

2668867 Ontario Inc.

155 Dun Skipper Drive

Design Brief

February 18th, 2025

155 Dun Skipper Drive - Design Brief

November 2024 Revised February 2025

155 Dun Skipper Drive

Design Brief City of Ottawa Development Application File: D07-12-24-0169

February 18th, 2025

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Version Control (optional)

Issue	Revision No.	Date Issued	Page No.	Description	Reviewed By
1	-	2024-11-26		Issued for Site Plan Approval	RM/WZ
2	-	2025-02-18		Revised per City Comments	RM/WZ

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1 Introduction

1.1 Scope

Arcadis Professional Services (Canada) Inc. (Arcadis, formerly IBI Group) has been retained by 2668867 Ontario Inc. to prepare the necessary engineering plans, specifications and documents to support the proposed amended Site Plan Application for the subject property in accordance with the policies set out by the Planning and Development Branch of the City of Ottawa. This Brief will present a detailed grading and servicing scheme to support the Phase 2 site plan adjustment and will include sections on-site grading, water supply, wastewater management, minor and major stormwater management, and erosion and sediment control.

1.2 Subject Site

The proposed development is part of the previously approved Leitrim Home Hardware site, which is located at the southwest corner of the Bank Street and Dun Skipper Drive intersection. The approved site plan is approximately 2.5 hectares in size and is also bounded by the Idone subdivision to the south and east. Please refer to **Figure 1.1** below for more information regarding the site location.



Figure 1.1 Subject Site Location

The subject property consists of a Home Hardware building (Building A) and three other proposed buildings (Building B-D) with two vehicular accesses. The approved site plan is included in **Appendix A**. Although the subject site will eventually include four buildings, the property owner plans to phase the site development. The first phase includes only Building A, associated parking, and vehicular connection to both Bank Street and Dun Skipper Drive. Please refer to 119351-001 Site Servicing Plan for Phase 1 limits, included in **Appendix A**. Phase 1 was fully

constructed in 2022. The previous site plan identified Building B as a 500-bed hotel, while the new site plan changed it to a mixed use apartment building (2-bed: 87 units; 1-bed: 54 units) with commercial area on the ground floor.

A site plan of the proposed development is included in Appendix A.

1.3 **Previous Studies**

Design of this project has been undertaken in accordance with the following reports:

Design Brief – Bank Street Development, 4836 Bank Street prepared by IBI Group, April 2019, Revised April 2020

An engineering pre-consultation with the City of Ottawa was held in October 2023 regarding the proposed development. Notes from this meeting is included in **Appendix A**.

1.4 Geotechnical Considerations

Paterson Group Inc. was retained to prepare a geotechnical investigation for the site. The objectives of the investigation were to prepare a report to:

- Determine the subsoil and groundwater conditions at the site by means of test pits and boreholes
- To provide geotechnical recommendations pertaining to the design of the proposed development including construction considerations

The geotechnical investigation report PG2934-1 Dated October 4, 2024 confirmed that the site consists of fill underlain by glacial till. The fill generally consists of silty sand with some gravel. The glacial till underlying the fill consists of compact to very dense, brown to grey silty sand with gravel, cobbles and boulders.

The report contains recommendations which include but are not limited to the following:

- Fill used for grading beneath the proposed development to meet OPSS Granular 'A' or Granular 'B' Type II placed in lifts no greater than 300 mm compacted to 98% SPMDD
- Pavement Structures as identified below

Table 1-1 Pavement Structure – Car Only Parking Areas on Podium Deck

Local Road – Parking Areas	Thickness
12.5 Asphaltic Concrete	50 mm
OPSS Granular A Base	200 mm
Thermal Break	Depends on grade of insulation

Table 1-2 Pavement Structure – Access Lanes, Fire Routes and Heavy Truck Parking Areas on Podium Deck

Local Road	Thickness
12.5 Asphaltic Concrete	40 mm
19.0 Asphaltic Concrete	50 mm
OPSS Granular A Base	300 mm
Thermal Break	Depends on grade of insulation

Table 1-3 Pavement Structure – Car Only Parking Areas on Overburden

Local Road – Parking Areas	Thickness
12.5 Asphaltic Concrete	50 mm
OPSS Granular A Base	150 mm
OPSS Granular B Type II Subbase	300 mm

Table 1-4 Pavement Structure – Access Lanes, Fire Routes and Heavy Truck Parking Areas on Overburden

Local Road	Thickness
12.5 Asphaltic Concrete	40 mm
19.0 Asphaltic Concrete	50 mm
OPSS Granular A Base	150 mm
OPSS Granular B Type II Subbase	450 mm

The report contains recommendations which include but are not limited to the following:

- Pipe bedding and cover: The pipe bedding for water and pipes placed on a relatively dry, undisturbed subgrade surface should consist of at least 150 mm of OPSS Granular A material. Where the bedding is located upon silty clay the thickness of the bedding material should be increased to a minimum of 300 mm of OPSS Granular A. The bedding layer should extend to the spring line of the pipe. Cover material, from the spring line to at least 300 mm above the obvert of the pipe should consist of OPSS Granular A. The bedding and cover materials should be placed in maximum 300 mm thick lifts compacted to a minimum of 99% of the material's SPMDD.
- The excavation side slopes above the groundwater level extending to a maximum depth of 3 m should be cut back at 1H:1V or flatter. The flatter slope is required for excavation below groundwater level.

2 Water Supply

2.1 Existing Conditions

As previously noted, the proposed development is located west of Bank Street and south of Dun Skipper Drive. The subject site is flanked on both the north and east sides by existing watermains. Existing 400mm diameter watermains are included in both Bank Street and Dun Skipper Drive. Both watermains fall within the City of Ottawa's pressure district Zone 4C which will provide the water supply to the site. As part of Phase 1, a 200mm watermain has been built to connect to the existing 400mm watermain in Bank Street and Dun Skipper Drive, to create a looped system to service the site.

2.2 Design Criteria

2.2.1 Water Demands

Water demands have been calculated for the development using consumption rates from Table 4.2 of the Ottawa Design Guidelines – Water Distribution. Buildings A, C and D are one or two-storey retail buildings. Building B was identified as a 4-storey hotel with an estimated 500 beds, while the proposed site plan changed to an apartment building (2-bed: 87 units; 1-bed: 54 units) with commercial area on the ground floor. The proposed Building B will include 87 of 2-bedroom and 54 units of 1-bedroom units. A summary of the water consumption rates is as follows:

•	Commercial Shopping Center	2500 l/1000m²/day
•	Other Commercial	28,000 l/gross ha/day
•	Residential	280 l/cap/day
•	2 Bedroom Apartment	2.1 persons/unit
•	1 Bedroom Apartment	1.4 persons/unit
•	ICI Average Day Demand	28,000 l/gross ha/day
•	ICI peak Daily Demand	42,000 l/gross ha/day
•	ICI Peak Hour Demand	75,600 l/gross ha/day

A watermain demand calculation sheet is included in **Appendix B** and the total water demands are summarized as follows:

•	Average Day	0.97 l/s
•	Maximum Day	2.30 l/s
•	Peak Hour	4.98 l/s

2.2.2 System Pressure

The Ottawa Design Guidelines – Water Distribution (WDG001), July 2010, City of Ottawa, Clause 4.2.2 states that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 480 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in Clause 4.2.2 of the guidelines and Fire Underwriters Survey (FUS) 2020 are as follows:

Minimum Pressure	Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi)
Fire Flow	During the period of maximum day demand, the system pressure shall not be less than 150 kPa (22 psi) during a fire flow event.
Maximum Pressure	In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls will be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

2.2.3 Fire Flow Rates

The subject site plan contains 3 storage buildings (Building A, C & D) and an apartment building with partial commercial ground floor (Building B). Calculations using the Fire Underwriter Survey (FUS) method were conducted to determine the fire flow requirement for Building 'A' in the approved Home Hardware site plan. Results of the calculations show a fire demand of 11,000 I/min (183.3 I/s) for Building 'A'. A copy of the FUS calculations is included in **Appendix B**.

The proposed Building B will fall under Group C and D, residential and commercial shops/Stores occupancy and combustibility. The sprinkler system will be designed and installed in accordance with NFPA-13 requirements. The sprinkler system will be supplied from the city water connection and the demand will be calculated using the hazard classification plus the appropriate inside/outside hose allowances.

Calculations using the Fire Underwriting Survey (FUS version 2020) were conducted to determine the fire flow requirement for the site. Results of the analysis provides a maximum fire flow rate of 10,000 l/min (166.7 l/s) for Building B. Therefore, 11,000 l/min (183.3 l/s) is used for fire flow in the hydraulic analysis. A copy of the FUS calculations is included in **Appendix B**.

2.2.4 Boundary Conditions

The City of Ottawa has provided hydraulic boundary conditions at two locations, one at the existing main on Dun Skipper Drive at the entrance to the site and the other is on the existing Bank Street main at the Bank Street entrance. Boundary conditions have been supplied for the 2019 existing conditions and for the future SUC zone reconfiguration. HGL under basic day scenario is higher in pre-SUC condition while peak hour and max day is lower. Therefore, the existing condition Max HGL is used for the basic day analysis to determine the maximum pressure as it represents the highest HGL elevation. For the peak hour and max day plus fire analysis the existing condition is used in the analysis as these represent the lowest HGL elevations. A copy of the boundary conditions is included in **Appendix B** and summarized as follows:

CriteriaHydraulic Head (m)Pressure (psi)Max HGL (Basic Day)154.678.3Peak Hour143.963.1Max Day + Fire Flow (11,000 L/m)125.136.3

Table 2-1 Hydraulic Boundary Conditions – Dun Skipper Dr. (Pre-SUC Pressure Zone Reconfiguration)

Ground elevation: 99.5 m

Table 2-2 Hydraulic Boundary Conditions – Bank Street (Pre-SUC Pressure Zone Reconfiguration)

Criteria	Hydraulic Head (m)	Pressure (psi)
Max HGL (Basic Day)	154.6	79.1
Peak Hour	143.9	63.9
Max Day + Fire Flow (11,000 L/m)	124.6	36.4

Ground elevation: 99.0 m

Table 2-3 Hydraulic Boundary Conditions – Dun Skipper Dr. (Post-SUC Pressure Zone Reconfiguration)

Criteria	Hydraulic Head (m)	Pressure (psi)
Max HGL (Basic Day)	147.3	67.9
Peak Hour	144.6	64.1
Max Day + Fire Flow (11,000 L/m)	140.2	57.8

Ground elevation: 99.5 m

Table 2-4 Hydraulic Boundary Conditions – Bank Street (Post-SUC Pressure Zone Reconfiguration)

Criteria	Hydraulic Head (m)	Pressure (psi)
Max HGL (Basic Day)	147.3	68.7
Peak Hour	144.3	64.5
Max Day + Fire Flow (11,000 L/m)	139.2	57.2

Ground elevation: 99.0 m

2.2.5 Hydraulic Model

A computer model for the subject site has been developed using the InfoWater Pro program by Autodesk. The model includes the existing watermain and boundary condition at Dun Skipper Drive and Bank Street.

2.3 Proposed Water Plan

2.3.1 **Proposed Water Plan**

In order to provide additional reliability to the system in case of a watermain break, two connections to the City's watermain system were proposed and constructed in Phase 1. One proposed connection is to the existing 400 mm watermain within the Dun Skipper Drive right of way and the other proposed connection is to the 400 mm watermain in Bank Street. The approved water plan, Drawing 119351-001 Site Servicing Plan, is included in **Appendix B**. The proposed fire hydrant layout also includes an unobstructed path of no more than 45m between the hydrant and

Siamese connections as required by the Ontario Building Code. Refer to the general plan of services **Drawing C-001** for detailed watermain layout for the proposed development.

2.3.2 Hydraulic Analysis

The hydraulic model was run under basic day conditions to determine the maximum pressure for the site. The minimum pressure for the site is determined in the peak hour analysis using the provided boundary condition. The site are serviced by two connections to the existing 400 mm watermains on Dun Skipper Drive and Bank Street. All watermains are 200 mm diameter except for the 150 mm diameter stubs which services Buildings 'A', 'B' and 'D". There are three fire hydrants, represented by nodes TH-010, TH-030 and T-150 in the model. Nodes TH-010 and TH-030 are adjacent to Buildings 'A' and 'D' with a fire demand of 11,000 l/min, which have been built in Phase 1. Node T-150 is adjacent to Buildings 'B' with a fire demand of 10,000 l/min. An existing hydrant on Dun Skipper Drive also provides fire protection to Building 'B' and is represented by Node S15-300 in the water model. Results of the analysis for the site are summarized in Section 2.3.2. Water model schematic and detailed model results are included in **Appendix B**.

The main level finished floor elevation for Building B will be approximately 100.85m. Under peak hour condition, the hydraulic head is 143.89m. The head difference to the main level is 43.04m which converts to a water pressure inside the building is 422 kPa, which exceeds the minimum requirement of 276 kPa per the City guidelines.

The minimum pressures of 276kPa are not achieved when the floor levels are higher than 14.90m under the peak hour conditions. Therefore, the pressures are not achieved at elevation 115.75m. The 5th floor elevation is approximately 114.95m and the 6th floor elevation is approximately 118.25m. The minimum pressures are not provided for levels higher than 5th floor. Therefore, booster pumps are required and shall be designed by a qualified mechanical engineer at building permit stage.

2.3.3 Modeling Results

The hydraulic model was run under basic day, maximum day with fire flows and under peak hour conditions. Results of the hydraulic model are included in **Appendix B** and summarized as follows:

•	Basic Day (Max HGL) Pressure Range (kPa)	510.54 - 542.39
•	Peak Hour (Min HGL) Pressure Range (kPa)	405.64 - 437.53
•	Fire Flow @ 11,000 L/min Residual Pressure (kPa)	168.21 – 199.61
_	Basidual Brassura @ 150 kBa Available Fire Flaw (I/a)	200 22 220 22

Residual Pressure @ 150 kPa Available Fire Flow (I/s) 209.22 – 330.22

A comparison of the results and design criteria is summarized as follows:

Maximum Pressure	No nodes in basic day scenario exceed 552 kPa (80 psi), therefore no pressure reducing
	control is required for the buildings in this development.

- Minimum Pressure All nodes in the model exceed the minimum value of 276 kPa (40 psi). Considering this is a 9-storey apartment building, the water pressure at the 6th to 9th levels drop below the minimum pressure. Therefore, booster pumps are required for the proposed building.
- Fire Flow The minimum design fire flow under maximum day conditions with minimum system pressure of 150 kPa is 209.22 l/s for retail which exceeds the requirement of 183.3 l/s (11,000 l/min) from Section 2.3.3.

3 Wastewater Disposal

3.1 Existing Conditions

The subject site is located within the Leitrim Development Area where sanitary flows ultimately outlet to the Leitrim Sanitary Pumping Station. As part of the adjacent downstream developments, the outlet sanitary sewer system for the subject site was completed. A 200mm diameter sanitary sewer in Dun Skipper Drive was constructed as part of the Pathways Phase 1 project. That sewer (at MH1A) was also sized for the upstream Idone commercial lands. To service Building A (Home Hardware) in Phase 1, a 200mm diameter sanitary sewer has been built within the site. A copy of the sanitary sewer design sheet and drainage area plan for the approved overall site 119351-400 can be found in **Appendix C**.

3.2 Design Criteria

The sanitary sewers for the subject site will be based on the City of Ottawa design criteria. It should be noted that the sanitary sewer design for this study incorporates the latest City of Ottawa design parameters identified in Technical Bulletin ISTB-2018-01. Some of the key criteria will include the following:

•	Average commercial flow	= 28,000 l/s/ha
•	Peak ICI flow factor	= 1.5 if ICI area is > 20% total area
		1.0 if ICI area is ≤ 20% total area
•	Inflow and Infiltration Rate	= 0.33 l/s/ha
•	Minimum Full Flow Velocity	= 0.60 m/s
•	Maximum Full Flow Velocity	= 3.0 m/s
•	Minimum Pipe Size	= 250 mm diameter (for ICI lands per OSDG)

3.3 Recommended Wastewater Plan

The on-site sanitary system will consist of a network of 200mm PVC sewers installed at normal depth and slope and will provide a single service connection to each commercial building. The sewers have been designed using the criteria noted above in Section 3.2 and outlet via a connection to the sanitary sewer (*EXMH6138A*) within the Dun Skipper Drive right of way. The Dun Skipper sanitary sewer was designed assuming 4.07 Ha of commercial lands from the subject site, includes upstream Idone commercial property, with a total flow of 4.67 I/s. As noted previously, Building B was originally approved as a 500-bed hotel. The proposed new building will include less units (141 units in total) and less building area. This site generates approximately 6.24 I/s. The minor (1.57 I/s) increase in flow to MH 6138A has negligible impact on the system as it has over 76% spare capacity up to MH 6136A.

A copy of the sanitary sewer design sheet can be found in **Appendix C**. Please refer to the General Plan of Services **Drawing C-001** for further details.

4 Site Stormwater Management

4.1 Existing Conditions

The 2016 Updated Serviceability Report recommended that the subject site and the upstream Idone commercial site be serviced with a 1350 mm diameter minor storm sewer. That sewer was constructed in 2017 as part of the downstream Pathway Phase 1 development and is presently terminated near the north-east corner on the subject site.

As noted previously, the subject development will be sub phased. The first phase has been fully constructed, which include Building A, associated parking, and vehicular connection to both Bank Street and Dun Skipper Drive. A 750 mm diameter storm sewer was built near the Dun Skipper Drive driveway access, and extended throughout the site to the upstream Idone commercial site. Phase 2 will only include Building B and associated parking.

4.2 Design Criteria

IBI Group completed the municipal infrastructure design for the Pathways Phase 1 development. That design included a review of the allowable flow from the subject site including the adjacent Idone commercial property. The "Pathways" design assumed that the allowable minor storm release rate for the two commercial sites was 760 l/s and that the 1:100 year storm event would be self-contained with no overflow to adjacent properties. The emergency overflow for events greater than the 1:100 year event would be directed to Bank Street.

The stormwater system was designed following the principles of dual drainage, making accommodations for both major and minor flow.

Some of the key criteria include the following:

•	Design Storm	1:2 year return (Ottawa)
•	Rational Method Sewer Sizing	1:2 year return (Ottawa)
•	Initial Time of Concentration	10 minutes
•	Runoff Coefficients	
	 Landscaped Areas 	C = 0.20
	 Asphalt/Concrete 	C = 0.90
	- Roof	C = 0.90
•	Pipe Velocities	0.80 m/s to 6.0 m/s
•	Minimum Pipe Size	250 mm diameter
		(200 mm CB Leads)

4.3 Proposed Minor System

Using the criteria identified in Section 4.2, the proposed on-site storm sewers were sized accordingly. A detailed storm sewer design sheet and the associated Storm Sewer Drainage Area plan (drawing 119351-500) for the overall site are both included in **Appendix D**. The overall Site Servicing Plan (drawing 119351-001), depicting all on-site storm sewers can be found in **Appendix A**.

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https://arcadiso365.sharepoint.com/sites/Projects5/148290/Internal Documents/6.0_Technical/6.04_Civil/03_Reports/Submission#2/CTR_Dun Skipper_Design_Brief_2025-02-18.docx

The proposed minor storm sewers will range in size between 250 mm diameter and 450 mm diameter in Phase 2. The minor storm sewer outlet will be via the 750 mm diameter pipe which ultimately connects to the existing 1350 mm diameter storm sewer in Dun Skipper Drive.

The 1350 mm diameter storm sewer in Dun Skipper Drive ultimately outlets to the Findlay Creek Village SWMF. This facility provides 80% TSS removal, as such no additional on-site stormwater quality control is required within the subject lands.

A detailed storm sewer design sheet and the associated storm sewer drainage area plan is included in **Appendix D**. The General Plan of Services, depicting all on-site storm sewers can be found in **Appendix A**.

4.4 Stormwater Management

The subject site will be limited to a release rate established using the criteria described in section 4.2. This will be achieved through a combination of inlet control devices (ICD's) at inlet locations and surface storage.

Flows generated that are in excess of the site's allowable release rate will be stored on site in strategic surface storage areas or by the use of roof top storage and gradually released into the minor system so as not to exceed the site's allocation.

The maximum surface retention depth located within the developed areas will be limited to 300mm during a 1:100 year event as shown on the ponding and grading plans located in **Appendix D**.

Overland flow routes will be provided in the grading to permit emergency overland flow, in excess of the 100-year event, from the site.

At certain locations within the site, the opportunity to store runoff is limited due to grading constraints and building geometry. These locations are generally located at the perimeter of the site where it is necessary to tie into public boulevards and adjacent properties or in areas where ponding stormwater is undesirable. The area west of building D (Drainage Area MH6136), will flow uncontrolled to the Dun Skipper right-of-way. This uncontrolled area – 0.01 hectares in total, have an average C value of 0.5 (x1.25 as per City Comment). Based on 1:100 year storm uncontrolled flows, the uncontrolled areas generate 3.10 l/s runoff (refer to Section 4.5 for the calculation). Another uncontrolled area along north and east property side, adjacent to Building B (Drainage Area UNRES) – 0.05 hectares in total, have an average C value of 0.9 (x1.25, maximum 1.0 as per City Comment). Based on 1:100 year storm uncontrolled flows, the uncontrolled areas generate 24.82 l/s runoff (refer to Section 4.5 for the calculation).

The site grading and ponding has been designed to control water generated during the 1:100-year event, with no overflow leaving the site. Please refer to the SWM calculations in **Appendix D**.

4.5 Inlet Control

The allowable 2-year post-development release rate for the 2.49 Ha site can be calculated as follows:

Qallowable	= 760 L/s as per IBI Pathways Phase 1 Report – EXT 4 drainage area
Total Area EXT 4	= 4.04 Ha
Subject Land share	= 62% of EXT4 release rate (2.5 Ha / 4.04 Ha = 0.62)
Q allowable subject land	= 468.42 L/s

As noted in Section 4.4, the landscaped area along the west property line will drain offsite uncontrolled.

Based on a 100-year event, the flow from the 0.01 Ha uncontrolled area MH6136 can be determined as:

Quncontrolled	= 2.78 x C x i _{100yr} x A where:				
C	= Average runoff coefficient of uncontrolled area = 0.50				
İ _{100yr}	= Intensity of 100-year storm event (mm/hr)				
	= 1735.688 x (T_c + 6.014)^{0.820} = 178.56 mm/hr; where T_c = 10 minutes				
Α	= Uncontrolled Area = 0.01 Ha				

Therefore, the uncontrolled release rate can be determined as:

Quncontrolled	= 2.78 × 1.25C × i _{100yr} × A
	= 2.78 x 1.25 x 0.50 x 178.56 x 0.01
	= 3.10 L/s

The flow from the uncontrolled area UNRES to the north and east side of Building B can be determined as:

Quncontrolled = $2.78 \times C \times i_{100yr} \times A$ = $2.78 \times 1.0 \times 178.56 \times 0.05$ = 24.82 L/s

The maximum allowable release rate from the remainder of the site can then be determined as:

Qmax allowable = Qrestricted - Quncontrolled = 468.42 L/s - 3.10 L/s - 24.82 L/s = 440.49 L/s

Based on the flow allowance at the various inlet locations, a combination of various sizes of inlet control devices (ICDs) were chosen for the design. The design of the inlet control devices is unique to each drainage area and is determined based on several factors, including hydraulic head and allowable release rate. The inlet control devices were sized according to the manufacturer's design charts. The restrictions will cause the on-site catch basins and manholes to surcharge, generating surface ponding in the parking and landscaped areas. Ponding locations and elevations are summarized on the Ponding Plan **Drawing C-600**, and included in **Appendix D**.

4.6 **On-Site Detention**

Any excess storm water up to the 100-year event is to be stored on-site to avoid surcharging the downstream municipal storm sewer system. Detention will be provided in parking and landscape areas and building rooftops, where feasible. As previously noted, the volume of storage is dependent on the characteristics of each individual drainage area and the ICDs were chosen accordingly. It should be noted that 0.30m of vertical separation has been provided from all maximum ponding elevations to lowest building openings. Stormwater management and on-site underground storage volume calculations, and manufacturers spec sheets are included in **Appendix D**.

Arcadis Response: Interim Storm Drainage Area Plan C-501 and Interim Ponding Plan C-601 have been included. Interim summary tables are also included in Section 4.8.

Revised February 2025

4.6.1 Site Inlet Control

The following Table summarizes the on-site storage requirements during 1:100-year events.

Table 4-1 Post-Development Storage Summary Table

Provide a table like this for both interim and ultimate condition. There needs to be a different Storm Drainage Area Plan and Ponding Plan provided for each condition as well. Each table should correspond to the respective build-out scenario.

The tables must provide enough information to determine that the overall peak release rate and storage requirements are satisfied for each scenario.

Drainage Area	ICD Structure	Tributary Area	Restricted Flow (L/s)	Storage Required (m³)	Storage Provided (m ³)		(m³)
	Location	(IIa)	100-year	100-year	Surface	Underground	Total
МН9/МН9В	MH8	0.14	10	44.84	20.64	10.07	30.71
MH8	CB1	0.17	16	43.02	50.59	5.58	56.17
MH5B	CB16	0.01	6	1.56	0.31	0.00	0.31
MH5A	CB17	0.09	9	25.47	0.84	5.10	5.94
CB20	CB20	0.12	15	30.02	12.51	0.00	12.51
MH22	MH22	0.06	6	4.00	2.87	46.61	49.48
CB24	CB24	0.10	15	22.31	0.00	0.22	0.22
CB25	CB25	0.02	6	2.36	0.27	0.00	0.27
MH21	MH21	0.24	33	81.05	11.79	96.68	108.47
MH1D	CB10	0.11	45	8.77	6.81	0.00	6.81
CBMH2	CBMH2	0.08	20	11.83	6.21	0.00	6.21
CBMH1C	CB7	0.08	30	7.30	6.97	0.00	6.97
CBMH1B	CB6	0.07	20	9.01	13.66	0.00	13.66
CBMH1A	CB5	0.06	15	8.87	3.41	0.00	3.41
MH1B	CB8	0.17	47	22.66	24.90	1.60	26.5
MH10A	CB4	0.03	6	5.42	10.62	0.00	10.62
MH10B	CBMH1	0.08	20	11.83	0.00	0.00	0
MH1A	CB9	0.15	43	19.23	10.83	0.00	10.83
CBMH20	CBMH20	0.10	15	32.84	109.61	0.00	109.61
TOTAL		<u>1.88</u>	<u>377</u>	<u>392.39</u>	<u>292.84</u>	<u>165.86</u>	<u>458.70</u>

* Existing(italic) and future (bold) drainage areas are grey hatched.

4.6.2 Roof Inlet Controls

The proposed buildings will have roof inlet controls that help to control the amount of stormwater being released into the system. The restricted flow rate for the proposed building is shown below.

