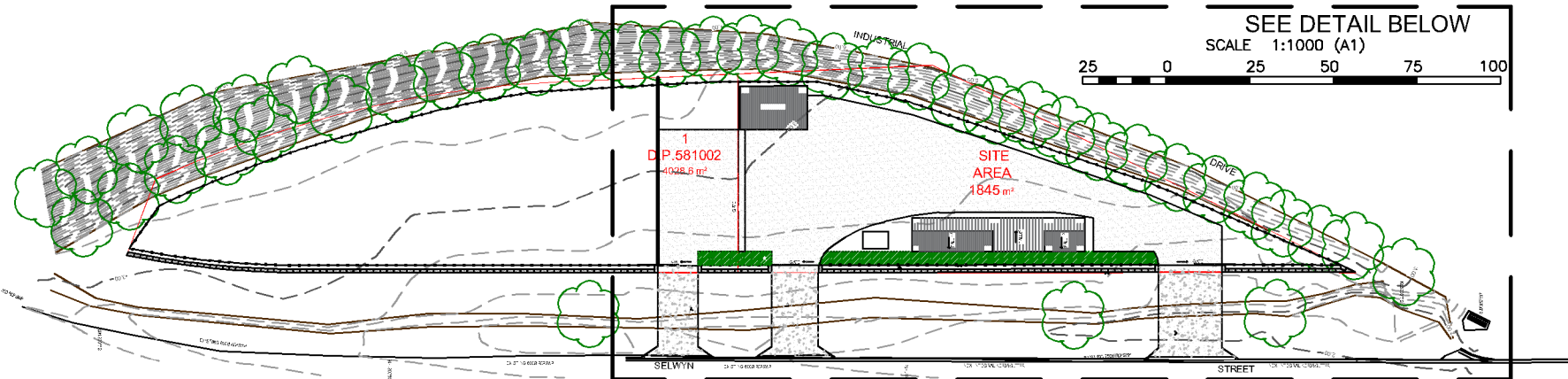


- 1 DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF COUNCIL'S DCP, CONSTRUCTION SPECIFICATION AND STANDARD DRAWINGS WHERE APPLICABLE.
- 2 ALL WORK IS TO BE IN ACCORDANCE WITH AS 3500.3:2018
- 3 ALL EXISTING SERVICES INCLUDING EXISTING DRAINAGE STRUCTURES AND PIPES ARE TO BE LOCATED PRIOR TO WORK COMMENCING
- 4 U-PVC PIPES TO BE SEWER GRADE DWV TO AS1260:2017
- 5 MINIMUM PIPE FALLS: 1.0%
- 6 DOWNPIPE & RAINWATER TANK LOCATIONS ARE DIAGRAMATIC ONLY AND FINAL LOCATIONS TO BE DETERMINED ONSITE BETWEEN THE PLUMBER AND THE OWNER.
- 7 TANK MANUFACTURER, TYPE AND STYLE ETC TO BE NOMINATED BY THE CLIENT AT CC STAGE. MINIMUM NOMINATED CAPACITY TO BE INSTALLED.
- 8 ALL PIPES TO BE 100Ø UPVC UNLESS NOTED OTHERWISE ON PLAN
- 9 SEDIMENT AND EROSION CONTROLS TO BE PROVIDED IN ACCORDANCE WITH ALL LOCAL AND STATUTORY REGULATIONS
- 10 REFER TO ARCHITECT FOR BUILDING AND DRIVEWAY SETOUT
- 11 PIPE POSITIONS ARE INDICATIVE ONLY. FINAL POSITIONS TO BE DETERMINED ON SITE AND SHALL CONFORM WITH THE INTENT OF THIS DESIGN.
- 12 THE ENGINEER SHALL BE ADVISED IF ANY EXISTING STRUCTURES ARE WITHIN THE ZONE OF INFLUENCE OF ANY EXCAVATION. ANY REQUIRED UNDERPINNING OR PIERING SHALL BE PROVIDED
- 13 WHERE EXCAVATING ADJACENT TO BOUNDARIES ADEQUATE SHORING SHALL BE PROVIDED
- 14 THE CONTRACTOR SHALL ENSURE THAT ALL NEW STRUCTURES ARE FOUNDED BELOW THE ZONE OF INFLUENCE OF ANY EXCAVATIONS WHETHER THEY BE FOR PIPELINES, TANKS OR OTHER DRAINAGE FACILITIES
- 15 UNLESS NOTED OTHERWISE, THE MAXIMUM DEVIATION FROM NOMINATED LEVELS SHALL BE +/- 10MM, EXCEPT IN INSTANCES WHERE SUCH A DEVIATION COULD HAVE ADVERSE EFFECT, IN WHICH CASE, THE DESIGNER SHALL BE CONSULTED
- 16 LOAD CLASS FOR COVERS/GRATES SHALL BE IN ACCORDANCE WITH AS3996 - 1992. COMMON CASES FOR RESIDENTIAL SITES ARE SUMMARIZED IN THE FOLLOWING TABLE:

