INSYNC SERVICES
PTY LTD

Stormwater Drainage

Section 75W Submission Report

Mixed Residential Development

23-41 Lindfield Avenue and 7, 11 Havilah Lane, Lindfield

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Contents

1 Introduction

1.1 Background

Insync Services Pty Ltd have been engaged by Aqualand Projects Pty Ltd, to provide a stormwater drainage concept design and report to accompany an application to modify the Minister for Planning & Infrastructure's approval of Project Application MP 08_0244 for the mixed use development at 23-41 Lindfield Avenue and 7, 11 Havilah Lane, Lindfield.

The aim of this Section 75W Application stormwater drainage report is as follows;

- To determine site stormwater management requirements in association with the proposed development.
- To determine Water Sensitive Urban Design initiatives for the development.

1.2 Development Description

The proposed modifications to the development comprise the integration of Lot D in DP 347906 and Lot 4 in DP 713505 (39 and 41 Lindfield Avenue) into the development site and resulting amendments to the design of the mixed use development. Accordingly the modified description of development is summarised as follows:

- Demolition of existing structures on the site;
- Excavation of the site;
- Construction of a mixed use development with a maximum gross floor area (GFA) of 15,540m2, comprising:
    - 2,720m2 GFA retail floor space at ground floor within a single storey retail podium;
    - 141 residential apartments in two (2) towers above the retail podium;
    - Four (4) levels of parking for 255 vehicles;
    - 898m2 of communal open space at podium level between the two towers;
    - Associated landscaping, servicing and infrastructure; and
    - Fit-out and use of the proposed major retail tenancy as a supermarket.
- FSR at 3.91:1 (0.68:1 retail and 3.23:1 residential).

1.3 Site Description

The proposed mixed residential development at 23-41 Linfield Avenue and 7, 11 Havilah Lane Lindfield, will be constructed on a site bounded by existing buildings to the north, Havilah Lane to the east, Kochia Lane to the south, and Lindfield Avenue to the west.

The site has an overall area of approximately 3,974m^2, and all existing buildings on the site will be demolished to make way for the proposed development.

2 Design Data

2.1 Development Control Plan

Stormwater controls described herein have been extracted from Ku-Ring-Gai municipal council's policies as follows:

- Local Centre DCP:
  - Volume A, Part 8 - Mixed Use Development
  - Volume B, Part 2 - Site Design for Water Management
  - Volume C, Part 4 - Water Management

2.2 Site Classification

Local Centres DCP, Volume B Part 2 determines various site types as follows;

- TYPE 1 – minor alterations & additions to a single detached dwelling with an impervious area increase less than 100m^2.
- TYPE 2 – major alterations & additions to a single detached dwelling with an impervious area increase more than 100m^2.
- TYPE 3 – new single detached dwellings.
- TYPE 4 – dual occupancies.
- TYPE 5 – Multi-unit developments.
- TYPE 6 – business, commercial or retail premises.
- TYPE 7 – open space.
- TYPE 8 – sub-divisions.
- TYPE 9 – any other development

Based on the information provided above, this development is "TYPE 6".

2.3 Location Classification

Local Centres DCP, Volume B Part 2 determines various site locations as follows;

- LOCATION A – land that drains directly to a Council or Sydney Water drainage system in the road or drainage reserve (including a gutter, pipe or road) without the need for stormwater runoff to pass over another private property. This includes land traversed by or immediately adjoining a trunk drainage system where a legal right to connect already exists.
- LOCATION B – land that drains directly to a natural water body (see Dictionary of Definitions) that traverses (crosses) or intersects the subject site. At least one bank of the water body must be located within or immediately adjacent to the subject site.
- LOCATION C – land that drains directly to bushland.
- LOCATION D – Any other land, being land that must pass its stormwater over one or more intervening downstream private properties or public land to reach a recognised drainage system in a road reserve, drainage reserve or water body. This includes land where a private drainage easement is required (whether or not this has been obtained) and properties that are traversed by or immediately adjoining a trunk drainage system where there is no existing legal right to connect to the system.

Based on the information provided above, this development is classified as "LOCATION A".

2.4 Maximum Impervious Area

This site has been designed based on an impervious area of 100% of the site area.

2.5 Rainwater Tank Requirements

Volume C, Part 4b.4 of the Local Centres DCP defines the mandatory rainwater tank requirements for various development types as follows;

	DESCRIPTION	MINIMUM TANK STORAGE VOLUME	MINIMUM USE OF RETAINED WATER
TYPE 6	Business, commercial, retail	The minimum tank storage volume is that required to meet the 50% reduction in runoff days specified in control 4B.3-4, or compliance with BASIX or the Green Star Rating, whichever is the greater.	Number of connections required to meet the specified target. Must be connected to garden, podium plantings, and any green roofs and walls.

2.6 Stormwater Management – LOCATION A & LOCATION B

On-Site Detention is required for this development as per Volume C, Part 4 of the Town Centres DCP.

We have determined that the site sits under the following catchment:

Code	Catchment Area	Permitted Site Discharge (L/s/ha)	Minimum OSD Storage Volume (m^3/ha)
GC1	Gordon Creek	128	336

Generally, any required On-Site Detention (OSD) storage volume that has been provided in accordance with Volume C, Part 4 - Clause 4R.3 can be reduced in total capacity by a volume equal to that of the rainwater tank, up to a maximum of 10% of the total Site Storage Requirement (SSR), outlined in Volume C, Part 4 – Clause 4B.5.