Arcadis Response: Interim Storm Drainage Area Plan C-501 and Interim Ponding Plan C-601 have been included. Interim summary tables are also included in Section 4.8.

Revised February 2025

Provide a table like this for both interim and ultimate condition. There needs to be a different Storm Drainage Area Plan & Ponding Plan provided for each condition as well. Each table should correspond to the respective build-out scenario.

The tables must provide enough information to determine that the overall peak release rate and storage requirements are satisfied for each scenario.

Roof	Tributary Area	100-Year Storm			
Area		Restricted Flow (L/s)	Required Storage (m ³)	Storage Provided (m ³)	
Building A	0.30	27.0	89.56	90.00	
Building B	0.19	20.0	52.35	57.00	
Building C	0.05	8.0	10.68	13.50	
Building D	0.05	8.0	10.68	11.25	
TOTAL	<u>0.62</u>	<u>63.0</u>	<u>163.27</u>	<u>171.75</u>	

Table 4-2 Post-Development Roof Storage Summary Table

* Existing(italic) and future (bold) drainage areas are grey hatched.

4.6.3 Overall Release Rate *V*

Provide a conclusive statement for both interim and ultimate build-out scenarios.

As noted above, the site uses new inlet control devices to restrict the 100 year storm event to the criteria approved by the City of Ottawa. Restricted stormwater will be contained onsite by utilizing surface ponding, in structure/pipe and rooftop storage. In the 100 year event, there will be no off-site overflow.

The sum of restrictions on the site, rooftops and uncontrolled flows is 467.92 l/s (377 l/s + 63.00 l/s + 3.10 L/s +24.82 l/s), which is less than the allowable release of 468.42 l/s noted in section 4.6.

4.7 Underground Storage

Arcadis Response: Added discussion for interim conditions in Section 4.8.

Due to the site's constraints and the stormwater management plan, underground storage was deemed the best option to contain the 100-year storm event on site. The table below summarizes underground storage, and additional information about the underground storage structures is found in **Appendix D**.

Table 4-3 Underground Storage Summary Table

Storage Name	Structure Type	Storage Provided (m ³)
MH22	Clear Stone Gallery	43.01
MH21	Stormtech SC-310 or approved equivalent Plus the storage pipe and structures	88.64

The overall site plan was approved in 2022, and 100+20% stressed test analysis was not provided. Building B follows the overall site plan design standards, and 0.3m free board are provided throughout the site. The site grading and ponding has been designed to control water generated during the 1:100-year event, with no overflow leaving the site.

As noted in Section 4.4, the 1350 mm diameter storm sewer in Dun Skipper Drive ultimately outlets to the Findlay Creek Village SWMF. This facility provides 80% TSS removal, as such no additional on-site stormwater quality control is required within the subject lands.

4.8 Interim conditions

During interim conditions, flows from future development lands will be directed into the dry pond, including the areas from phase 1 & 2 that drains towards the future lands. The total area is calculated to be 0.58 ha, with an average C of 0.56. Refer to Storm Drainage Area Plan C-500 for Detailed C calculations.

The ICD will be installed for CBMH20, with a release rate of 15 L/s. Table 4-4 below provides the detailed calculation for the storage required during interim conditions for a 100 year event.

Drainage Area	CBMH20	Previously Drainage A	rea	Plan - C	CB18					
Area (Ha)	0.580									
C =	0.56	Restricted Flow Qr (L/s	s) =				15.0	0		
		100-Year Pon	din	g						
Tc	l	Peak Flow			0		Volume			
Variable	1100yr	Q _p =2.78xCi _{100yr} A		Qr		Qp	Qp-Qr		100yr	
(min)	(mm/hour)	(L/s)		(L/s)	(L	/s)		(<i>m</i> ³)	
49	64.91	58.61		15.0	0	43	.61		128.20	
50	63.95	57.75		15.0	0	42	.75		128.24	
51	63.03	56.92	15.00		41.92			128.26		
52	62.14	56.11	15.00		0	41.11			128.26	
53	61.28	55.33		15.0	0	40	.33		128.24	
		St	ora	qe (m ³))					-
	Overflow	Required		Surfa	се	Sub-s	urface	E	Balance	
	29.75	158.01		163.4	19	0.	00		0.00	
		Table 4	-1 Post-E	Development St	orage Summa	ry Table				
The ponding plan shows th	at	Drai	nage rea	ICD Structure	Tributary Area	Restricted Flow (L/s)	Storage Required (m³)	S	itorage Provideo	1 (m
the ponding elevation is 9 c	m			Location	(на)	100-year	100-year	Surface	Underground	
during the 100 year event.		MH9/	МН9В	MH8	0.14	10	44.84	20.64	10.07	
Review and revise		MI	158	CB16	0.01	10	45.02	0.39	5.58	

Table 4-4 100-Year Storage Calculation for Interim Conditions

Arcadis Response: The table on Ponding Plan 600 shows the ultimate condition. A total of 32.84m3 of storage is required for this drainage area, thus end up with only 0.09m of ponding depth.

Interim ponding plan C-601 is added, to illustrate the pondings during interim conditions.

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Drainage Area	ICD Structure	Tributary Area	Restricted Flow (L/s)	Required (m ³)	Storage Provided (m³)		m³)
	Location	(Ha)	100-year	100-year	Surface	Underground	Total
MH9/MH9B	MH8	0.14	10	44.84	20.64	10.07	30.71
MH8	CB1	0.17	16	43.02	50.59	5.58	56.17
MH5B	CB16	0.01	6	1.56	0.31	0.00	0.31
MH5A	CB17	0.09	9	25.47	0.84	5.10	5.94
CB20	CB20	0.12	15	30.02	12.51	0.00	12.51
MH22	MH22	0.06	6	4.00	2.87	46.61	49.48
CB24	CB24	0.10	15	22.31	0.00	0.00	0.00
CB25	CB25	0.02	6	2.36	0.27	0.00	0.27
MH21	MH21	0.24	33	81.05	11.79	96.68	108.47
MH1D	CB10	0.11	45	8.77	6.81	0.00	6.81
CBMH2	CBMH2	0.08	20	11.83	6.21	0.00	6.21
CBMH1C	CB7	0.08	30	7.30	6.97	0.00	6.97
CBMH1B	CB6	0.07	20	9.01	13.66	0.00	13.66
CBMH1A	CB5	0.06	15	8.87	3.41	0.00	3.41
MH1B	CB8	0.17	47	22.66	24.90	1.60	26.5
MH10A	CB4	0.03	6	5.42	10.62	0.00	10.62
MH10B	CBMH1	0.08	20	11.83	0.00	0.00	0
MH1A	CB9	0.15	43	19.23	10.83	0.00	10.83
CBMH20	CBMH20	0.10	15	32.84	131.62	0.00	131.62
TOTAL		1.88	<u>377</u>	392.39	314.85	165.64	480.49

 TOTAL
 1.88
 377
 392.

 * Existing (italic) and future (bold) drainage areas are grey hatched

5 Grading and Roads

5.1 Site Grading

The existing grades within portions of the proposed development lands vary significantly due to the existing topography of the site. The grading plan will require the balancing of various requirements including but not limited to geotechnical constraints, minimum/maximum slopes, overland routing of stormwater, all to ensure the site is graded in accordance with municipal and accessibility standards.

Refer to the grading plan provided in Appendix E.

In order to meet the stringent stormwater management criteria, every effort was made to reduce uncontrolled discharge from the site. In landscape areas where typical 2-7% grading cannot be met, 3:1 maximum terracing has been utilized to tie the proposed grading into existing.

5.2 Road Network

No public roads are proposed through the site. A minimum 9.0m wide drive aisle has been provided, as shown on the Site Plan in **Appendix A.** An internal Fire route has been shown where fire truck access is required, as determined by the site architect.

There are a total of 387 parking stalls provided, including 160 parking stalls for Building A & D, 171 for Building B and 56 for Building C. A total of 6 barrier-free parking stalls are provided for the proposed Building B.

Pedestrian access facilities are provided in the unsecured area of the site nearest to Bank Street and Dun Skipper Drive, which provide access to the building.

A bicycle parking facility has been proposed adjacent to each building entrance where feasible.

Earthbin (or similar approved type) garbage facilities have been provided throughout.

Noise attenuation features and indoor noise clause provisions will not be required for commercial use lands for road noise generated by the adjacent roads.

6 Source Controls

6.1 General

Since an end of pipe treatment facility is already provided for the development lands, stormwater site management for the subject lands will focus on site level or source control management of runoff. Such controls or mitigative measures are proposed for this development not only for final development but also during construction and build out. Some of these measures are:

- Flat site grading where possible
- Vegetation planting
- Groundwater recharge in landscaped areas

6.2 Lot Grading

Where possible, all of the proposed blocks within the development will make use of gentle surface slopes on hard surfaces such as asphalt and concrete. In accordance with local municipal standards, all grading will be between 0.5 and 5.0 percent for hard surfaces and 2.0 and 7.0 percent for all landscaped areas. Significant grade changes will be accomplished through the use of terracing (3:1 max slope), ramps and/or retaining walls. All street and parking lot catch basins shall be equipped with 3.0m subdrains on opposite sides of a curbside catch basin running parallel to the curb, and with 3.0m subdrains extending out from all 4 sides of parking lot catch basins.

6.3 Vegetation

As with most site plans, the developer will be required to complete a vegetation and planting program. Vegetation throughout the development including planting along roadsides and within the individual blocks provides opportunities to re-create lost vegetation.

6.4 Groundwater Recharge

Groundwater recharge targets have not been identified for this site. Perforated sub-drain systems will be implemented at capture locations in all vegetated areas. This will promote increased infiltration during low flow events before water is collected by the storm sewer system.

7 Conveyance Controls

7.1 Generals

Besides source controls, the development also proposes to use several conveyance control measures to improve runoff quality. These will include:

- Vegetated swales
- Catch basin sumps and manhole sumps

7.2 Catch basins and Maintenance Hole Sumps

All catch basins within the development, either rear yard or street, will be constructed with minimum 600 mm deep sumps. These sumps trap pollutants, sand, grit and debris which can be mechanically removed prior to being flushed into the minor pipe system. Both rear yard and street catch basins will be to OPSD 705.02. All storm sewer maintenance holes serving local sewers less than 900 mm diameter shall be constructed with a 300 mm sump as per City standards.

8 Sediment and Erosion Control Plan

8.1 General

During construction, existing stream and conveyance systems can be exposed to significant sediment loadings. Although construction is only a temporary situation, it is proposed to possibly introduce a number of mitigative construction techniques to reduce unnecessary construction sediment loadings. These may include:

- Until the local storm sewer is constructed, groundwater in construction trenches shall be pumped into a filter mechanism prior to release to the environment
- Vegetated swale sediment capture filter socks will remain on open surface structures such as maintenance holes and catch basins until these structures are commissioned and put into use
- Silt fence on the site perimeter will be installed

8.2 Trench Dewatering

Any trench dewatering using pumps will be discharged into a filter trap made up of geotextile filters and straw bales similar in design to the OPSD 219.240 Dewatering Trap. These will be constructed in a bowl shape with the fabric forming the bottom and the straw bales forming the sides. Any pumped groundwater will be filtered prior to release to the existing surface runoff. The contractor will inspect and maintain the filters as needed, including sediment removal and disposal and material replacement as needed. It should be noted that that the contractor will be responsible for the design and management of the trap(s).

8.3 Seepage Barriers

In order to further reduce sediment loading to the stormwater management facility, seepage barriers will be installed on any surface water courses at appropriate locations that may become evident during construction. These barriers will be Light Duty Straw Bale Barriers per OPSD 219.100 and Heavy-Duty Silt Fence Barriers per OPSD 219.130; locations are shown on the Sediment and Erosion Control Plan included in **Appendix E**. They are typically made of layers of straw bales or geotextile fabric staked in place. All seepage barriers will be inspected and maintained as needed.

8.4 Surface Structure Filters

All catch basins, and to a lesser degree, manholes, convey surface water to sewers. Until streets are asphalted and curbed, all catch basins and manholes will be constructed with sediment capture inserts or equivalent located between the structure frame and cover. These will stay in place and be maintained during construction and build until it is appropriate to remove same.

9 Conclusion

This report and the accompanying working drawings clearly indicate that the proposed development meets the requirements of the stakeholder regulators, including the City of Ottawa, provincial MECP and SNC. The proposed development is in general conformance with the recommendations of both the 2016 Updated Serviceability Report and the Pathways Phase 1 design.

There is a reliable water supply available adjacent to the proposed development; a wastewater outlet is available adjacent to the site, local storm sewers have been installed adjacent to the site and an expansion to the existing Findlay Creek Village Stormwater Facility has been constructed to collect and treat runoff from the subject site.

Based on the information provided within this report, the plans prepared for the subject development can be serviced to meet City of Ottawa requirements.

Appendix A

Site Plan Site Servicing Plan 148290-C-001 AOV Legal Plan Site Servicing Plan 119351-C-001 Pre-Consultation City Comments Study and Plan Identification List



DO NOT SCALE DRAWINGS

CHECK AND VERIFY ALL DIMENSIONS BEFORE PROCEEDING WITH THE WORK.

DRAWINGS NOT TO BE USED FOR CONSTRUCTION UNLESS STAMPED AND SIGNED BY THE CONSULTANT.

THESE DRAWINGS HAVE BEEN DESIGNED IN COMFORMANCE WITH THE ONTARIO BUILDING CODE.

	1				JUDE.			
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CORNER YARD SETBACK	×	11907			Revision Number	Date	Revision	Description
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3000				₹ 18 OR 18	1 BED	ROOM A2 ROOM A4	750 ft ²	16
ANG			FIFTH FLOOR	18	1 BED	ROOM A6	750 ft ²	2
En la			SIXTH FLOOF	18 100 18	1 BED	ROOM A6 ROOM A4	760 ft ² 790 ft ²	2
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			NINTH FLOOF	≀ 15 141	2 BED 2 BED	ROOM B3	990 ft ² 1050 ft ²	8
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		BUILDING B			2 BED		2 1100 ft ²	4
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Project No. 2330

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Drawing No.

Minimum Corner Side Yard 3m

Minimum Interior Side Yard 3m

Maximum Building Height 18m

7.5m

Minimum Rear Yard

3.2m 3.2m

45.1m 34.2m Revision

- ROAD ALLOWANCE -

BETWEEN CONCESSIONS



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477.6	9	PART OF 204		4M-1653	PART OF 04328-5188		
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66.6	11			4M-1617	ALL OF		
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Part 8: Subject to easement, Inst. GL50274. Part 13: Subject to easement, Inst. OC2083996.

PLAN OF SURVEY OF

PART OF 22 CONCESSION 4 (RIDEAU FRONT) Geographic Townsgip of Gloucester and

BLOCK 240

REGISTERED PLAN 4M-1617 and

PART OF BLOCKS 203 and 204 **REGISTERED PLAN 4M-1653 CITY OF OTTAWA**

Surveyed by Annis, O'Sullivan, Vollebekk Ltd. Scale 1:400

Metric DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

Surveyor's Certificate

- I CERTIFY THAT 1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the Land Titles Act and the regulations
- made under them. 2. The survey was completed on the __ day of _____, 2020.

Date

T. Hartwick Ontario Land Surveyor

Notes & Legend

-0-	Denotes	Survey Monument Planted
	"	Survey Monument Found
SIB		Standard Iron Bar
SSIB		Short Standard Iron Bar
IB		Iron Bar
(WIT)		Witness
(AOG)	"	Annis, O'Sullivan, Vollebekk Ltd.
Meas.	"	Measured
(P1)	"	Plan 4R-32773
(P2)	"	Registered Plan 4M-1653
(P3)	"	Registered Plan 4M-1617
(P4)	"	Plan 4R-29630
(P5)	"	Plan 5R-13257
(P6)	"	Plan 4R-31780

Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.99996.

Bearings are grid, derived from Can-Net 2016 Real Time Network GPS observations on reference points A and B, shown hereon, having a bearing of N 23°09'20" W and are referenced to Specified Control Points 01919760735 and 01919871649, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For bearing comparisons, a rotation of 0°40'40" counter-clockwise was applied to bearings on plan (P5).

Coordinates are derived from Can-Net 2016 Real Time Network GPS observations referenced to Specified Control Points 01919760735 and 01919871649, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

Coordinate values are to urban accuracy in accordance with O. Reg. 216/10 Northing 5026903.34 Easting 376968.72 01919760735

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Point B	Northing	5019191.65	Easting	376152.10	

Caution: Coordinates cannot, in themselves, be used to re-establish corners or boundaries shown on this plan.





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Alison Clarke The Stirling Group Via email: <u>alison@tsgdi.ca</u>

Subject: Pre-Consultation: Meeting Feedback – Phase 1 Proposed Complex Site Plan Application 155 Dun Skipper Drive (formerly 4836 Bank Street)

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on October 26, 2023.

Pre-Consultation Preliminary Assessment

1 🗆	2 🗆	3 🗆	4 🖂	5 🗆

One (1) indicates that considerable major revisions are required while five (5) suggests that the proposal appears to meet the City's key land use policies and guidelines. This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.

Next Steps

- 1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. Please proceed to complete a Phase 2 Pre-consultation Application Form and submit it together with the necessary studies and/or plans to planningcirculations@ottawa.ca.
- 2. In your subsequent pre-consultation submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.
- 3. Please note, if your development proposal changes significantly in scope, design, or density before the Phase 3 pre-consultation, you may be required to complete or repeat the Phase 2 pre-consultation process.

Supporting Information and Material Requirements

- The attached Study and Plan Identification List outlines the information and material that has been identified, during this phase of pre-consultation, as either <u>required</u> (R) or <u>advised</u> (A) as part of a future complete application submission.
 - a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on <u>Ottawa.ca</u>. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

Consultation with Technical Agencies



1. You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept. A list of technical agencies and their contact information is enclosed (Appendix A).

Overview Discussion

- 1. Previous Site Plan Approval for the site (D07-12-19-0092) from 2019 for the entire site of 4836 Bank Street. Building A (Home Hardware) has been constructed and is in operation.
- The proposal is for Building B which was previously shown as a 4-storey hotel, and is now being shown as an apartment building, geared to seniors (8-storeys, 145 units, surface and u/g parking)
- 3. Applicant has indicated that they will require a MV for an increase in height (GM [2615]





Previously approved 4-storey hotel proposal.





Oct 25, 2023 - current proposal for 8-storey apartment building



Updated Rendering, Oct 25, 2023



Planning (Katie O'Callaghan, Tracey Scaramozzino)

Policies and provisions:

- 1. In the Official Plan, the subject property is in the Suburban Transect, which has a planned pattern to enhance mobility options, street connections and evolve towards the 15-minute neighbourhood. Within the Suburban Transect, diverse housing forms are encouraged to meet evolving demographics.
- 2. The subject property is also located within the Mainstreet Corridor land use designation. Mainstreet Corridors can accommodate higher density development, a greater degree of mixed-use and residential uses that integrate with a dense, mixed-use urban environment. The maximum height along Mainstreet Corridors, within the Suburban Transect, is 9 storeys.
- 3. There is no CDP for this site; however, the Leitrim CDP, 2005, pertains to the lands to the north of Dun Skipper. The proposed development is in keeping with, and complimentary, to the policies laid out under the Leitrim CDP.
- 4. The subject property is zoned as General Mixed-Use (GM), with exception (2615) that permits a hotel use on the property. Residential uses, including mid-rise buildings with a maximum height of 18m (@ 6-storeys), are permitted in the GM zone.
- 5. To seek relief from maximum permitted height, the Applicant will need a minor variance application. The Committee of Adjustment is a City of Ottawa quasi-judicial tribunal which reviews *Planning Act* applications that are independent from development review. Please see the City's <u>website</u> for more information.
- 6. Bicycle parking is required. Please indicate bicycle parking on the site plan.
- 7. Please see information on Section 37 requirements / Community Benefits Charge
 - a. The former Section 37 regime has been replaced with a "Community Benefits Charge", <u>By-law No. 2022-307</u>, of 4% of the land value. This charge will be required for ALL buildings that are 5 or more storeys and 10 or more units and will be required at the time of building permit unless the development is subject to an existing registered Section 37 agreement. Questions regarding this change can be directed to <u>Ranbir.Singh@ottawa.ca</u>.
- 8. Landscape requirements
 - b. Use local, native species where possible
 - c. Provide as much greenery, trees, soft surfaces as possible to mitigate urban heat island and help with SWM
- 9. Update zoning table as required based on changes made.
- 10. It is recommended that a courtesy heads-up be provided to the local ward Councillor Steve Desroches Riverside South Findlay Creek (<u>steve.desroches@ottawa.ca</u>).



Urban Design (Randolph Wang)

11. <u>Submission Requirements</u>

- 1. Urban Design Brief is required for a ZBLA. Please see attached customized Terms of Reference to guide the preparation. Here are a few highlights:
 - a. The Urban Design Brief should be structured by generally following the headings highlighted under Section 3 Contents of these Terms of Reference.
 - b. Please explore alternative site plan and massing options and include diagrams and images to show and document options explored.
- Please refer to relevant Terms of Reference available on the City's website (<u>Planning</u> <u>application submission information and materials</u> | <u>City of Ottawa</u>) to prepare additional drawings and studies required. Please note that both shadow and wind studies are required.

Comments on the Design Concept

- 1. Urban design supports the proposed ground floor programs, particularly the communal and amenity uses along Bank Street and their potential to animate the Mainstreet Corridor.
- 2. The site plan requires further study. The amenity space is situated in the middle of the parking lot, detached from the building, surrounded by driveways, and broken up by a ramp. It is not the most desirable place to be in.
- 3. With respect to built form and building design, urban design appreciates the attention to the street corner through building form design.
 - a. The massing articulation (the stepping) at the corner is interesting. However, it seems contradictory to the overall "classical" approach to built form design.
 - b. Urban design cautions the coplanar effects.
 - c. The canopies on the top appear to be heavy.

Suggestions for Design






Site Plan Option to Consider

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**************************************		STORE SENONS APARTMENT BULDING USER STORE SENONS		
			Amenity	ALCON ILLUM D MARCEL VILL MARCEL MARC

Explore site plan options, for example:

- 1. Without changing the built form design, consider locating the amenity area to the west of the proposed building, along Dun Skipper. Elements such as decorative fencing around the amenity area can be suitable for the street.
- 2. Design a simple bar building along Dun Skipper and locate the amenity area on Bank Street. Depending on the size and shape of the amenity space, this may allow for future intensification along Bank Street.
- 2. Simplify vehicular circulations so that they function well and won't interfere with pedestrian circulations.
- 3. Incorporate the parking ramp into the building rather than being a standalone structure. If the ramp has to be located outside of the building, it should be convenient for way finding, and properly landscaped.
- 4. With respect to built form and building design, consider the following:



- 1. Simplify the massing at the corner to create a stronger vertical presence. Given the overall built form approach being pursued, stepping may be most suitable at the two ends of the building.
- 2. Create a stronger base. A 2-storey base with stone cladding may be appropriate.
- 3. Create a lighter top. Step back the top two floors. Remove and/or reduce the size of the balcony canopies.
- 4. Avoid coplanar on facades. Wherever there is change of materials, include a building step back and/or introduce a strong datum line that separates the two materials.

Engineering (Tyler Cassidy)

Comments:

- 12. The Stormwater Management Criteria, for the subject site, is to be based on the following existing reports:
 - i. Design Brief, Pathways at Findlay Creek, 4800 Bank Street, Phase 1, prepared by IBI, revised August 2017.
 - ii. Design Brief, Bank Street Development, 4836 Bank Street, prepared by IBI Group, revised April 2020.
 - a. Stormwater management criteria has been determined for this site through the two (2) studies listed above. The site's overall release rate (Phase 1 + future phases) shall be respected. There shall be a sufficient allocation of capacity remaining for future phases to be developed.
 - b. Emergency overflow for events greater than the 1:100 year storm shall be directed to the Bank Street right-of-way.
 - c. All flows exceeding the allowable release rate for design storms up to and including the 1:100 year event are to be detained on-site.
 - d. Quality controls (80% TSS removal) are being provided by the existing downstream Findlay Creek Stormwater Management Facility.
 - e. A calculated time of concentration (Cannot be less than 10 minutes).
- 13. Deep Services (Storm, Sanitary & Water Supply)
 - a. Deep services are available on site as part of the Phase 1 site plan works. See the existing report(s) for proposed connection locations. New connections to the municipal right-of-way will not be accepted.
 - b. It is the responsibility of the applicant/consultant to confirm sufficient capacity in the sanitary sewer system for any flows that exceed the allocation allotted in the subdivision level and phase one site plan control servicing reports.
 - c. Sewer connections to be made above the springline of the sewermain as per:



- i. Std Dwg S11.1 for flexible main sewers connections made using approved tee or wye fittings.
- ii. Std Dwg S11 (For rigid main sewers) lateral must be less that 50% the diameter of the sewermain,
- iii. Std Dwg S11.2 (for rigid main sewers using bell end insert method) for larger diameter laterals where manufactured inserts are not available; lateral must be less that 50% the diameter of the sewermain,
- iv. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.
- v. No submerged outlet connections.
- 14. Water Boundary condition requests must include the location of the service (map or plan with connection location(s) indicated) and the expected loads required by the proposed development, including calculations. Please provide the following information:
 - a. Location of service
 - b. Type of development and the amount of fire flow required (as per FUS).
 - c. Average daily demand: ____ l/s.
 - d. Maximum daily demand: ____l/s.
 - e. Maximum hourly daily demand: ____ l/s.
- 15. It is the applicant/consultant's responsibility to confirm if the existing MECP Environmental Compliance Approval needs to be amended to accommodate the proposed development. If required, please contact the Ministry of the Environment, Conservation and Parks, Ottawa District Office to arrange a pre-submission consultation:
 - a. Charlie Primeau at (613) 521-3450, ext. 251 or Charlie.Primeau@ontario.ca
- 16. The Geotechnical Investigation Report for this development shall be scoped specially for the proposal. The report can make use of existing geotechnical data obtained during the phase 1 investigation, however if the data is more than 1 year old, a professional will be required to certify the data is still reflective of existing site conditions and applicable to this phase of development.

Feel free to contact Tyler Cassidy, P.Eng., Infrastructure Project Manager, for follow-up questions.

Noise (Neeti Paudel)

Comments:



17. Noise Impact Studies required:

i. Road (site is within 100m of an arterial road- fronting Bank Street)

Feel free to contact Neeti Paudel, Transportation Project Manager, for follow-up questions.

