

DRAINAGE REPORT



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Client: For Southern Land Nominees Pty Ltd
Project: Stormwater Management Plan
Project No: N24285
SCC Ref: FOR INFORMATION
Date: 24 JULY 2017

DEVELOPMENT DRAINAGE DESIGN REPORT At

**LOTS 6 & 15, DP 25550 –
ISLAND POINT ROAD, ST
GEORGES BASIN**

This report has been prepared to support a development application in accordance with Shoalhaven City Council's (SCC) D5 Engineering Standards document and DCP2014 for storm events from the 20% AEP to 1% AEP.

Calculations have been prepared by a qualified practicing engineer using DRAINS version 2017.10.

The development proposes to subdivide the existing Lots 6 & 15 DP 25550. The existing lots currently drain overland as sheet flows through the adjacent properties and into the existing kerb and gutter on Island Point Road and overland as sheet flows to the east of the site and into adjacent properties.

It was found that the increase in flow rate due to the increase in impervious area could be controlled. This is proposed via at source detention via oversized BASIX tanks providing detention at dwelling construction stage. The majority of water overland would be collected into piped systems consisting of both interallotment drainage, kerb and gutter systems and any future roofed water would be collected in a tank with a minimum 2500L of dedicated detention capacity and an outlet limiting the post developed flows to the predeveloped case.

In compliance with Shoalhaven City Council's (SCC) D5 Engineering Standards document and DCP2014 the Major and Minor drainage systems have been designed and summarised as follows:

Minor Drainage (20% AEP):

- Flows from the future dwellings are to discharge to the proposed kerb and gutter or interallotment drainage and then into the proposed pipe drainage system.
- Flows from all landscaped areas are to sheet overland to the proposed road and drainage network and to discharge into the existing infrastructure.
- Based upon the existing conditions prior to development, the permissible discharge of the site is $1.06\text{m}^3/\text{s}$ for 20% AEP
- Based upon the proposed development being channelled into the proposed drainage system and all future dwellings having 2500L of dedicated at source detention. The total site discharge is $0.947\text{m}^3/\text{s}$ for 20% AEP
- The post-development peak flow rates from the site do not exceed the pre-development peak flow rates.
- Appendix E indicates the flow path of the stormwater runoff.

Major Drainage (1% AEP):

- Flows from the future dwellings are to discharge to the proposed kerb and gutter or interallotment drainage and then into the proposed pipe drainage system.
- Flows from all landscaped areas are to sheet overland to the proposed road and drainage network and to discharge into the existing infrastructure.
- Based upon the existing conditions prior to development, the permissible discharge of the site is $2.21\text{m}^3/\text{s}$ for 1% AEP
- Based upon the proposed development being channelled into the proposed drainage system and all future dwellings having 2500L of dedicated at source detention. The total site discharge is $1.97\text{m}^3/\text{s}$ for 1% AEP
- The post-development peak flow rates from the site do not exceed the pre-development peak flow rates.
- Appendix E indicates the flow path of the stormwater runoff.

APPENDIX A - DRAINS LEGEND

LEGEND OF TYPICAL DRAINS SYMBOLS:

CATCHMENTS SHOWN THUS:

PITS SHOWN THUS:

NODES SHOWN THUS:

DETENTION BASINS SHOWN THUS:

PIPES SHOWN THUS:

OVERLAND FLOW PATHS SHOWN THUS:

OPEN CHANNELS SHOWN THUS:

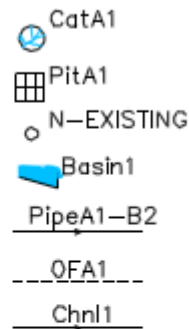
FLOW (m³/s) IN PIPES AND OPEN CHANNELS SHOWN THUS:

FLOW (m³/s) IN OVERLAND FLOW PATH SHOWN THUS:

FLOW (m³/s) FROM CATCHMENTS SHOWN THUS:

TOP WATER LEVEL IN PITS AND OPEN CHANNELS SHOWN THUS:

UPSTREAM AND DOWNSTREAM HYDRAULIC GRADE LEVEL IN PITS AND PIPES SHOWN THUS:



0.057

0.006

0.057

3.65

3.95
3.95



LEGEND FOR THE OUTPUT FROM
THE DRAINS PROGRAM

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RAT0 DATE OCT 2015 REF: DRAINS

APPENDIX B: DRAINS DATA – Drains Model



Figure 1: Overall site



Figure 2: Western Drainage



Figure 3: North Eastern Drainage



APPENDIX C: DRAINS 20% AEP EVENT - Diagram showing Peak Flows

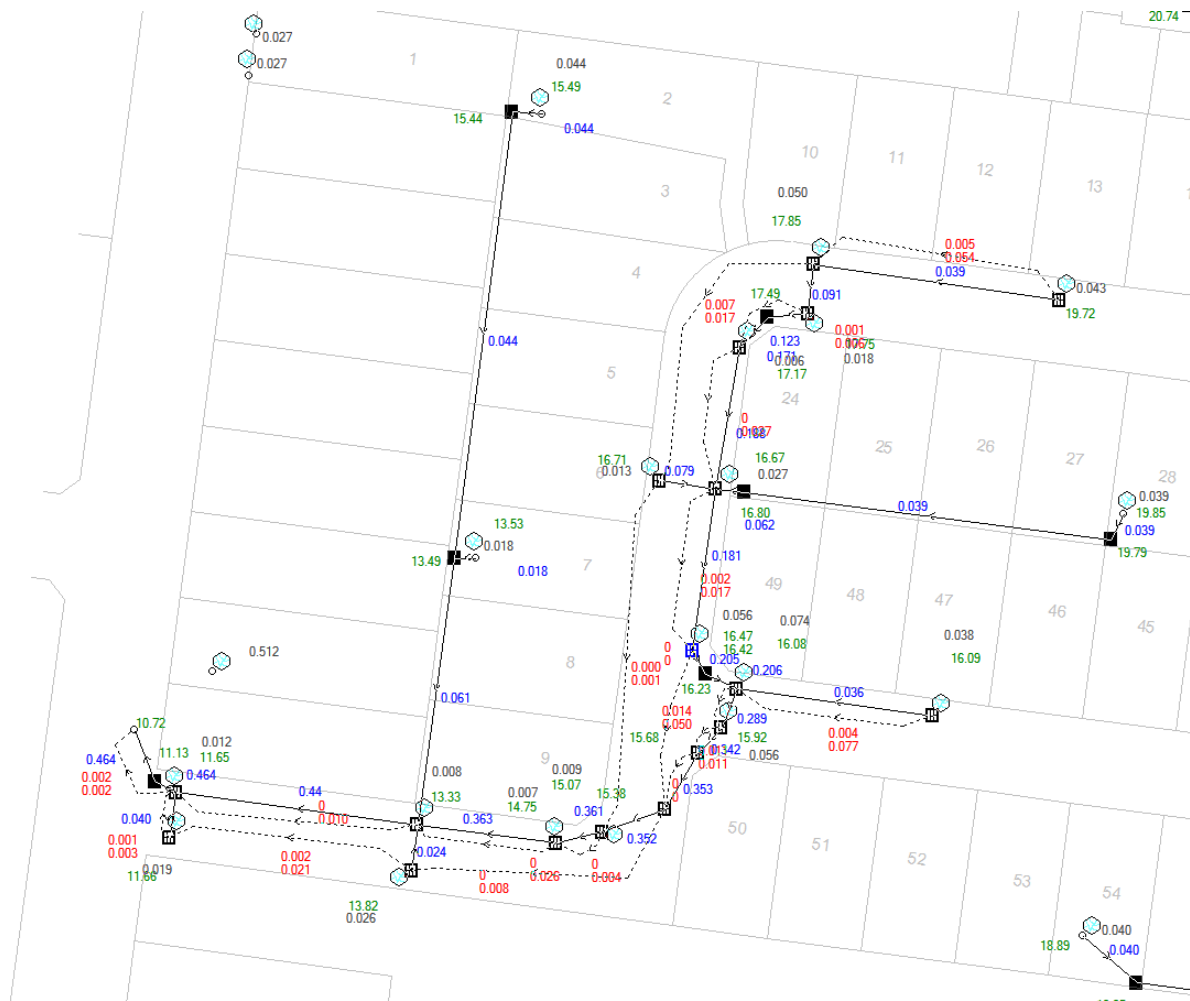


Figure 5: Western Drainage - 20% AEP

Western 20% AEP Summary:

Pre development flows for 20% AEP = $0.512\text{m}^3/\text{s}$

Post development flows for 20% AEP = $0.466\text{m}^3/\text{s}$

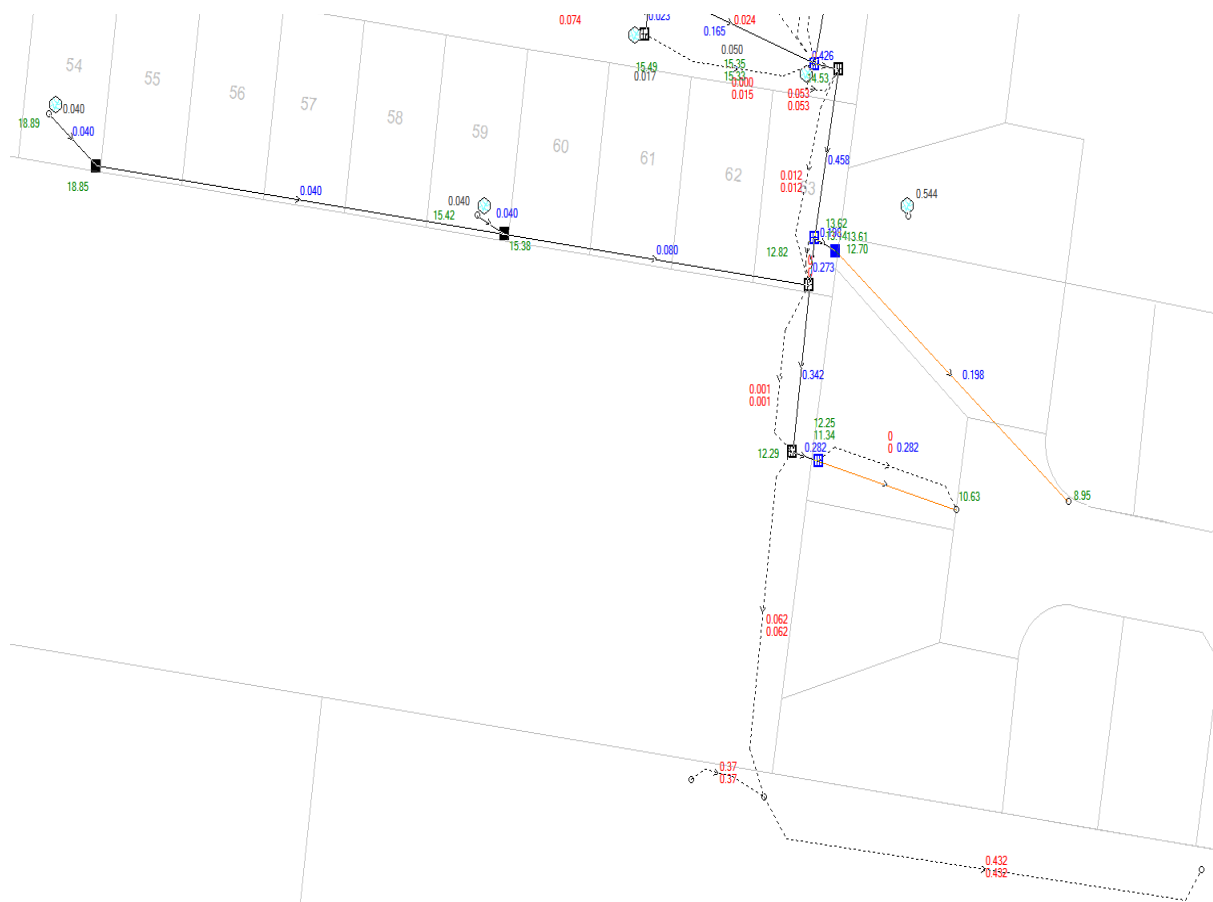


Figure 7: South Eastern Drainage - 20% AEP

Eastern 20% AEP Summary:

Pre development flows for 20% AEP = 0.544m³/s

Post development flows for 20% AEP = 0.481m³/s

APPENDIX D: DRAINS 1% AEP EVENT - Diagram showing Peak Flows

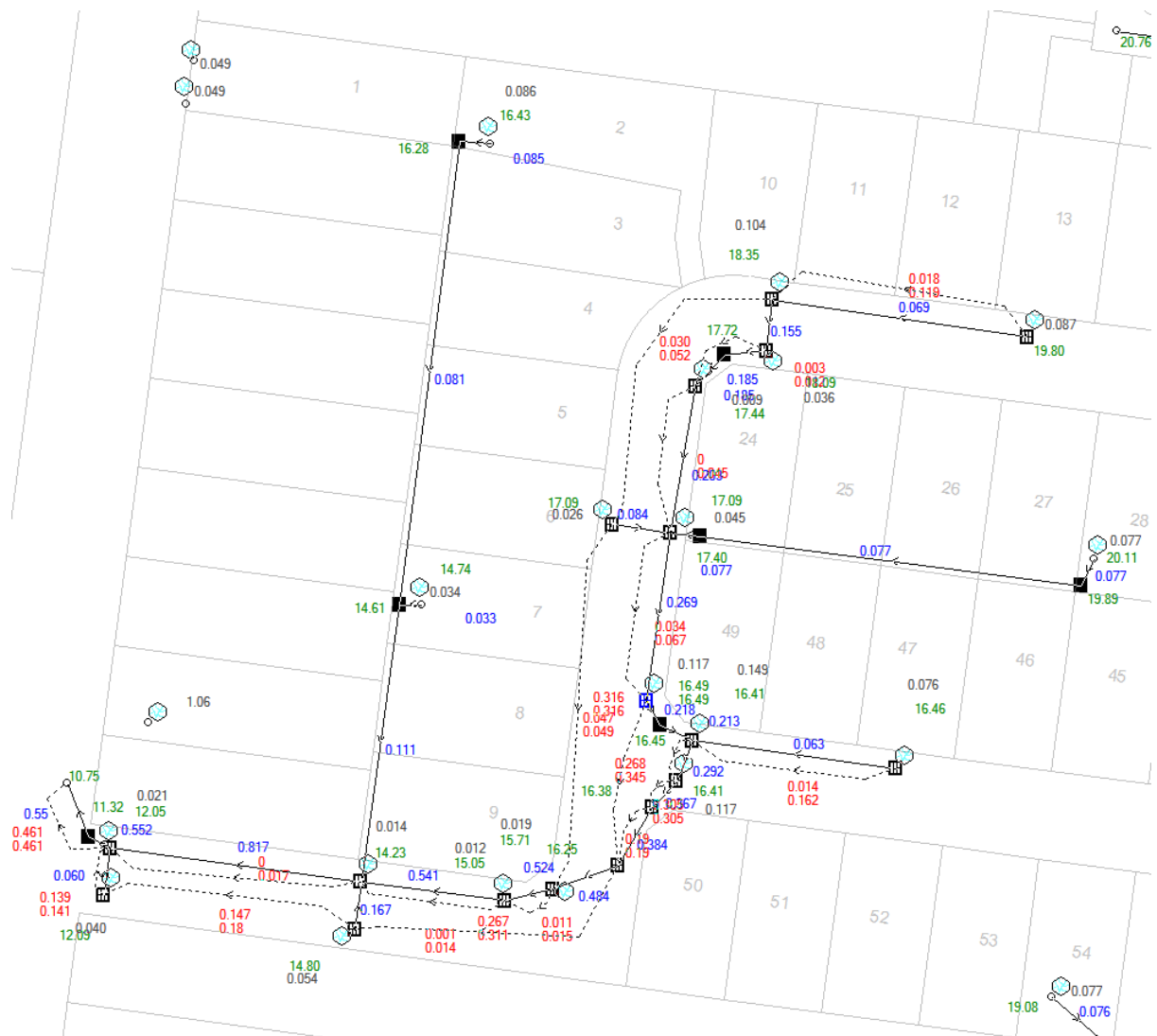


Figure 8: Western Drainage - 1% AEP

Western 1% AEP Summary:

Pre development flows for 1% AEP = 1.06m³/s

Post development flows for 1% AEP = 1.01m³/s

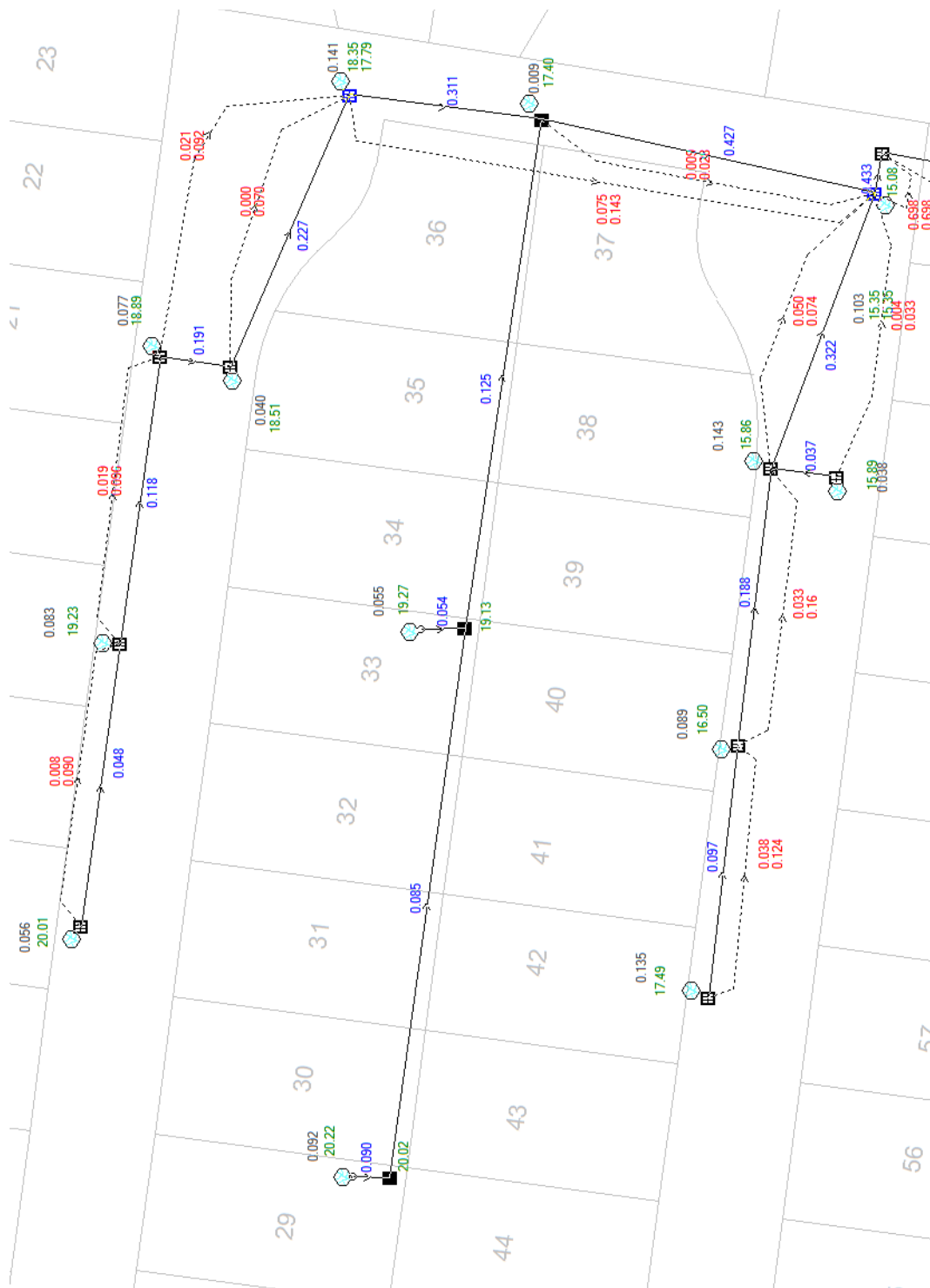


Figure 9: North Eastern Drainage - 1% AEP

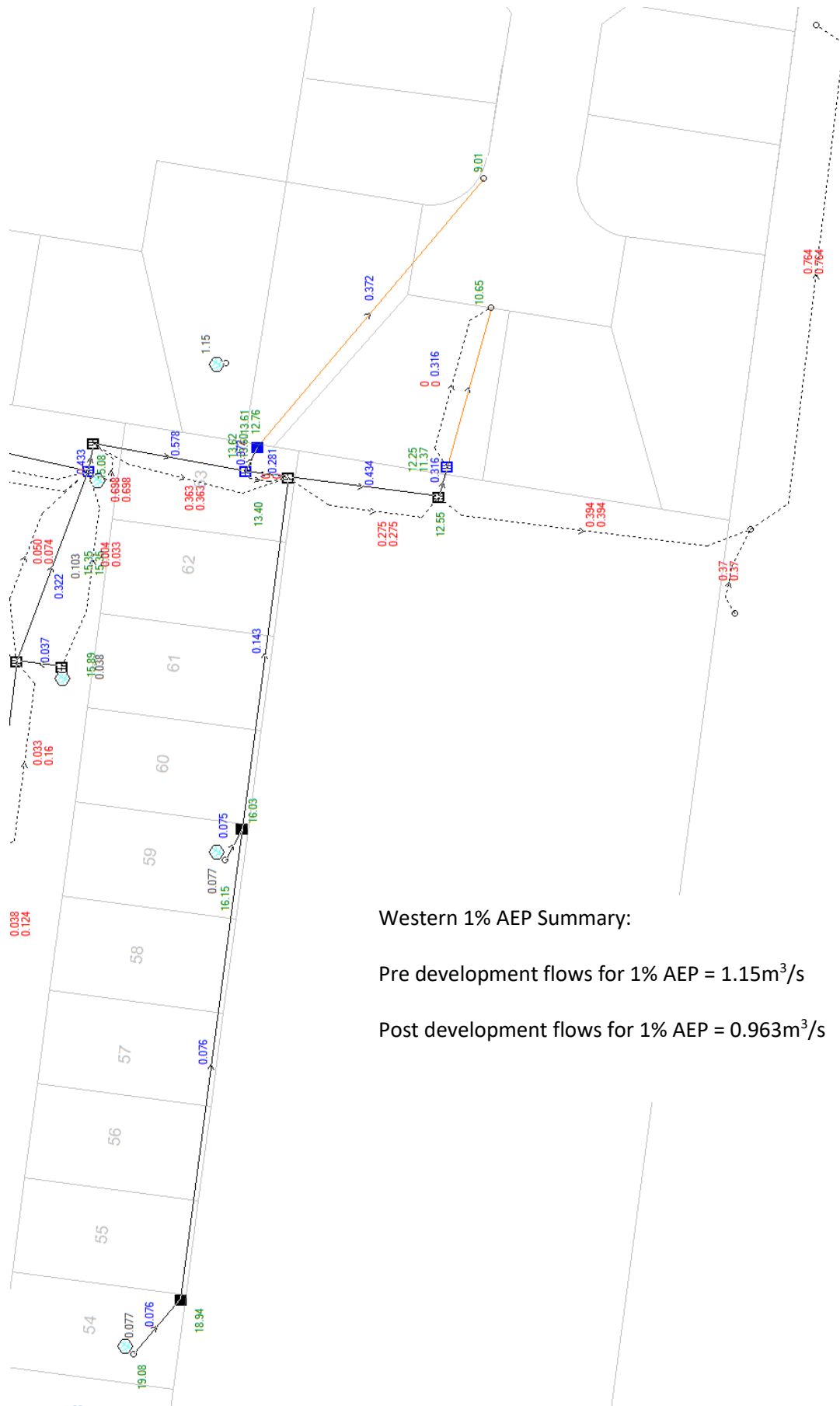


Figure 10: South Western Drainage - 1% AEP

Western 1% AEP Summary:

Pre development flows for 1% AEP = $1.15 \text{ m}^3/\text{s}$

Post development flows for 1% AEP = $0.963 \text{ m}^3/\text{s}$

APPENDIX E: ENGINEERING DRAWINGS
N24285- Preliminary Engineering Drawing

