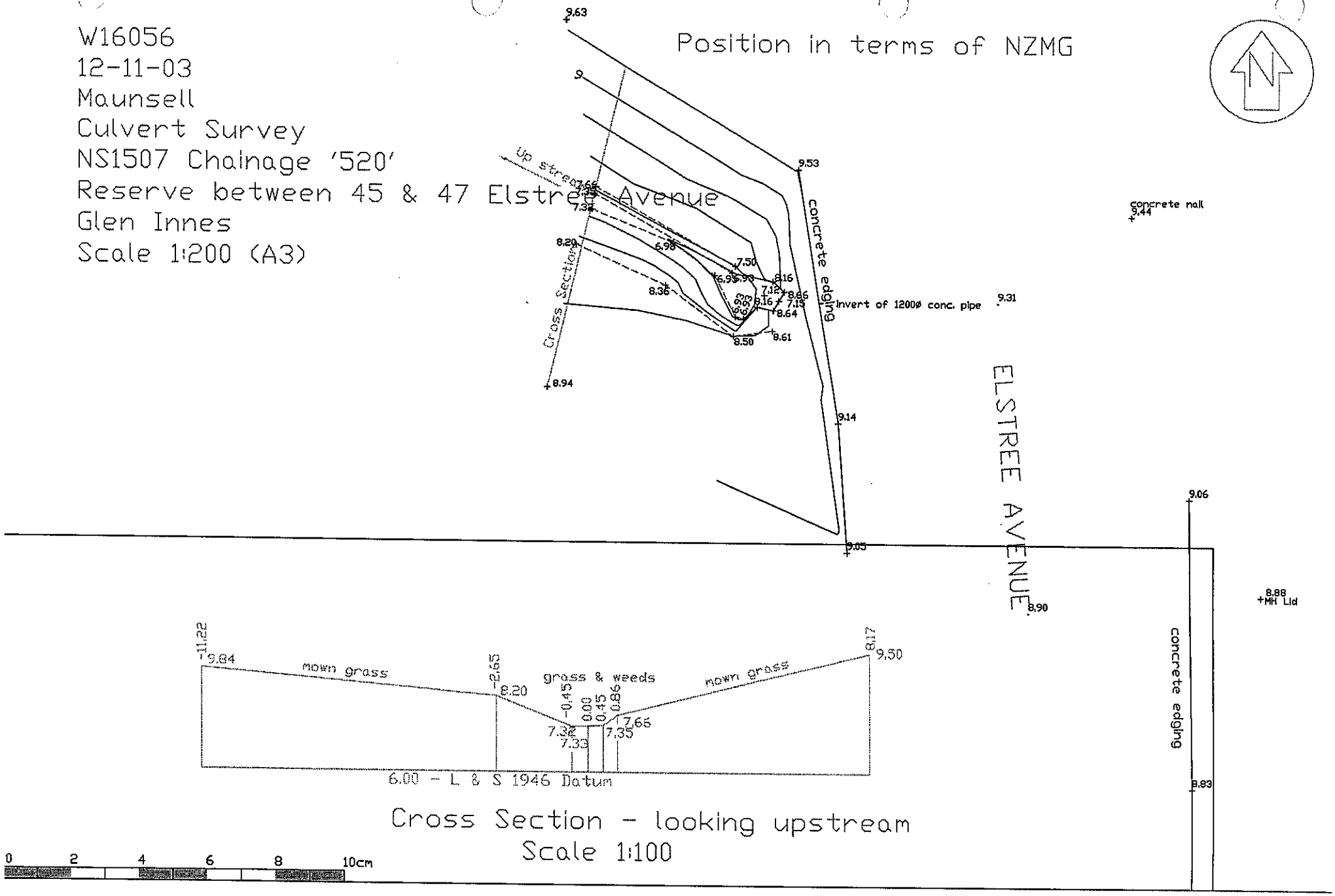
7.00 - L & S 1946 Datum

Cross Section - looking upstream

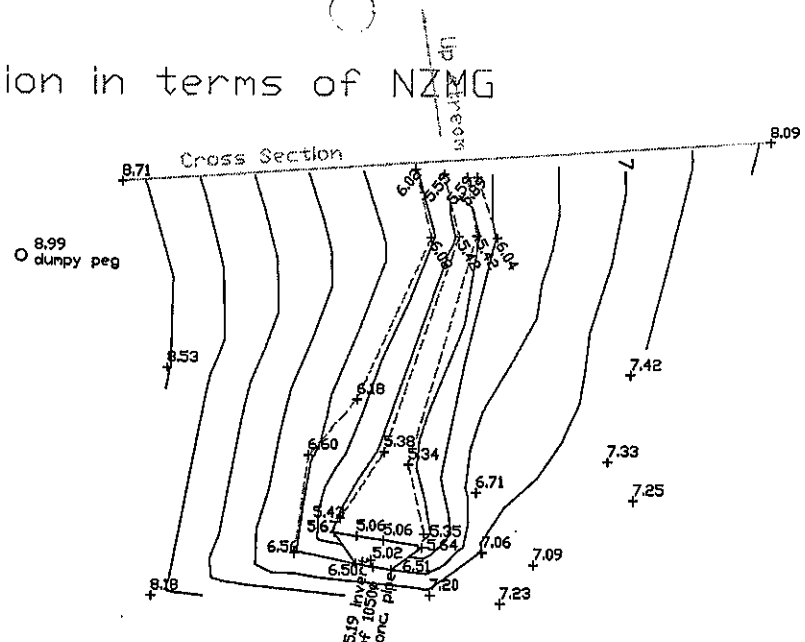
Scale 1:100

0 2 4 6 8 10cm

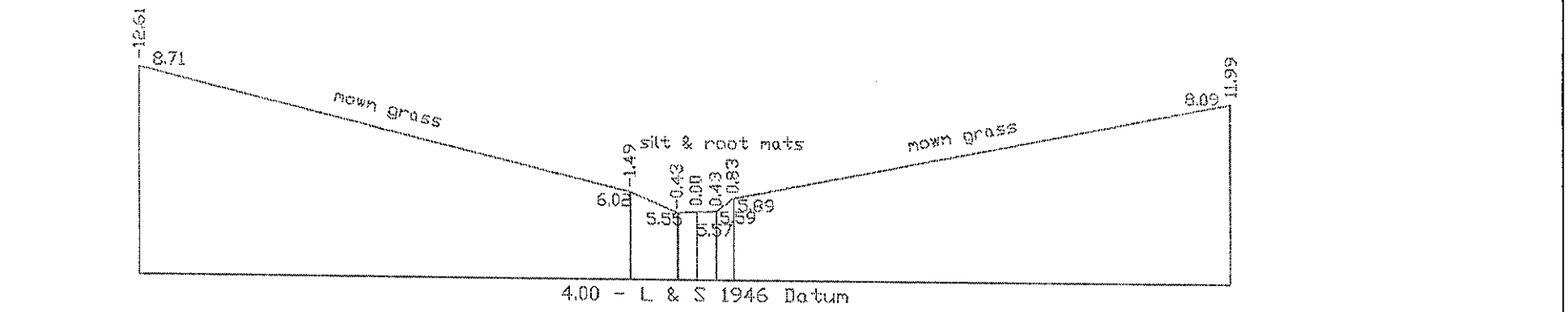
W16056
12-11-03
Maunsell
Culvert Survey
NS1507 Chainage '520'
Reserve between 45 & 47 Elstree Avenue
Glen Innes
Scale 1:200 (A3)



Position in terms of NZMG

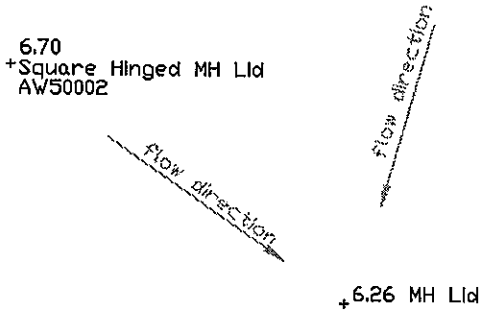


W16057
12-11-03
Maunsell
Culvert Survey
NS1509 Chainage '440'
Reserve on south side of Leybourne Circle (north bdy of Tamaki College)
Glen Innes
Scale 1:200 (A3)