Transportation (Neeti Paudel)

Comments:

18. TIA is not required.

19. On site plan:

- i. Show all details of the roads abutting the site up to and including the opposite curb; include such items as pavement markings, accesses and/or sidewalks.
- ii. Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements (loading space) and at all access (entering and exiting and going in both directions).
- iii. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible
- iv. Show lane/aisle widths
- v. Note the maximum access width is 9m.
- 20. As the site proposed is residential, AODA legislation applies for all areas accessible to the public (i.e. outdoor pathways, parking, etc.).
 - Clearly define accessible parking stalls and ensure they meet AODA standards (include an access aisle next to the parking stall and **a pedestrian curb ramp** at the end of the access aisle, as required).
 - Please consider using the City's Accessibility Design Standards, which provide a summary of AODA requirements. <u>https://ottawa.ca/en/city-hall/creating-equalinclusive-and-diverse-city/accessibility-services/accessibility-design-standardsfeatures#accessibility-design-standards
 </u>
- 21. The design for <u>Bank Street Widening</u> and Construction from south of Leitrim Road to south of Blais is complete. Construction time is to be confirmed.
- 22. Right-of-way protection.
 - a. Overlay the Bank Street design (attached) on the site plan to ensure sufficient ROW is protected.
 - Any requests for exceptions to ROW protection requirements <u>must</u> be discussed with Transportation Planning and concurrence provided by Transportation Planning management.

Feel free to contact Neeti Paudel, Transportation Project Manager, for follow-up questions.

Planning Forestry – Hayley Murray



- 23. If there are City owned trees of any size and/or privately owned trees 10 cm in diameter or greater on the subject property, a Tree Conservation Report would be required. The required information could be combined with the Landscape Plan if relevant.
- 24. The Landscape Plan terms of reference must be adhered to: <u>https://documents.ottawa.ca/sites/documents/files/landscape_tor_en.pdf</u>

25. TCR requirements

- The TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition
- Please identify trees by ownership private onsite, private on adjoining site, city owned, boundary (trees on a property line)
- If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained
- All retained trees must be shown, and all retained trees within the area impacted by the development process must be protected as per City guidelines available at <u>Tree</u> <u>Protection Specification</u> or by searching Ottawa.ca
- The location of tree protection fencing must be shown on the plan
- The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
- For more information on the process or help with tree retention options, contact Hayley Murray <u>hayley.murray@ottawa.ca</u> or on <u>City of Ottawa</u>

26. LP tree planting requirements

Minimum Setbacks

- Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.
- Maintain 2.5m from curb
- Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
- Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when **planting around overhead primary conductors.**

Tree specifications

- Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
- Maximize the use of large deciduous species wherever possible to maximize future canopy coverage
- Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
- Plant native trees whenever possible
- No root barriers, dead-man anchor systems, or planters are permitted.



No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

Hard surface planting

- Curb style planter is highly recommended
- No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
- Trees are to be planted at grade

Soil Volume

• Please document on the LP that adequate soil volumes can be met:

Tree	Single Tree Soil Volume	Multiple Tree Soil Volume
Type/Size	(m3)	(m3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

- ** Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay **
- Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines for trees in the Right of Way

Tree Canopy

- The landscape plan shall show how the proposed tree planting will replace and increase canopy cover on the site over time, to support the City's 40% urban forest canopy cover target.
- At a site level, efforts shall be made to provide as much canopy cover as possible, through tree planting and tree retention, with an aim of 40% canopy cover at 40 years, as appropriate. Indicate on the plan the projected future canopy cover at 40 years for the site.

Feel free to contact Hayley Murray, Planning Forester, for follow-up questions.

Environment and Trees (Matthew Hayley)

Comments:



- 27. Significant environmental features The nearest natural feature is east of Bank Street and over 30 m from the proposed development and accordingly an Environmental Impact Study (EIS) is not triggered.
- 28. Species at risk Site is cleared and there is no natural habitat present.
- 29. Environmental impact Study No EIS is triggered.
- 30. Bird-Safe Design Guidelines Please review and incorporate bird safe design elements. Some of the risk factors include glass and related design traps such as corner glass, balcony glass and fly-through conditions, ventilation grates and open pipes, landscaping, light pollution. More guidance and solutions are available in the guidelines which can be found here:

https://documents.ottawa.ca/sites/documents/files/birdsafedesign_guidelines_en.pdf

31. Urban Heat Island - Please add features that reduce the urban heat island effect (see OP 10.3.3) produced by the parking lot and a building footprint. For example, this impact can be reduced by adding large canopy trees, green roofs or vegetation walls, or constructing the parking lot or building differently.

Feel free to contact Matthew Hayley or Mark Elliot, Environmental Planner, for follow-up questions.

Parkland (Burl Walker):

Comments:

- 32. Cash-in-lieu of parkland will be required as a condition of site plan approval. The parkland dedication requirement will be determined in accordance with the provisions of Parkland Dedication By-law No. 2022-280 and the *Planning Act.* The Owner will also be required to pay for the cost of a land value appraisal.
- 33. Parkland Dedication By-law No. 2022-280 is in force. However, multiple appeals to the Bylaw are currently before the Ontario Land Tribunal. The final parkland dedication requirement for the proposed site plan application will be determined in accordance with any By-law amendments made by the OLT or an order made by the OLT.
- 34. The cash-in-lieu of parkland dedication requirement for a mid-rise apartment building is 1 ha per 1,000 net residential units up to a maximum of 15% of the gross land area. For a mixed-use development where land is developed for a mix of land uses that are located on discrete parts of a site, the parkland dedication requirement is the cumulative sum for each use, as calculated using the applicable rate and based upon the portion of the site allocated to each use, including, but not limited to, required and provided parking spaces, amenity space, landscape buffers, and drive aisles. In addition, subsection 42 (3.3) of the *Planning Act* indicates that in the case of land proposed for development or redevelopment that is 5 ha or less in area, a Parkland Dedication By-law shall not require a conveyance that is greater than 10% of the value of the land.



35. For the Phase 2 pre-consultation submission, please provide the area of the site that is allocated to Building B including the parking area, amenity space, landscaping, etc. The area allocation may be based on the limits of construction for the Building B site development or a parcel line from a lease agreement, if applicable. Staff will defer providing an estimate of the land area for the cash-in-lieu of parkland dedication requirement until the parcel area for Building B has been provided.

Feel free to contact Burl Walker, Parks Planner, for follow-up questions.

Conservation Authority (South Nation, James Holland)

SNC's review considers the impacts of the development on natural hazards, including flooding and erosion upstream and downstream of the property. The review identifies areas and features regulated under the *Conservation Authorities Act* and the permit requirements of SNC's Regulation Policies. These policies can be obtained from SNC's website at <u>Regulations</u> <u>South Nation Conservation Authority</u>

Comments:

36. Natural Hazards

- There are no mapped natural hazards on the property.
- Increased stormwater must not negatively impact flooding and erosion following development. If the stormwater outlets to approved municipal infrastructure, SNC does not complete a technical review and relies on the City's engineering review to confirm capacity of the infrastructure. If flows outlet to Findlay Creek, SNC will complete a technical review of the quantity control component of the design.
- 37. Conservation Authority Regulation
- Please note that any interference with a watercourse may require a permit under O.Reg. 170/06 and restrictions may apply. A watercourse includes any feature with a defined bed and bank that conveys water permanently or intermittently during a year.

<u>Other</u>

- 38. The High Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design. The HPDS was passed by Council on April 13, 2022.
 - a. At this time, the HPDS is not in effect and Council has referred the 2023 HPDS Update Report back to staff with direction to bring forward an updated report to Committee with recommendations for revised phasing timelines, resource requirements and associated amendments to the Site Plan Control By-law by no later than Q1 2024.
 - b. Please refer to the HPDS information attached and ottawa.ca/HPDS for more information.



Should there be any questions, please do not hesitate to contact myself or the contact identified for the above areas / disciplines.

Yours Truly, Katie O'Callaghan Planner I

CC.

Tracey Scaramozzino, Senior Planner Tyler Cassidy, Infrastructure Approvals Neeti Paudel, Transportation Hayley Murray, Forester Matthew Hayley, Environmental Planner Burl Walker, Park Planner James Holland, South Nation Conversation Authority Randolph Wang, Senior Urban Designer

Omkar, Atwal, Owner, omkar.atwal@homehardware.ca



Appendix A. List of Technical Agencies

List of Technical Agencies to Consult

\boxtimes	Zayo	Utility.Circulations@Zayo.com
\boxtimes	Bell Canada	circulations@wsp.com
\boxtimes	Telus Communications	telusutilitymarkups@Telecon.ca / jovica.stojanovski@telus.com
\boxtimes	Rogers Communications	OPE.Ottawa@rci.rogers.com
\boxtimes	Enbridge Gas Distribution	municipalplanning@enbridge.com
\boxtimes	O.C. District School Board	planningcirculations@ocdsb.ca
\boxtimes	O.C. Catholic School Board	planningcirculations@ocsb.ca
\boxtimes	Conseil des écoles publiques	planification@cepeo.on.ca
\boxtimes	Conseil des écoles catholiques du Centre-Est	planification@ecolecatholique.ca
\boxtimes	Hydro Ottawa (Local Distribution)	ExternalCirculations@HydroOttawa.com
	Hydro One Networks (Transmission)	landuseplanning@hydroone.com
	Ontario Power Generation	Executivevp.lawanddevelopment@opg.com
	Trans Canada Pipeline c/o Lehman & Associates	dpresley@mhbcplan.com
	Trans Northern Pipeline Inc.	wwatt@tnpi.com
	Railways	Choose an item
	National Capital Commission	Ted.Horton@ncc-ccn.ca
	Parks Canada	susan.millar@pc.gc.ca
	Airport Authority	Choose an item
	Ministry of Transportation	corridoreast@ontario.ca
	Infrastructure Ontario	NoticeReview@infrastructureontario.ca
	Propane Operator	Mailing Addresses Only
	NAV Canada	landuse@navcanada.ca
\boxtimes	Conservation Authority	SNCA – jholland@nation.on.ca



APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST

Proposed Site Plan Control Application – 155 Dun Skipper Road – PC2024-0127

Legend: **R** = Required, the study or plan is required with application submission

A = Advised, the study or plan is advised to evaluate the application or satisfy a condition of approval/draft approval

1 - OPA, 2 - ZBA, 3 - Plan of Subdivision, 4 - Plan of Condominium, 5 - SPC

Core studies required for certain applications all the time (Remaining studies are site specific)

For information and guidance on preparing required studies and plans refer here:

			EN	GINEER	RING				
ь	•	Study/ Plan Namo	Description		Wh	en Requi	red		Applicable Study Components
	~	Study/ Flatt Name	Description	1	2	3	4	5	& Other Comments
		1. Environmental Site	Ensures development only takes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	Record of Site Condition
		Assessment (Phase 1 & Phase 2)	environmental conditions are suitable for the proposed use	<u>Study Tr</u> All cases	igger Deta s	<u>ails</u> :			Yes 🗆 No 🗆
			Geotechnical design	\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	
		2. Geotechnical Study	requirements for the subsurface conditions	<u>Study Tr</u> All cases	igger Deta s	<u>ails</u> :			
		3 Grading and	Grading relationships between			\boxtimes		\boxtimes	
		Drainage Plan	properties and surface runoff control	<u>Study Tr</u> All cases	rigger Deta s	ails:			
			A scientific study or evaluation			\boxtimes	\boxtimes	\boxtimes	Reasonable Use Study
		4. Hydrogeological and Terrain Analysis	that includes a description of the ground and surface hydrology, geology, terrain, affected landform and its susceptibility	<u>Study Tr</u> When de urban de existing	igger Deta eveloping evelopmer private se	<u>ails</u> : on private nt is in clos rviced dev	services se proximi velopment	or when ty to	Yes □ No □ Groundwater Impact Study Yes □ No □
			Detential impacts of poiss on a	\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	Vibration Study
		5. Noise Control Study	development	e on a <u>Study Trigger Details</u> : See Terms of Reference for full details.				Yes I No I	

				\boxtimes	\boxtimes	\boxtimes	\boxtimes	
	6. Rail Proximity Study	Development on land adjacent to all Protected Transportation Corridors and facilities shown on Schedule C2 of the Official Plan, to follow rail safety and risk mitigation best practices	Study Tr Within th existing corridors on land Transpo on Sche	rigger Deta ne Develop and future s, as show adjacent to rtation Co dule C2 o	<u>ails</u> : oment Zor rapid trai n on Anno o all Prote rridors an f the Offic	ne of Influe nsit statior ex 2 of the cted d facilities ial Plan	ence for ns and OP OR shown	Rail Safety Report Yes
				\boxtimes	\boxtimes	\boxtimes	\boxtimes	Fluvial Geomorphological Report Yes □ No □
	7. Site Servicing Study	Provides servicing details based on proposed scale of development with an engineering overview taking into consideration surrounding developments and connections.	<u>Study Tr</u> All cases	<u>rigger Det</u> a s	<u>ails</u> :	Assessment of Adequacy of Public Services Yes No Servicing Options Report Yes No Servicing Options Report Yes No Sediment Control Plan / Brief Yes No Sediment Control Plan / Brief Yes No Stormwater Main Analysis Yes No Stormwater Management Report and Detailed Design Brief Yes No Second		
		Accessment of slope stability and		\boxtimes	\boxtimes	\boxtimes	\boxtimes	
	8. Slope Stability Study	measures to provide safe set- back.	Study Trigger Details: Where the potential for Hazard Lands exists on a site.					Retrogressive Landslide Analysis Yes □ No □
				\boxtimes	\boxtimes	\boxtimes	\boxtimes	
	9. Transportation Impact Assessment	Identify on and off-site measures to align a development with City transportation objectives.				on-trips ed in a it has a	Roadway Modification Functional Design Yes □ No □	

				\boxtimes	\boxtimes	\boxtimes	\boxtimes
	10. Water Budget Assessment	Identify impact of land use changes on the hydrologic cycle and post-development mitigation targets.	Study Tr May be r applicati and / or sensitive required assessm manage area.	rigger Deta required fo ons for site proximity t a areas. D to integra nents into s ment plans	ails: or site plar es with pr to hydroge praft plans te water b supporting s and ana	n control ivate servi ologically of subdiv oudget g stormwa lysis for th	icing /- ision are ter ne study
				\boxtimes	\boxtimes	\boxtimes	\boxtimes
	11. Wellhead Protection Study	Delineate a Wellhead Protection Area (WHPA) and characterize vulnerability for new communal residential drinking water well systems, in accordance with Technical Rules under <i>Clean</i> <i>Water Act</i> .	Study Tr Required drinking municipa (small w Respons or increa municipa well and	<u>Study Trigger Details</u> : Required for all new communal residential drinking water well systems; including new municipal wells, new private communal wells (small water works) that require a Municipal Responsibility Agreement (MRA), expansions or increased water takings from an existing municipal well or existing private communal well and new private communal wells.			

PLANNING										
в	•	Study/Plan Nama	Description		Wh	en Requi	Applicable Study Components			
ĸ	A	Study/Plan Name	Description	1	2	3	4	5	& Other Comments	
									_	
		12. Agrology and Soil Capability Study	Confirm or recommend alterations to mapping of agricultural lands in the City.	Study Tr For the e identifica through is demoi the requ Area.	rigger Deta expansion ation of a r a comprel nstrated th irements f	ails: of a settle new settle hensive re nat the lan for an Agr	ement area ment area eview; or v id does no icultural F			
				\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes		
		13. Archaeological Assessment	Discover any archaeological resources on site, evaluate cultural heritage value and conservation strategies	<u>Study Tr</u> When th archaeo archaeo Archaeo Study in outside o of any a construc	igger Deta e land has logical site logical site logical Re dicates ar of the histo rchaeolog ction in the	ails: s either: a e; or the p es; or whe source Pe chaeologi oric core; ical resou e City's his	known otential to ere the Cit otential M cal potent or upon d rce during storic core	o have y's apping tial, iscovery g area.		
				\boxtimes	\boxtimes			\boxtimes		
		14. Building Elevations	Visual of proposed development to understand facing of building including direction of sunlight, height, doors, and windows.	Study Tr Site Plan more res buildings the units High-pen threshold Official F necessa policies, Urban D	rigger Deta n: for resic sidential u s with less are within formance d in the ru Plan or Zo ry to dete the Zonin esign Gui	ails: dential bui nits; or for than 25 r n the Urba Developr ral area. ning By-la rmine con g By-law delines.	ldings wit r residentia an area or ment Stan aw: if staff apliance v or City of	h 25 or al units, if the dard deem it vith OP Ottawa		

			\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	
	15. Heritage Impact Assessment	Determine impacts of proposed development on cultural heritage resources.	Study Tr Where d the Onta adjacent 30 metre for any c Canal U landscap	rigger Deta levelopme ario Herita to, acros es of a pro developme NESCO V ped buffer	ails: ent or an a ge Act is p s the stree otected he ent adjace Vorld Heri	application proposed et from or ritage pro ent to the F tage Site	Conservation Plan Yes □ No □	
				\boxtimes	\boxtimes	\boxtimes	\boxtimes	
	16. Heritage Act Acknowledgement Report	A submission requirement to demonstrate that the <i>Ontario Heritage Act</i> requirements have been satisfied, to ensure that multiple applications are considered currently.	Study Tr Where th Heritage submit a (designa Heritage to demo designat Register	rigger Deta he subject Register heritage ated herita Register lish or ren ted proper	ails: t property and the a Permit Ap ge proper or provid nove a bu ty listed c	is listed o pplicant n oplication ty listed o le notice c ilding (nor on the Her	Heritage Permit Application Yes No Notice of Intent to Demolish Yes No	
		Mineral aggregate extraction activities: and to protect	\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	
	17. Impact Assessment Study – Mineral Aggregate	known high quality mineral aggregate resources from development and activities that would preclude or hinder their existence (ability to be extracted) or expansion.	<u>Study Tr</u> New De within th metres o Resourc	rigger Deta velopmen e Bedrock of lands wi æ Area Ov	<u>ails</u> : t within 50 < Overlay ithin the S verlay.	00 metres , or within and and (of lands 300 Gravel	
		To identify or confirm known mineral deposits or petroleum	\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	
	18. Impact Assessment Study – Mining Hazards	resources and significant areas of mineral potential. To protect mineral and petroleum resources from development and activities which would preclude or hinder the establishment of new operations or access to the resources.	<u>Study Trigger Details</u> : For all applications in proximity to mining operations.					

Γ									1
			To identify or confirm known		\boxtimes	\boxtimes	\boxtimes	\boxtimes	
		19. Impact Assessment Study – Waste Disposal Sites / Former Landfill Sites	mpact Assessment Study – Waste Disposal Sites / Former Landfill Sites – Market Assessment Sites – Kormer Landfill Sites – Kormer Landfill – Kormer Landfill Sites – Kormer Landfill – Kormer Lan				y new Soli nt expans isposal Sil ometers c Waste Dis	d Waste ion of te; or of an posal	
				\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	
		20. Landscape Plan	A plan to demonstrate how the canopy cover, urban design, health, and climate change objectives of Official Plan will be met through tree planting and other site design elements.	Study Tr Site Plar Condom it is dem compone review o A high-le be requi Official F	<u>Study Trigger Details</u> : Site Plan, Plan of Subdivision, and Plan of Condominium: always required, except where it is demonstrated that the landscape component of a project is not relevant to the review of the application. A high-level conceptual Landscape Plan may be required to support Zoning By-law and Official Plan Amendment applications.				
					\boxtimes				
		21. Mature Neighbourhood Streetscape Character Analysis	In the Mature Neighbourhoods a Streetscape Character Analysis is required to determine the applicable zoning requirements.	Study Tr Zoning E areas cc zoning o developi a R1, R2	rigger Deta By-law am overed by overlay for ment of fo 2, R3, or F	<u>ails</u> : endment the Matur applicatic ur storeys & zone.	applicatior e Neighbo ns of resi or less lo	n in ourhoods idential cated in	
			Provincial land use planning	\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	
		22. Minimum Distance Separation	tool that determines setback distances between livestock barns, manure storages or anaerobic digesters and surrounding land uses, with the objective of minimizing land use conflicts and nuisance complaints related to odour.	setback vestock ges or and es, with nizing d related				e of a	

			_	_	_		_	
		A tool to assess the			\boxtimes	\boxtimes		
	23. Parking Plan	parking in plans of subdivision.	<u>Study Tr</u> For new public st	rigger Deta or revised reets.	<u>ails</u> : d plans of	subdivisic	on with	
		A Plan of Survey depicts legal	\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	
	24. Plan of Survey	boundaries and is a specialized map of a parcel of land and it delineates boundary locations, building locations, physical features and other items of spatial importance.	<u>Study Tr</u> Require	r <u>igger Deta</u> d for all <i>Pl</i>	<u>ails</u> : anning Ac	t applicati		
				\boxtimes	\boxtimes			
	25. Plan of Subdivision	Proposed subdivision layout to be used for application approval	Proposed subdivision layout to be used for application of subdivision application.					
			Only rec Amendn in respo	uired with nent applic nse to ena	a Zoning cation, wh able a sub	By-law ere such Z division.	ZBLA is	
		Proposed condominium				\boxtimes		
	26. Plan of Condominium *If Needed	layout to be used for application approval	<u>Study Tr</u> With the applicati	rigger Deta submissio on.	<u>ails</u> : on of plan	of condor	ninium	
		Provides the planning	\boxtimes	\boxtimes	\boxtimes			
	27. Planning Rationale	justification in support of the <i>Planning Act</i> application and to assist staff and the public in the review of the proposal.	<u>Study Tr</u> For all C law ame applicati	<u>Study Trigger Details</u> : For all Official Plan amendment, Zoning By- law amendment, or plan of subdivision applications.				Integrated Environmental Review Summary Yes
		A checklist that shows a			\boxtimes		\boxtimes	
	28. Preliminary Construction Management Plan	<u>Study Tr</u> For all S applicati	rigger Deta ite Plan al ons.	<u>ails</u> : nd plan of	subdivisio			

			\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	
	29. Public Consultation Strategy	Proposal to reach and collect public input as part of development application.	Study Tr Official F Amendn required Condom Site Plan lead in c Technica	rigger Deta Plan Amer hent and S hinium: Va h: At the d consultatio al Support	ails: Idment, Z Subdivisio cant Land iscretion o n with the Services	oning By-I n: Always only of the City Business Manager.		
				\boxtimes				
	30. Shadow Analysis	A visual model of how the proposed development will cast its shadow.	Study Tr When th massing commer Two trigg 1. Inside develop meters). storeys of in height proximity shadow 2. Outsid develop shadow develop shadow develop analysis meters).	igger Deta ere is an i proposed cial or offic gers: the Gree ment is ov If a devel or less, but and/or m y to a shad analysis n de the Gre ment is ov and is in c e area. Wh ment is no sensitive a ment) the is over 5	ails: ncrease in l for a resi ce use. nbelt: proj er 5 store opment p t is propo assing an dow sensi nay be rea enbelt: pr er 3 store close prox here a pro t in close area (e.g. trigger for storeys in	n height o dential, bosed ys in heig roposal is sing an in d is in clos tive area, quested. oposed ys in heig imity to a posed proximity industrial a shadow height (≤ ⁻	r ht (≤15 5 crease se a ht (≤9 shadow to a v 15	
		A Site Plan is a visual				\boxtimes	\boxtimes	Site Plan Yes □ No □
	31. Site Plan	proposed development of a site in two dimensions.	Study Trigger Details: Site Plan: All Other applications: where a layout of the					Concept Plan Yes □ No □

			public re densities provides sites pro with mul more bu and/or a sites with (such as vehicula sites wh adjacent could be	alm, build or massing posing mu tiple lando ildings, on new publi h propose active tra r circulatio ere the de properties integrated	ing massi ng of the p to the plan ultiple lanc wners; sit -site park c or privat d changes nsportatio on or acce velopmen s may be d into the	Facility Fit Plan Yes □ No □
	32. Urban Design Brief	Illustrate how a development proposal represents high- quality and context sensitive design that implements policies of the Official Plan, relevant secondary plans, and Council approved plans and guidelines.	Study Tr For all C law ame applicati For SPC residenti residenti residenti Urban ai Develop area who non-resi	igger Deta fficial Plar ndment, a ons. application al building ial units, of al building ial units, ifford rea or the ment Stant ere OP Poord dential and	ills: n amendm nd plan of pns: propo gs with 25 r for propo gs with les the units High-perfo dard three licy 11.3 (d mixed-u	
	33. Urban Design Review Panel Report	Demonstrates that a development proposal has attended an Urban Design Review Panel formal review meeting, received, and responded to the associated recommendations, if applicable	Study Tr Required subject t the UDR	igger Deta d for all pla o UDRP ro P Panel T	⊠ aills: anning act eview, in a erms of R	
	34. Wind Analysis	A visual model and a written evaluation of how a proposed development will impact pedestrian-level wind conditions.	Study Tr Applicati and/or m building(building	igger Deta ions seeki nassing wh s), 10 stor that is mo	ails: ng an incr nich is eith reys or mo re than tw	

				adjacent five store existing open sp amenity	t existing t eys in heig or planne aces, wate areas.	buildings a ght and is d low rise er bodies			
		35. Zoning Confirmation Report	The purpose of the Zoning Confirmation Report (ZCR) is to identify all zoning compliance issues, if any, at the outset of a planning application.		\boxtimes			\boxtimes	
				<u>Study Ti</u> Require	rigger Deta d for all SI	<u>ails</u> : PC and ZE	ations.		