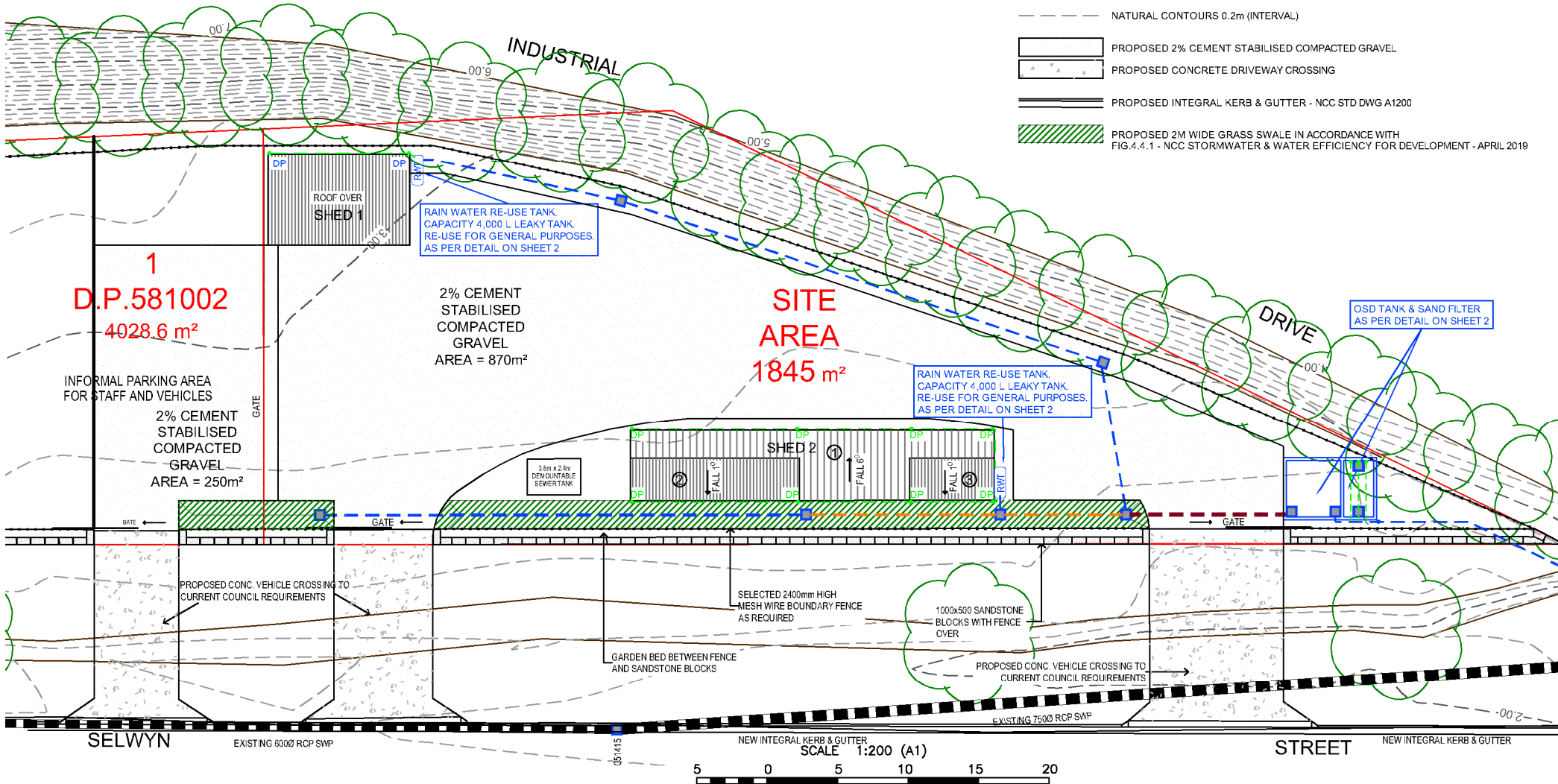
| CLASS | LOADING | DESCRIPTION   |
|-------|---------|---|
| A     | 10 KN   | INACCESSIBLE TO VEHICLES. PEDESTRIAN TRAFFIC ONLY.  |
| B     | 80 KN   | FOR USE ON FOOTPATHS OR FOOTWAYS WHERE IT IS POSSIBLE FOR LIGHT VEHICLES OR LIVESTOCK TO USE PEDESTRIAN FACILITY.   |
| C     | 150 KN  | FOR USE IN PEDESTRIAN ACCESS WITH OCCASIONAL MOTOR VEHICLES WITH WHEEL LOADS NOT EXCEEDING 3.7 TONNES. OR FOR USE IN MINOR RESIDENTIAL ROADS & CUL-DE-SACS CARRYING SLOW MOVING COMMERCIAL VEHICLES (GENERATING NO IMPACT LOADING) WHERE WHEEL LOADS WILL NOT EXCEED 7.5 TONNES |