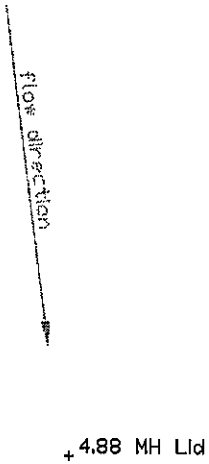


Cross Section - looking upstream
Scale 1:100

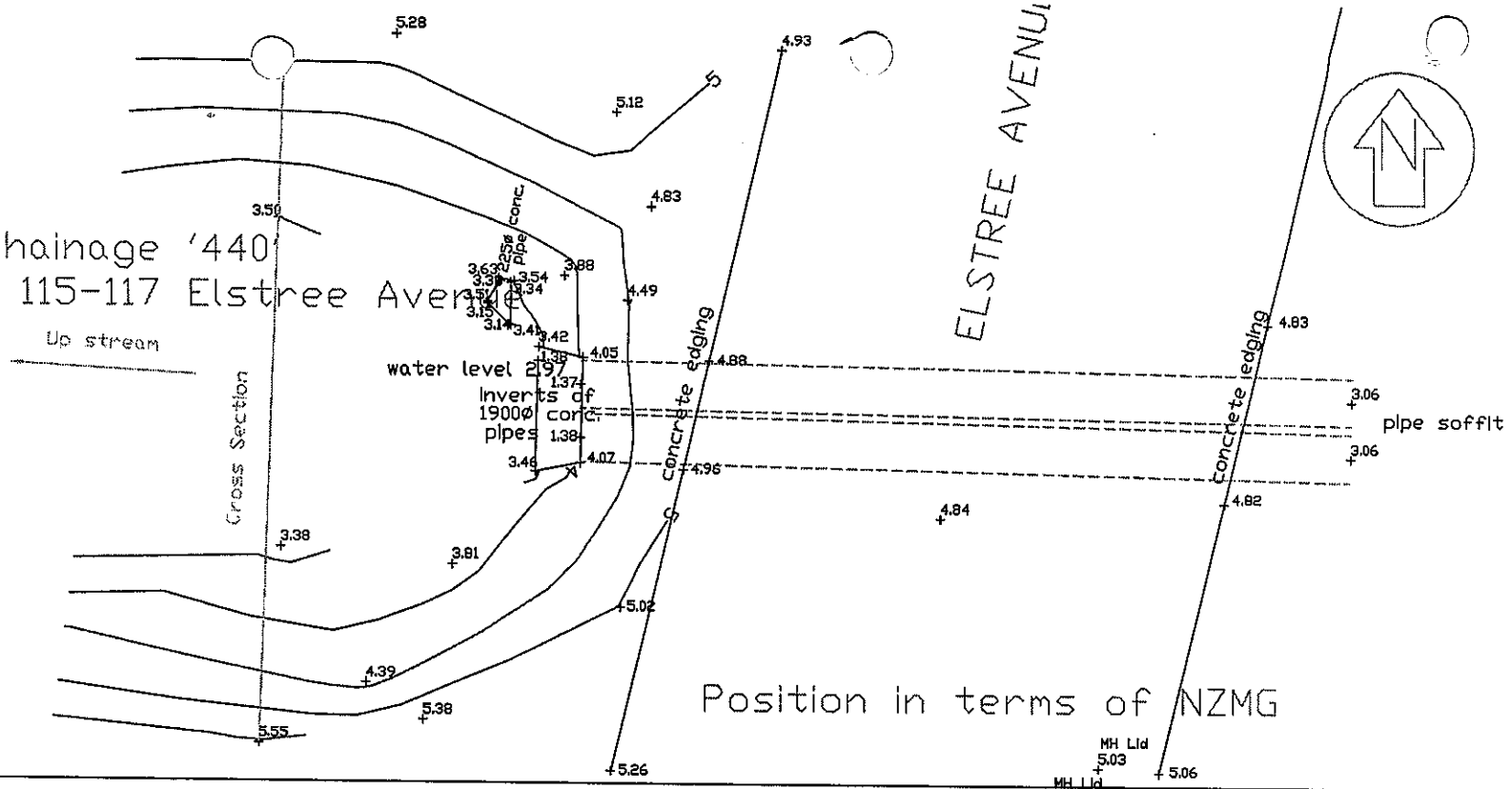
Position in terms of NZMG



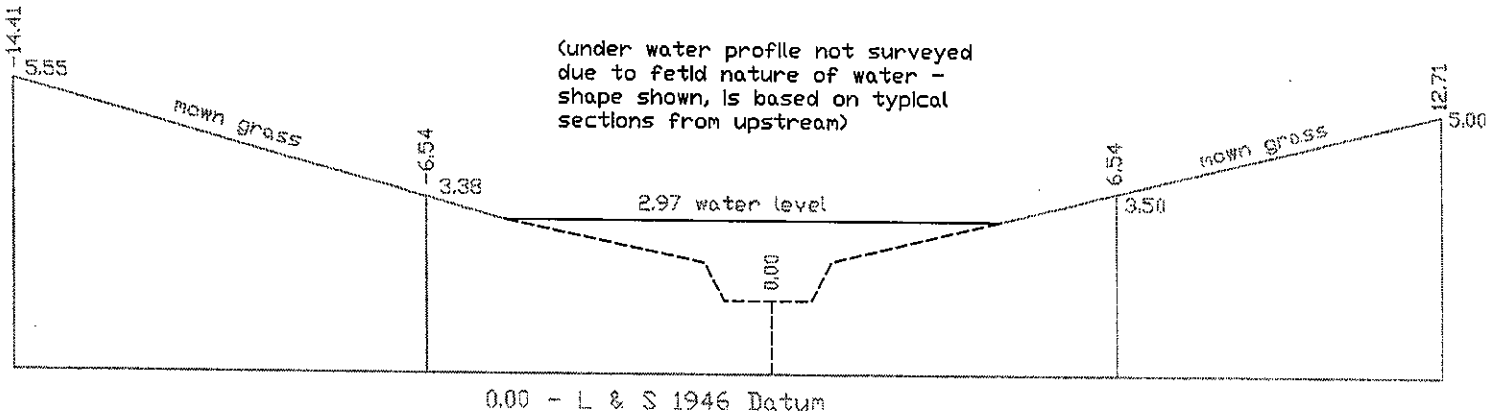
W16058
12-11-03
Maunsell
Positions of Manholes
AW5002 Map 54.15 Chainage '190' - '440'