			ENV	RONME	NTAL				
		Ofudu / Dian Nama	Description		Wh	en Requi	Applicable Study Components		
R	A	Study / Plan Name	Description	1	2	3	4	5	& Other Comments
			Includes a community						
		36. Community Energy Plan	mitigation measures, and other associated information. The community energy analysis refers to the overall assessment process to identify on and off-site measures to align the design of the development with City climate objectives.	NOT I	MPLEME	NTED & N			
			The Energy Modeling						
		37. Energy Modelling Report	Report is a Site Plan Control application submission requirement to show how climate change mitigation, and energy objectives will be met through exterior building design elements.	NOT I	MPLEME	NTED & N			
			Assessment of	\boxtimes	\boxtimes	\boxtimes		\boxtimes	Assessment of Landform Features
		38. Environmental Impact Study	project and documents the existing natural features, identifies the potential environmental impacts,	<u>Study Tr</u> Is require alteration	igger Deta ed when o n is propo	<u>ails</u> : levelopme sed in or v	Yes □ No □ Integrated Environmental Review Yes □ No □		

		recommends ways to avoid and reduce the negative impacts, and proposes ways to enhance natural features and functions.	specified designat the City' hazardo The EIS Environi provides features EIS is re applicati	d distance ted lands, s Natural I us forest t Decision mental Imp a checklis and adjac equired to s	of enviror natural he Heritage S ypes for w Tool (App bact Study st of the national sent areas support de the <i>Planr</i>	Protocol for Wildlife Protection during Construction Yes No Significant Woodlands Guidelines for Identification, Evaluation, and Impact Assessment Yes No No
	39. Environmental Management Plan	A comprehensive environmental planning document that identifies, evaluates, and mitigates the potential impacts of proposed development on the natural environment and its ecological functions at local planning stage.	Study Tr Official F (area-sp where: t condition based; t planned subdivis impact o subdivis applicab approva	rigger Deta Plan amen pecific polic here is sig ns upon w here are p infrastruct ion that wo on the infra ion within ble Class E I has expir	ails: dments fo cy or seco nificant ch hich the of roposed o ture neede ould have structure the EMP s invironme red.	
	40. High-performance Development Standard	A collection of voluntary and required standards that raise performance of new building projects to achieve sustainable and resilient design		MPLEME	NTED & N	
	41. Tree Conservation Report	Demonstrates how tree cover will be retained and protected on the site, including mature trees, stands of trees, and hedgerows.	Study Tr Where to diamete is a tree Root Zo develop	rigger Deta here is a tr r or greate on an adja ne (CRZ) o ment site.	ails: ree of 10 c or on the s acent site extending	



Watermain Boundary Conditions Water Demand Calculations FUS Calculations Water Model Results

Boundary Conditions 155 Dun Skipper Drive

Provided Information

Soonaria	Demand								
Scenario	L/min	L/s							
Average Daily Demand	58	0.97							
Maximum Daily Demand	138	2.30							
Peak Hour	299	4.98							
Fire Flow Demand #1	11,000	183.33							

Location



<u>Results</u>

Existing Condition (Pre- SUC Pressure Zone Reconfiguration)

connection i – Dun Skipper Ko	Jau					
Demand Scenario	Head (m)	Pressure ¹ (psi)				
Maximum HGL	154.6	78.3				
Peak Hour	143.9	63.1				
Max Day plus Fire Flow 1	125.1	36.3				
Ground Elevation =	99.5	m				

Connection 1 – Dun Skipper Road

Connection 1 – Bank Street

Demand Scenario	Head (m)	Pressure ¹ (psi)				
Maximum HGL	154.6	79.1				
Peak Hour	143.9	63.9				
Max Day plus Fire Flow 1	124.6	36.4				
Ground Elevation =	99.0	m				

Future Condition (Post- SUC Pressure Zone Reconfiguration)

Connection 1 – Dun Skipper Road

Demand Scenario	Head (m)	Pressure ¹ (psi)				
Maximum HGL	147.3	67.9				
Peak Hour	144.6	64.1				
Max Day plus Fire Flow 1	140.2	57.8				
Ground Elevation =	99.5	m				

Connection 1 – Bank Street

Demand Scenario	Head (m)	Pressure ¹ (psi)				
Maximum HGL	147.3	68.7				
Peak Hour	144.3	64.5				
Max Day plus Fire Flow 1	139.2	57.2				
Ground Elevation =	99.0	m				

Notes

1. Any connection to a watermain 400 mm or larger should be approved by DWS as per the Water Design Guidelines Section 2.4 Review by Drinking Water Services.

Disclaimer

The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

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WATERMAIN DEMAND CALCULATION SHEET

333 PRESTON STREET
OTTAWA, ON

K1S 5N4

PROJECT : LOCATION : DEVELOPER : 4836 Bank Street Leitrim Development Area - City of Ottawa Leitrim Home Hardware
 FILE:
 119351.5.7.3

 DATE PRINTED:
 17-Oct-24

 DESIGN:
 LME

 PAGE :
 1 OF 1

		RESID	ENTIAL		NON-RESIDENTIAL			AVERAGE DAILY			M	AXIMUM DA	AILY	MAXIMUM HOURLY			FIRE
NODE		UNITS			INDTRL	INST.	RETAIL	[DEMAND ((l/s)	C	EMAND (I	/s)		`		DEMAND
NODE	SF	2-BED	1-BED	BEDS	(ha.)	(ha.)	(m ²)	Res.	Non-res.	Total	Res.	Non-res.	Total	Res.	Non-res.	Total	(l/min)
T-120																	
(Building A and D)							3,490	0.00	0.10	0.10	0.00	0.15	0.15	0.00	0.27	0.27	
T-150																	
(Building B Revised)		87	54				878	0.837	0.025	0.86	2.09	0.04	2.13	4.60	0.07	4.67	10,000
T 160																	
(Building C)							502	0.00	0.01	0.01	0.00	0.02	0.02	0.00	0.04	0.04	
Fire Nodes																	
TH-110, TH-030																	11,000
TH-020, TH-040																	10,000
TOTAL										0.97			2.30			4.98	

		ASSUMPTIONS			
RESIDENTIAL DENSITIES		AVG. DAILY DEMAND		MAX. HOURLY DEMAND	
- Single Family (SF)	<u>3.4</u> p/p/u	- Hotel (Table 4.2)	225 I / cap / day	- Hotel (Table 4.2)	608 I / cap / day
		- Retail (Shopping Centre)	2,500 I / 1000m ² / day	- Retail (Shopping Centre)	6,750 I / 1000m ² / day
- Hotel Beds average	<u>1.8</u> p / p / u				
- Stacked Townhouse (ST)	<u>2.3</u> p / p / u	MAX. DAILY DEMAND		FIRE FLOW	
		- Hotel (Table 4.2)	338 I / cap / day	- Hotel	10,000 I / min
		- Retail (Shopping Centre)	3,750 I / 1000m² / day	- Retail	11,000 I / min

ARCADIS ARCADIS IBI GROUP

500-333 Preston Street

Ottawa, Ontario K1S 5N4 Canada **IBI GROUP** ibigroup.com

WATERMAIN DEMAND CALCULATION SHEET

155 Dun Skipper Dr, Seniors Departments | 2668867 Ontario Inc. 148290-6.0 | Rev #1 | 2024-11-26 Prepared By: WZ | Checked By: RM

		RESID	ENTIAL		NON-RESIDENTIAL (ICI)			AVERAG	AVERAGE DAILY DEMAND (I/s)			JM DAILY DEM	AND (l/s)	MAXIMUM HOURLY DEMAND (I/s)			1
NODE	SINGLE	2 bedroom	1 bedroom														FIRE
	FAMILY			POPULATION	INDUST.	COMM.	INSTIT.	RESIDENTIAL	ICI	TOTAL	RESIDENTIAL	ICI	TOTAL	RESIDENTIAL	ICI	TOTAL	DEMAND
	UNITS	UNITS	UNITS		(ha)	(ha)	(ha)										(l/min)
Building B		87	54	258.30		0.0878		0.837	0.025	0.86	2.09	0.04	2.13	4.60	0.07	4.67	10,000
TOTAL		87	54	258.30		0.09				0.86			2.13			4.67	

	ASSUMPTIONS									
POPULATION DENSITY		WATER DEMAND RATES		PEAKING FACTORS		FIRE DEMANDS				
Single Family	3.4 persons/unit	Residential	280 I/cap/day	Maximum Daily		Single Family 10,000 l/min (166.7 l/s)				
				Residential	2.5 x avg. day					
2 Bedroom Units	2.1 persons/unit			Commercial	1.5 x avg. day	Semi Detached &				
		Commercial Shopping Center	2,500 L/(1000m2)/day	Maximum Hourly		Townhouse 10,000 l/min (166.7 l/s)				
1 Bedroom Units	1.4 persons/unit			Residential	2.2 x max. day					
				Commercial	1.8 x max. day	Medium Density 15,000 I/min (250 I/s)				



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ARCADIS IBI GROUP

500-333 Preston Street Ottawa, Ontario K1S 5N4 Canada **ibigroup.com** FIRE UNDERWRITERS SURVEY

155 Dun Skipper Dr, Seniors Departments | 2668867 Ontario Inc. 148290-6.0 | Rev #1 | 2024-11-26 Prepared By: WZ | Checked By: RM

STEP	Contents	Description		Adjustment Fa	ctor	Res	ult		
	Building A	1st Floor Area	1900	Height 2.8m	1	1900	m2		
	(9-storey)	2nd Floor Area	1900	Height 2.8m	1	1900	m2		
		3rd Floor Area	1680	Height 2.8m	0.5	840	m2		
		4th Floor Area	1680	Height 2.8m	0.5	840	m2		
		5th Floor Area	1680	Height 2.8m	0.5	840	m2		
1		6th Floor Area	1665	Height 2.8m	0.5	833	m2		
		7th Floor Area	1665	Height 2.8m	0.5	833	m2		
		8th Floor Area	1665	Height 2.8m	0.5	833	m2		
		9th Floor Area	Height 2.8m	0.5	836	m2			
	Total Effective Floor Area	(Storage space exceeding 3m in height, floor a	(Storage space exceeding 3m in height, floor area X 3)						
		Type V Wood Frame	1.5	Turne II					
2	Type of Construction	Type III Ordinary Construction	1.0	i ype ii Noncombustiblo	0.0				
2	Type of Construction	Type II Noncombustible Construction	0.8	Construction	0.0				
		Type I Fire Resistive Construction	0.6	Construction					
3	Required Fire Flow	RFF = 220C√A, rounded to nearest 1000 L/mi	n			14000	L/min		
		Noncombustible Contents	-25%						
		Limited Conbustible Contents	-15%	Combustible -					
4	Occupancy and Contents	Combustible Contents	0%	Residential/Comm	0%	0	L/min		
		Free Burning Contents	15%	ercial					
		Rapid Burning Contents	25%						
	Fire Flow					14000	L/min		
		Automatic Sprinkler Conforming to NFPA 13	-30%	Yes	-30%	-4200	L/min		
	Automatic Sprinkler Protection	Standard Water Supply for both the system	_10%	Vec	10%	-1400	l /min		
5		and Fire Department Hose Lines	-1070	163	-1070	-1400	L/111111		
		Fully Supervised System	0%	No					
	Total Sprinkler Adjustment					-5600	L/min		
	Exposure Adjustment	Based on Table 6 Exposure Adjustement Cha	rges for Sul	oject Building					
		Separation (m)	>30	With unprotected					
	North	Length X Height Factor (m.storeys)	0	opening	0%	0	L/min		
		Construction Type	Type II	oporning					
		Separation (m)	21.9						
	South	Length X Height Factor (m.storevs)	108	with unprotected	10%	1400	L/min		
		Construction Type	Type II	opening					
6		Separation (m)	>30						
	East	Length X Height Factor (m storevs)	0	With unprotected	0%	0	L/min		
			Type II	opening	0,10	, in the second s	_,		
		Separation (m)	>20						
	Mont	Separation (m) >30		With unprotected	0%	0	L/min		
	west	Construction Tractor (m.storeys)	ength X Height Factor (m.storeys) 0		070	0	L/111111		
	Total Francesure Adjustment		туре п	<u> </u>		4.400	1 /		
	i otal Exposure Adjustment					1400	L/min		
7	Total Required Fire Flow					9800	L/min		
	-	Rounded to Nearest 1000 L/min				10000	L/min		
						167	L/s		

Notes 1. Fire flow calculation are based on Fire Underwriters Survey version 2020.

2. If any vertical opening in the building are unprotected (e.g. interconnected floor spaces, elevators etc.), consider the two largest adjoining floor area plus 50% of all floors immediately above them up to a maximum of eight.

Junctions and Pipes Layouts



Legend

Junction

Demand 1 (lps)

- less than 0.88
- 0.88 ~ 1.76
- 1.76 ~ 2.63
- greater than 2.63
- Active
- Inactive

Pipe

Diameter (mm)

- **—** 200
- ____ 250
- _____ 300
- 400

---- Active

—— Inactive

Average Day Pressure (kPa)



Legend

Junction

Demand 1 (lps)

- less than 0.88
- 0.88 ~ 1.76
- 1.76 ~ 2.63
- greater than 2.63
- Active
- Inactive

Pipe Diameter (mm)

— 200

250300

400

---- Active

— Inactive

Average Day Pressures (kPa)

Average Day Results

	ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)	Water Age (hrs)
1	B-200	0.68	99.25	154.60	542.39	3.45
2	S15-300	2.34	100.00	154.60	535.04	2.85
3	T-100	0.00	101.50	154.60	520.34	0.00
4	T-110	0.00	102.10	154.60	514.46	0.58
5	T-120	0.10	102.25	154.60	512.99	2.01
6	T-130	0.00	102.50	154.60	510.54	2.83
7	T-140	0.00	102.50	154.60	510.54	13.73
8	T-150	0.86	100.60	154.60	529.15	3.82
9	T-160	0.01	101.00	154.60	525.24	2.82
10	T-170	0.00	100.80	154.60	527.20	2.11
11	T-180	0.00	101.10	154.60	524.26	0.01
12	TH-010	0.00	101.90	154.60	516.42	0.41
13	TH-020	0.00	100.70	154.60	528.17	3.19
14	TH-030	0.00	100.90	154.60	526.22	20.62
15	TH-040	0.00	100.70	154.60	528.17	3.74

Peak Hour Pressure (kPa)



Legend

Junction DEMAND1

- less than 0.88
- 0.88 ~ 1.76
 1.76 ~ 2.63
- 1.76 ~ 2.63
- greater than 2.63
- Active
- Inactive

Pipe

Diameter (mm)

- less than 214.50
- 214.50 ~ 274.00
- 274.00 ~ 333.50
- greater than 333.50
- Active

----- Inactive

Peak Hour Pressures (kPa)

Peak Hour Results

	ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)	Water Age (hrs)
1	B-200	1.02	99.25	143.90	437.53	1.41
2	S15-300	6.31	100.00	143.90	430.18	1.20
3	T-100	0.00	101.50	143.90	415.48	0.00
4	T-110	0.00	102.10	143.90	409.57	0.11
5	T-120	0.27	102.25	143.90	408.10	0.64
6	T-130	0.00	102.50	143.90	405.64	0.65
7	T-140	0.00	102.50	143.90	405.64	4.47
8	T-150	4.67	100.60	143.89	424.23	0.80
9	T-160	0.04	101.00	143.89	420.33	0.55
10	T-170	0.00	100.80	143.90	422.30	0.41
11	T-180	0.00	101.10	143.90	419.40	0.00
12	TH-010	0.00	101.90	143.90	411.54	0.08
13 🗌	TH-020	0.00	100.70	143.89	423.27	0.72
14	TH-030	0.00	100.90	143.90	421.32	6.87
15	TH-040	0.00	100.70	143.89	423.26	0.72

Max day + Fire Flow



Legend

Junction DEMAND1

- less than 0.88
- 0.88 ~ 1.76
 1.76 ~ 2.63
- 1.76 ~ 2.63
- greater than 2.63
- Active
- Inactive

Pipe

Diameter (mm)

- less than 214.50
- 214.50 ~ 274.00
- 274.00 ~ 333.50
- greater than 333.50

— Active

—— Inactive

Residual Pressures (kPa)

Max day + Fire Flow



Legend

Junction

DEMAND1

- Iess than 0.88
- 0.88 ~ 1.76
- 1.76 ~ 2.63
- greater than 2.63
- Active
- Inactive

Pipe

Diameter (mm)

- less than 214.50
- **214.50** ~ 274.00
- 274.00 ~ 333.50
- greater than 333.50
- Active
- Inactive
 - Available Fire Flow (L/s)

	ID	Static Demand (L/s)	Static Pressure (kPa)	Static Head (m)	Fire-Flow Demand (L/s)	Residual Pressure (kPa)	Hydrant Available Flow (L/s)	Hydrant Pressure at Available Flow (kPa)
1	T-150	2.13	237.92	124.88	166.67	185.78	224.35	150.0
2	TH-010	0.00	226.12	124.97	183.33	199.61	330.22	150.0
3	TH-030	0.00	235.02	124.88	183.33	168.21	209.22	150.0

	ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	Flow Reversal	Water Age (hrs)
1	2107	S15-300	B-200	84.75	393.00	120.00	83.06	0.68	0.12	0	0.02
2	791	B-200	T-180	127.53	393.00	120.00	82.38	0.68	0.18	0	0.06
3	P13	T-100	TH-010	25.45	204.00	110.00	18.27	0.56	0.06	0	0.00
4	P15	TH-010	T-110	10.56	204.00	110.00	18.27	0.56	0.03	0	0.01
5	P17	T-110	T-120	27.22	155.00	100.00	0.15	0.01	0.00	0	0.02
6	P19	T-130	T-110	14.44	204.00	110.00	-18.12	0.55	0.03	0	0.02
7	P21	T-130	TH-020	21.69	204.00	110.00	10.03	0.31	0.02	0	0.03
8	P23	T-130	TH-030	55.80	204.00	110.00	8.08	0.25	0.03	0	0.03
9	P25	TH-030	T-140	32.64	204.00	110.00	8.08	0.25	0.02	0	0.09
10	P27	T-150	TH-020	20.64	204.00	110.00	-10.03	0.31	0.02	0	0.04
11	P29	TH-040	T-150	19.63	204.00	110.00	-7.90	0.24	0.01	0	0.06
12	P31	TH-040	T-160	35.83	204.00	110.00	7.90	0.24	0.02	0	0.09
13	P33	T-160	T-170	28.39	204.00	110.00	7.88	0.24	0.01	0	0.13
14	P35	T-140	T-170	55.09	204.00	110.00	8.08	0.25	0.03	0	0.12
15	P39	T-170	T-180	94.13	204.00	110.00	15.97	0.49	0.18	0	0.17
16	P41	T-100	S15-300	54.54	393.00	120.00	86.57	0.71	0.08	0	0.00
17	P43	C2	T-180	1.00	204.00	110.00	-98.34	3.01	0.06	0	0.13
18	P45	C1	T-100	1.00	204.00	110.00	104.83	3.21	0.06	0	0.00

Date: Wednesday, October 30, 2024, Time: 09:47:00, Page 1


Sanitary Sewer Design Sheet Sanitary Drainage Area Plan 148290-C-400 Sanitary Sewer Design Sheet 119351 Sanitary Drainage Area Plan 119351-C-400

SANITARY SEWER DESIGN SHEET

IBI

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IBI GROUP 400-333 Preston Street Ottawa, Ontario K1S 5N4 Canada tel 613 225 1311 fax 613 225 9868 ibigroup.com

155 Dun Skipper Drive City of Ottawa 2668867 Ontario Inc.

	1004							RESID	ENTIAL					PEAK ARI LOW INSTITUTIONAL COM (L/s) IND CUM IND				AREAS				INFILT	RATION ALL	OWANCE		0000	TOTAL			PROPC	SED SEWER	DESIGN		-
	LUCA	ION		AREA		UNIT	TYPES		AREA	POPU	LATION	RES	PEAK		AREA (STITUTIONAL COMMER ND CUM IND					ICI	PEAK	AR	EA (Ha)	FLOW	FIXED F	LOW (L/S)	FLOW	CAPACITY	LENGTH	DIA	SLOPE	VELOCITY	AVA	LABLE
OTOFFT	1051.0	FROM	TO	w/ Units	05	4.07	0.050	4.050	w/o Units			PEAK	FLOW	INSTIT	UTIONAL	COMM	ERCIAL	INDU	STRIAL	PEAK	FLOW					0.00						(full)	CAF	ACITY
STREET	AREA II	у мн	MH	(Ha)	SF	APT	2-BED	1-BED	(Ha)	IND	COM	FACTOR	(L/s)	IND	CUM	IND	CUM	IND	CUM	FACTOR	R (L/s)	IND	COM	(L/S)	IND	COM	(L/S)	(L/S)	(m)	(mm)	(%)	(m/s)	L/s	(%)
												0.00	0.00	_		0.05	0.05			1.50	0.00	0.05	0.05		0.00	0.00	0.01	0100		000	1.00	1.055		
EXISTING PHASE 1		BLDG D	MH/A-MH5A		-	-	-			0.0	0.0	3.80	0.00			0.05	0.05	-	-	1.50	0.02	0.05	0.05	0.02	0.00	0.00	0.04	34.22	11.10	200	1.00	1.055	34.18	99.88%
		BLDG A	MIT / A-MITSA		-	-	-			0.0	0.0	3.80	0.00			0.30	0.30	-	-	1.50	0.15	0.30	0.30	0.70	0.00	0.00	0.24	34.22	14.01	200	1.00	1.055	33.97	99.20%
		MH/A	MH5A							0.0	0.0	3.80	0.00			1.01	1.01			1.50	0.49	1.01	1.01	0.33	0.00	0.00	0.82	28.05	32.74	200	0.67	0.865	21.22	97.05%
Euturo		PLDGC	MU4A MU2A							0.0	0.0	2.90	0.00			0.05	0.05			1.50	0.02	0.05	0.05	0.02	0.00	0.00	0.04	24.22	50.00	200	1.00	1.055	24.19	00.99%
Phase 2		PLDG P	MUDA				97	64		259.2	269.2	3.00	2.02			0.00	0.03			1.50	0.02	0.05	0.05	0.02	0.00	0.00	2.07	24.22	10.64	200	1.00	1.055	21.14	01.02%
External		MH14	MH3A	154		180		34		324.0	582.3	3 35	6.32			0.15	0.15			1.50	0.03	0.15	0.15	0.00	0.00	0.00	7.03	10.66	02.55	200	0.33	0.606	12.63	64 24%
External		MH3A	MH44	7.04	-	100	-	-		0.0	582.3	3 35	6.32	-		0.42	1.20	-	-	1.50	0.63	0.42	1 20	0.43	0.00	0.00	7.38	21.37	30.45	200	0.30	0.659	13.00	65.48%
		MH4A	MH5A		-	-	-	-		0.0	582.3	3 35	6.32	-		0.02	1.20	-	-	1.50	0.64	0.02	1 31	0.43	0.00	0.00	7.30	21.07	15 21	200	0.39	0.663	14.10	65.60%
		1007-071	1001							0.0	002.0	0.00	0.02			0.02	7.07			1.00	0.04	0.02	1.01	0.40	0.00	0.00	7.00	21.40	10.21	200	0.00	0.000	14.10	00.0070
		MH5A	MH6A							0.0	582.3	3.35	6.32			0.17	2.49			1.50	1.21	0.17	2.49	0.82	0.00	0.00	8.35	19.56	33.65	200	0.33	0.603	11.21	57.29%
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																									-			-						-
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Design Parameters:				Notes:		•						Designed		WZ			No.							Revision								Date		-
				1. Mannings	s coefficient	(n) =		0.013									1						Subr	mission No. 1								2024-11-26		
Residential		ICI Areas		2. Demand	(per capita)	c	280) L/day	200	0 L/day							2						Subr	mission No. 2								2025-02-18		
SF 3.4 p/p/u				Infiltration	n allowance		0.33	3 L/s/Ha				Checked:		RM																				
APT 1.8 p/p/u	INST 2	8,000 L/Ha/day		4. Residenti	ial Peaking	Factor:																												
2-BED 2.1 p/p/u	COM 2	8,000 L/Ha/day		1	Harmon F	ormula = 1+	+(14/(4+(P/1	000)^0.5))0	.8																									
1-BED 1.4 p/p/Ha	IND 3	5,000 L/Ha/day	MOE Chart	1	where K =	0.8 Correct	tion Factor					Dwg. Refe	erence:	148590-40	00																			
Other 60 p/p/Ha		17000 L/Ha/day		5. Commerc	ial and Insti	itutional Pea	ak Factors b	ased on tot	al area,			1					F	ile Referen	ce:						Date:							Sheet No:		
				1.5 if gr	eater than 2	20%, otherw	rise 1.0					1					1	48590-6.04	.04						2024-11-2	6						1 of 1		



ILE LOCATION: C:/IDARAOOT/JODS/3410 D07-12-24-0169 13 192`



IBI GROUP 400-333 Preston Street Ottawa, Ontario K1S 5N4 Canada tel 613 225 1311 fax 613 225 9868 ibigroup.com

								RESID'	ENTIAL					Τ			ICI A	REAS				INFILT	RATION ALL	OWANCE			TOTAL	Т		PROPO:	SED SEWEF	DESIGN		
	LOCA	TION		AREA		UNIT	TYPES		AREA	POPU	LATION	RES	PEAK			ARE	A (Ha)			ICI	PEAK	ARE	A (Ha)	FLOW	FIXED F	LOW (L/s)	FLOW	CAPACITY	LENGTH	DIA	SLOPE	VELOCITY	AVA	ILABLE
OTREET		FROM	TO	w/ Units	05	0.0		ADT	w/o Units		0.04	PEAK	FLOW	INSTI7	TUTIONAL	COMM	IERCIAL	INDUS	STRIAL	PEAK	FLOW	INID	CUM	(1.1-)	INID	0.00		(1.1-)	(((0()	(full)	CA	PACITY
SIREEI	AREA	МН	MH	(Ha)	55	50	IH	APT	(Ha)	IND	COM	FACTOR	(L/s)	IND	CUM	IND	CUM	IND	CUM	FACTOR	(L/s)	IND	COM	(L/S)	IND	COM	(L/S)	(L/S)	(m)	(mm)	(%)	(m/s)	L/s	(%)
										·																								
		BLDG D	MH7A-MH5A							0.0	0.0	3.80	0.00			0.05	0.05			1.50	0.02	0.05	0.05	0.02	0.00	0.00	0.04	34.22	11.10	200	1.00	1.055	34.18	99.88%
		BLDG A	MH7A-MH5A							0.0	0.0	3.80	0.00			0.30	0.30			1.50	0.15	0.30	0.30	0.10	0.00	0.00	0.24	34.22	14.61	200	1.00	1.055	33.97	99.28%
		MH7A	MH5A							0.0	0.0	3.80	0.00			1.01	1.01			1.50	0.49	1.01	1.01	0.33	0.00	0.00	0.82	27.59	32.62	200	0.65	0.851	26.76	97.01%
																														·				
										I																				ļ'	L			
		BLDG C	MH1A-MH2A							0.0	0.0	3.80	0.00			0.06	0.06			1.50	0.03	0.06	0.06	0.02	0.00	0.00	0.05	34.22	12.70	200	1.00	1.055	34.17	99.86%
Idone Commercial		MH1A	MH2A							0.0	0.0	3.80	0.00			2.35	2.35			1.50	1.14	2.35	2.35	0.78	0.00	0.00	1.92	20.24	83.16	200	0.35	0.624	18.32	90.53%
		BLDG B	MH2A-MH3A							0.0	0.0	3.80	0.00			0.22	0.22			1.50	0.11	0.22	0.22	0.07	0.00	0.00	0.18	34.22	17.46	200	1.00	1.055	34.04	99.48%
		MH2A	MH3A					_		0.0	0.0	3.80	0.00			0.37	2.72			1.50	1.32	0.37	2.72	0.90	0.00	0.00	2.22	20.24	12.25	200	0.35	0.624	18.02	89.03%
		MH3A	MH4A							0.0	0.0	3.80	0.00			0.15	2.87			1.50	1.40	0.15	2.87	0.95	0.00	0.00	2.34	20.24	68.50	200	0.35	0.624	17.90	88.43%
		MH4A	MH5A						_	0.0	0.0	3.80	0.00			0.02	2.89			1.50	1.40	0.02	2.89	0.95	0.00	0.00	2.36	20.24	14.90	200	0.35	0.624	17.88	88.35%
																0.17	4.07			4.50	4.00	0.17	4.07	1.01	0.00	0.00	0.00			000	- 0.05	0.001	40.00	00.500/
		MH5A	MH6A							0.0	0.0	3.80	0.00			0.17	4.07			1.50	1.98	0.17	4.07	1.34	0.00	0.00	3.32	20.24	33.69	200	0.35	0.624	16.92	83.59%
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-				1. Manning	gs coefficient	(n) =		0.013									1.			Report Name	e (Master Se	ervicing Stud	y, Adequacy	of Public Ser	vices, Servicin	g Brief, ect) -	- Submission	No. 1				2019-03-30	-	
Residential		ICI Areas		2. Demand	d (per capita)		28	30 L/day	200 /	L/day																	-				-			
SF 3.4 p/p/u				Infiltration	on allowance		0.3	3 L/s/Ha				Checked:		JIM																				
TH/SD 2.7 p/p/u	INST	28,000 L/Ha/day		4. Resider	ntial Peaking	Factor:																												
APT 1.8 p/p/u	COM	28,000 L/Ha/day			Harmon F	ormula = 1-	+(14/(4+(P/1	1000)^0.5))0	7.8																									
Other 60 p/p/Ha	IND	35,000 L/Ha/day	MOE Chart		where K =	0.8 Correc	tion Factor					Dwg. Refe	rence:	119351-5	501																			
		17000 L/Ha/day		Commer	cial and Insti	tutional Pea	ak Factors b	based on tota	al area,								F	ile Referen	ce:						Date:							Sheet No:		
				1.5 if c	preater than 2	20%, otherv	vise 1.0					1						119351 5 7	1						2019-03-30)						1 of 1		