- 17 UNTIL COMPLETION OF ALL WORKS, THE CONTRACTOR SHALL FIRSTLY FILTER ALL STORMWATER IN ACCORDANCE WITH APPROVED DETAILS TO ENSURE THE REMOVAL OF ALL CONCRETE AND PLASTERING FINES, AND OTHER BUILDING SITE POLLUTANTS.
- 18 THE CONTRACTOR SHALL ADEQUATELY SHIELD PIPES AGAINST CONSTRUCTION AND PERMANENT LOADS, WHERE ADEQUATE COVER CANNOT BE PROVIDED, PIPES SHALL BE ENCASED CONCRETE
- 19 UNLESS NOTED OTHERWISE, WHERE A PIT INVERT IS BELOW THE INVERT OF THE LOWEST OUTLET PIPE THE CONTRACTOR SHALL EITHER PROVIDE DRAINAGE HOLES IN THE BASE OF THE PIT OR ELSE FILL THE BASE OF THE PIT WITH MASS CONCRETE TO THE INVERT OF THE LOWEST OUTLET PIPE
- 20 WHERE REQUIRED BY REGULATIONS, STEP IRONS IN ACCORDANCE WITH AS1657 SHALL BE INSTALLED IN DEEP PITS/TANKS TO ALLOW ACCESS FOR MAINTENANCE. PIT COVERS OVER DEEP PITS SHALL BE 'CHILD-PROOFED' BY BOLTING THEM DOWN, EXCEPT WHERE THE COVER WEIGHS OVER 30kg.
- 21 ALL IMPERVIOUS SURFACES SHALL BE GRADED SUCH THAT THEY ARE FREE DRAINING
- 22 YARD PITS SHALL BE PROVIDED AS REQUIRED. YARDS SHALL BE GRADED TO FALL TO PITS UNLESS INTRICATE OTHERWISE (EG. BY DESIGN CONTOURS, SPOT LEVELS OR A NOTE)
- 23 UPON COMPLETION, PIPE/PIT EXCAVATIONS SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY EQUIVALENT TO THE SURROUNDING NATURAL MATERIAL
- 24 WHERE REQUIRED BY THE PRINCIPAL CERTIFY, WORK-AS-EXECUTED DETAILS SHALL BE PREPARED BY A REGISTERED SURVEYOR/CHARTED PROFESSIONAL ENGINEER VERIFYING THAT THE DRAINAGE SYSTEM HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE DRAWINGS, ANY DEVIATION FROM THE APPROVED PLANS SHALL BE NOTED AND BROUGHT TO THE ATTENTION OF THE DESIGNER. ADEQUATE INSPECTIONS SHOULD BE CARRIED OUT DURING THE COURSE OF CONSTRUCTION
- 25 WHERE CERTIFICATION WILL BE REQUIRED, THE DESIGNER SHALL BE CALLED ON TO INSPECT THE WORKS PRIOR TO ANY CONCRETE POURS, PRIOR TO BACKFILLING AROUND ANY TANKS, AND AT THE COMPLETION OF WORKS, THE DESIGNER SHALL BE GIVEN A MINIMUM OF 24 HOURS NOTICE BEFORE AN INSPECTION IS REQUIRED
- 26 ANY PROPOSED ALTERATIONS TO THE DETAILS SHOWN ON THE DRAWINGS SHALL BE SUBMITTED TO THE DESIGNER FOR APPROVAL
- 27 LEAF SCREENS, SILT CONTROLS AND ANY OTHER POLLUTANT CONTROL DEVICES SHALL BE REGULARLY SERVICED TO ENSURE THAT THE DRAINAGE SYSTEM REMAINS UNBLOCKED AND OPERATED AS ORIGINALLY INTENDED
- 28 OVERLAND FLOW PATHS SHALL BE REGULARLY MAINTAINED AND KEPT FREE OF OBSTRUCTIONS TO THE FLOW OF WATER
- 29 SUBSOIL DRAINAGE LINES SHALL BE PROVIDED BEHIND RETAINING WALLS AND OTHER AREA AS REQUIRED TO RELIEVE HYDROSTATIC PRESSURE AND DRAIN GROUND WATERS. CONNECT INTO THE DRAINAGE SYSTEM IN SUCH A WAY AS TO AVOID BACKFLOW OF STORMWATER INTO THE SUBSOIL DRAINAGE LINE. IF IN DOUBT REFER TO ENGINEER
- 30 NEW FENCES, RETAINING WALL AND OTHER LANDSCAPING ITEMS SHALL BE DETAILED IN SUCH A WAY SO AS TO AVOID IMPOUNDING OR DIVERTING SURFACE WATERS ONTO ADJOINING PROPERTIES.