2.7 Water Quality Controls

Water quality shall be provided for all stormwater flows from regular rainfall events (1 & 2 year ARI), treated to the following minimum standards;

Pollutant	Baseline Annual Pollutant Load (kg/ha/yr)	Standard To Be Achieved (hg/ha/yr)
Gross Pollutants	500	30% (70% reduction) = 150
Total Suspended Solids	900	15% (85% reduction = 135
Total Phosphorus	2	35% (65% reduction) = 0.7
Total Nitrogen	15	55% (45% reduction) = 8.25

2.8 Rainfall Intensity

The Ku-Ring-Gai local government area, is subject to the following rainfall intensities;

- 5 Year ARI storm of 5 minutes duration with a rainfall intensity of 157mm/h
- 20 year ARI storm of 5 minutes duration with a rainfall intensity of 201mm/h
- 100 Year ARI storm of 5 minutes duration with a rainfall intensity of 257mm/h

3 Assessment

3.1 Development Assessment

The proposed development has been assessed as follows with regard to the requirements of Local Centres DCP;

1. Site Area 3,974m^2
2. Number Of Units 141
3. Development Type 6
4. Location A
5. Rainwater Storage As determined by BASIX
6. Stormwater Detention Required
7. Catchment Gordon Creek 1 (GC1)
8. Water Quality Required

3.2 Overland Flow

The site is located at a high point within the local catchment area, bounded on three sides by existing roadways and on the remaining side by an existing building. As such there is no significant overland flow entering the site that would require any dedicated capture and transfer pipework system.

3.3 Site Stormwater Connection

A site stormwater connection for the development will be facilitated by the removal of redundant sections of Havilah Lane stormwater main that are currently located within the development site) and making a new 375mm connection to the remaining stormwater main just inside the development sites north east boundary.

3.4 System Description

Stormwater detention will be provided via a combination of rainwater storage and dedicated on-site stormwater detention storage. The facilities shall be constructed with in-situ concrete, having two separate tanks, located as indicated on the drawings.

The rainwater storage tank will be located between the ground floor slab and lower ground floor slab within the southern corner of lower ground level carpark. The tank is located having the tank footprint located outside the ground floor building line. The rainwater storage tank will be accessed via two separate 900mm square pit covers located outside of the main building line, adjacent to Kochia Lane. Rainwater from roof levels of the building will be piped to discharge directly into the rainwater storage tank, after which any excess discharge into the rainwater storage tank will overflow into the stormwater detention tank. Key dimensions of the rainwater storage tank are as follows;

- Top Water Level RL 98.20
- Bottom Water Level RL 94.00
- Effective Depth 4.20m
- Tank Base Area 21.24m^2 (5.9m x 3.6m)
- Tank Volume 89.208m^3

The on-site stormwater detention tank will be located below the loading dock at lower ground level, having the tank footprint located within the loading dock footprint. The stormwater detention tank will be accessed via two separate 900mm square pit covers located in the loading dock. Stormwater run-off from all balcony and podium areas will be piped to discharge directly into the stormwater detention tank. Detention tank outlet control will be provided by an orifice plate to limit site stormwater discharge to the maximum flow of 44.6L/s as determined for the site stormwater controls. An internal overflow weir will be provided to allow for full 100 year ARI overflow in the event of a control outlet blockage. Key components of the

stormwater detention tank are as follows;

- Effective Depth 1.2m
- Required Site Storage Requirement 133.53m^3
- Permissible Site Discharge 50.87L/s
- Orifice Diameter 149mm

The On-Site Stormwater Detention tank can be reduced in capacity by deducting a volume equal to the size of the rainwater tank up to a maximum of 10% of the total site storage requirement. Therefore our actual On-Site Stormwater Detention tank storage requirement is:

- Required On-Site Detention Tank Volume 133.53m^3 – 13.35m^3 = 120.18m^3

The designed OSD tank has dimensions as follows;

- Tank Base Area 112.68m^2
- Top Water Level RL 93.30
- Bottom Water Level RL 92.10
- Effective Depth 1.20m
- Effective Storage Volume 135.398m^3

It can be seen that the total minimum site storage requirement of 120.18m^3 has been exceeded.

3.5 Rainwater Re-use

A rainwater harvesting system will be provided on the project in order to comply with BASIX requirements, and therefore also indirectly comply with Council requirements for rainwater re-use.

The BASIX assessment has determined that the rainwater harvesting system must have capacity to supply rainwater to be used for the following purposes;

- Communal area landscape irrigation to an area of not less than 476.5m^2
- Water supply to the communal carwash facility.

Our rainwater harvesting system has been designed with regard to the following design parameters;

- Bureau of Meteorology rainfall data from the Macquarie Park weather station.
- Minimum catchment area of 2089.2m^2 (total roof area of Building A and Building B combined)
- Minimum Tank Volume 33.693m^3

The total available rainwater supply with these parameters has been calculated at 43.508kL/week, which easily exceeds the BASIX requirement.

In addition we have provided storage in excess of the minimum required tank capacity at 33.693m^3 (actual tank capacity 89.208m^3).

3.6 Water Quality

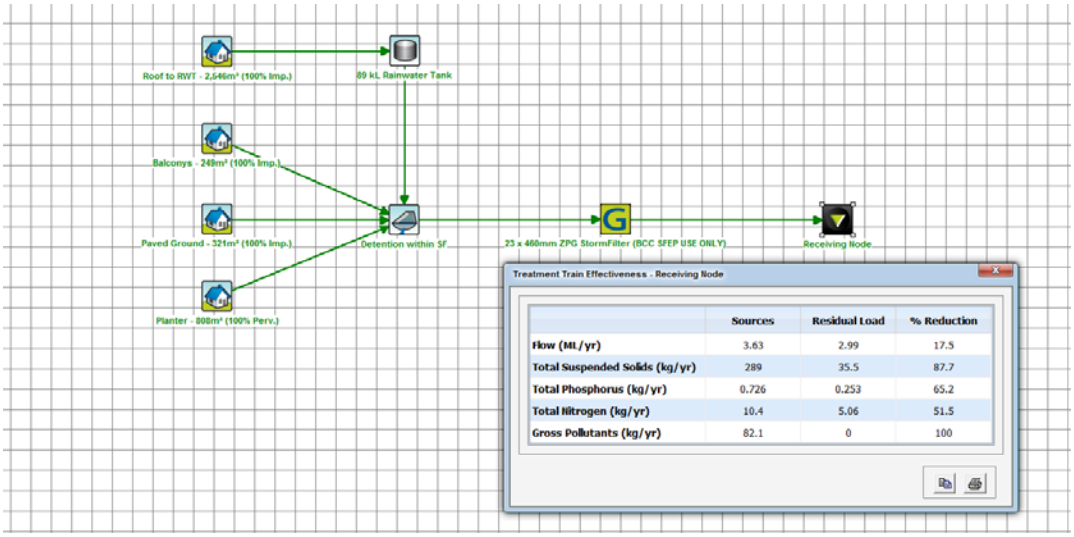
Stormwater quality will be addressed via three separate treatment processes as follows;

- A dedicated vehicle wash bay has been provided which includes an oil separation plant to capture all run-off from the wash down process, and provide the required pre-treatment (oil & grease removal) prior to discharge of the waste water into the sewer drainage system.
- Roof water from the development will discharge into the rainwater storage tank, which

will provide for a reduction in total suspended solids by settlement over time as well as tank inlet screening.