SANITARY SEWER DESIGN SHEET

4836 Bank Street CITY OF OTTAWA Home Hardware





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	NE THEAT		
Dun Storee U			A
	PLAN		
NOTES: 1. SEE DRAWING C-010 FOR ADD	TIONAL DETAIL	S AND)
NOTES. 2. SITE BENCHMARK TO BE OBTA SURVEYOR H.A. KEN SHIPMAN S	NINED FROM LEG	GAL).	
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6115A 0.81 43.2	UMBER XISTING PO	OPU	LATION
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5 ADD PHASING 4 REVISED AS PER CITY CON	MMENTS	JIM JIM	2020:06:23 2020:04:20
3 REVISED AS PER CITY COI 2 REVISED AS PER NEW SITI	MMENTS E PLAN AND	JIM JIM	2019:12:09 2019:10:11
1 ISSUED FOR SPA No. REVISION	ONS	JIM By	2019:04:15 Date
IBI GRO 400 – 3 Ottawa	DUP 33 Preston St ON K1S 5N4	reet Ca	nada
ibigrou	225 1311 fax p.com	613	225 9868
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4836 BANI	K STREET		
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(☐ J. I. MOFFATT 57 2020/06/23		K	\rightarrow
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SANITARY AREA	drain Plan	IA(GE
Scale 1 : 500			
Design SEL	Date	3. 20	19
Drawn	Checked	JIN	1
Project No.	Drawing No.		
119351	4	00	

Appendix D

Storm Sewer Design Sheet Storm Water Management Sheet Storm Drainage Area Plan 148290-C-500 Ponding Plan 148290-C-600 Stormtech Underground Chamber Specifications Orifice Sizing Calculations Storm Sewer Design Sheet 119351 Storm Water Management Sheet 119351 Storm Drainage Area Plan 119351-C-500 Ponding Plan 119351-C-600

www.arcadis.com https://arcadiso365.sharepoint.com/sites/Projects5/148290/Internal Documents/6.0 Technical/6.04 Civil/03 Reports/Submission#2/CTR Dun Skipper Design Brief 2025-02-18.docx

IBI	IBI GROUP 400-333 Preston Str Ottawa, Ontario K15 tel 613 225 1311 fa	eet 5N4 Canada x 613 225 9868															A	vrcadis lesign	s Resp sheet	oonse: for int	: Provi terim c	de storm conditions.					STO	ORM SEW	IER DES	GN SHE Skipper Dr City of Otta
	ibigroup.com	TION					-)											014/											266886	7 Ontario
STREET		FROM	то	C=	C=	C= C= C= C	a) C= C=	= C= C	;= C=	IND CU	M INLET	TIME	TOTA	i (2)	i (5)	i (10)	i (100)	2yr PEAK	5yr PEAK	10yr PEAk	K 100yr PEA	K FIXED DESIGN	CAPACIT	Y LENGTH		PIPE SIZE (mm)	SLOPE	VELOCITY	Y AVAIL	CAP (2yr
			10	0.25	0.30	0.40 0.50 0.55 0.	.65 0.8	0.75 0.	90 1.00 2	2.78AC 2.78	AC (min)	IN PIPE	E (min)	(mm/hr)) (mm/hr)	(mm/hr)	(mm/hr)	FLOW (L/s) FLOW (L/s	s) FLOW (L/s	s) FLOW (L/s	6) FLOW (L/s) FLOW (L/s) (L/s)	(m)	DIA	<u> </u>	(%)	(m/s)	(L/s)	(%)
EXISTING PHASE 1		СВЗ	MH9-MH8					0.12		0.25 0.2	5 10.00	0.11	10.11	76.81	104.19	122.14	178.56	19.22	26.07	30.56	44.68	19.22	34.22	6.73	200		1.00	1.055	15.00	43.84
		CB2 MH9	MH9-MH8 MH8					0.0	02	0.05 0.0	5 10.00 0 10.12	0.12	10.12	76.81	104.19	122.14	178.56	3.84	5.21	6.11	8.94 53.28	3.84	34.22	7.69	200		1.00	1.055	30.37	88.77
		CB1	MH8-MH7					0.17		0.35 0.3	5 10.00	0.17	10.17	76.81	104.19	122.14	178.56	27.22	36.93	43.29	63.29	27.22	34.22	10.80	200		1.00	1.055	6.99	20.44
		MH8 BLDG D	MH7 MH7-MH5					0.0	05	0.00 0.6	5 10.76 3 10.00	0.45	11.21	74.01	100.35	117.61	171.91	48.45	65.70	15.28	22.34	48.45	48.63	26.20	250		1.00	0.960	24.61	0.36%
		BLDG A	MH7-MH5					0.	30	0.75 0.7	5 10.00	0.18	10.18	76.81	104.19	122.14	178.56	57.65	78.21	91.68	134.03	57.65	62.04	12.97	250		1.00	1.224	4.39	7.079
		MH7	MH5							0.00 1.5	3 11.21	0.47	11.68	72.44	98.19	115.07	168.17	110.86	150.27	176.11	257.37	110.86	225.20	38.55	450		0.57	1.372	114.34	50.77
		CB4	MH10-CBMH1					0.0	03	0.08 0.0	8 10.00	0.12	10.12	76.81	104.19	122.14	178.56	5.76	7.82	9.17	13.40	5.76	34.22	7.78	200		1.00	1.055	28.45	83.15
		MH10	CBMH1							0.00 0.0	8 10.12	0.71	10.83	76.34	103.55	121.38	1//.44	5.73	1.11	9.11	13.32	5.73	49.16	41.40	250		0.63	0.970	43.43	88.35
		CB5	CBMH1-CBMH2					0.0	06	0.15 0.1	5 10.00	0.36	10.36	76.81	104.19	122.14	178.56	11.53	15.64	18.34	26.81	11.53	34.22	22.72	200		1.00	1.055	22.69	66.30
		CB6 CB7	CBMH1-CBMH2 CBMH1-CBMH2					0.0	07 08	0.18 0.1	8 10.00 0 10.00	0.15	10.15	76.81	104.19	122.14	178.56	13.45	18.25	21.39	31.27	13.45	34.22	9.78	200		1.00	1.055	20.76	60.69 55.07
		CBMH1	CBMH2							0.00 0.6	0 10.83	0.81	11.64	73.74	99.98	117.18	171.28	44.28	60.04	70.37	102.85	44.28	65.96	63.25	250		1.13	1.302	21.68	32.87
		CBMH2	MH4					0.0	08	0.20 0.8	0 11.64	0.70	12.34	71.02	96.24	112.78	164.81	56.86	77.06	90.30	131.95	56.86	58.89	33.75	300		0.34	0.807	2.03	3.449
PHASE 2	11 11	CB23	MH22	0.06						0.04 0.0	4 10.00	0.08	10.08	76.81	104.19	122.14	178.56	3.20	4.34	5.09	7.45	3.20	34.22	5.20	200		1.00	1.055	31.01	90.64
		CB20	MH22-MH20					0.	12	0.30 0.3	0 10.00	0.06	10.06	76.81	104.19	122.14	178.56	23.06	31.28	36.67	53.61	23.06	34.22	3.93	200		1.00	1.055	11.16	32.61
		MH22	MH20					0	10	0.00 0.3	4 10.08	0.64	10.72	76.49	103.76	121.63	177.81	26.16	35.48	41.59	60.80	26.16	59.68	31.32	300		0.35	0.818	33.53	56.18
		CB21	MH23					0.	12	0.30 0.3	0 10.00	0.00	10.00	76.81	104.19	122.14	178.56	23.06	31.28	36.67	53.61	23.06	34.22	9.04	200		1.00	1.055	11.16	32.61
		CB22	MH23-MH21					0.	.12	0.30 0.3	0 10.00	0.05	10.05	76.81	104.19	122.14	178.56	23.06	31.28	36.67	53.61	23.06	34.22	3.16	200		1.00	1.055	11.16	32.61
		U/G Chamber	MH21							0.00 0.6	0 10.14	0.06	10.20	75.83	103.44	121.26	176.24	45.53	61.76	72.81	105.83	45.79	59.68	2.99	300		0.35	0.818	14.15	23.27
		MH21	MH20							0.00 0.6	0 10.26	0.35	10.61	75.83	102.85	120.56	176.24	45.53	61.76	72.40	105.83	45.53	59.68	17.25	300		0.35	0.818	14.15	23.71
		WH20	MH3							0.00 1.4	2 10.72	0.23	10.95	74.15	100.54	117.03	172.23	105.12	142.54	107.00	244.19	105.12	175.90	15.01	450		0.35	1.072	70.04	40.20
		CB24	MH3-MH4					0.	10	0.25 0.2	5 10.00	0.02	10.02	76.81	104.19	122.14	178.56	19.22	26.07	30.56	44.68	19.22	34.22	1.08	200		1.00	1.055	15.00	43.84
		CBMH20	MH1-MH3		0.10					0.08 0.0	8 10.00	1.19	11.19	76.81	104.19	122.14	178.56	6.41	8.69	10.19	14.89	6.41	59.68	58.53	300		0.35	0.818	53.28	89.27
		BLDG C CB25	MH1-MH3 MH1-MH3					0.0	.05	0.13 0.1	3 10.00 5 10.00	0.68	10.68	76.81	104.19	122.14	178.56	9.61	13.03	6.11	22.34	9.61	62.04	7.07	250		1.00	1.224	30.37	84.51
EXISTING	External 2.78AC=3.03	MH1 MH3	MH3 MH4				1.3	4 0.: 0.:	11 12	3.31 3.5 0.30 5.5	6 11.19 3 12.53	1.34 0.39	12.53 12.92	72.51	98.29 92.49	115.19 108.36	168.34 158.32	258.41 377.76	350.28 511.65	410.51 599.45	599.95 875.82	258.41 377.76	506.25 592.21	89.13 30.43	750 750		0.19 0.26	1.110 1.299	247.83 214.45	48.96 36.21
		MH4	МН5							0.00 6.3	3 12.92	0.18	13.10	67.15	90.94	106.53	155.64	425.26	575.87	674.64	985.59	425.26	660.70	15.45	750		0.32	1.449	235.44	35.64
		CB17	MH5-MH12					01	09	0 23 0 2	3 10.00	0.04	10.04	76.81	104 19	122 14	178.56	17 29	23.46	27.50	40.21	17.29	34.22	2.55	200		1.00	1 055	16.92	49 45
		CB16	MH5-MH12		0.01					0.01 0.0	1 10.00	0.14	10.14	76.81	104.19	122.14	178.56	0.64	0.87	1.02	1.49	0.64	34.22	9.09	200		1.00	1.055	33.58	98.13
		MH5 MH12	MH12 FX 1350 SEW/FR							0.00 8.1	0 13.10 0 13.44	0.34	13.44	66.65	90.25	105.72	154.45	539.65	730.71	856.00	1,250.50	539.65	705.11	31.20	750		0.37	1.546	165.46	23.47
		WITTE	EX 1550 SEWER						TOTAL	8.10 TRI	JE	0.70	10.00			104.20	102.20	002.10	120.42	040.00	1,202.70	002.10	147.04							20.07
														+										<u>+</u>	<u>+</u>		+	<u> </u>	\pm	\pm
Definitions:	re.			Notes:	ninge og	efficient(n) = 0.013					Designe	d:	WZ	I			No.		1			Revision	1				<u> </u>	Date		
Q = Peak Flow in I	Litres per Second (L/s)			r. widti	nings cu	500060 (n) = 0.013											2					Submission No. 2						2025-02-1	8	
A = Area in Hectar i = Rainfall intensi	res (Ha) ity in millimeters per hour (mm/hr)									Checked	1:	RM																	
[i = 732.951 / (T [i = 998.071 / (T	гС+6.199)^0.810] ГС+6.053)^0.814]	∠ YEAR 5 YEAR									Dwg. Re	ference:	148590-	500			+	+												
[i = 1174.184 / ([i = 1735.688 / ((TC+6.014)^0.816] (TC+6.014)^0.820]	10 YEAR 100 YEAR																File R 14859	eference: 0-6.04.04				Date: 2024-11-26					Sheet No: 1 of 1	-	

1.1 - p. - 1. C.

A Storm Sewer Design Sheet is required for both Interim and Ultimate build-out scenarios.

STORM SEWER DESIGN SHEET

 \searrow



IBI GROUP 333 PRESTON STREET OTTAWA, ON K1S 5N4

PROJECT: 155 Dun Skipper DATE: 2025-02-18 FILE: 148590-6.04.04 REV #: 2 DESIGNED BY: WZ CHECKED BY: RM

STORMWATER MANAGEMENT

Formulas and Descriptions

$$\begin{split} i_{2yr} = 1:2 \; & \text{year Intensity} = 732.951 / (T_c+6.199)^{0.810} \\ i_{5yr} = 1:5 \; & \text{year Intensity} = 998.071 / (T_c+6.053)^{0.814} \\ i_{100yr} = 1:100 \; & \text{year Intensity} = 1735.688 / (T_c+6.014)^{0.820} \\ T_c = Time of Concentration (min) \\ C = Average Runoff Coefficient \\ A = Area (Ha) \\ O = Flow = 2.78CiA (L/s) \end{split}$$

Maximum Allowable Release Rate

Restricted Flowrate

Taken from City of Ottawa approved Design Brief "Pathways at Findlay Creek" (D07-16-13-0023) drainage area EXT 4

EXT 4 Release Rate	760.00 L/s
Area EXT 4 TOTAL =	4.04 Ha
Area Subject Lands	2.49
Perscentage Share of release rate	62%
Q TOTAL =	468.42 L/s

Uncontrolled Release ($Q_{uncontrolled} = 2.78^*C^*i_{100yr}^*A_{uncontrolled}$) For Drainage Area <u>MH6136</u>

<u>MH6136</u>	
C =	0.625
$T_c =$	10 min
i 100yr =	178.56 mm/hr
A uncontrolled =	0.01 Ha
Q uncontrolled =	3.10 L/s

Maximum Allowable Release Rate (Q max allowable = Q restricted - Q uncontrolled)

Q max allowable = 440.49 L/s

Uncontrolled Release (Q_{uncontrolled} = 2.78*C*i_{100yr}*A_{uncontrolled}) For Drainage Area <u>UNRES</u>

ea UNRES		
	=	1.00
T.	. =	10 min
i 100y	- =	178.56 mm/hr
A uncontrolled	, =	0.05 Ha
Q uncontrolled	, =	24.82 L/s

MODIFIED RATIONAL METHOD (100-Year & 5-Year Ponding & 2-Year Ponding)