LEGEND:

- 90mm Ø PVC SWP
- 150mm Ø PVC SWP
- 225mm Ø PVC SWP
- 300mm Ø RCP SWP
- GRATED SURFACE INLET PIT
- RWT RAINWATER RE-USE TANK - AS NOMINATED SEE DETAIL SHEET 2
- DP DOWN PIPE - COLOUR INDICATES SIZE (COLOUR INDICATES NOMINATED DIAMETER)
- NATURAL CONTOURS 1.0m (INTERVAL)
- NATURAL CONTOURS 0.2m (INTERVAL)
- PROPOSED 2% CEMENT STABILISED COMPACTED GRAVEL
- PROPOSED CONCRETE DRIVEWAY CROSSING
- PROPOSED INTEGRAL KERB & GUTTER - NCC STD DWG A1200
- PROPOSED 2M WIDE GRASS SWALE IN ACCORDANCE WITH FIG 4.4.1 - NCC STORMWATER & WATER EFFICIENCY FOR DEVELOPMENT - APRIL 2019



| Ed. | Details of Revisions        | Date     |
|-----|-----------------------------|----------|
| E   | CAR PARKING AREA ADDED      | 12/03/25 |
| D   | COUNCIL RFI                 | 28/11/24 |
| C   | COUNCIL RFI                 | 12/11/24 |
| B   | DRAINS MODELLING UNDERTAKEN | 17/04/24 |
| A   | INITIAL ISSUE               | 15/12/22 |

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Client / Council Development Consent Number

Scale: AS SHOWN (A1)  
Origin: --  
Designed: B.B.  
Checked: B.B.  
Job Number: 6759  
Datum: AHD  
Contour Int: -  
Drawn: AW  
Approved: J.H.  
Drawing File: 6759-Hydro-5

Registered Surveyor: .....