- The on-site stormwater detention tank will be designed to incorporate Stormwater 360 “Stormfilter” system to treat all runoff, roof water and car park drainage before it enters the OSD tank.

Targets outlined in the Local Centres DCP have been met and modelled in MUSIC to demonstrate compliance.



	Sources	Residual Load	% Reduction
Flow (ML/yr)	3.63	2.99	17.5
Total Suspended Solids (kg/yr)	289	35.5	87.7
Total Phosphorus (kg/yr)	0.726	0.253	65.2
Total Nitrogen (kg/yr)	10.4	5.06	51.5
Gross Pollutants (kg/yr)	82.1	0	100

The MUSIC Modelling has been based on the following guidelines and parameters:

- MUSIC Version 6.0.4
- Rainfall station 66062 SYDNEY, 6 minute time step from 1963 – 1993
- Ku-Ring-Gai Council source nodes utilising modified impervious areas, rainfall threshold, soil properties and pollutant concentrations.
- Blacktown City Council approved Stormwater360 nodes.
- No drainage routing between nodes.

The system has been modelled to meet the current Ku-Ring-Gai Council Local Centres DCP water quality control objectives, we therefore confirm that the development will meet Council minimum requirements in terms of Water Quality, via inclusion of the treatment processes outlined above.

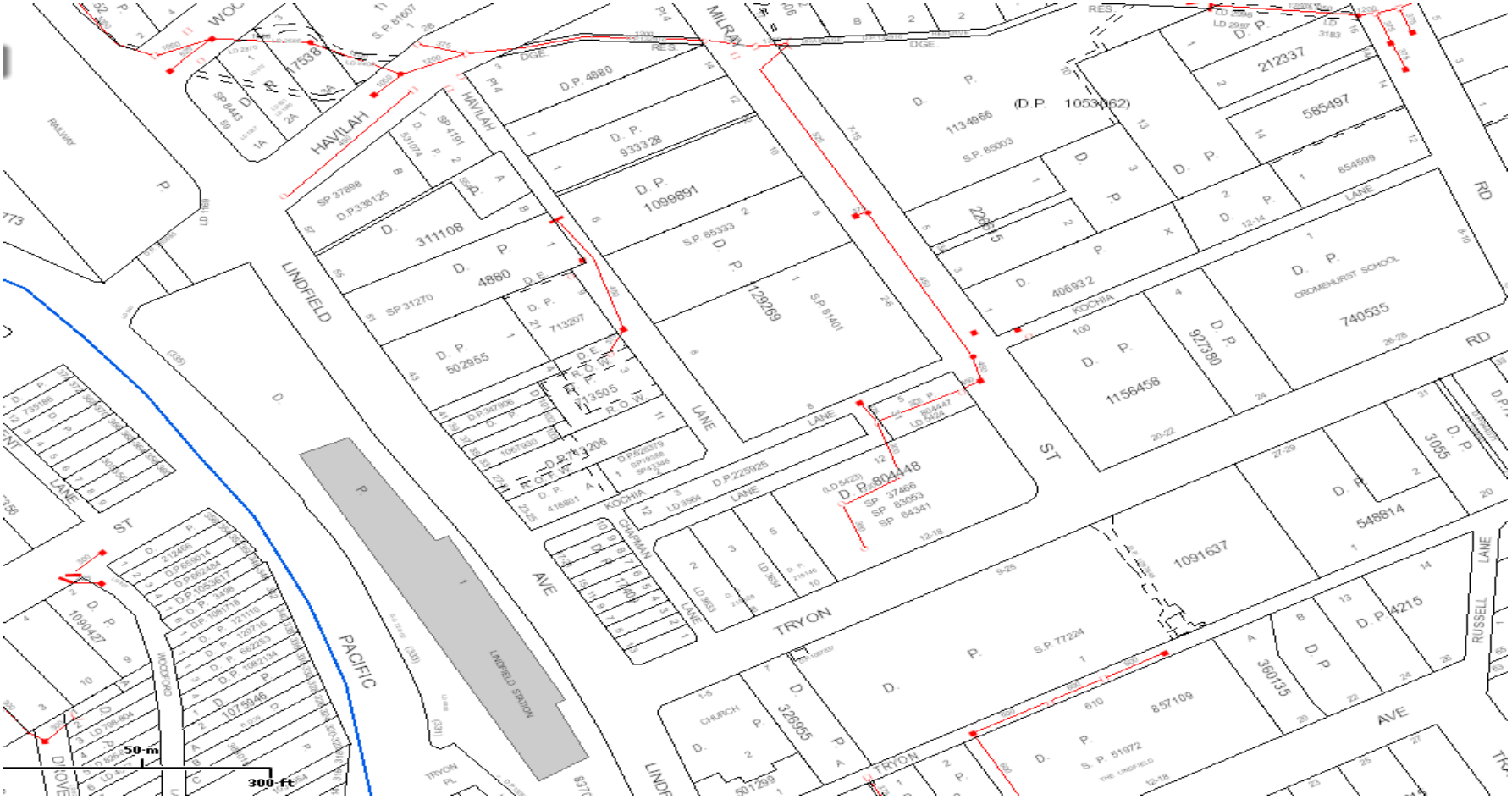
4 APPENDIX

4.1 Stormwater Main Diagram

4.2 Detention Calculations

4.3 Rainwater Tank Calculations

23-31 Lindfield Avenue, Lindfield



Appendix 1
Drainage Catchments for On-site Detention

17-03-2004

Project Name: Mixed Residential Development
Project Address: 23-37 Lindfield Avenue, Lindfield
Project Number: 20140085
Date: 19/01/2015
Engineer: Blake Mead