Tamaki College grounds, Elstree Avenue,
Glen Innes
Scale 1:1000 (A3)



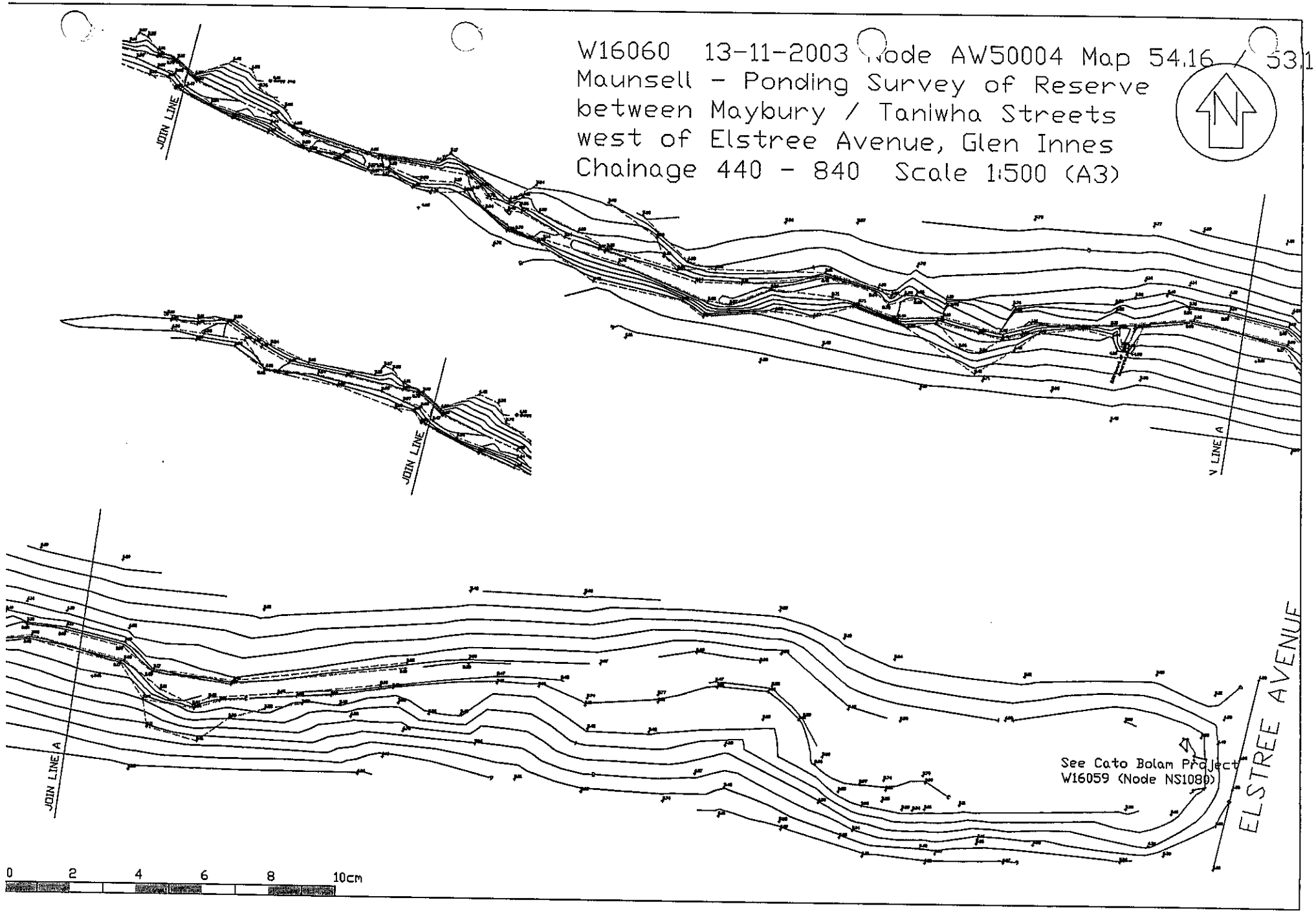
W16[illegible]9
12-11-03
Maunsell
Culvert Survey
NS1080 Map 54.16 Chainage '440'
Reserve north of 115-117 Elstree Avenue
Glen Innes
Scale 1:200 (A3)