Drainage Area	MH9/MH9E	B Drainage Area	Plan - MH9/I	ИН9В		Drainage Area	MH9/MH9B	Į				Drainage Area	MH9/MH9E	3			
C =	0.98	B Restricted Flow Qr	L/s)=	10.00		C =	0.78	Restricted Flow Q	r (L/s)=	10.00		C =	0.78	Restricted Flow Qr (L	./s)=	10.00	
		100-Year I	Ponding					5-Year Pondi	ing					2-Year Pondi	ıg		
T _c	1100vr	Peak Flow	Q,	Q,-Q,	Volume	Τ _c	İsur	Peak Flow	Q,	Q, -Q,	Volume	T _c	2.4	Peak Flow	Q,	Q.,-Q.	Volume
Variable	- 10091	Q _p =2.78xCi _{100yr} A			100yr	Variable	- ayı	Q _p =2.78xCi _{5yr} A			5yr	Variable	-291	Q _p =2.78xCi _{2yr} A			2yr
(min) 30	(mm/hour)	(L/s) 34.86	(L/s)	(L/s) 24.86	(m) 44.75	(min) 13	(mm/nour)	(L/s) 27.51	(L/S)	(L/S) 17.51	(m) 13.66	(min) 10	(mm/nour) 76.81	(L/s)	(L/S)	(L/S) 13.32	(m) 7.99
32	87.89	33.35	10.00	23.35	44.83	15	83.56	25.37	10.00	15.37	13.83	10	73.17	22.21	10.00	12.21	8.06
33	86.03	32.65	10.00	22.65	44.84	16	80.46	24.43	10.00	14.43	13.85	12	69.89	21.22	10.00	11.22	8.08
34	84.27	31.98	10.00	21.98	44.83	17	77.61	23.56	10.00	13.56	13.83	13	66.93	20.32	10.00	10.32	8.05
30	80.96	30.72	10.00	20.72	44.70	19	12.55	22.02	10.00	12.02	13.70	15	01.77	10.75	10.00	0.75	7.00
			Storage (m ³)				5	Storage (m ³)					Sto	orage (m3)		
	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	0.00	44.84	20.64	10.07	14.13		0.00	13.85	20.64	10.07	0.00		0.00	8.08	20.64	10.07	0.00
Length (m)	Dia (m)	Area (m ²)	Volume (m ³)			Structure		Depth	Area (m ²)	Volume (m ³)							
54.91	0.375	0.110	6.06			CB3 (600mm x 600mm)		1.80	0.36	0.65							
6.73	0.200	0.031	0.21			CB2 (600mm x 600mm)	n	1.80	0.36	0.65							
1.05	0.200	0.001	6.51			OBMITTO (1200IIIII TOUR	<i>'</i>	2.00	1.10	3.56							
				overflows to: CE	31					overflows to:	CB1					overflows to: 0	CB1
Drainage Area	CB1	Drainage Area	Plan - MHS			Drainage Area	CB1	T				Drainage Area	CB1				
Area (Ha)	0.1	7				Area (Ha)	0.17	t				Area (Ha)	0.165	5			
C =	0.94	4 Restricted Flow Q _r	L/s)=	16.00		C =	0.75	Restricted Flow Q	r (L/s)=	16.00		C =	0.75	5 Restricted Flow Qr (L	./s)=	16.00	
		100-Year I	Ponding	•				5-Year Pondi	ing					2-Year Pondii	۱g		
T _c	i 100w	Peak Flow	Q,	Q,-Q,	Volume	Τ,	i sur	Peak Flow	Q,	Q,,-Q,	Volume	T _c	1 _{2wr}	Peak Flow	Q,	Q,-Q,	Volume
Variable		Q _p =2.78xCi _{100yr} A			100yr	Variable		Q _p =2.78xCi _{5yr} A	4 . ·	<i>p</i> .	5yr	Variable	-,-	$Q_p = 2.78 \times Ci_{2yr} A$			2yr
(min) 21	(mm/hour) 116.30	(L/S) 50.01	(L/S) 16.00	(L/S) 34.01	42.85	(<i>min</i>) 7	(mm/hour) 123 30	(L/S) 42.42	(L/S) 16.00	(L/S) 26.42	11 10	(<i>min</i>) 7	(mm/hour)	(L/S) 31.10	(L/S) 16.00	(L/S) 15.19	638
23	109.68	47.17	16.00	31.17	43.01	9	109.79	37.77	16.00	21.77	11.76	9	80.87	27.82	16.00	11.82	6.38
24	106.68	45.87	16.00	29.87	43.02	10	104.19	35.85	16.00	19.85	11.91	10	76.81	26.42	16.00	10.42	6.25
25	103.85	44.66	16.00	28.66	42.99	11	99.19	34.12	16.00	18.12	11.96	11	73.17	25.17	16.00	9.17	6.05
21	98.00	42.43	10.00	20.43	42.01	15	30.03	51.10	10.00	13.10	11.04	15	00.93	23.03	10.00	7.03	5.40
-			Storage (m ³)				5	Storage (m ³)			_		Sto	orage (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	14.15	57.15	50.59	5.50	0.90		0.00	11.91	30.35	5.56	0.00		0.00	0.25	30.35	5.56	0.00
Length (m)	Dia (m)	Area (m ²)	Volume (m ³)			Structure		Depth	Area (m ²)	Volume (m ³)							
31.00	0.450	0.159	4.93 4.93			CB3 (600mm x 600mm)		1.80	0.36	0.65							
31.00	0.450	0.159	4.93 4.93	overflows to: CB	317	CB3 (600mm x 600mm)		1.80	0.36	0.65 0.65 overflows to:	CB17					overflows to: (CB17
31.00	0.450	0.159	4.93 4.93	overflows to: CE	317	CB3 (600mm x 600mm)	0.044	1.80	0.36	0.65 0.65 overflows to:	CB17	Durán a ve	0.010			overflows to: (CB17
31.00 Drainage Area Area (Ha)	0.450 CB16	0.159 Drainage Area	4.93 4.93 Plan - MH5B	overflows to: CE	817	CB3 (600mm x 600mm) Drainage Area Area (Ha)	CB16 0.010	1.80	0.36	0.65 0.65 overflows to:	CB17	Drainage Area Area (Ha)	CB16 0.010	5		overflows to: (CB17
31.00 <i>Drainage Area</i> Area (Ha) C =	0.450 CB16 0.010 0.38	0.159 Drainage Area	4.93 4.93 Plan - MH5B	overflows to: CE	317	CB3 (600mm x 600mm) Drainage Area Area (Ha) C =	CB16 0.010 0.30	1.80 Restricted Flow Q	0.36	0.65 0.65 overflows to: 6.00	CB17	Drainage Area Area (Ha) C =	CB16 0.010 0.30) Restricted Flow Q, (L	/s)=	overflows to: (6.00	CB17
31.00 Drainage Area Area (Ha) C =	0.450 CB16 0.010 0.30	0.159 Drainage Area B Restricted Flow Q, (100-Year I	4.93 4.93 Plan - MH5B L/s)= Ponding	overflows to: CE	317	CB3 (600mm × 600mm) Drainage Area Area (Ha) C =	CB16 0.010 0.30	1.80 Restricted Flow Q 5-Year Pondi	0.36 , (L/s)=	0.65 0.65 overflows to: 6.00	CB17	Drainage Area Area (Ha) C =	CB16 0.010 0.30	Restricted Flow Q _r (L 2-Year Pondiu	./s)= 1g	overflows to: 0 6.00	CB17
31.00 Drainage Area Area (Ha) C = T _c	0.450 CB16 0.010 0.34	0.159 Drainage Area B Restricted Flow Q _r 100-Year I Peak Flow	4.93 4.93 Plan - MH5B L/s)= Ponding 0.	overflows to: CE 6.00	317 Volume	CB3 (600mm × 600mm) Drainage Area Area (Ha) C = T _c	CB16 0.010 0.30	1.80 Restricted Flow Q 5-Year Pondi Peak Flow	0.36	0.65 0.65 overflows to: 6.00	CB17 Volume	Drainage Area Area (Ha) C = T _c	CB16 0.010 0.30) Restricted Flow Q, (L 2-Year Pondia Peak Flow	./s)= ng Q.	overflows to: (6.00	CB17 Volume
31.00 Drainage Area Area (Ha) C = T _c Variable	0.450 CB16 0.010 0.34 <i>i</i> _{100yr}	0.159 Drainage Area Restricted Flow Q, 100-Year I Peak Flow Q _p =2.78xCi 100 ₇ A	4.93 4.93 Plan - MH5B L/s)= Ponding Q,	overflows to: CE 6.00 Q _p - Q _r	Volume 100yr	CB3 (600mm x 600mm)	CB16 0.010 0.30	1.80 Restricted Flow Q 5-Year Pondi Peak Flow Q _p =2.78xCi _{Syr} A	0.36 ,r (L/s)= ing , Q,	0.65 0.65 overflows to: 6.00	CB17 Volume 5yr	Drainage Area Area (Ha) C = T _c Variable	CB16 0.010 0.30	Restricted Flow Q, (L 2-Year Pondin Peak Flow Q _p = 2.78xCi _{2y} , A	./s)= 1g Q ,	overflows to: (6.00	CB17 Volume 2yr
31.00 Drainage Area Area (Ha) C = T _c Variable (min) c	0.450 CB16 0.010 0.34 <i>i</i> _{100yr} (<i>imhour</i>) 57407 20	0.159 Drainage Area Restricted Flow Q, 100-Year 1 Peak Flow Q _p = 2.78xCi 100 _p A (US) E00 41	4.93 4.93 Plan - MH5B L(s)= Ponding Q, (L(s) 16.00	overflows to: CE 6.00 $Q_p - Q_r$ (L/s) 522.41	Volume 100yr (m ³) 210.02	CB3 (600mm x 600mm)	CB16 0.010 0.30 i _{syr} (mn/hour)	1.80 Restricted Flow Q 5-Year Pondi Peak Flow Q _p = 2.78xCi _{Syr} A (L/s) 102	0.36 , (L/s)= , (L/s) , (L/s)	0.65 0.65 overflows to: 6.00 Q _p -Q _r (L)S	CB17 Volume 5yr (m ³) 2.00	Drainage Area Area (Ha) C = T _c Variable (min) 7	CB16 0.010 0.30 <i>i</i> _{2yr} (mn/hour) 00.66	Pestricted Flow Q, (L Peak Flow Q _p =2.78xCl _{2p} A (L/s) 0,76	./s)= ng Q , (L/s)	overflows to: (6.00 $Q_p - Q_r$ (<i>L</i> /s) 5.24	CB17 Volume 2yr (m ³) 2 20
31.00 Drainage Area Area (Ha) C = T _c Variable (min) -6 -4	0.450 CB16 0.011 0.31 i _{100yr} (mm/hour) 57497.20 977.56	0.159 Drainage Area Restricted Flow Q, (100-Year 1 Peak Flow Q _p =2.78xC1 100pr A (L/s) 599.41 10.19	4.93 4.93 Plan - MH5B C/s)= Ponding Q, (L/s) 16.00 16.00	overflows to: CE 6.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Volume 100yr (m ³) -210.03 1.39	CB3 (600mm x 600mm)	CB16 0.010 0.30 i _{5yr} (mm/hour) 123.30 109.79	1.80 Restricted Flow Q 5-Year Pondi <i>Q_p</i> = 2.78xCi s _{pr} A (L/s) 1.03 0.92	0.36 , (L/s)= , (L/s) 6.00 6.00	0.65 0.65 overflows to: 6.00 Q _p - Q _r (L/s) -4.97 -5.08	CB17 Volume 5yr (m ³) -2.09 -2.75	Drainage Area Area (Ha) C = Tr. Variable (min) 7 9	CB16 0.010 0.30 i _{2yr} (mm/hour) 90.66 80.87	Pestricted Flow Q ₄ (L 2-Year Pondit Peak Flow Q _p = 2.78xCl _{2y} A (L/s) 0.76 0.67	./s)= Ig Q _r <u>(L/s)</u> 6.00	overflows to: (6.00 Q _p - Q _r (<i>L</i> ' s) -5.24 -5.33	CB17 Volume 2yr (m ³) -2.20 -2.88
31.00 Drainage Area Area (Ha) C = T _c Variable (min) -6 -4 -3	0.450 CB16 0.011 0.31 i _{100yr} (mm/hour) 57497.20 977.56 702.38	0.159 Drainage Area B Restricted Flow Q, 100-Year I Peak Flow Q = 2.78xC1 100,A 599.41 10.19 7.32	4.93 4.93 Plan - MH5B L/s)= Ponding Q, (L/s) 16.00 16.00 16.00	6.00 6.00 <i>Q_ρ-Q_r</i> (<i>L/s</i>) 583.41 -5.81 -8.68	Volume 100yr (m ³) -210.03 1.39 1.56	CB3 (600mm x 600mm)	CB16 0.010 0.30 <i>i_{5yr} (mm/hour)</i> 123.30 109.79 104.19	1.80 Restricted Flow Q 5-Year Pondi <i>Q_p</i> = 2.78×Cl _{3p} <i>A</i> <i>(L/s)</i> 1.03 0.92 0.87	0.36 r (L/s)= ng (L/s) 6.00 6.00 6.00	0.65 0.65 overflows to: 6.00 Q _p - Q _r (L/s) -4.97 -5.08 -5.13	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08	Trainage Area Area (Ha) C = Tc Variable (min) 7 9 10	CB16 0.01(0.3(<i>i_{2yr}</i> (<i>mm/hour</i>) 90.66 80.87 76.81	Pestricted Flow Q, (I 2-Year Pondit Peak Flow Q _p =2.78xCi _{2y} A (L/s) 0.76 0.67 0.64	/s)= Q r (L/s) 6.00 6.00 6.00	overflows to: (6.00 Q _p -Q _r (L/s) -5.24 -5.33 -5.36	CB17 Volume 2yr (m ³) -2.20 -2.88 -3.22
31.00 Drainage Area Area (Ha) C = T _c Variable (min) -6 -4 -3 -2 0	0.450 CB16 0.011 0.31 1 _{100y} (mm/hour) 57497.20 977.56 9702.38 555.31 299.62	0.159 Drainage Area Restricted Flow Q, 100-Year I Peak Flow Q _p =2.78xCi 100pr A (L/s) 599.41 10.19 7.32 5.79 4.16	4.93 4.93 Plan - MH5B U(s)= Ponding Q, (L/s) 16.00 16.00 16.00 16.00 16.00	overflows to: CE 6.00	Volume 100yr (m ³) -210.03 1.56 1.23 0.00	CB3 (600mm x 600mm)	CB16 0.010 0.30 i _{5yr} (mm/haur) 123.30 109.79 104.19 99.19 99.19	1.80 Restricted Flow Q 5-Year Pondi Peak Flow Q _p =2.78xCl _{5p} A (L/s) 1.03 0.92 0.87 0.83 0.76	0.36 , (L/s)= , (L/s) 6.00 6.00 6.00 6.00 6.00	0.65 0.65 overflows to: 6.00 Q _p -Q _r (L/s) -4.97 -5.08 -5.13 -5.17 -5.24	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 4.00	Trainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 12	CB16 0.010 0.30 i ₂₃ r (mm/hour) 90.66 80.87 76.81 73.17 76.81	Prestricted Flow Q, (L 2-Year Pondin Peak Flow Q _p =2.78xCi _{2p} A (L/s) 0.76 0.64 0.61 0.66	/s)= Q r (L/s) 6.00 6.00 6.00 6.00 6.00	6.00 Q _p - Q _r (L(s) -5.24 -5.33 -5.36 -5.39 -5.39	CB17 Volume 2yr (m ³) -2.20 -2.88 -3.22 -3.56 -3.424
31.00 Drainage Area Area (Ha) C = Variable (min) -6 -4 -3 -2 0	0.450 CB16 0.010 0.30 1100yr (mm/hour) 57497.20 977.56 702.38 555.31 398.62	0.159 Drainage Area Restricted Flow Q, 100-Year I Peak Flow Q _p =2.78xC1 toop.A (U/S) 599.41 10.19 7.32 5.79 4.16	4.93 4.93 Plan - MH5B L/s)= Ponding Q, (L/s) 16.00 16.00 16.00 16.00 16.00	overflows to: CE 6.00 Q _p -Q _r (U/s) 583.41 -5.81 -5.81 -10.21 -11.84	Volume 100yr (m ³) -210.03 1.39 1.56 1.23 0.00	CB3 (600mm x 600mm) Drainage Area Area (Ha) C C - Variable (min) 7 9 10 11 13 -	CB16 0.010 0.30 i _{5yr} (mm/hour) 123.30 109.79 104.19 99.19 90.63	1.80 Restricted Flow Q 5-Year Pondi Peak Flow (U/s) 1.03 0.92 0.87 0.83 0.76	0.36 , (L/s)= , (L/s)= (L/s) 6.00 6.00 6.00 6.00 6.00	0.65 0.65 overflows to: 6.00 Q _p - Q _r (L/s) -5.08 -5.13 -5.17 -5.24	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09	Trainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13	CB16 0.010 0.30 i _{2yr} (mm/hour) 90.66 80.87 76.81 73.17 66.93	Pestricted Flow Q, (I 2-Year Pondin Peak Flow Q = 2.78xCig_A A (L/S) 0.76 0.67 0.64 0.56	/s)= Q r (L/s) 6.00 6.00 6.00 6.00 6.00	6.00 Q _p - Q _r (L/s) -5.24 -5.33 -5.36 -5.39 -5.44	CB17 Volume 2yr (m ³) -2.20 -2.88 -3.22 -3.56 -4.24
31.00 Drainage Area Area (Ha) C = Variable (min) -6 -4 -3 -2 0	0.450 CB16 0.011 0.34 <i>i</i> _{100yr} (mm/hour) 57497.20 977.56 702.38 555.31 398.62	0.159 Drainage Area B Restricted Flow Q, 100-Year I Peak Flow Q _p =2.78xC1 100pr A (L/s) 599.41 10.19 7.32 5.79 4.16	4.93 4.93 Plan - MH5B L/s)= 20nding Qr (L/s) 16.00 16.00 16.00 16.00 16.00 Storage (m ³)	overflows to: CE 6.00 Qp-Qr, (L/s) 583.41 -5.81 -8.68 -10.21 -11.84)	Volume 100yr (m ³) -210.03 1.56 1.23 0.00	CB3 (600mm x 600mm) Drainage Area Area (Ha) C C = Te Variable (min) 7 9 10 11 13 13	CB16 0.010 0.30 <i>i_{syr}</i> (<i>mm/hour</i>) 123.30 109.79 104.19 99.19 99.63	1.80 Restricted Flow G 5-Year Pondi Peak Flow (<i>Us</i>) 1.03 0.92 0.87 0.83 0.76	0.36 , (L/s)= ng (L/s) 6.00 6.00 6.00 6.00 8.00 6.00 5.00 8.00 6.00	0.65 0.65 overflows to: 6.00 Q _p -Q _r (L/s) -5.08 -5.13 -5.17 -5.24	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09	Trainage Area Area (Ha) C = Variable (min) 7 9 10 11 13	CB16 0.01(0.30 i _{3yr} (mm/hour) 90.66 80.87 76.81 73.17 66.93	Destricted Flow Q, (I Peak Flow Q p = 2.78xCl 2p,A (L/s) 0.67 0.64 0.61 0.56	/s)= Qr (L/s) 6.00 6.00 6.00 6.00 00 00 00 00 00 00 00 00 00	overflows to: 0 6.00 Q _p - Q _r (<i>L/s</i>) -5.24 -5.33 -5.33 -5.39 -5.44	CB17 Volume 2yr (m ³) -2.20 -2.28 -3.22 -3.56 -4.24
31.00 Drainage Area Area (Ha) C = T _c Variable (min) -6 -4 -3 -2 0	0.450 CB16 0.011 0.34 1 _{100yr} (mm/hour) 57497.20 977.56 702.38 555.31 398.62 Overflow 0.00	0.159 Drainage Area B Restricted Flow Q, 1 100-Year I Peak Flow Q _p = 2.78xCl toop: A (L/S) 599.41 10.19 7.32 5.79 4.16 Required 1.56	4.93 4.93 Plan - MH5B L(s)= Ponding 0, (L(s) 16.00 16.00 16.00 16.00 16.00 Storage (m ³ Surface 0.31	overflows to: CE 6.00 Q _p -Q _r (Ls) 5.81 -5.81 -5.81 -11.84) Sub-surface 0.00	Volume 100yr (m ³) 1.39 1.66 1.23 0.00 Balance 1.25	CB3 (600mm x 600mm)	CB16 0.010 0.30 <i>i_{syr}</i> (<i>mm/hour</i>) 123.30 109.79 104.19 99.19 99.03 90.63 Overflow 0.00	1.80 Restricted Flow Q 5-Year Pondi Peak Flow Q _p =2.78xCi _{3yr} A (L/s) 0.87 0.83 0.76 Required -3.08	0.36 , (L/s)= ing Q, (L/s) 6.00	0.65 0.65 overflows to: 6.00 Q _p - Q _r (<i>L</i> / s) -5.08 -5.13 -5.17 -5.24 Sub-surface 0.00	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00	Drainage Area Area (Ha) C = T _c Variable (min) 7 9 10 11 13	CB16 0.01(0.3(i _{3y} , (mn/hour) 90.66 80.87 76.81 73.17 66.93 0.00	Pestricted Flow Q, (U 2-Year Pondit Peak Flow Qp=2.78xCl_2p/A (L/s) 0.76 0.67 0.64 0.56 Ste Required 0.00	/s)= Q r (L/s) 6.00 6.00 6.00 6.00 0.00	overflows to: 0 6.00 Q _p -Q _r (<i>L</i> /S) -5.24 -5.33 -5.36 -5.39 -5.44 Sub-surface 0.00	CB17 Volume 2yr (m ³) -2.20 -2.28 -3.56 -3.56 -4.24 Balance 0.00
31.00 Drainage Area Area (Ha) C = T _c Variable (min) -6 -4 -3 -2 0	0.450 CB16 0.011 0.31 <i>i</i> _{100yr} (mm/hour) 57497.20 977.56 702.38 555.31 398.62 Overflow 0.00	0.159 Drainage Area B Restricted Flow Q, 100-Year I Peak Flow Q p 2.78xCl 100pA (1/9) 599.41 10.19 7.32 5.79 4.16 Required 1.56	4.93 4.93 Plan - MH5B C(s)= Ponding Q, (L's) 16.00 16.00 16.00 16.00 16.00 Storage (m ³ Surface 0.31	overflows to: CE 6.00 Qp-Qr (L/s) 581 -8.68 -10.21 -11.84) Sub-surface 0.00 overflows to: CE	Volume 100yr (m ²) -210.03 1.39 1.56 1.23 0.00 Balance 1.25 117	CB3 (600mm x 600mm)	CB16 0.010 0.30 18 _{5yr} (mm/hour) 123.30 109.79 104.19 99.19 90.63 Overflow 0.00	1.80 Restricted Flow Q 5-Year Pondi Peak Flow $q_p = 2.78xG_{syc} + (Us)$ 1.03 0.92 0.87 0.83 0.76 S Required -3.08	0.36 , (L/s)= ing 4 6.00 6.00 6.00 6.00 6.00 6.00 6.00 6.	0.65 0.65 overflows to: 6.00 Q _p - Q _r (<i>L</i> (s) -4.97 -5.08 -5.13 -5.13 -5.13 -5.13 -5.13 -5.24 Sub-surface 0.00 overflows to:	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.08 -3.08 -4.09 Balance 0.00 CB17	Trainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13	CB16 0.01(0.3(1 _{2yr} (mm/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00	Pestricted Flow Q, (I Pesk Flow Q = 2.78xCi _{2p} A 0.76 0.67 0.64 0.61 0.56 Stor Required 0.00	/s)= Q r (L/s) 6.00 6.00 6.00 6.00 6.00 0 0 0 0 0 0 0 3 0 3 1 0 3 1 0 0 0 0 0 0 0 0 0 0 0 0 0	overflows to: 0 6.00 Q _p - Q _r (<i>L</i> / s) -5.24 -5.33 -5.36 -5.39 -5.34 Sub-surface 0.00 overflows to: 0	CB17 Volume 2yr (m ³) -2.20 -2.88 -3.22 -3.56 -4.24 Balance 0.00 CB17
31.00 Drainage Area Area (Ha) C = T _c Variable (min) -6 -4 -3 -2 0	0.450 CB16 0.011 0.31 i 100yr (mm/hour) 57497.20 977.56 702.38 555.31 398.62 Overflow 0.00	0.159 Drainage Area B Restricted Flow Q, 1 Peak Flow Q _p =2.78x(100p, A (US) 10.19 10.19 7.32 5.79 4.16 Required 1.56	4.93 4.93 Plan - MH5B L/s)= 2onding 0, (L/s) 16.00 16.00 16.00 16.00 16.00 16.00 Storage (m ³ Storage (m ³)	overflows to: CE 6.00 Q _p -Q _r (L/S) 583.41 -5.81 -8.68 -10.21 -11.84) Sub-surface 0.00 overflows to: CE	Volume 100yr (m ³) -210.03 1.39 1.56 1.23 0.00 Balance 1.25 117	CB3 (600mm x 600mm) Drainage Area Area (Ha) C C - Variable (min) 7 9 10 11 13 -	CB16 0.010 0.30 <i>i_{syr}</i> (mm/hour) 123.30 109.79 104.19 99.19 90.63 Overflow 0.00	1.80 Restricted Flow Q 5-Year Pondi Peak Flow (L/s) 0.87 0.87 0.83 0.76 Required -3.08	0.36 , (L/s)= ing (L/s) 6.00 6.00 6.00 6.00 6.00 6.00 6.00 8 0.00 6.00 6	0.65 0.65 overflows to: 6.00 Q _p - Q _r (<i>L</i> / s) -4.97 -5.08 -5.13 -5.17 -5.24 Sub-surface 0.00 overflows to:	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17	Drainage Area Area (Ha) C = Variable (min) 7 9 10 11 13	CB16 0.01(0.30 i _{3y} r (mn/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00	Bestricted Flow Q, (L 2-Year Pondin Peak Flow Q = 2.78x(1)x A 0.67 0.67 0.61 0.56 Ste Required	/s)= Q, (L/s) 6.00 6.00 6.00 6.00 6.00 9.00 0.00 vrage (m ³) Surface 0.31	overflows to: 0 6.00 Q _p -Q _r (L/s) -5.24 -5.33 -5.36 -5.39 -5.44 Sub-surface 0.00 overflows to: 0	CB17 Volume 2yr (m ³) -2.20 -2.88 -3.22 -3.56 -4.24 Balance 0.00 CB17
31.00 Drainage Area Area (Ha) C = Variable (min) -6 -4 -3 -2 0 Drainage Area Area (Ha)	0.450 CB16 0.011 0.31 i100yr (mm/hour) 57497.20 977.56 702.38 555.51 398.62 Overflow 0.00	0.159 Drainage Area Restricted Flow Q, 100-Year I Peak Flow Q _p =2.78X(10op, A (US) 599.41 10.19 7.32 5.79 4.16 Required 1.56 Drainage Area	4.93 4.93 Plan - MH5B L(s)= 2 onding 0, (L/s) 16.00	overflows to: CE 6.00 Qp-Qr (L/s) 583.41 -5.81 -8.68 -10.21 -11.84) Sub-surface 0.00 overflows to: CE	Volume 100yr (m ³) -210.03 1.39 1.56 1.23 0.00 Balance 1.25 117	CB3 (600mm x 600mm) Drainage Area Area (Ha) C Te Variable (min) 7 9 10 11 13	CB16 0.010 0.30 i _{5yr} (mm/hour) 123.30 109.79 104.19 99.19 99.19 90.63 Overflow 0.00	1.80 Restricted Flow Q 5-Year Pondi Peak Flow (L/s) 1.03 0.92 0.87 0.83 0.76 S Required -3.08	0.36 (L/s)= (L/s) 6.00 6.00 6.00 6.00 5.00 8.00 0.31	0.65 0.65 overflows to: 6.00 Q _p -Q _r (<i>Us</i>) -4.97 -5.08 -5.13 -5.17 -5.24 Sub-surface 0.00 overflows to:	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13	CB16 0.01(0.30 i _{3yr} (mm/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00	Destricted Flow Q, (I 2-Year Pondin Peak Flow Q p=2.78xCip ₂ A (L/s) 0.76 0.67 0.64 0.56 Stee Required 0.00	/s)= 1g Q _r (L/s) 6.00 6.00 6.00 6.00 6.00 0.31 Surface 0.31	overflows to: (6.00 (L/s) -5.24 -5.33 -5.36 -5.39 -5.44 Sub-surface 0.00 overflows to: (CB17 Volume 2yr (m ³) -2.20 -2.28 -3.56 -4.24 Balance 0.00 CB17
31.00 Drainage Area Area (Ha) C = Variable (min) -6 -4 -3 -2 0 Drainage Area Area (Ha) C =	0.450 CB16 0.011 0.34 i _{100yr} (mm/hour) 57497.20 977.56 702.38 702.38 555.531 398.62 Overflow 0.00 CB17 0.099 1.00	0.159 Drainage Area B Restricted Flow Q, 1 100-Year I Peak Flow Q _p =2.78xC1 roop A (L/s) 599.41 10.19 7.32 5.79 4.16 Required 1.56 Drainage Area Q Restricted Flow Q, 1 (Destricted Flow Q, 1)	4.93 4.93 Plan - MH5B (/s)= Ponding Q, (L/s) 16.00	overflows to: CE 6.00 Qp-Qr (L/s) 583.41 -5.81 -8.68 -10.21 -11.84) Sub-surface 0.00 overflows to: CE 9.00	Volume 100yr (m ³) -210.03 1.56 1.23 0.00 Balance 1.25 117	CB3 (600mm x 600mm) Drainage Area Area (Ha) C C = 7e Variable (min) 7 9 10 11 13 13	CB16 0.010 0.30 <i>i_{syr}</i> (<i>mm/hour</i>) 123.30 109.79 104.19 99.19 99.03 Overflow 0.00 CB17 0.090 0.90	1.80 Restricted Flow Q 5-Year Pondi Peak Flow (L/3) 1.03 0.92 0.87 0.83 0.76 Required -3.08 Restricted Flow Q	0.36 , (L/s) = ing (L/s) 6.00 6.00 6.00 6.00 6.00 8.00 8.00 0.31 	0.65 0.65 overflows to: 6.00 Q _p -Q _r (L/s) -5.08 -5.13 -5.17 -5.24 Sub-surface 0.00 overflows to:	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17	Drainage Area Area (Ha) C = Variable (min) 7 9 10 13	CB16 0.01(0.30 i _{3yr} (mm/hour) 90.66 80.87 76.81 76.81 76.81 76.93 Overflow 0.00 CB17 0.09(0.91	Bestricted Flow Q, (I 2-Year Pondin Peak Flow Q p = 2.78xCl_prA 0.76 0.67 0.64 0.61 0.56 Stor Required 0.00	/s)= Q r (L/s) 6.00 6.00 6.00 6.00 6.00 0.00 0.00 0.31 surface 0.31	overflows to: 0 6.00 Q _p - Q _r (<i>L</i> (s) -5.24 -5.33 -5.34 -5.39 -5.44 Sub-surface 0.00 overflows to: 0 9.00	CB17 Volume 2yr (m ³) -2.20 -2.28 -3.22 -3.56 -4.24 Balance 0.00 CB17
31.00 Drainage Area Area (Ha) C = T _c Variable (min) -6 -4 -3 -2 0 Drainage Area Area (Ha) C =	0.450 CB16 0.011 0.34 i _{100yr} (mm/hour) 57497.20 977.56 702.38 555.531 398.62 Overflow 0.00 CB17 0.099 1.00	0.159 Drainage Area Restricted Flow Q, 1 Peak Flow Q _p = 2.78xC1 toop A (U/s) 5.99.41 10.19 7.32 5.79 4.16 Required 1.56 Drainage Area 0 Restricted Flow Q, 1 10.0-Year I	4.93 4.93 Plan - MH5B L(s)= 2 onding 0, (L(s) 16.00 16.00 16.00 16.00 16.00 16.00 Storage (m ³ Surface 0.31 Plan - MH5A L(s)= 2 onding	overflows to: CE 6.00 Qp-Qr (L/s) 58.01 -58.01 -58.01 -11.84) Sub-surface 0.00 overflows to: CE 9.00	Volume 100yr (m ³) 1.56 1.23 0.00 Balance 1.25 117	CB3 (600mm x 600mm)	CB16 0.010 0.30 i _{5yr} (mm/hour) 123.30 109.79 104.19 90.63 0.00 0.00 CB17 0.090 0.90	1.80 Restricted Flow G 5-Year Pondi Peak Flow Q _p = 2.78xCi _{3p} /A (L/s) 0.87 0.83 0.76 Required -3.08 Restricted Flow Q 5-Year Pondi	0.36 , (L/s)= ing (L/s) 6.00 6.00 6.00 6.00 6.00 6.00 5.00 8.00 6.	0.65 0.65 overflows to: 6.00 Q _p - Q _r (L/s) -5.08 -5.13 -5.17 -5.24 Sub-surface 0.00 overflows to:	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.04 -4.09 Balance 0.00 CB17	Drainage Area Area (Ha) C = Tr. Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C =	CB16 0.01(0.30 i _{3yr} (mn/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB17 0.090 0.90	Restricted Flow Q ₄ (1 2-Year Pondit Peak Flow Q _p = 2.78xCl _{2y} A (L/s) 0.76 0.61 0.61 0.56 Sta Required 0.00 Sta Restricted Flow Q ₄ (1 2-Year Pondit	/s)= 19 Q, (L/s) 6.00 6.00 6.00 6.00 6.00 0.31 Surface 0.31 /s)= 19	overflows to: 0 6.00 Q _p - Q _r (L/s) -5.24 -5.33 -5.36 -5.39 -5.44 Sub-surface 0.00 overflows to: 0 9.00	CB17 Volume 2yr (m ³) -2.20 -2.28 -3.22 -3.56 -4.24 Balance 0.00 CB17
31.00	0.450 CB16 0.011 0.31 1 _{100yr} (mm/hour) 57497.20 977.56 702.38 555.31 398.62 Overflow 0.00 CB17 0.099 1.00	0.159 Drainage Area B Restricted Flow Q, 100-Year I Peak Flow Q,=2.78X(100,r A (U.S) 599.41 10.19 7.32 5.79 4.16 Required 1.56 Drainage Area D Restricted Flow Q, 100-Year I Peak Flow	4.93 4.93 Plan - MH5B L/s)= 2onding 0, (L/s) 16.00	overflows to: CE 6.00 Q _p -Q _r (L/S) 583.41 -5.81 -10.21 -11.84) Sub-surface 0.00 overflows to: CE 9.00	Volume 100yr (m ³) -210.03 1.29 1.56 1.23 0.00 Balance 1.25 117 Volume	CB3 (600mm x 600mm) Drainage Area Area (Ha) C Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C = Drainage Area Area (Ha) C = T _c	CB16 0.010 0.30 <i>i_{syr}</i> (mm/hour) 123.30 109.79 90.63 99.19 90.63 Overflow 0.00 CB17 0.059 0.990	1.80 Restricted Flow Q 5-Year Pondi Peak Flow (L/s) 0.87 0.83 0.76 Required -3.08 Restricted Flow Q 5-Year Pondi Peak Flow	0.36 (L/s)= ng Q, (L/s) 6.00 6.00 6.00 6.00 8.00 6.00 8.00 6.00 8.00 6.00 8.00 6.00 9.00 8.00 0.31 8.00 8.00 9.00 9.00 8.00 9.00 9.00 8.00 9	0.65 0.65 overflows to: 6.00 Q _p - Q , (<i>L</i> (s) -4.97 -5.08 -5.13 -5.17 -5.24 Sub-surface 0.00 overflows to: 9.00	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -3.41 -4.09 Balance 0.00 CB17 Volume	Drainage Area Area (Ha) C = Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C =	CB16 0.01(0.30 i _{3y} , (mn/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB17 0.099	Bestricted Flow Q, (I 2-Year Pondin Peak Flow Q = 2.78x(12p, A 0.76 0.67 0.64 0.61 0.56 Ste Required 0.00 2 Pestricted Flow Q, (I Pestricted Flow Q, (I Pestricted Flow Q, (I	/s)= 1g Q, (L/s) 6.00 6.00 6.00 6.00 0.31 0.31 0.31 0.31	overflows to: (6.00 Q _p -Q _r (L/s) -5.24 -5.33 -5.36 -5.39 -5.44 Sub-surface 0.00 overflows to: (9.00 Q ₁ -Q ₂	CB17 Volume 2yr (m ³) -2.20 -2.88 -3.56 -3.56 -4.24 Balance 0.00 CB17 Volume
31.00 <u>Drainage Area</u> <u>Area (Ha)</u> <u>C</u> = <u>Variable</u> <u>(min)</u> <u>-6</u> <u>-4</u> <u>-3</u> <u>-2</u> <u>0</u> <u>Drainage Area</u> <u>Area (Ha)</u> <u>C</u> = <u>T_c</u> <u>Variable</u>	0.450 CB16 0.011 0.31 1100yr (mm/hour) 57497.20 977.56 7702.38 555.51 398.62 Overflow 0.00 CB17 0.099 1.00	0.159 Drainage Area Restricted Flow Q, 100-Year I Peak Flow Q _p =2.78xCl 100p, A (U/S) 599.41 10.19 7.32 5.79 4.16 Drainage Area Drainage Area Drainage Area Drainage Flow Q _p =2.78xCl 100p, A	4.93 4.93 Plan - MH5B L(s)= 2onding 0, (L/s) 16.00	overflows to: CE 6.00 Qp-Qr (L/s) 583.41 -5.81 -8.68 -10.21 -11.84) Sub-surface 0.00 overflows to: CE 9.00	Volume 100yr (m ³) -210.03 1.39 1.56 1.23 0.00 Balance 1.25 117 Volume 100yr	CB3 (600mm x 600mm) Drainage Area Area (Ha) C Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C Variable 0 11 12 13	CB16 0.010 0.30 i _{5yr} (mm/hour) 123:30 109:79 104:19 99:19 90:63 Overflow 0.00 CB17 0.099 0.90	1.80 Restricted Flow Q 5-Year Pondi Peak Flow (L/s) 1.03 0.92 0.87 0.87 0.83 0.76 S Required -3.08 Required S Required S Required S Required S Required S Required S Required S Required S Required S S Required S S Required S S Required S S S Required S S Required S S Required S S S S S S Required S S S S S S S S	0.36 , (L/s)= ing (L/s) 6.00 6.00 6.00 6.00 6.00 5.00 8.00 0.31 	0.65 0.65 overflows to: 6.00 $Q_{p}-Q_{r}$ (<i>L/s</i>) -5.08 -5.13 -5.17 -5.24 Sub-surface 0.00 overflows to: 9.00	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17 Volume 5yr 3.	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C = Trainage Area Area (Ha) C = Trainage Area	CB16 0.01(0.30 1 _{2yr} (mn/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB17 0.99 0.99 1 _{2yr}	Sestricted Flow Q, (I 2-Year Pondin Peak Flow Q = 2.78xCi 2p, A (L/S) 0.76 0.67 0.64 0.61 0.56 Stor Required 0.00 Pestricted Flow Q, (I 2-Year Pondin Peak Flow Q = 2.78xCi 2p, A	/s)= P Q , (L/s) 6.00 6.00 6.00 6.00 Surface 0.31 /s)= P Q , Q , Q , Q , Q , Q , (, ()) () () ()	overflows to: (6.00 Q _p -Q _r (L/s) -5.24 -5.33 -5.36 -5.39 -5.44 Sub-surface 0.00 overflows to: (9.00 Q _p -Q _r	CB17 Volume 2yr (m ³) -2.20 -2.28 -3.56 -4.24 Balance 0.00 CB17 Volume 2yr 2yr 3,1