OSD Parameters

Code	Catchment Area	Permitted Site Discharge (L/s/ha)	Minimum OSD Storage Volume (m^3/ha)
AC1	Avondale Creek	102	398
AC2	Avondale Creek	166	241
BB1	Blackbutt Creek	141	302
BB2	Blackbutt Creek	166	241
BC1	Cowan Creek	96	414
BC2	Cowan Creek	166	241
BG1	Blue Gum Creek	147	287
BG2	Blue Gum Creek	166	241
CC	Coups Creek	132	325
CR	Cowan River	166	241
FV1	Fox Valley	129	332
FV2	Gordon Creek	166	241
GC1	Gordon Creek	128	336
GC2	Ku-Ring-Gai Creek	166	241
KC1	Ku-Ring-Gai Creek	139	308
KC2	Lady Game Creek	166	241
LG1	Lady Game Creek	147	287
LG2	Lane Cove River	166	241
LC	Lane Cove River	166	241
LQ1	Loftberg Quarry Creek	153	272
LQ2	Loftberg Quarry Creek	166	241
LJ1	Lovers Jump Creek	94	417
LJ2	Lovers Jump Creek	166	241
MH	Middle Harbour	166	241
MC1	Moores Creek	136	315
MC2	Moores Creek	166	241
RC1	Rocky Creek	124	345
RC2	Rocky Creek	166	241
SG1	Spring Gully Creek	134	320
SG2	Spring Gully Creek	166	241

Catchment Code **GC1**

Site Area (m) **3974.0**

Basic Catchment PSD	128	(A)
Basic Catchement SSR	336	(B)
Maximum Impervious Site A	100%	(C)
By-Pass Area	0.0	
Total Impervious Area	3974.0	(Site Area*C) (D)
Impervious By-Pass	0.0	(E)

Basic PSD	50.9	(Site Area/10,000*C*A) (Flow 1)
PSD Correction Factor	0.0	(E/D) (must be <0.25) (F)
PSD Adjustment	0.0	(Flow 1*F) (Flow 2)
Final PSD (L/s)	**50.9**	(Flow 1-Flow 2)

Basic OSD Storage (m^3)	**133.526**	(Site Area/10,000*C*B) (SSR 1)
Landscape Storage (m^3)	160.232	(SSR 1*1.2) (SSR 2)

Outlet Depth (m)	1.450
Outlet Diameter (mm)	142

Project: 23-37 Lindfield Avenue, Lindfield
Project Number: 20140085
Date: 4/09/2014
Engineer: Brett Lipscombe

Actual Water Consumption	Indoor Water (kL)	Outdoor Water (kL)	Heat Rjection Water (kL)	Total Water (kL)
January	0.000	100.017	0.000	**100.017**
February	0.000	75.001	0.000	**75.001**
March	0.000	42.361	0.000	**42.361**
April	0.000	50.033	0.000	**50.033**
May	0.000	63.851	0.000	**63.851**
June	0.000	0.000	0.000	**0.000**
July	0.000	25.397	0.000	**25.397**
August	0.000	26.160	0.000	**26.160**
September	0.000	73.810	0.000	**73.810**
October	0.000	64.566	0.000	**64.566**
November	0.000	57.799	0.000	**57.799**
December	0.000	116.266	0.000	**116.266**
Total Water Consumption	**0.000**	**695.261**	**0.000**	**695.261**

Rainfall Data	Average Rainfall (mm)	Rain Days>1mm	Average Storm (mm)	Weeks
January	120.1	9.1	13.2	4.4
February	142.6	8.4	17.0	4
March	131.1	9.3	14.1	4.4
April	110.0	7.4	14.9	4.3
May	86.0	7.3	11.8	4.4
June	114.0	7.6	15.0	4.3
July	56.7	5.2	10.9	4.4
August	55.1	5.3	10.4	4.4
September	60.1	5.3	11.3	4.3
October	84.5	7.3	11.6	4.4
November	93.7	8.9	10.5	4.3
December	86.0	7.3	11.8	4.4
Annual	**1143.7**	**88.4**	**17.0**	**52**

Building Data

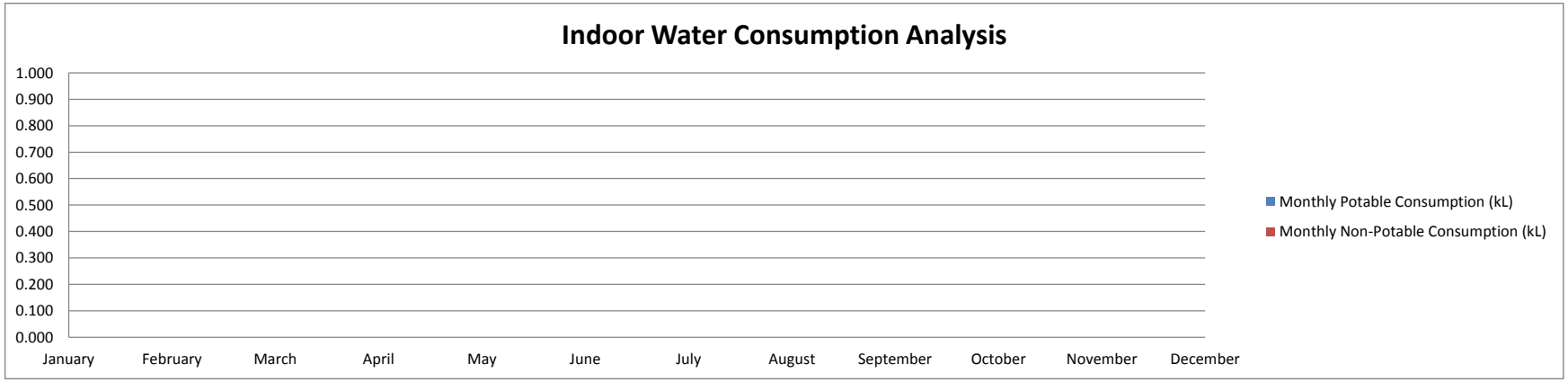
Total Gross Floor Area (m2)	
Total Site Area (m2)	3482
Harvestable Catchment (%)	60%
Harvestable Catchment (m2)	2089.2
Run-Off Coefficient	0.95