Position in terms of NZMG

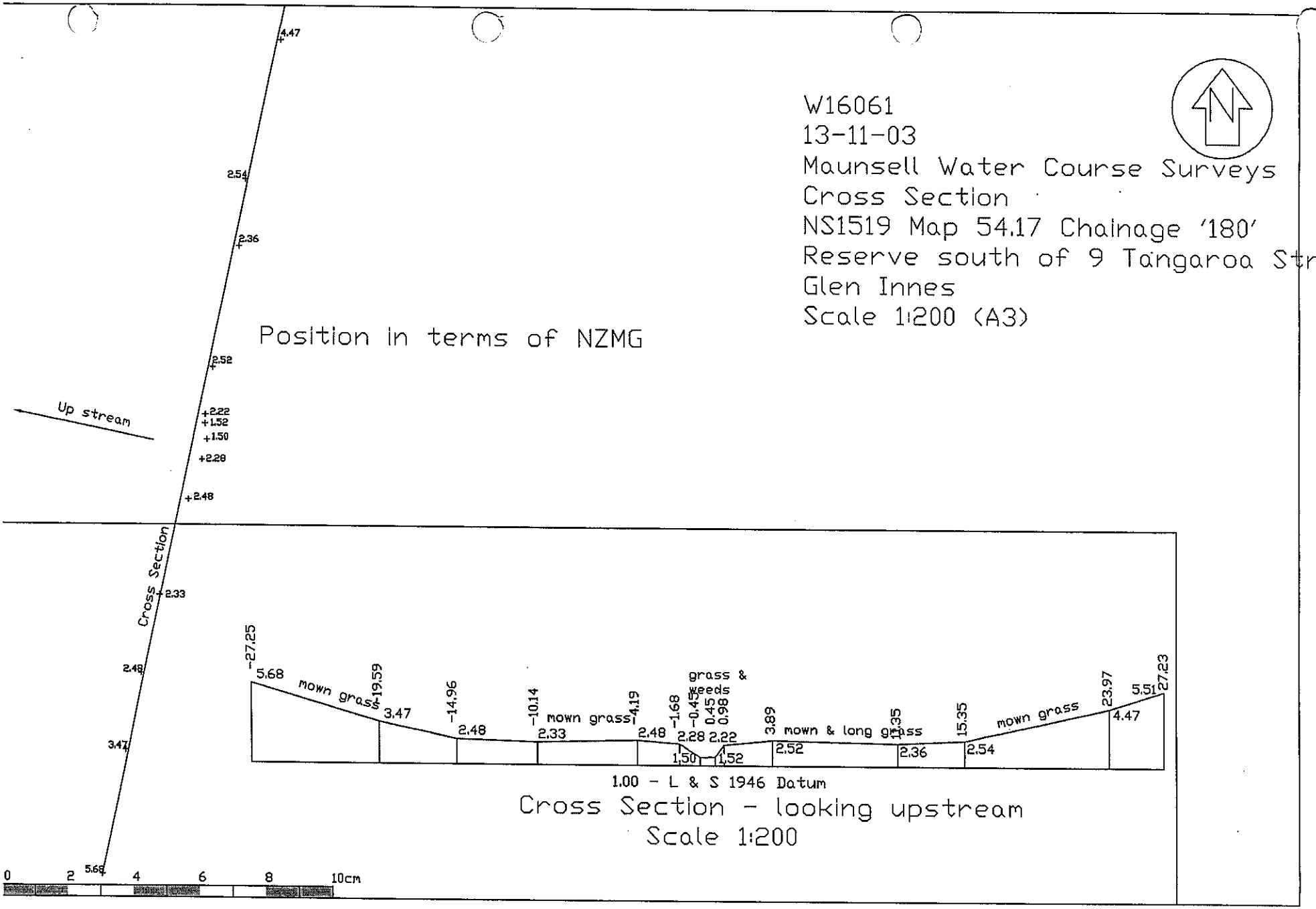


Cross Section - looking upstream
Scale 1:100


W16060 13-11-2003 Node AW50004 Map 54.16 / 53.16
Maunsell - Ponding Survey of Reserve
between Maybury / Taniwha Streets
west of Elstree Avenue, Glen Innes
Chainage 440 - 840 Scale 1:500 (A3)
JOIN LINE
JOIN LINE
JOIN LINE A
V LINE A
ELSTREE AVENUE
See Cato Bolam Project
W16059 (Node NS1080)
0 2 4 6 8 10cm

W16061
13-11-03
Maunsell Water Course Surveys
Cross Section
NS1519 Map 54.17 Chainage '180'
Reserve south of 9 Tangaroa Stree
Glen Innes
Scale 1:200 (A3)