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LAND DEVELOPMENT SOLUTIONS

STORMWATER MANAGEMENT PLAN  
No.20 SELWYN STREET  
MAYFIELD

| Drawing Number | Edition |
|----------------|---------|
| 1              | E       |
| Sheet 1 of 2   |         |



## GUTTER & DOWN PIPE SIZING CALCULATIONS, & NOTES

### Notes

All works should be undertaken in accordance with:

- AS/NZS 3500.3 : 2018
- National Construction Code - Sect. 7.4 Gutters & Downpipes

### 7.4.2 - Materials

Gutters, downpipes and flashings must -

- be manufactured in accordance with AS/NZS 2179.1 for metal components
- be manufactured in accordance with AS/NZS 1273 for UPVC components
- be compatible with all upstream roofing materials; and
- not contain any lead if used on roof forming part of a drinking water catchment area.

### 7.4.4 - Installation of Gutters

1) Eaves gutters must be;

- installed with a fall of not less than 1:500; and
- supported by brackets securely fixed at slope ends, corners and at not more than 1.2m centres
- fitted with overflow measures in accordance with Sections 7.4.6 & 7.4.7

2) Valley Gutters must;

- be installed on a roof with a pitch of more than 12.5 degrees; and
- have dimensions in accordance with Table 7.4.4c for the 225mm rainfall intensity; and
- be constructed in accordance with Figure 7.4.4 Valley Gutter Profile of the NCC; and
- have minimum freeboard of not less than 15mm; and
- have a single angle of not less than 12.5 degrees
- Where roofs have pitches less than 12.5 degrees, valley gutters may be designed as box gutters in accordance with AS/NZS 3500.3: 2018

3) The requirement of 1)c) does not apply to eaves gutters fixed to a verandah or an eave gutter that is greater than 450mm in width which;

- has no lining
- is a raked verandah or a raked eave with a lining away from the building.

### 7.4.5 - Downpipes - size on installation

Downpipes must;

- not serve more than 12m of gutter length for each downpipe; and
- be located as close as possible to valley gutters; and
- be constructed in accordance with the size & cross section nominated.

### 7.4.6 - Acceptable continuous overflow measure

1) For a front face slotted gutter with -

- a minimum slot opening area of 1200mm<sup>2</sup> per metre of gutter; and
- the lower edge of the slots installed a minimum 25mm below the top of the fascia, the acceptable overflow capacity must be 0.5L/s/m, constructed in accordance with Figure 7.4.6a.

2) For a controlled back gap with -

- a permanent minimum 10mm spacer installed between the gutter and the fascia; and
- one spacer per bracket, with the spacer not more than 50mm wide; and
- the back of the gutter installed a minimum of 10mm below the top of the fascia, the acceptable overflow capacity must be 1.5L/s/m, constructed in accordance with Figure 7.4.6b.

3) For the controlled back gap option, the spacer can be a proprietary clip or bracket that provides the required offset of the gutter from the fascia.

4) For controlled front bead height with the front bead of the gutter installed a minimum of 10mm below the top of the fascia, the acceptable overflow capacity is 1.5 L/s/m constructed in accordance with Figure 7.4.6c.

### 7.4.7 - Acceptable dedicated overflow measure per downpipe

1) For and end-stop weir with -

- a minimum clear width of 100mm, and
- the weir edge installed a minimum of 25mm below the top of the fascia, the acceptable overflow is 0.5L/s constructed in accordance with Figure 7.4.7a.

2) An end-stop weir is not suitable where the end-stop abuts a wall.

3) For an inverted nozzle installed within 500mm of a gutter high point within -

- a minimum nozzle size of 100mm x 50mm positioned lengthways in the gutter; and
- the top of the nozzle installed a minimum of 25mm below the top of the fascia, the acceptable overflow is 1.2L/s constructed in accordance with Figure 7.4.7b.