Tank Sizes	Minimum	Option 1	Option 2	Maximum
Tank Size (L)	33.693	104.449	175.205	283.024
Weekly Collection (kL)	43.508	43.508	43.508	43.508
Weekly Contribution (kL)	13.370	13.370	16.740	18.813
Weekly Overflow (kL)	29.489	28.129	26.768	24.695
Annual Potable Cold Water Top Up (kL)	0.000	0.000	0.000	0.000
Annual Rainwater Contirbution	100.0%	100.0%	100.0%	100.0%
Rainwater Available Per Day (kL)	0.257	0.257	0.322	0.362

Project: 23-37 Lindfield Avenue, Lindfield
Project Number: 20140085
Date: 4/09/2014
Engineer: Brett Lipscombe

Location	Daily Consumption (L/day)	Weekly Consumption (kL)	Weekly Potable Consumption (kL)	Weekly Non-Potable Consumption (kL)
Toilets	0	0.000		0.000
Urinals	0	0.000		0.000
Tapware	0	0.000	0.000	
Showers	0	0.000	0.000	
Totals	**0**	**0.000**		**0.000**

Month	Weeks Per Month	Monthly Potable Consumption (kL)	Monthly Non-Potable Consumption (kL)	Monthly Totals (kL)
January	4.4	0.000	0.000	0.000
February	4	0.000	0.000	0.000
March	4.4	0.000	0.000	0.000
April	4.3	0.000	0.000	0.000
May	4.4	0.000	0.000	0.000
June	4.3	0.000	0.000	0.000
July	4.4	0.000	0.000	0.000
August	4.4	0.000	0.000	0.000
September	4.3	0.000	0.000	0.000
October	4.4	0.000	0.000	0.000
November	4.3	0.000	0.000	0.000
December	4.4	0.000	0.000	0.000
Totals	**52**	**0.0**	**0.0**	**0.000**



Project: 23-37 Lindfield Avenue, Lindfield
Project Number: 20140085
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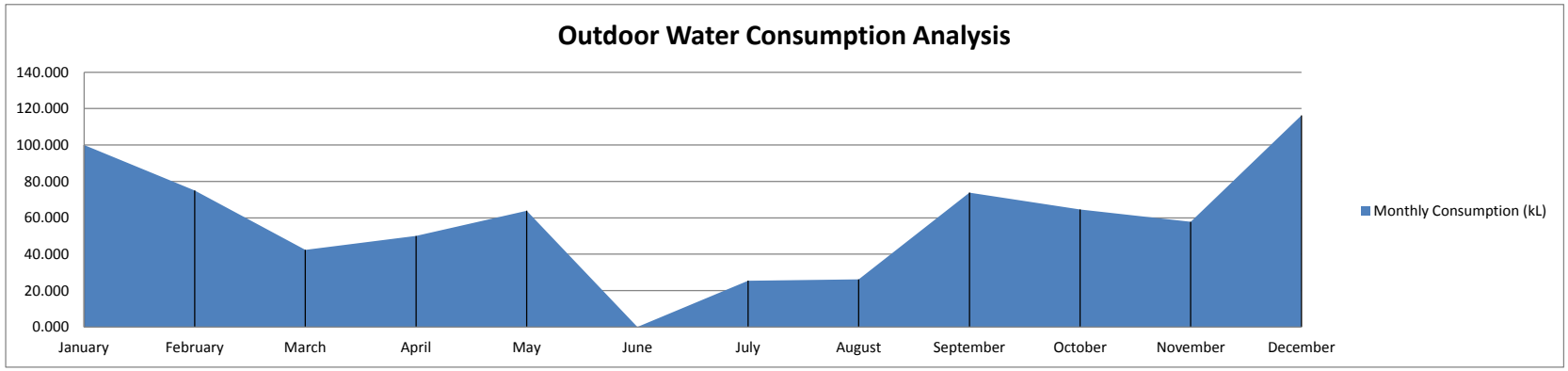
Engineer: Brett Lipscombe

Month	Weeks Per Month	Applications Per Week	Irrigation Rate	Requirement	Rainfall	Irrigation Area	Monthly Consumption (kL)	Weekly Consumption (kL)
January	4.4	3.0	25	330	120.1	476.5	100.017	22.731
February	4	3.0	25	300	142.6	476.5	75.001	18.750
March	4.4	2.0	25	220	131.1	476.5	42.361	9.627
April	4.3	2.0	25	215	110.0	476.5	50.033	11.635
May	4.4	2.0	25	220	86.0	476.5	63.851	14.512
June	4.3	1.0	25	108	114.0	476.5	0.000	0.000
July	4.4	1.0	25	110	56.7	476.5	25.397	5.772
August	4.4	1.0	25	110	55.1	476.5	26.160	5.945
September	4.3	2.0	25	215	60.1	476.5	73.810	17.165
October	4.4	2.0	25	220	84.5	476.5	64.566	14.674
November	4.3	2.0	25	215	93.7	476.5	57.799	13.442
December	4.4	3.0	25	330	86.0	476.5	116.266	26.424
Totals	**52**						**695.261**	