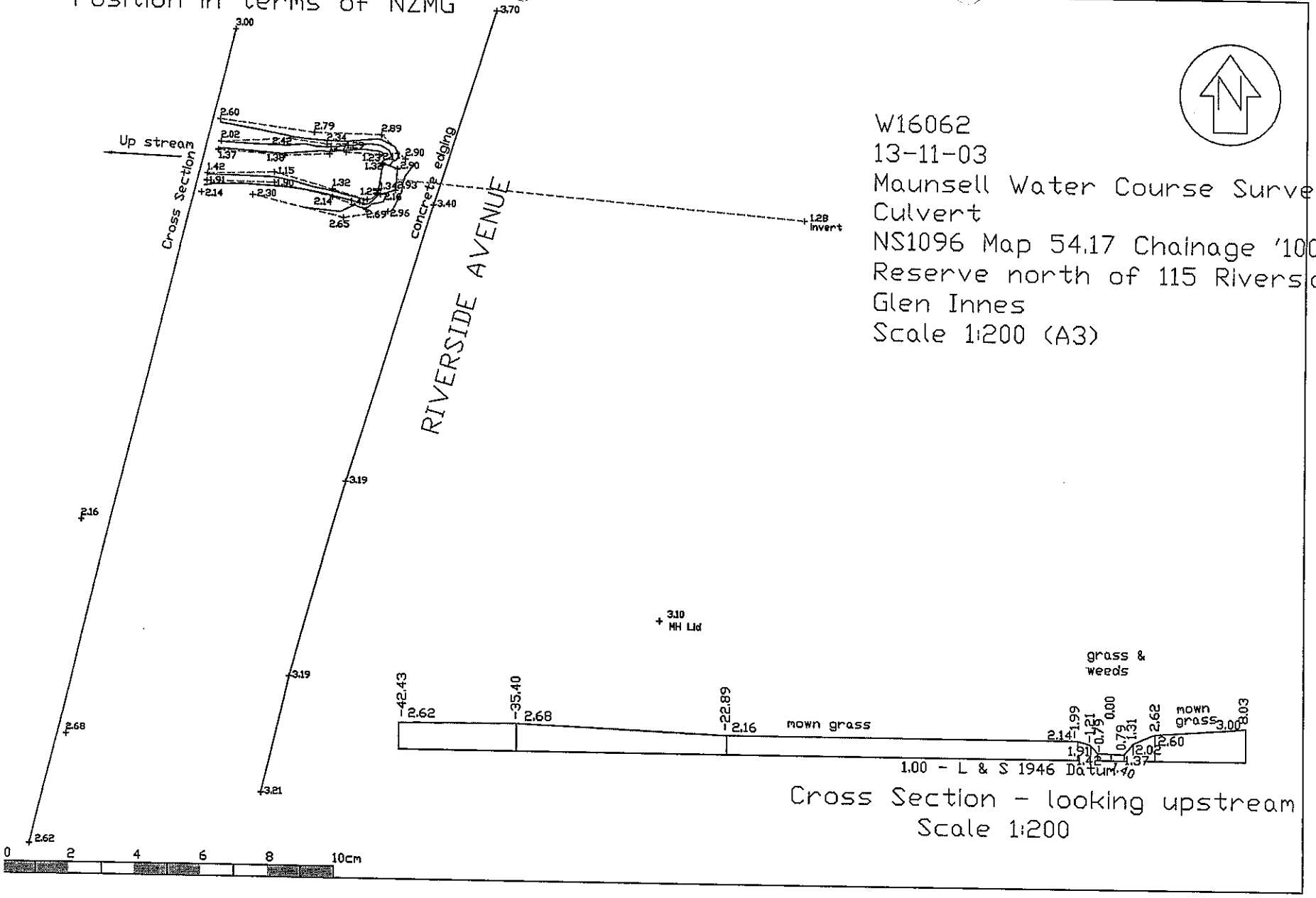
Position in terms of NZMG



1.00 - L & S 1946 Datum

Cross Section - looking upstream
Scale 1:200

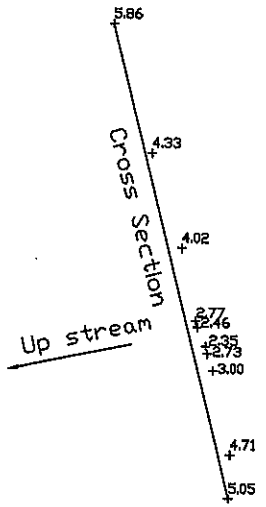
Position in terms of NZMG



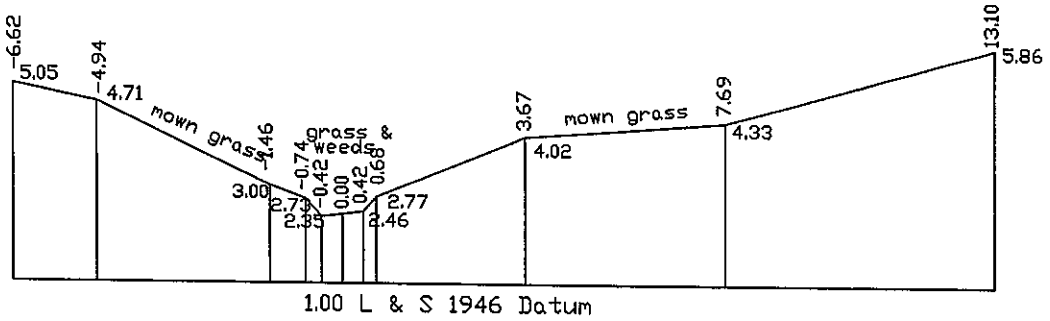
W16062
13-11-03
Maunsell Water Course Surveys
Culvert
NS1096 Map 54.17 Chainage '100'
Reserve north of 115 Riverside Avenue
Glen Innes
Scale 1:200 (A3)

Cross Section - looking upstream
Scale 1:200

W16063
13-11-03
Maunsell Water Course Surveys
Cross Section
NS1530 Map 54.18 Chainage '450'
Reserve south of 18 Larson Roa
Glen Innes
Scale 1:200 (A3)