31.00	0.450 CB16 0.011 0.31 i _{100yr} (mm/hour) 57497.20 977.56 702.38 555.31 398.62 Overflow 0.00 CB17 0.099 1.00 i _{100yr}	0.159 Drainage Area Restricted Flow Q, 1 Deak Flow Q _p =2.78xC1 roop A (L/s) S99.41 10.19 7.32 5.79 4.16 Required 1.56 Drainage Area Q Drainage Area D Drainage Area D D D D D D D D	4.93 4.93 Plan - MH5B U(s)= Ponding Q, (L/s) 16.00 0.31 Plan - MH5A U(s)= Ponding 0, 00 0, 00	overflows to: CE 6.00 Qp-Qr, (L/s) 583.41 -5.81 -8.68 -10.21 -11.84) Sub-surface 0.00 overflows to: CE 9.00 Qp-Qr, (L/s) 10.24	Volume 100yr (m ³) -210.03 1.56 1.23 0.00 Balance 1.25 117 Volume 100yr (m ³) 26 40	CB3 (600mm x 600mm)	CB16 0.010 0.30 i _{5yr} (mm/hour) 123.30 109.79 104.19 99.19 99.063 Overflow 0.00 0.90 0.90 0.90 0.90 0.90	1.80 Restricted Flow Q 5-Year Pondi Peak Flow $Q_p = 2.78 x G_{1sp} A$ (<i>L</i> /s) 1.03 0.92 0.87 0.83 0.76 S Required -3.08 Restricted Flow Q 5-Year Pondi Peak Flow $Q_p = 2.78 x G_{1sp} A$ Restricted Flow Q 5-Year Pondi Peak Flow $Q_p = 2.78 x G_{1sp} A$	0.36 , (L/s) = ng (L/s) 6.00 6.00 6.00 6.00 6.00 6.00 6.00 6.00 8.07 8.	0.65 0.65 overflows to: 6.00 Q _p -Q, (L/s) -5.13 -5.17 -5.24 Sub-surface 0.00 overflows to: 9.00 Q _p -Q, (L/s) (L/s)	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17 Volume 5yr (m ³) e.co	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 13	CB16 0.01(0.30 i _{3yr} (mm/hour) 90.66 80.87 76.81 76.81 76.83 76.81 76.81 0.00 0.00 CB17 0.090 0.90 1 _{3yr} (mm/hour) 0.90 0	Bestricted Flow Q, (L 2-Year Pondin Peak Flow Q p = 2.78xCl 2p, A (L/s) 0.76 0.64 0.61 0.56 Stor Required 0.00 Pestricted Flow Q, (L Peak Flow Q p=2.78xCl 2p, A (L/s)	/s)= Q, (L/s) 6.00 6.00 6.00 6.00 0.00 0.00 0.31 yurface 0.31 /s)= 19 Q, (L/s) 0.31	overflows to: 0 6.00 Q _p -Q _r (L(s) -5.24 -5.33 -5.34 -5.39 -5.44 Sub-surface 0.00 overflows to: 0 9.00 Q _p -Q _r (L(s) -(L(s)) -(CB17 Volume 2yr (m ³) -2.20 -2.28 -3.22 -3.56 -4.24 Balance 0.00 CB17 Volume 2yr (m ³) 4.70
31.00	0.450 CB16 0.011 0.31 i _{100yr} (mm/hour) 57497.20 977.56 7702.38 555.31 398.62 Overflow 0.00 CB17 0.09yr (mm/hour) 10.09yr (mm/hour) 112.88 106.68	0.159 Drainage Area B Restricted Flow Q, Peak Flow Q p=2.78xC1 toop.A (U/s) 599.41 10.19 7.32 5.79 4.16 Required 1.56 Drainage Area D Restricted Flow Q, 100-Year I Peak Flow Q p=2.78xC1 toop.A 28.24 26.69	4.93 4.93 Plan - MH5B L(s)= 2onding 0, (L(s) 16.00	overflows to: CE 6.00 $Q_{\rho}-Q_{r}$ (US) 583.41 -5.81 -5.83 -10.21 -11.84) Sub-surface 0.00 overflows to: CE 9.00 $Q_{\rho}-Q_{r}$ (US) -11.84	Volume 100yr (m ³) -210.03 1.39 1.56 1.23 0.00 Balance 1.25 117 Volume 100yr (m ³) 25.40 25.40	CB3 (600mm x 600mm) Drainage Area Area (Ha) C Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C = Variable Area (Ha) C = Variable (min) 10 12	CB16 0.010 0.30 <i>i_{byr}</i> (mm/hour) 123.30 109.79 104.19 90.63 0.00 CB17 0.090 0.90 <i>CB17</i> 0.090 0.90 <i>CB17</i> 0.090 0.90	1.80 Restricted Flow Q $g_{p}=2.78XG_{5p}/4$ (<i>Us</i>) (<i>Us</i>) 0.83 0.76 Required -3.08 Required Restricted Flow Q 5-Year Pondi Peak Flow $Q_{p}=2.78XG_{3p}/4$ 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.04 1.03 1.03 1.04 1.03 1.04 1.03 1.04 1.03 1.04 1.03 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 1.04 	0.36 , (L/s)= ing (L/s) 6.00 6.00 6.00 6.00 6.00 8.00 6.00 0.31 Surface 0.31 , (L/s)= ing Q, (L/s)= 0.31 0.31 0.31 0.31 0.35 0.	0.65 0.65 0.65 overflows to: 6.00 $Q_{p}-Q_{r}$ (<i>L</i> (s) -5.08 -5.13 -5.17 -5.24 Sub-surface 0.00 overflows to: 9.00 $Q_{p}-Q_{r}$ (<i>L</i> (s) 14.46 12.32	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17 Volume 5yr (m ³) 8.68 8.87	Drainage Area Area (Ha) C = Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C = Treatinge Area Area (Ha) C = Treatinge Area Area (Ha) C = 7 9 9	CB16 0.01(0.30 i _{2y} , (mn/hour) 90.66 80.87 76.81 73.17 73.17 73.17 66.93 0.090 0.090 0.90 i _{2y} , (mn/hour) 90.66 80.87	State Restricted Flow Q, (L 2-Year Pondin Peak Flow Q_p=2.78xCi_{2p}A (L/s) 0.76 0.67 0.64 0.61 0.56 State Required 0.00 Restricted Flow Q, (L Peak Flow Q_p=2.78xCi_{2p}A Peak Flow Q_p=2.78xCi_{2p}A 18.21		overflows to: (6.00 Q _p - Q _r (<i>L</i> (<i>s</i>) -5.24 -5.33 -5.36 -5.39 -5.44 Sub-surface 0.00 overflows to: (9 .00 Q _p - Q _r (<i>L</i> (<i>s</i>) 1 1.42 9 .21	CB17 Volume 2yr (m ³) -2.20 -2.28 -3.22 -3.56 -4.24 Balance 0.00 CB17 Volume 2yr (m ³) 4.79 4.97
31.00 Drainage Area Area (Ha) C = Variable (min) -6 -4 -4 -3 -2 0 Drainage Area Area (Ha) C = T _c Variable (min) -2 -2 -2 -2 -2 -2 -2 -2 -2 -2	0.450 CB16 0.011 0.31 i100yr (mm/hour) 0.099 CB17 0.099 1.00 i100yr (mm/hour) 112.88 106.68 103.85	0.159 Drainage Area Restricted Flow Q, 1 100-Year I Peak Flow Q, = 2.78x(1 nop, A (L/s) 5.79 4.16 Drainage Area Drainage Area	4.93 4.93 Plan - MH5B L(s)= 2onding 0, (L(s) 16.00 0 0 0 0 0 0 0 0 0 0 0 0	overflows to: CE 6.00 Q _p -Q _r (L/s) 583.41 -8.68 -10.21 -11.84) Sub-surface 0.00 overflows to: CE 9.00 Q _p -Q _r (L/s) 19.24 17.69 16.98	Volume 100yr (m ³) -210.03 1.39 1.66 1.23 0.00 Balance 1.25 117 Volume 100yr (m ³) 25.40 25.47 25.47	CB3 (600mm x 600mm)	CB16 0.010 0.30 <i>i_{syr}</i> (mm/hour) 123.30 109.79 104.19 99.19 90.63 Overflow 0.00 CB17 0.090 0.90 0.90 <i>i_{syr}</i> (ms/hour) 104.19 94.70 90.63	1.80 Restricted Flow Q $Q_p = 2.78 \times G_{by} A$ (L/s) 0.87 0.87 0.83 0.76 Required -3.08 Restricted Flow Q $p = 2.78 \times G_{by} A$ (L/s) $Q_p = 2.78 \times G_{by} A$ $Q_p = 2.78 \times G_{by} A$ (L/s) 23.46 21.32 20.41	0.36 r (L/s)= ng (L/s) 6.00 6.00 6.00 6.00 6.00 5.00 8.00 6.0	0.65 0.65 overflows to: 6.00 Q _p - Q _r (<i>L</i> (s) -5.08 -5.13 -5.13 -5.17 -5.24 Sub-surface 0.00 overflows to: 9.00 Q _p - Q _r (<i>L</i> (s) -5.24	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17 Volume 5yr (m ³) 8.66 8.87 8.90	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13	CB16 0.01(0.3(1 _{3y} r (mn/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB17 0.09(0.90 1 _{3y} r (mn/hour) 90.66 80.87 76.81	Bestricted Flow Q, (L 2-Year Pondin Peak Flow Q = 2.78xCi ₂ _P A (L/s) 0.76 0.67 0.64 0.61 0.56 Ste Restricted Flow Q, (L 0.64 0.61 0.56 Ste Restricted Flow Q, (L Q = 2.78xCi ₂ _P A (L/s) 20.42 18.21 17.29	/s)= Q , (L/s) 6.00 6.00 6.00 6.00 Surface 0.31 /s)= Ig Q , (L/s) 9.00 9.00	overflows to: (6.00 Q _p - Q , (L(s) -5.24 -5.33 -5.36 -5.39 -5.44 Sub-surface 0.00 overflows to: (9.00 Q _p - Q , (L(s) 11.42 9.21 9.29	CB17 Volume 2yr (m ³) -2.28 -3.56 -4.24 Balance 0.00 CB17 Volume 2yr (m ³) 4.79 4.97 4.98
31.00 Drainage Area Area (Ha) C = Variable (min) -6 -4 -3 -2 0 Drainage Area Area (Ha) C = Drainage Area (min) -2 -2 -2 -2 -2 -2 -2 -2 -2 -2	0.450 CB16 0.011 0.34 i100yr (mm/hour) 57497.50 977.56 702.38 555.51 398.62 Overflow 0.00 CB17 i.00 1.00 i.00 0.00	0.159 Drainage Area B Restricted Flow Q, 100-Year I Peak Flow Q p=278XC1 topy A (L/s) 0.19 7.32 5.79 4.16 Required 1.56 Drainage Area 0 Restricted Flow Q, 100-Year I Peak Flow Q p=278XC1 topy A (L/s) 28.24 26.69 25.98 225.98 24.00	4.93 4.93 Plan - MH5B L(s)= 2onding 0, (L(s) 16.00	overflows to: CE 6.00 Qp-Qr (L/s) 583.41 -5.81 -8.68 -10.21 -11.84) Sub-surface 0.00 overflows to: CE 9.00 9.00 9.00 9.00 9.00	Volume 100yr (m ³) -210.03 1.39 1.56 1.23 0.00 Balance 1.25 1.25 117 Volume 100yr (m ³) 25.40 25.47 25.47 25.45 25.45 25.45	CB3 (600mm x 600mm) Drainage Area Area (Ha) C C = - Variable (min) (min) - 10 11 13 - Prainage Area Area (Ha) C = - Variable - (min) - 11 13 C = - Variable (min) C = - 10 12 13 - 14 -	CB16 0.010 0.30 i _{5yr} (mm/hour) 123.30 109.79 104.19 90.63 Overflow 0.00 0.90 99.63 86.93 90.46	1.80 Restricted Flow Q 5-Year Pondi Peak Flow (L/s) 1.03 0.92 0.87 0.87 0.83 0.76 S Required -3.08 Restricted Flow Q 5-Year Pondi Peak Flow Q _p =2.78×Cl _{sp} A C 1 1 1 1 1 1 1 1	0.36 r (L/s)= ing (L/s) 6.00 6.00 6.00 6.00 6.00 8.00 8.00 6.00 0.31 v(L/s)= ing 4. (L/s)= (L/s)= (L/s)= 0.31 0.30 0.30 0.31 0.	0.65 0.65 0.65 0verflows to: 6.00 Q _p -Q _r (<i>L</i> /s) -4.97 -5.08 -5.13 -5.17 -5.24 Sub-surface 0.00 overflows to: 9.00 Q _p -Q _r (<i>L</i> /s) -5.24 Sub-surface 0.00 0verflows to:	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17 Volume 5yr (m ³) 8.68 8.87 8.89 8.88 8.88 8.87 6.88 8.88 8.87 5.87 5.85	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C = Variable (min) Tc Variable (min) Tc Variable (min) To 9 10 11 43	CB16 0.01(0.3(1 _{3y} , (mn/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB17 0.09(0.9(Statistical Flow Q, (I 2-Year Pondin Peak Flow Q = 2.78xClp_A (L/s) 0.76 0.67 0.64 0.56 Ste Required 0.00 Pestricted Flow Q, (I 2.Year Pondin Peak Flow Q = 2.78xClp_A (L/s) 2.0.042 18.21 17.29 16.48 16.77	/s)= Pg Q, (L/s) 6.00 6.00 6.00 6.00 0.31 Surface 0.31 /s)= Pg Q, (L/s) 9.00 9.00 9.00	overflows to: (6.00 $Q_{p}-Q_{r}$ (L/s) -5.24 -5.33 -5.36 -5.39 -5.44 Sub-surface 0.00 overflows to: (9.00 $Q_{p}-Q_{r}$ (L/s) 11.42 9.21 9.21 9.21 9.21 9.21 9.748 6.07	CB17 Volume 2yr (m ³) -2.20 -2.28 -3.56 -4.24 Balance 0.00 CB17 Volume 2yr (m ³) 4.79 4.97 4.93 4.93 4.93
31.00 Drainage Area Area (Ha) C = Variable (min) -6 -4 -3 -2 0 Drainage Area Area (Ha) C = Variable (min) -2 24 -25 -26 -28	0.450 CB16 0.011 0.33 i _{100yr} (mm/hour) 57497.20 977.56 702.38 555.31 398.62 Overflow 0.00 1.00 i _{100yr} (mm/hour) 1.0 i _{100yr} 1.0 0.099 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.159 Drainage Area B Restricted Flow Q, 1 0 -Year I Peak Flow Q _p =2.78xC1 roop A (L/s) 599.41 10.19 7.32 5.79 4.16 Peak Flow Q _p =2.78xC1 roop A (L/s) 0 Restricted Flow Q, 1 0 Restricted Flow Q, 2 0 Restricted Flow Q, 2 100-Year I Peak Flow Q _p =2.78xC1 roop A (L/s) 28.24 26.69 25.52 24.09	4.93 4.93 Plan - MH5B (L/s)= Ponding Q, (L/s) 16.00	overflows to: CE 6.00 Qp-Qr, (L/s) 583.41 -5.81 -8.68 -10.21 -11.84) Sub-surface 0.00 overflows to: CE 9.00 Qp-Qr, (L/s) 19.24 17.69 16.92 15.09	Volume 100yr (m ³) -210.03 1.56 1.23 0.00 Balance 1.25 117 Volume 100yr (m ³) 25.40 25.47 25.47 25.45 25.35	CB3 (600mm x 600mm)	CB16 0.010 0.30 i _{5yr} (mm/hour) 123.30 109.79 104.19 90.63 Overflow 0.00 0.90 165,yr (mm/hour) 104.19 94.70 90.63 86.93 80.46	1.80 Restricted Flow Q p_{eak} Flow $Q_p = 2.78 \times G_{isp} A$ (L/s) 1.03 0.92 0.87 0.87 0.83 0.76 S Required -3.08 Restricted Flow Q 5-Year Pondi Peak Flow $Q_p = 2.78 \times G_{isp} A$ (L/s) 23.46 21.32 20.41 19.55 18.12	0.36 , (L/s) = ng (L/s) 6.00 6.00 6.00 6.00 6.00 6.00 8.00 6.00 1.00 8.00 1	0.65 0.65 overflows to: 6.00 Q _p -Q, (L/s) -5.13 -5.17 -5.24 Sub-surface 0.00 overflows to: 9.00 Q _p -Q, (L/s) 14.46 12.32 11.41 10.58 9.12	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17 Volume 5yr (m ³) 8.68 8.87 8.90 8.88 8.75	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 13 C = Variable (min) 7 9 10 13 C = Variable (min) 7 9 10 11 13	CB16 0.01(0.30 0.30 0.30 0.066 80.87 76.81 76.81 73.17 0.090 0.90 0.90 0.90 1 _{3yr} (mn/hour) 90.66 80.87 76.81 76.81 73.17 90.66 80.87 76.81 1,3yr 1,4yr 1,4y	Bestricted Flow Q, (I 2-Year Pondin Peak Flow Q p = 2.78xCi_{2p}A (L/s) 0.64 0.61 0.56 Stor Required 0.00 Pestricted Flow Q, (I 2-Year Pondin Peak Flow Q p=2.78xCi_{2p}A (L/s) 20.42 18.21 17.29 16.48 15.07	/s)= Q , (L/s) 6.00 6.00 6.00 6.00 0.00 0.00 0.00 0.00 0.31 <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> <i>0.31</i> 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31.00	0.450 CB16 0.011 0.31 i _{100yr} (mm/hour) 977.56 7702.38 555.31 398.62 Overflow 0.00 CB11 0.099 1.00 i _{100yr} (mm/hour) 112.88 103.85 103.85 101.18 96.27	0.159 Drainage Area B Restricted Flow Q, 100-Year I Peak Flow Q _p = 2.78xCl 100pr A (U/s) 599.41 10.19 7.32 5.79 4.16 Required 1.56 Drainage Area D Restricted Flow Q, 100-Year I Peak Flow Q _p = 2.78xCl 100pr A (U/s) 28.24 26.69 25.98 24.09	4.93 4.93 Plan - MH5B C(s)= Ponding Q, (L/s) 16.00 16.00 16.00 16.00 16.00 Storage (m ³ Plan - MH5A L(s)= Ponding Q, (L/s) Plan - MH5A L(s)= Ponding Q, (L(s)) Plan - MH5A (L(s)) Storage (m ³) 9.00 9.	overflows to: CE 6.00 Qp-Qr, (L/s) 583.41 -5.81 -8.68 -10.21 -11.84) Sub-surface 0.00 overflows to: CE 9.00 Qp-Qr, (L/s) 19.24 17.69 19.32 15.09)	Volume 100yr (m²) -210.03 1.39 1.56 1.23 0.00 1.25 117 1.25 117 1.25 117 1.25 117 25.40 25.47 25.45 25.35 25.35	CB3 (600mm x 600mm) Drainage Area Area (Ha) C Variable (min) 7 9 10 11 13 C = Variable (min) 7 9 10 13 C = Variable (min) 10 12 13 14 16	CB16 0.010 0.30 i _{5yr} (mm/hour) 123.30 109.79 104.19 99.13 90.63 Overflow 0.00 CB17 0.090 0.90 i _{5yr} (mm/hour) 104.19 9.0.63 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.9	1.80 Restricted Flow Q Peak Flow $Q_p = 2.78x Ci_{Sp}/A$ (L/s) 1.03 0.87 0.87 0.83 0.76 Required -3.08 Restricted Flow Q peak Flow $Q_p = 2.78x Ci_{Sp}/A$ (L/s) 23.46 21.32 20.41 19.58 18.12	0.36 , (L/s)= ing , (L/s) 6.00 6.00 6.00 6.00 6.00 8.00 8.00 8.00 8.00 8.00 8.00 9.00	0.65 0.65 overflows to: 6.00 Q _p -Q _r (L/s) -5.13 -5.13 -5.13 -5.24 Sub-surface 0.00 overflows to: 9.00 Q _p -Q _r (L/s) 14.46 12.32 11.41 10.58 9.12	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17 Volume 5yr (m ³) 8.68 8.87 8.88 8.75	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13 C = Variable Area (Ha) C = Variable (min) 7 9 11 13	CB16 0.011 0.30 i _{2y} c (mn/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB17 0.090 0.90 i _{2y} c (mn/hour) 90.66 80.87 76.81 73.17 66.93	Bestricted Flow Q, (L Peak Flow Q p = 2.78xCl _{2p} A (L/s) 0.76 0.64 0.61 0.56 Stor Required 0.00 Bestricted Flow Q, (L Peak Flow Q p = 2.76xCl _{2p} A L Colspan="2">Colspan="2"Colspa="2"Colspa="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colsp		overflows to: (6.00 Q _p - Q _r (L/s) -5.24 -5.33 -5.36 -5.39 -5.44 Sub-surface 0.00 overflows to: (9 .00 Q _p - Q _r (L/s) 11.42 9 .21 8 .29 7.48 6.07	CB17 Volume 2yr (m ³) -2.20 -3.22 -3.56 -4.24 Balance 0.00 CB17 Volume 2yr (m ³) 4.79 4.97 4.93 4.74
31.00 Drainage Area Area (Ha) C = T _c Variable (min) -6 -4 -3 -2 0 Drainage Area Area (Ha) C = T _c Variable (min) -2 -2 -2 -2 -2 -2 -2 -2 -2 -2	0.450 CB16 0.011 0.31 i 100yr (mm/hour) 57497.20 977.56 702.38 555.31 398.62 Overflow 0.00 CB17 0.099 1.00 i 100-re (mm/hour) 112.88 106.68 103.85 101.18 96.27 Overflow 2.24	0.159 Drainage Area B Restricted Flow Q, Peak Flow Q = 2.78xC1 toop*A (U/S) 509.41 10.19 7.32 5.79 4.16 Required 1.56 Drainage Area D Restricted Flow Q, Peak Flow Q = 2.78xC1 toop*A (U/S) 28.24 26.69 28.24 26.69 28.24 26.69 28.24 26.69 28.24 26.69 28.24 28.2	4.93 4.93 Plan - MH5B L(s)= 2onding 0, (L's) 16.00	overflows to: CE 6.00 Q _p -Q _r (L/s) 583.41 -3.81 -3.82 -10.21 -11.84) Sub-surface 0.00 overflows to: CE 9.00 Q _p -Q _r (L/s) 19.24 19.25 19.24 19.25 19.24 19.24 19.24 19.24 19.24 19.24 19.25 19.24 19.59 19.24	Volume 100yr (m ³) -210.03 1.39 1.56 1.23 0.00 Balance 1.25 117 Volume 100y ⁵ (m ⁵) 25.40 25.47 25.47 25.47 25.47 25.47 25.47 25.47 25.47 25.47 25.47 25.47 25.45 25.35 Balance 21.77	CB3 (600mm x 600mm) Drainage Area Area (Ha) C = Te Variable (min) 7 9 10 11 13 C = Te Variable (min) C = Te Variable (min) 10 12 13 14 16	CB16 0.010 0.30 i _{syr} (mm/hour) 123.30 109.79 104.19 99.19 90.63 Overflow 0.00 CB17 0.090 0.90 i _{syr} (mm/hour) 104.19 94.70 90.63 86.93 80.46 Overflow	1.80 Restricted Flow Q $Q_p = 2.78 \times G_{by} A$ (L/s) 0.92 0.87 0.87 0.83 0.76 Required -3.08 Restricted Flow Q $p = 2.78 \times G_{by} A$ (L/s) 23.46 21.32 20.41 19.55 18.12 Required $Q_p = 2.78 \times G_{by} A$	0.36 r(L/s)= ng Q, (L/s)= (L/s)= 0.31 0.31 0.31 0.31 0.31 0.31 0.31 0.31 0.31 0.31 0.31 0.31 0.31 0.00 0.	0.65 0.65 0verflows to: 6.00 Q _p - Q _r (<i>L</i> (<i>s</i>) -5.13 -5.13 -5.17 -5.24 Sub-surface 0.00 overflows to: 9.00 Q _p - Q _r (<i>L</i> (<i>s</i>) 14.46 12.32 11.41 10.58 9.12 Sub-surface 5.10	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17 Volume 5yr (m ³) 8.68 8.87 8.89 8.88 8.75 Balance 2.06	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13 C = Tc Variable (min) C = Tc Variable (min) 7 9 10 11 13	CB16 0.01(0.3(1 ₂₃ r (mn/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.09 0.90 0.90 1 ₂₃ r (mn/hour) 90.66 80.87 76.81 73.17 66.93 0.00	Bestricted Flow Q, (L 2-Year Pondin Peak Flow Q _p =2.78xCi _{2p} A (L/s) 0.76 0.67 0.64 0.61 0.56 Ste Required 0.00 Peak Flow Q _p =2.78xCi _{2p} A (L/s) 20.42 18.21 17.29 16.48 15.07 Ste Required 4.09	/s)= ng Q, (L/s) 6.00 6.00 6.00 6.00 5.07 8.07 9.00 9.0	overflows to: 0 6.00 Q _p -Q _r (L/s) 5.24 5.33 -5.36 -5.39 -5.44 Sub-surface 0.00 overflows to: 0 9.00 Q _p -Q _r (L/s) 11.42 9.21 3.29 7.48 6.07 Sub-surface 5.10	CB17 Volume 2yr (m ³) -2.20 -2.88 -3.22 -3.56 -4.24 Balance 0.00 CB17 Volume 2yr (m ³) 4.79 4.97 4.97 4.93 4.74 Balance 0.00 CB17
31.00 Drainage Area Area (Ha) C = Variable (min) -6 -4 -3 -2 0 Drainage Area Area (Ha) C = Drainage Area Area (Ha) C = T _c Variable (min) 22 24 25 26 28	0.450 CB16 0.011 0.31 1 _{100yr} (mm/hour) 57497.20 977.56 702.38 555.31 398.62 Overflow 0.00 CB17 0.09 1.00 1.00 1.00 1.00 0.85 101.18 96.27 Overflow 2.24	0.159 Drainage Area Restricted Flow Q, 1 Peak Flow Q p=2.78xC1 toop A (U/S) 599.41 10.19 7.32 5.79 4.16 Drainage Area Drainage Ar	4.93 4.93 Plan - MH5B L(s)= 2onding 0, (L/s) 16.00	overflows to: CE 6.00 Qp-Qr (L/s) 583.41 -5.81 -6.68 -10.21 -11.84) Sub-surface 0.00 overflows to: CE 9.00 <td>Volume 100yr (m³) -210.03 1.39 1.56 1.23 0.00 8alance 1.25 117 Volume 100yr (m³) 25.40 25.47 25.47 25.45 25.35 8alance 21.77</td> <td>CB3 (600mm x 600mm) Drainage Area Area (Ha) C C = - Variable (min) 9 10 11 13 Drainage Area Area (Ha) C = - Yariable (min) 0 10 12 13 14 16</td> <td>CB16 0.010 0.30 i_{5yr} (mm/hour) 123.30 109.79 104.19 90.63 Overflow 0.090 0.91 94.70 94.70 90.63 86.93 80.46 Overflow 0.00</td> <td>1.80 Restricted Flow Q 5-Year Pondi Peak Flow (<i>U</i>/s) 1.03 0.92 0.87 0.87 0.83 0.76 S Required For Pondi Peak Flow Q_p=2.78xCisptA C S Required Restricted Flow Q S-Year Pondi Peak Flow Q_p=2.78xCisptA (<i>U</i>/s) 19.58 18.12 S Required 8.90</td> <td>0.36 r (L/s)= ing (L/s) 6.00 6.00 6.00 6.00 6.00 8.00 8.00 8.00 8.00 8.00 9</td> <td>$\begin{array}{c} 0.65\\ 0.65\\ 0.65\\ 0 verflows to: \end{array}$</td> <td>CB17 Volume 5yr (m³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17 Volume 5yr (m³) 8.68 8.87 8.89 8.88 8.75 Balance 2.96</td> <td>Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13</td> <td>CB16 0.01(0.3(90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB17 0.09(0.90(0.9</td> <td>Statistical Flow Q, (L 2-Year Pondin Peak Flow Q = 2.78xCi 2p, A (L/S) 0.76 0.67 0.64 0.56 Ste Required 0.00 Peak Flow Q = 2.78xCi 2p, A (L/s) 20.42 18.21 17.29 16.48 15.07 Ste Required 4.98</td> <td>/s)= rg Q, (L/s) 6.00 6.00 6.00 6.00 7rgg(m³) Surface 0.31 /5)= 1g Q, (L/s) 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 </td> <td>overflows to: 0 6.00 Q_p-Q_r (L/s) -5.24 -5.33 -5.38 -5.39 -5.44 Sub-surface 0.00 overflows to: 0 9.00 Q_p-Q_r (L/s) -5.44 Sub-surface 9.00 Q_p-Q_r (L/s) -5.44 Sub-surface 0.00 -5.44 -5.39 -5.44 -5.39 -5.44 -5.39 -5.44 -5.39 -5.44 -5.39 -5.44 -5.39 -5.44 -5.39 -5.44 -5.39 -5.44 -5.39 -5.44 -5.44 -5.39 -5.44 -5.46 -5.44 -5.46 -5.47 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.47 -5.46</td> <td>CB17 Volume 2yr (m³) -2.20 -2.28 -3.56 -4.24 Balance 0.00 CB17 Volume 2yr (m³) 4.79 4.97 4.97 4.98 4.93 4.74 Balance 0.00</td>	Volume 100yr (m ³) -210.03 1.39 1.56 1.23 0.00 8alance 1.25 117 Volume 100yr (m ³) 25.40 25.47 25.47 25.45 25.35 8alance 21.77	CB3 (600mm x 600mm) Drainage Area Area (Ha) C C = - Variable (min) 9 10 11 13 Drainage Area Area (Ha) C = - Yariable (min) 0 10 12 13 14 16	CB16 0.010 0.30 i _{5yr} (mm/hour) 123.30 109.79 104.19 90.63 Overflow 0.090 0.91 94.70 94.70 90.63 86.93 80.46 Overflow 0.00	1.80 Restricted Flow Q 5-Year Pondi Peak Flow (<i>U</i> /s) 1.03 0.92 0.87 0.87 0.83 0.76 S Required For Pondi Peak Flow Q _p =2.78xCisptA C S Required Restricted Flow Q S - Year Pondi Peak Flow Q _p =2.78xCisptA (<i>U</i> /s) 19.58 18.12 S Required 8.90	0.36 r (L/s)= ing (L/s) 6.00 6.00 6.00 6.00 6.00 8.00 8.00 8.00 8.00 8.00 9	$\begin{array}{c} 0.65\\ 0.65\\ 0.65\\ 0 verflows to: \end{array}$	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17 Volume 5yr (m ³) 8.68 8.87 8.89 8.88 8.75 Balance 2.96	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13	CB16 0.01(0.3(90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB17 0.09(0.90(0.9	Statistical Flow Q, (L 2-Year Pondin Peak Flow Q = 2.78xCi 2p, A (L/S) 0.76 0.67 0.64 0.56 Ste Required 0.00 Peak Flow Q = 2.78xCi 2p, A (L/s) 20.42 18.21 17.29 16.48 15.07 Ste Required 4.98	/s)= rg Q , (L/s) 6 .00 6 .00 6 .00 6 .00 7rgg (m ³) Surface 0 .31 / 5)= 1g Q , (L/s) 9 .00 9 .00 	overflows to: 0 6.00 Q _p -Q _r (L/s) -5.24 -5.33 -5.38 -5.39 -5.44 Sub-surface 0.00 overflows to: 0 9.00 Q _p -Q _r (L/s) -5.44 Sub-surface 9.00 Q _p -Q _r (L/s) -5.44 Sub-surface 0.00 -5.44 -5.39 -5.44 -5.39 -5.44 -5.39 -5.44 -5.39 -5.44 -5.39 -5.44 -5.39 -5.44 -5.39 -5.44 -5.39 -5.44 -5.39 -5.44 -5.44 -5.39 -5.44 -5.46 -5.44 -5.46 -5.47 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.46 -5.47 -5.46	CB17 Volume 2yr (m ³) -2.20 -2.28 -3.56 -4.24 Balance 0.00 CB17 Volume 2yr (m ³) 4.79 4.97 4.97 4.98 4.93 4.74 Balance 0.00
31.00 Drainage Area Area (Ha) C = T _c Variable (min) -6 -4 -3 -3 -3 -3 -3 -3 -4 -3 -2 -0 Drainage Area Area (Ha) C = T _c Variable (min) -2 -2 -2 -2 -2 -2 -2 -2 -2 -2	0.450 CB16 0.011 0.31 i _{100yr} (mm/hour) 57497.20 977.56 702.38 555.51 398.62 Overflow 0.00 CB17 0.09 1.00 i _{100yr} (mm/hour) 12.28 106.68 103.85 101.18 96.27 Overflow 2.24 Dia (m)	0.159 Drainage Area Restricted Flow Q, 100-Year I Peak Flow Q p=2.78XC1 topr A (L/S) 599.41 10.19 7.32 5.79 4.16 Drainage Area Drainage Area Drainage Area Drainage Area Drainage Area 26.69 28.24 26.69 25.98 26.32 24.09 Required 27.71 Area (m ²)	4.93 4.93 Plan - MH5B L(s)= Ponding Q, (L(s) 16.00	overflows to: CE 6.00 Qp-Qr (L/s) 583.41 -5.81 -8.68 -10.21 -11.84) Sub-surface 0.00 overflows to: CE 9.00 9.00 Qp-Qr (L/s) 19.24 17.69 16.32 15.09) Sub-surface 5.10	Volume 100yr (m ³) -210.03 1.39 1.56 1.23 0.00 Balance 1.25 317 Volume 100yr (m ³) 25.40 25.47 25.47 25.45 25.35 Balance 25.47 25.45 25.35	CB3 (600mm x 600mm) Drainage Area Area (Ha) C Variable (min) 7 9 10 11 13 Area (Ha) C = Variable (min) 12 13 14 16	CB16 0.010 0.30 i _{5yr} (mm/hour) 133.30 109.79 104.19 90.63 Overflow 0.00 CB17 0.90 109.79 0.00 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.91 104.19 94.70 90.63 86.93 80.46 Overflow 0.00	1.80 Restricted Flow Q $g_{p} = 2.78 \times G_{sy} A$ (L/s) 1.03 0.92 0.87 0.87 0.83 0.76 S Required -3.08 Restricted Flow Q $g_{p} = 2.78 \times G_{sy} A$ Restricted Flow Q $g_{p} = 2.78 \times G_{sy} A$ Restricted Flow Q $g_{p} = 2.78 \times G_{sy} A$ 2.3.46 2.1.32 2.0.41 1.9.58 1.8.12 1.9.58 1.8.12 S Required 8.90 Depth	0.36 ((L/s)= ng (L/s) 6.00 6.00 6.00 6.00 6.00 8.00 6.00 0.31 Surface 0.31 y,(L/s)= ng 4. (L/s)= 0.31 Surface 0.31 Surface 0.31 Surface 0.31 Storage (m ³) Storage (m ³) Storage (m ³) Surface 0.84 Area (m ²)	0.65 0.65 0.65 0verflows to: 6.00 Q _p -Q, (L/s) -4.97 -5.08 -5.13 -5.24 Sub-surface 0.00 0verflows to: 9.00 Q _p -Q, (L/s) 14.46 12.32 11.41 10.58 9.12 Sub-surface 5.10 Volume (m ³)	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17 Volume 5yr (m ³) 8.88 8.75 8.86 8.75 Balance 2.96	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13 C = C = Variable (min) Tc Variable (min) C = Variable (min) To 10 11 13	CB16 0.01(0.3(0.3(0.3(0.3(0.3(0.066 80.87 76.81 73.17 66.93 Overflow 0.00 0.9(0.	Statistical Flow Q, (L Peak Flow Q = 2.78xCip_A A (L/s) 0.76 0.64 0.61 0.56 Stor Required 0.00 Pestricted Flow Q, (L 0.64 0.61 0.56 Stor Pestricted Flow Q, (L Pest Flow Q 0,00 10.24 18.21 17.29 16.48 15.07 Stor Required 4.98	/s)= P Q , (L/s) 6.00 6.00 6.00 6.00 6.00 7 7 7 7 7 7 7 7	overflows to: 0 6.00 $Q_p \cdot Q_r$ (L/s) -5.24 -5.36 -5.39 -5.34 Sub-surface 0.00 overflows to: 0 9.00 $Q_p \cdot Q_r$ (L/s) 11.42 9.21 8.29 7.48 6.07 Sub-surface 5.10	CB17 Volume 2yr (m ³) -2.20 -2.28 -3.56 -4.24 Balance 0.00 CB17 Volume 2yr (m ³) 4.79 4.93 4.73 4.93 4.74 Balance 0.00
31.00 Drainage Area Area (Ha) C = Variable (min) -6 -4 -3 -2 0 Drainage Area Area (Ha) C = Variable (min) -22 24 -25 -26 -28 Length (m) 28.00	0.450 CB16 0.011 0.33 i _{100yr} (mm/hour) 57497.20 977.56 702.38 555.31 398.62 Overflow 0.00 1.00 i _{100yr} (mm/hour) 112.88 106.66 101.18 96.27 Overflow 2.24 Dia (m) 0.450	0.159 Drainage Area Restricted Flow Q, 1 0 -Year I Peak Flow Q _p =2.78xC1 roop A (L/s) 599.41 10.19 7.32 5.79 4.16 Drainage Area 0 0 0 Restricted Flow Q, 1 100-Year I Peak Flow Q _p =2.78xC1 roop A (L/s) 28.24 26.69 26.98 25.32 24.09 Required 27.71 Area (m ²) 0.159	4.93 4.93 Plan - MH5B (L/s)= Ponding Q, (L/s) 16.00	overflows to: CE 6.00 Qp-Qr, (L/s) 583.41 -5.81 -8.68 -10.21 -11.84) Sub-surface 0.00 overflows to: CE 9.00 9.00 9.00 10.21 -11.84 10.21 -11.84 0.00 9.00	Volume 100yr (m ²) -210.03 1.56 1.23 0.00 Balance 1.25 117 Volume 100yr (m ³) 25.40 25.47 25.47 25.45 25.35 Balance 21.77	CB3 (600mm x 600mm)	CB16 0.010 0.30 i _{5yr} (mm/hour) 123.30 109.79 104.19 90.63 Overflow 0.00 0.90 16,19 94.70 90.63 86.93 80.46 Overflow 0.00	1.80 Restricted Flow Q $g_{p} = 2.78 \times G_{sy} A$ (L/s) 1.03 0.92 0.87 0.87 0.83 0.76 Required -3.08 Restricted Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Set Flow Q Se	0.36 , (L/s) = ng (L/s) 6.00 6.00 6.00 6.00 6.00 8.00 8.00 9	0.65 0.65 0.65 0verflows to: 6.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CB17 Volume 5yr (m ³) -2.09 -2.75 -3.08 -3.41 -4.09 Balance 0.00 CB17 Volume 5yr (m ³) 8.68 8.75 8.83 8.75 Balance 2.96	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 13 Drainage Area Area (Ha) C = Variable (min) 7 9 10 13	CB16 0.01(0.30 0.30 0.06 80.87 76.81 76.81 76.81 73.17 0.090 0.90 0.90 0.90 1 _{3yr} (mn/hour) 90.66 80.87 76.81 73.17 66.93 0.91 0.91 0.95	Bestricted Flow Q, (I Peak Flow Q p = 2.78xCi _{2p} A (L/s) 0.76 0.64 0.61 0.56 Stor Required 0.00 Peak Flow Q, (I Peak Flow Q, (I Peak Flow Q, (2.5%) Peak Flow Q, (1/s) Peak Flow Q, (2.5%) Peak Flow Q, (2.5%) Peak Flow Q, (2.5%) Peak Flow Q, (1/s) Peak Flow Q, (2.5%) Peak Flow Q, (1/s) Peak Flow Q, (1/s) Peak Flow Q, (1/s) Peak Flow Q, (2.5%)	/s)= 1 g Q , (L/s) 6.00 6.00 6.00 6.00 9.00 9.00	overflows to: 0 6.00 Q _p -Q _r (L/s) -5.24 -5.33 -5.34 Sub-surface 0.00 overflows to: 0 9.00 Q _p -Q _r (L/s) 11.42 9.21 8.29 7.48 6.07 Sub-surface 5.10	CB17 Volume 2yr (m ³) -2.20 -2.28 -3.22 -3.56 -4.24 Balance 0.00 CB17 Volume 2yr (m ³) 4.79 4.97 4.97 4.93 4.74 Balance 0.00 CB17