Project: 23-37 Lindfield Avenue, Lindfield
Project Number: 20140085
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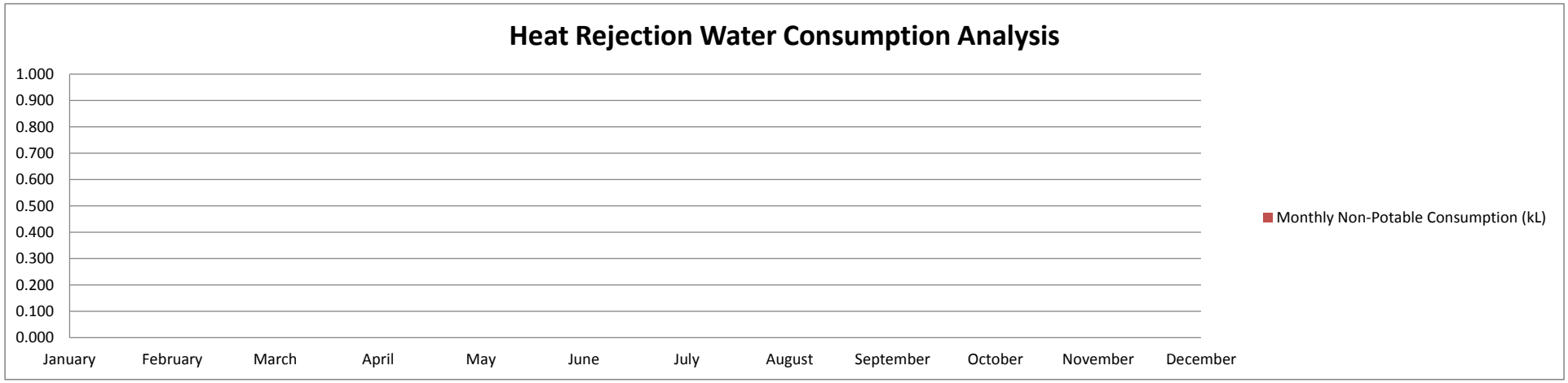
Engineer: Brett Lipscombe

Plant	Building Area (m2)	Rate (L/day/m2)	Weekly Non-Potable Consumption (kL)
Cooling Towers	0	1.20	0.000
Totals	**0**		**0.000**

Month	Weeks Per Month	Monthly Non-Potable Consumption (kL)
January	4.4	0.000
February	4	0.000
March	4.4	0.000
April	4.3	0.000
May	4.4	0.000
June	4.3	0.000
July	4.4	0.000
August	4.4	0.000
September	4.3	0.000
October	4.4	0.000
November	4.3	0.000
December	4.4	0.000
Totals	**52**	**0.000**



Project: 23-37 Lindfield Avenue, Lindfield
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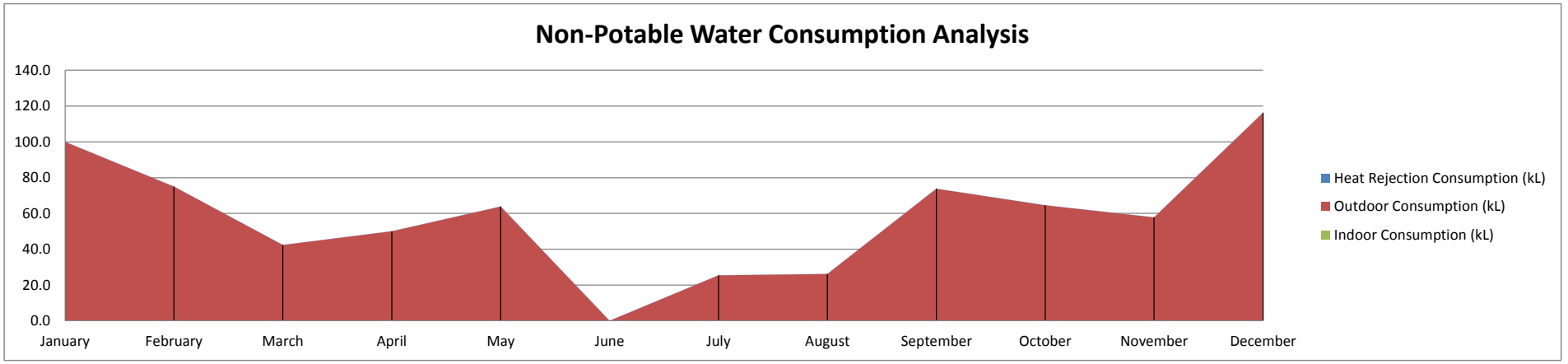
Engineer: Brett Lipscombe

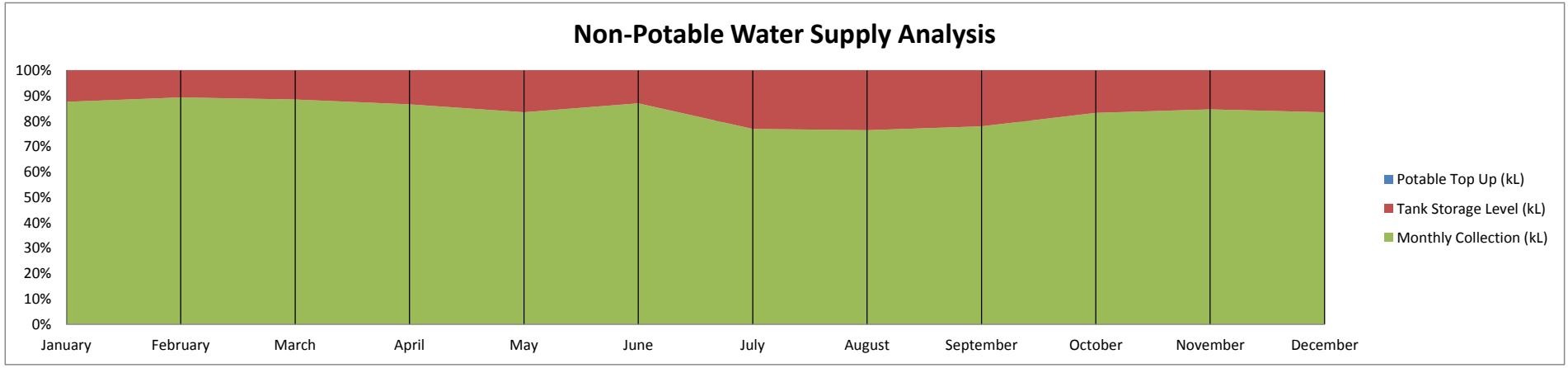
Monthly Water Balance	Rainfall Collection (kL)	Indoor Consumption (kL)	Outdoor Consumption (kL)	Heat Rejection Consumption (kL)	Total Consumption (kL)
January	238.367274	0.0	100.0	0.000	100.017
February	283.023924	0.0	75.0	0.000	75.001
March	260.199414	0.0	42.4	0.000	42.361
April	218.3214	0.0	50.0	0.000	50.033
May	170.68764	0.0	63.9	0.000	63.851
June	226.26036	0.0	0.0	0.000	0.000
July	112.534758	0.0	25.4	0.000	25.397
August	109.359174	0.0	26.2	0.000	26.160
September	119.282874	0.0	73.8	0.000	73.810
October	167.71053	0.0	64.6	0.000	64.566
November	185.970138	0.0	57.8	0.000	57.799
December	170.68764	0.0	116.3	0.000	116.266
Totals	**2262.405126**	**0**		**0.000**	**695.261**