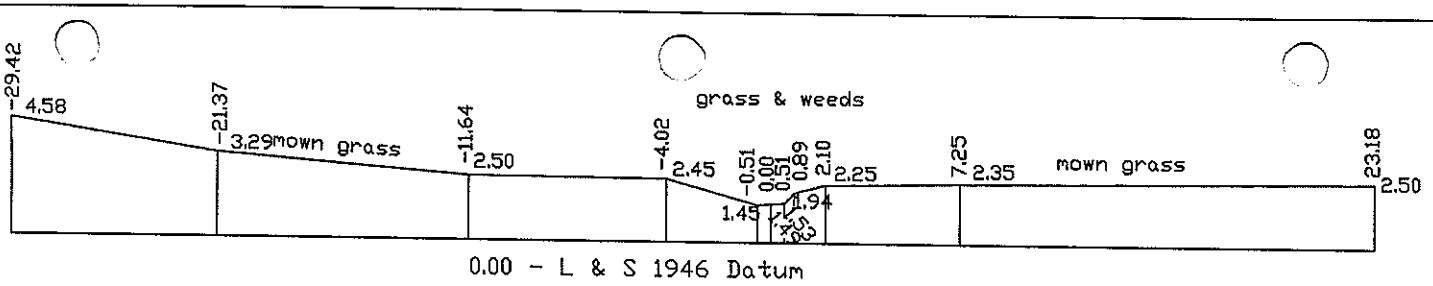


Position in terms of NZMG

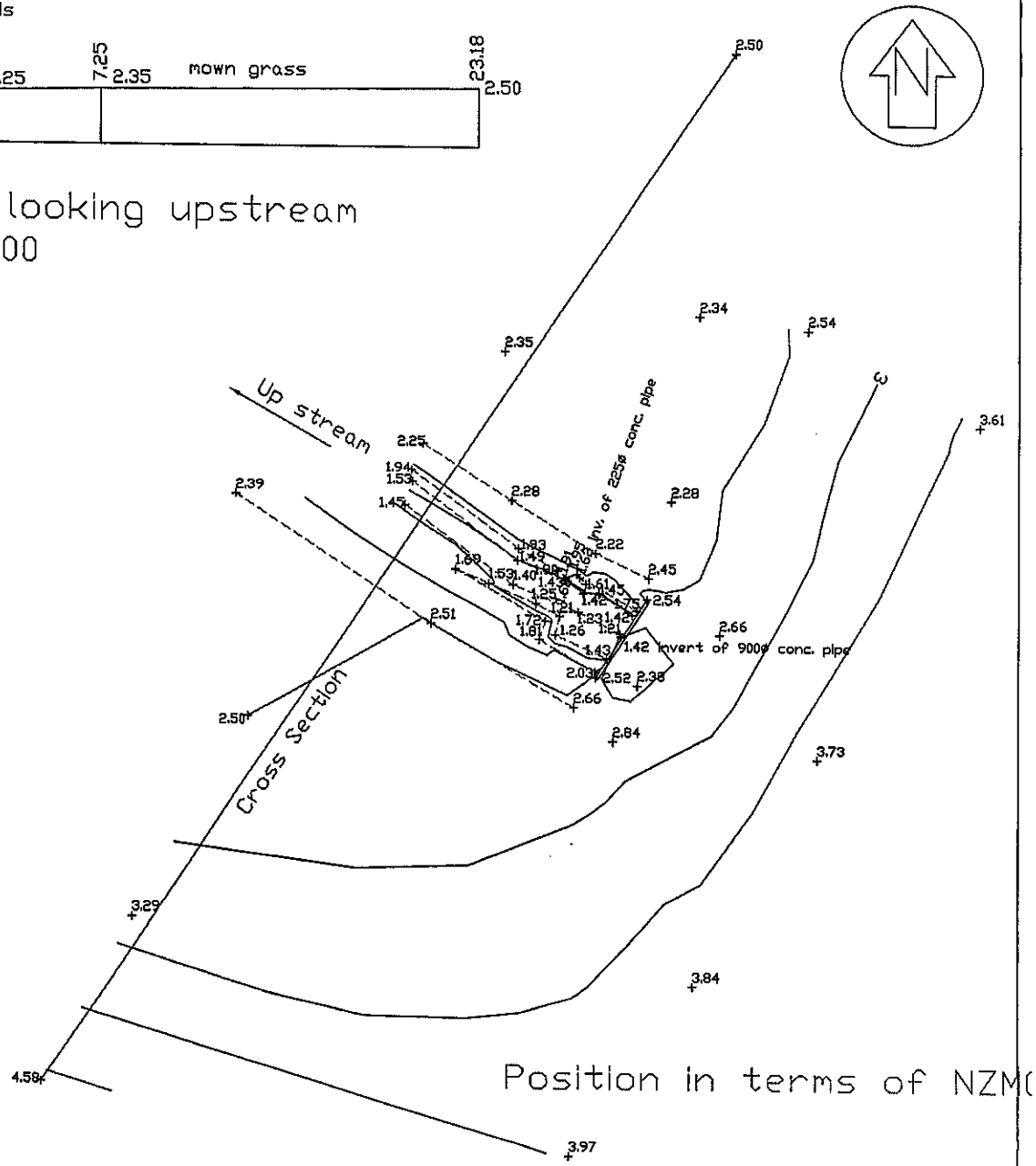


Cross Section - looking upstream
Scale 1:100

0 2 4 6 8 10cm



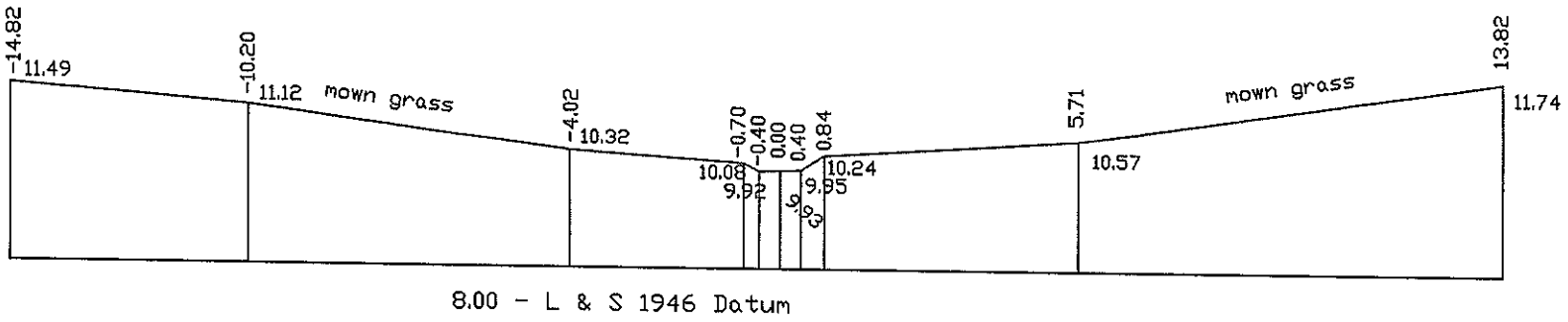
Cross Section - looking upstream
Scale 1:200