4) for a front face weir with -

- a minimum clear width of 200mm; and
- a minimum clear height of 20mm; and
- the weir edge installed a minimum of 25mm below the top of the fascia, the acceptable overflow capacity is 1.0 L/s constructed in accordance with Figure 7.4.7c.

5) For a rainhead with -

- a 75mm diameter hole in the outward face of the rainhead; and
- the centreline hole positioned 100mm below the top of the fascia, the acceptable overflow capacity is 3.5L/s constructed in accordance with Figure 7.4.7d.

6) The rainhead should be detailed to avoid nuisance discharge from the overflow at rainfall intensities below the normal design level.

|                                  |                             |                 |                 |
|----------------------------------|-----------------------------|-----------------|-----------------|
| Location:                        | 20 SELWYN STREET - MAYFIELD | ARIs by Council |                 |
| Project:                         | SHED 2 - 1                  | Council         | ARI (5min/20yr) |
| Requires input                   |                             | NCC             | 181.93          |
| 1 Catchment Calculations         |                             | LMCC            | 181.91          |
| Roof plan area (m <sup>2</sup> ) | 60                          | CCC             | 153.44          |
| Slope (%)                        | 1.75                        | MCC             | 169.82          |
| Slope (°)                        | 1.00                        | Nelson Bay      | 189.79          |
|                                  |                             | Anna Bay        | 187.23          |
|                                  |                             | Williamstown    | 180.23          |
|                                  |                             | Raymond Terrace | 176.35          |
|                                  |                             | Seaham          | 172.12          |
| 2 Rainfall intensity (mm/hr)     |                             |                 |                 |
| Council                          | NCC                         |                 |                 |
| Intensity (mm/hr):               | 181.93                      |                 |                 |
| 3 Flow (L/s)                     | 3.31                        |                 |                 |
| 4 Results                        |                             |                 |                 |
| Diameter (mm)                    | Number Required             | Number Adopted  | Gutter Area     |
| 90                               | 1.82                        | 2               | 6114            |
| 100                              | 1.38                        | 2               | 6114            |
| 150                              | 0.51                        | 1               | 10620           |
| 225                              | 0.19                        | 1               | 10620           |
| 300                              | 0.09                        | 1               | 10620           |
| Gutter Width                     | Gutter Depth                | Gutter Size     | Nominated       |
| 115                              | 64                          | 150             | ✓               |
| 125                              | 59                          | 150             |                 |
| 175                              | 71                          | 200             |                 |
| 250                              | 53                          | 200             |                 |
| 325                              | 43                          | 200             |                 |

|                                  |                             |                 |                 |
|----------------------------------|-----------------------------|-----------------|-----------------|
| Location:                        | 20 SELWYN STREET - MAYFIELD | ARIs by Council |                 |
| Project:                         | SHED 2 - AREA 1             | Council         | ARI (5min/20yr) |
| Requires input                   |                             | NCC             | 181.93          |
| 1 Catchment Calculations         |                             | LMCC            | 181.91          |
| Roof plan area (m <sup>2</sup> ) | 75                          | CCC             | 153.44          |
| Slope (%)                        | 10.51                       | MCC             | 169.82          |
| Slope (°)                        | 6.00                        | Nelson Bay      | 189.79          |
|                                  |                             | Anna Bay        | 187.23          |
|                                  |                             | Williamstown    | 180.23          |
|                                  |                             | Raymond Terrace | 176.35          |
|                                  |                             | Seaham          | 172.12          |
| 2 Rainfall intensity (mm/hr)     |                             |                 |                 |
| Council                          | NCC                         |                 |                 |
| Intensity (mm/hr):               | 181.93                      |                 |                 |
| 3 Flow (L/s)                     | 3.99                        |                 |                 |
| 4 Results                        |                             |                 |                 |
| Diameter (mm)                    | Number Required             | Number Adopted  | Gutter Area     |
| 90                               | 2.19                        | 3               | 5157            |
| 100                              | 1.66                        | 2               | 7103            |
| 150                              | 0.61                        | 1               | 12442           |
| 225                              | 0.22                        | 1               | 12442           |
| 300                              | 0.11                        | 1               | 12442           |
| Gutter Width                     | Gutter Depth                | Gutter Size     | Nominated       |
| 95                               | 55                          | 150             | ✓               |
| 120                              | 60                          | 150             |                 |
| 160                              | 80                          | 200             |                 |
| 160                              | 80                          | 200             |                 |
| 160                              | 80                          | 200             |                 |