Project: 23-37 Lindfield Avenue, Lindfield
Project Number: 20140085
Date: 4/09/2014
Engineer: Brett Lipscombe

Minimum Tank Size (m3) **33.693**

Month	Monthly Collection (kL)	Monthly Consumption (kL)	Monthly Balance (kL)	Tank Storage Level (kL)	Tank Overflow (kL)	Potable Top Up (kL)
January	238.367274	100.0	138.3	33.693	104.657	0
February	283.023924	75.0	208.0	33.693	208.023	0
March	260.199414	42.4	217.8	33.693	217.839	0
April	218.3214	50.0	168.3	33.693	168.289	0
May	170.68764	63.9	106.8	33.693	106.837	0
June	226.26036	0.0	226.3	33.693	226.260	0
July	112.534758	25.4	87.1	33.693	87.137	0
August	109.359174	26.2	83.2	33.693	83.199	0
September	119.282874	73.8	45.5	33.693	45.473	0
October	167.71053	64.6	103.1	33.693	103.145	0
November	185.970138	57.8	128.2	33.693	128.171	0
December	170.68764	116.3	54.4	33.693	54.422	0
Totals	**2262.405126**	**695.26115**			**1533.451**	**0**

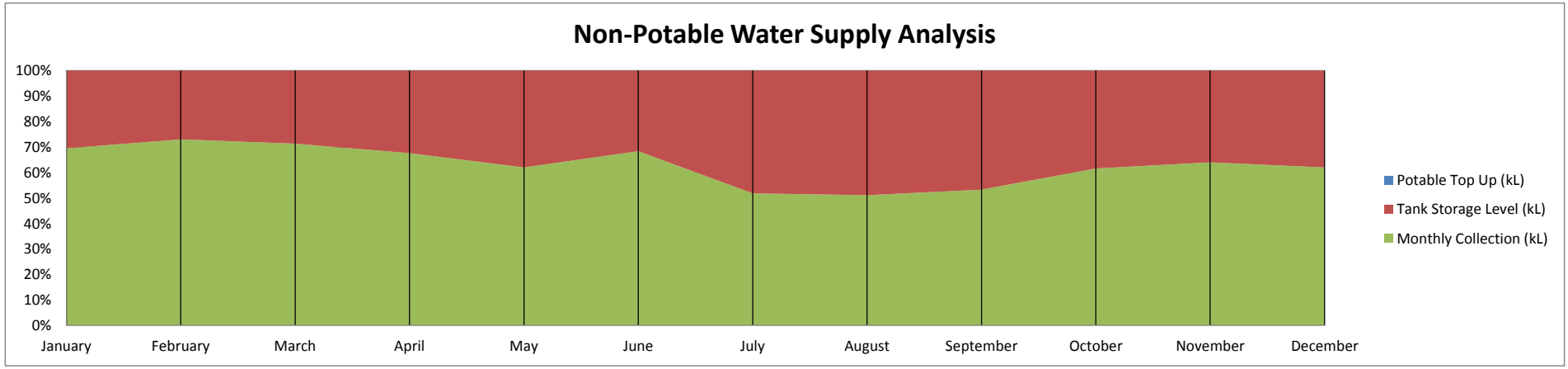


Rainwater Contribution 100.0%

Project: 23-37 Lindfield Avenue, Lindfield
Project Number: 20140085
Date: 4/09/2014
Engineer: Brett Lipscombe

Option 1 Tank Size (m3) 104.449

Month	Monthly Collection (kL)	Monthly Consumption (kL)	Monthly Balance (kL)	Tank Storage Level (kL)	Tank Overflow (kL)	Potable Top Up (kL)
January	238.367274	100.0	138.3	104.449	33.901	0
February	283.023924	75.0	208.0	104.449	208.023	0
March	260.199414	42.4	217.8	104.449	217.839	0
April	218.3214	50.0	168.3	104.449	168.289	0
May	170.68764	63.9	106.8	104.449	106.837	0
June	226.26036	0.0	226.3	104.449	226.260	0
July	112.534758	25.4	87.1	104.449	87.137	0
August	109.359174	26.2	83.2	104.449	83.199	0
September	119.282874	73.8	45.5	104.449	45.473	0
October	167.71053	64.6	103.1	104.449	103.145	0
November	185.970138	57.8	128.2	104.449	128.171	0
December	170.68764	116.3	54.4	104.449	54.422	0
Totals	**2262.405126**	**695.26115**			**1462.695**	**0**