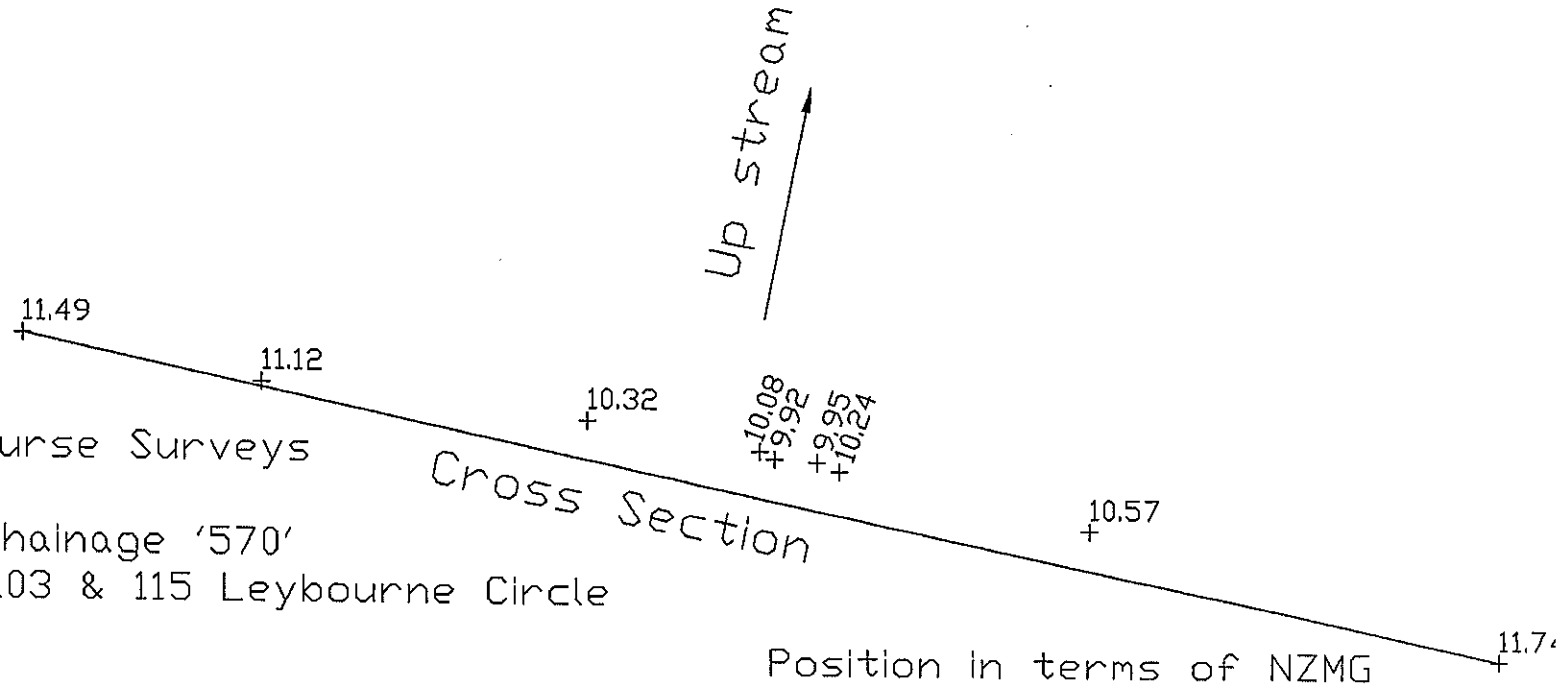
W16064
17-11-03
Maunsell Water Course Surveys
Culvert
NS1097 Map 54.18 Chainage '300'
Reserve north of 47 Dunkirk Road
Glen Innes
Scale 1:200 (A3)

Position in terms of NZM(

0 2 4 6 8 10cm



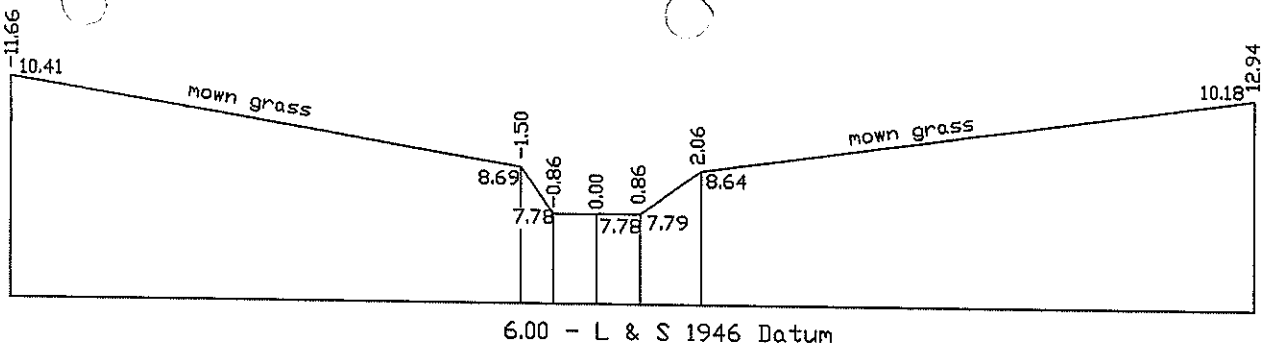
Cross Section - looking upstream
Scale 1:100



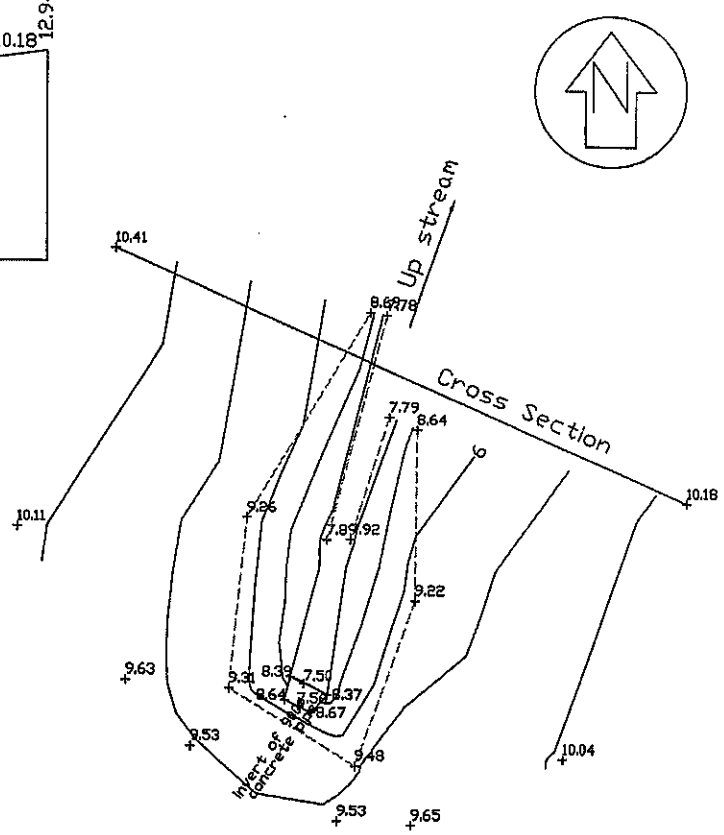
W16065
17-11-03
Maunsell Water Course Surveys
Cross Section
NS1602 Map 55.15 Chainage '570'
Reserve between 103 & 115 Leybourne Circle
Glen Innes
Scale 1:100 (A3)