|                                  |                             |                 |                 |
|----------------------------------|-----------------------------|-----------------|-----------------|
| Location:                        | 20 SELWYN STREET - MAYFIELD | ARIs by Council |                 |
| Project:                         | SHED 2 - AREA 2             | Council         | ARI (5min/20yr) |
| Requires input                   |                             | NCC             | 181.93          |
| 1 Catchment Calculations         |                             | LMCC            | 181.91          |
| Roof plan area (m <sup>2</sup> ) | 36                          | CCC             | 153.44          |
| Slope (%)                        | 1.75                        | MCC             | 169.82          |
| Slope (°)                        | 1.00                        | Nelson Bay      | 189.79          |
|                                  |                             | Anna Bay        | 187.23          |
|                                  |                             | Williamstown    | 180.23          |
|                                  |                             | Raymond Terrace | 176.35          |
|                                  |                             | Seaham          | 172.12          |
| 2 Rainfall intensity (mm/hr)     |                             |                 |                 |
| Council                          | NCC                         |                 |                 |
| Intensity (mm/hr):               | 181.93                      |                 |                 |
| 3 Flow (L/s)                     | 1.84                        |                 |                 |
| 4 Results                        |                             |                 |                 |
| Diameter (mm)                    | Number Required             | Number Adopted  | Gutter Area     |
| 90                               | 1.01                        | 2               | 3951            |
| 100                              | 0.76                        | 1               | 6637            |
| 150                              | 0.29                        | 1               | 6637            |
| 225                              | 0.1                         | 1               | 6637            |
| 300                              | 0.05                        | 1               | 6637            |
| Gutter Width                     | Gutter Depth                | Gutter Size     | Nominated       |
| 115                              | 60                          | 150             | ✓               |
| 115                              | 60                          | 150             |                 |
| 115                              | 60                          | 150             |                 |
| 115                              | 60                          | 150             |                 |

|                                  |                             |                 |                 |
|----------------------------------|-----------------------------|-----------------|-----------------|
| Location:                        | 20 SELWYN STREET - MAYFIELD | ARIs by Council |                 |
| Project:                         | SHED 2 - AREA 3             | Council         | ARI (5min/20yr) |
| Requires input                   |                             | NCC             | 181.93          |
| 1 Catchment Calculations         |                             | LMCC            | 181.91          |
| Roof plan area (m <sup>2</sup> ) | 18                          | CCC             | 153.44          |
| Slope (%)                        | 1.75                        | MCC             | 169.82          |
| Slope (°)                        | 1.00                        | Nelson Bay      | 189.79          |
|                                  |                             | Anna Bay        | 187.23          |
|                                  |                             | Williamstown    | 180.23          |
|                                  |                             | Raymond Terrace | 176.35          |
|                                  |                             | Seaham          | 172.12          |
| 2 Rainfall intensity (mm/hr)     |                             |                 |                 |
| Council                          | NCC                         |                 |                 |
| Intensity (mm/hr):               | 181.93                      |                 |                 |
| 3 Flow (L/s)                     | 0.92                        |                 |                 |
| 4 Results                        |                             |                 |                 |
| Diameter (mm)                    | Number Required             | Number Adopted  | Gutter Area     |
| 90                               | 0.5                         | 1               | 3951            |
| 100                              | 0.38                        | 1               | 3951            |
| 150                              | 0.14                        | 1               | 3951            |
| 225                              | 0.05                        | 1               | 3951            |
| 300                              | 0.03                        | 1               | 3951            |
| Gutter Width                     | Gutter Depth                | Gutter Size     | Nominated       |
| 90                               | 45                          | 150             | ✓               |
| 90                               | 45                          | 150             |                 |
| 90                               | 45                          | 150             |                 |
| 90                               | 45                          | 150             |                 |

## PLAN VIEW