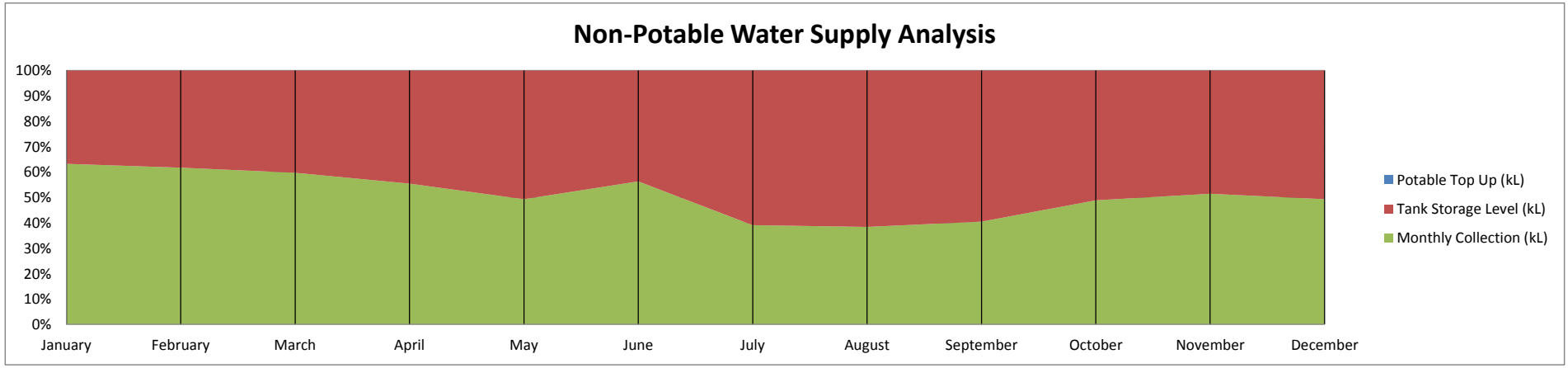


Rainwater Contribution 100.0%

Project: 23-37 Lindfield Avenue, Lindfield
Project Number: 20140085
Date: 4/09/2014
Engineer: Brett Lipscombe

Option 2 Tank Size (m3) 175.205

Month	Monthly Collection (kL)	Monthly Consumption (kL)	Monthly Balance (kL)	Tank Storage Level (kL)	Tank Overflow (kL)	Potable Top Up (kL)
January	238.367274	100.0	138.3	138.350	0.000	0
February	283.023924	75.0	208.0	175.205	171.167	0
March	260.199414	42.4	217.8	175.205	217.839	0
April	218.3214	50.0	168.3	175.205	168.289	0
May	170.68764	63.9	106.8	175.205	106.837	0
June	226.26036	0.0	226.3	175.205	226.260	0
July	112.534758	25.4	87.1	175.205	87.137	0
August	109.359174	26.2	83.2	175.205	83.199	0
September	119.282874	73.8	45.5	175.205	45.473	0
October	167.71053	64.6	103.1	175.205	103.145	0
November	185.970138	57.8	128.2	175.205	128.171	0
December	170.68764	116.3	54.4	175.205	54.422	0
Totals	**2262.405126**	**695.26115**			**1391.939**	**0**

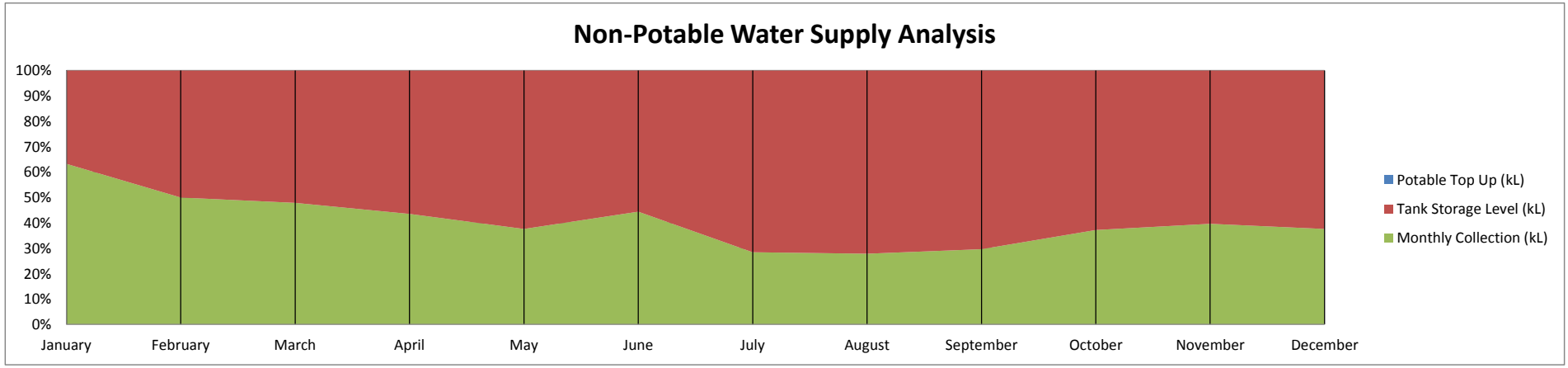


Rainwater Contribution 100.0%

Project: 23-37 Lindfield Avenue, Lindfield
Project Number: 20140085
Date: 4/09/2014
Engineer: Brett Lipscombe

Maximum Tank Size (m3) **283.024**

Month	Monthly Collection (kL)	Monthly Consumption (kL)	Monthly Balance (kL)	Tank Storage Level (kL)	Tank Overflow (kL)	Potable Top Up (kL)
January	238.367274	100.0	138.3	138.350	0.000	0
February	283.023924	75.0	208.0	283.024	63.349	0
March	260.199414	42.4	217.8	283.024	217.839	0
April	218.3214	50.0	168.3	283.024	168.289	0
May	170.68764	63.9	106.8	283.024	106.837	0
June	226.26036	0.0	226.3	283.024	226.260	0
July	112.534758	25.4	87.1	283.024	87.137	0
August	109.359174	26.2	83.2	283.024	83.199	0
September	119.282874	73.8	45.5	283.024	45.473	0
October	167.71053	64.6	103.1	283.024	103.145	0
November	185.970138	57.8	128.2	283.024	128.171	0
December	170.68764	116.3	54.4	283.024	54.422	0
Totals	**2262.405126**	**695.26115**			**1284.120**	**0**



Rainwater Contribution 100.0%