Position in terms of NZMG

0 2 4 6 8 10cm



Cross Section - looking upstream
Scale 1:100



9.30

W16066
17-11-03
Maunsell Water Course Surveys
Culvert
NS1602 Map 55.15 Chainage '470'
Reserve between 103 & 115 Leybourne Circle
Glen Innes
Scale 1:200 (A3)

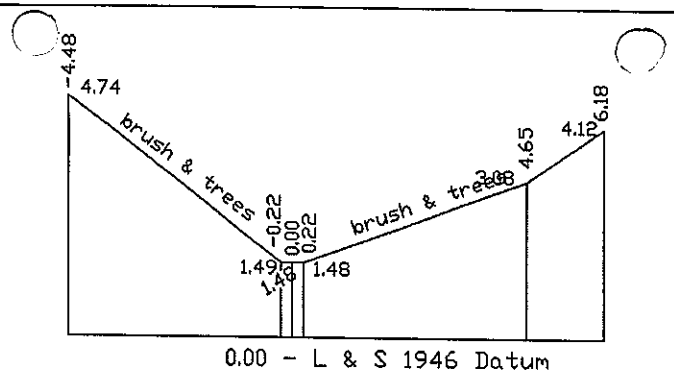
0 2 4 6 8 10cm

LEYBOURNE CIRCLE

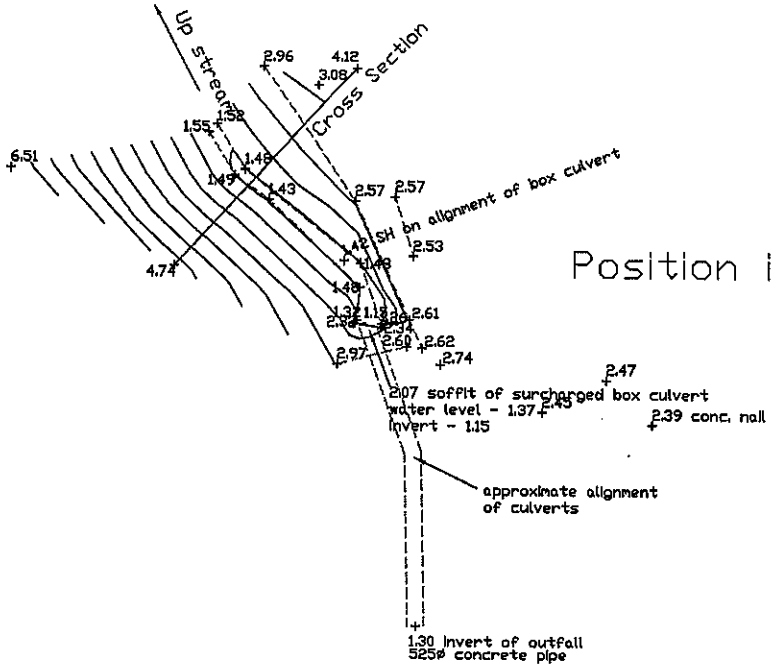
9.41 concrete nail in footpath

7.10 invert

Position in terms of NZM(



Cross Section - looking upstream
Scale 1:100



Position in terms of NZM(

W16067
17-11-03
Maunsell Water Course Surveys
Culvert
NS1615 Map 57.15 Chainage '40'
Reserve at Tahaki Road cul-de-sac
Glen Innes
Scale 1:200 (A3)

0 2 4 6 8 10cm

Cul-de-sac
TAHAKI ROAD

Appendix J: Photographs of Major Hydraulic Structures within the Glen Innes and Pt England DMAs

Appendix J – Photographs of Major Hydraulic Structures within the Glen Innes and Pt England DMAs

Figure J1- Tahaki Road Outlet (December 2003)

Refer Map 57.15

Figure J2: Inlet to Pt England Pond (North of 115 and 117 Elstree Avenue – Maybury Reserve) (December 2003)

Refer Map 54.16

Figure J3: Submerged Outlet to Pt England Pond (Opposite 115 and 117 Elstree Avenue) (December 2003)

Refer Map 54.16

Figure J4: Culvert Behind 42 Maybury Avenue (Maybury Reserve) (December 2003)

Refer Map 53.16

Figure J5: Pt England Pond – Inlet Trash Collector (December 2003)

Refer Map 54.16

Figure J6: Pt England Water Quality Pond (December 2003)

Refer Map 54.16

Figure J7: Pt England Pond Outlet Weir (December 2003)

Refer Map 54.16

Figure J8: Tamaki Campus Pond (December 2003)

Refer Map 52.16

Figure J9: Tamaki Campus Pond Outlet Weir (December 2003)

Refer Map 52.16

Figure J10: Culvert Between 45 and 47 Elstree Avenue (Wimbledon Reserve) (December 2003)

Refer Map 54.15

Figure J11: Inlet on Northern Boundary of Tamaki College (December 2003)

Refer Map 55.15

Figure J12: Culvert North of 115 Riverside Avenue (Boundary Reserve) (December 2003)

Refer Map 54.17

Figure J13: View Upstream of Figure I12 (Boundary Reserve) (December 2003)

Refer Map 54.17

Figure J14: Inlet at 47 Dunkirk Road (Johnson Reserve) (December 2003)

Refer Map 54.18

Figure J15: View Upstream of 47 Dunkirk Road (Johnson Reserve) (December 2003)

Refer Map 54.18

Figure J16: Line Road Culvert (Eastview Reserve) (June 2002)

Refer Map 52.15

Figure J17: Eastview Reserve Bund and Culvert (June 2002)

Refer Map 52.15

Figure J18: Stream Channel Between 90 and 104 Felton Matthew Avenue (June 2002)

Refer Map 51.15

Flood Hazard Mapping

Glen Innes and Pt England

Volume 2 – Flood Hazard Maps

Prepared for :

AUCKLAND CITY

metrowater

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FLOOD HAZARD MAPS

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