Drainage Area	CB20)				Drainage Area	CB20	Į				Drainage Area	CB20	1			
Area (Ha)	0.120	0 Restricted Flow Q. (1/s)=	15.00		Area (Ha) C =	0.120	Restricted Flow Q.	1/s)=	15.00		Area (Ha) C =	0.120	Restricted Flow Q. (I	/s)=	15.00	
C =	1.00	100-Year I	20ndina	15.00		C =	0.90	5-Year Pondin	a	15.00		C -	0.90	2-Vear Pondi	,s)=	15.00	
T.		Peak Flow	onung		Volume	T.		Peak Flow	9		Volume	T.		Peak Flow	19	T	Volume
Variable	i _{100yr}	Q _p =2.78xCi _{100vr} A	Q,	Q _p -Q,	100yr	Variable	i _{5yr}	$Q_p = 2.78 \times Ci_{5 \text{vr}} A$	Q,	$Q_p - Q_r$	5yr	Variable	I 2yr	Q _p =2.78xCi _{2vr} A	Q,	Q _p -Q _r	2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
17	132.63	44.24	15.00	29.24	29.83	7	123.30	37.02	15.00	22.02	9.25	7	90.66	27.22	15.00	12.22	5.13
19	123.87	41.32	15.00	26.32	30.01	9	109.79	32.96	15.00	17.96	9.70	9	80.87	24.28	15.00	9.28	5.01
20	116.30	38.80	15.00	23.80	29.98	11	99.19	29.78	15.00	14.78	9.76	10	73.17	23.06	15.00	6.97	4.60
23	109.68	36.59	15.00	21.59	29.79	13	90.63	27.21	15.00	12.21	9.52	13	66.93	20.09	15.00	5.09	3.97
-	0	Ba services of	Storage (m	3) Out- out-	Balance		0	St	orage (m ³)	0	Balance		0	Sto	rage (m ³)	0	Balance
	0.00	30.02	12.51	Sub-surface	17.51		0.00	9 77	12 51	Sub-surface	D 00		0.00	4 84	12 51	Sub-surrace	D 00
	0.00	00.02	12.01	0.00			0.00	0.77	12.01	0.00	0.00		0.00		12.01	0.00	0.00
				overflows to:	MH22					overflows to: N	1H22					overflows to:	MH22
Drainago Aroa	MUDD	2				Drainago Aroa	MU22	T				Drainago Aroa	MU22	1			
	0.06	Restricted Flow ICF) (1 /s)=	6.00	500/		0.060	ł					0.060				
	0.000	1 Restricted Flow Q .	. (1/s)=	3.00	surface storage		0.000	Restricted Flow Q	1/s)=	2.00			0.000	Restricted Flow Q (I	/s)=	2.00	
0 -	0.5	100-Year I		3.00	oundoo otonago	C =	0.23	5-Vear Pondin	a	3.00		C -	0.23	2-Vear Pondi	10)	3.00	
7	1	Posk Flow	onung	1	Volumo	T		5-Tear Fonum	9		Volumo	T		2-Teal Foliuli	<u>ig</u>	r	Volumo
Variable	i _{100yr}	$Q_{-}=2.78$ x Ci $co_{-}A$	Q,	Q _p -Q,	100vr	Variable	i _{5yr}	Q = 2 78xCir A	Q,	Q _p -Q _r	5vr	Variable	i _{2yr}	$Q_{-}=2.78 \times Ci_{0} - A$	Q,	Q _p -Q _r	2vr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m^3)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m^3)
13	155.11	8.08	3.00	5.08	3.97	7	123.30	5.14	3.00	2.14	0.90	7	90.66	3.78	3.00	0.78	0.33
14	148.72	7.75	3.00	4.75	3.99	9	109.79	4.58	3.00	1.58	0.85	9	80.87	3.37	3.00	0.37	0.20
15	142.89	7.45	3.00	4.45	4.00	10	104.19	4.34	3.00	1.34	0.81	10	76.81	3.20	3.00	0.20	0.12
16	137.55	7.17	3.00	4.17	4.00	11	99.19	4.14	3.00	1.14	0.75	11	/3.1/	3.05	3.00	0.05	0.03
10	120.00	0.00	0.00	0.00	0.01	10	30.00	0.10	0.00	0.70	0.01	10	00.55	2.15	0.00	-0.21	-0.10
			Storage (m	³)				St	orage (m ³)					Sto	rage (m ³)		
-	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	39.28	43.28	2.87	46.61	0.00		2.96	3.77	2.87	46.61	0.00		0.00	0.12	2.87	46.61	0.00
Length (m)	Dia (m)	Area (m ²)	Volume (m ³)			Structure		Denth	Area (m ²)	Volume (m ³)							
33.40	0.250	0.049	1.64			CB23 (600mm x 600mm)		0.89	0.36	0.32							
23.23	0.300	0.071	1.64	-		Clear Stone Gallery		1.45	100	43.01							
		TOTAL															
		TOTAL	3.28						TOTAL	43.33							
		TOTAL	3.28	overflows to:	Dun Skipper Drive				TOTAL	43.33 overflows to: D	un Skipper Driv	e				overflows to: [Dun Skipper Drive
			3.28	overflows to:	Dun Skipper Drive			T	TOTAL	43.33 overflows to: D	oun Skipper Driv			٦		overflows to: I	Dun Skipper Drive
Drainage Area	CB24		3.28	overflows to:	Dun Skipper Drive	Drainage Area	CB24	Į	TOTAL	43.33 overflows to: D	oun Skipper Drive	Drainage Area	CB24]		overflows to: i	Dun Skipper Drive
Drainage Area Area (Ha)	CB24 0.100		3.28	overflows to:	Dun Skipper Drive	Drainage Area Area (Ha)	CB24 0.100	Restricted Flow Q.	101AL	43.33 overflows to: D	oun Skipper Driv	Drainage Area Area (Ha)	CB24 0.100	Restricted Flow Q. (I	/s)=	overflows to:	Dun Skipper Drive
Drainage Area Area (Ha) C =	CB24 0.100 1.00	0 Restricted Flow Q _r (3.28 L/s)=	overflows to: 15.00	Dun Skipper Drive	Drainage Area Area (Ha) C =	CB24 0.100 0.90	Restricted Flow Qr	L/s)=	43.33 overflows to: D 15.00	oun Skipper Drive	Drainage Area Area (Ha) C =	CB24 0.100 0.90	Restricted Flow Q _r (L	/s)=	overflows to:	Dun Skipper Drive
Drainage Area Area (Ha) C =	CB24 0.100 1.00	0 0 Restricted Flow Q _r 1 100-Year 1	3.28 L/s)= Ponding	overflows to: 15.00	Dun Skipper Drive	Drainage Area Area (Ha) C =	CB24 0.100 0.90	Restricted Flow Q, 1 5-Year Pondin	(L/s)=	43.33 overflows to: D 15.00	oun Skipper Drive	Drainage Area Area (Ha) C =	CB24 0.100 0.90	Restricted Flow Q, (L 2-Year Pondin Pook Flow	/s)= \g	overflows to:	Dun Skipper Drive
Drainage Area Area (Ha) C = T_c Variable	CB24 0.10(1.0(i _{100yr}	Restricted Flow Q _t 100-Year I Peak Flow Q = 2787Ci room A	3.28 L/s)= Ponding Q,	overflows to: 15.00 $Q_p - Q_r$	Dun Skipper Drive	Drainage Area Area (Ha) C = T _c Variable	CB24 0.100 0.90	Restricted Flow Q, 1 5-Year Pondin Peak Flow Q = 2.78xCi s. A	L/s)= g Q,	43.33 overflows to: D 15.00 Q _p -Q _r	oun Skipper Drive Volume 5vr	Drainage Area Area (Ha) C = T _c Variable	CB24 0.100 0.90	Restricted Flow Q _r (L 2-Year Pondi <i>Peak Flow</i> <i>Q</i> = 2.78 <i>C</i> i = <i>A</i>	/s)= 1g Q r	overflows to: 15.00	Dun Skipper Drive Volume 2vr
Drainage Area Area (Ha) C = T _c Variable (min)	CB24 0.10(1.0(i _{100yr} (mm/hour)	0 0 Restricted Flow Q, 1 100-Year I Peak Flow Q _p =2.78xCi 100 _P A	3.28 2000 200 2000 2	overflows to: 15.00 Q _p -Q _r (L/s)	Dun Skipper Drive Volume 100yr (m ³)	Drainage Area Area (Ha) C = T _c Variable (min)	CB24 0.100 0.90 i _{Syr} (mm/hour)	Restricted Flow Q_r 5-Year Pondin Peak Flow $Q_p = 2.78xCi_{Syr}A$ (L/s)	L/s)= g Q, (L/s)	43.33 overflows to: D 15.00 Q _p -Q _r (L/s)	Oun Skipper Drive Volume 5yr (m ³)	Drainage Area Area (Ha) C = T_c Variable (min)	CB24 0.100 0.90 i _{2yr} (mm/hour)	Restricted Flow Q, (L 2-Year Pondin Peak Flow Q _p = 2.78xCi _{2y} A (L(s)	/s)= 1g Q, (L/s)	overflows to: 15.00 $Q_p - Q_r$ (L/s)	Dun Skipper Drive Volume 2yr (m ³)
Drainage Area Area (Ha) C = T _c Variable (min) 13	CB24 0.10(1.00 <i>i</i> _{100yr} (<i>mm/hour</i>) 155.11	0 0 Restricted Flow Q, 100-Year I Peak Flow Q _p =2.78xCi 100 ₇ A (L/s) 43.12	3.28 2000 200 2000 2	overflows to: 15.00 Q _p - Q _r (L/s) 28.12	Dun Skipper Drive Volume 100yr (m ³) 21.93	Drainage Area Area (Ha) C C = Tc Variable (min) 7 Tc	CB24 0.100 0.90 <i>i syr</i> (<i>mm/hour</i>) 123.30	Restricted Flow Q _r 5-Year Pondin Peak Flow Q _p =2.78xCl _{5yr} A (L/s) 30.85	L/s)= g Q , (L/s) 15.00	43.33 overflows to: D 15.00 Q _p -Q _r (L/s) 15.85	Volume 5yr (m ³) 6.66	Trainage Area Area (Ha) C = Tc Variable (min) 7	<u>CB24</u> 0.100 0.90 i _{2yr} (mm/hour) 90.66	Restricted Flow Q, (L 2-Year Pondin Peak Flow Q _p =2.78xCi _{2p} A (L/s) 22.68		overflows to: 15.00 Q _p -Q _r (L/s) 7.68	Dun Skipper Drive Volume 2yr (m ³) 3.23
Drainage Area Area (Ha) C C Variable (min) 13 15 15	CB24 0.100 1.00 <i>i</i> _{100yr} (<i>mm/hour</i>) 155.11 142.89	0 0 0 0 0 0 0 0 0 0 0 0 0 0	3.28 2000ding Q, (L/s) 15.00 15.00	overflows to: 15.00 Q _p - Q _r (L/s) 28.12 24.72	Dun Skipper Drive Volume 100yr (m ³) 21.93 22.25	Trainage Area Area (Ha) C = Tc Variable (min) 7 9	CB24 0.100 0.90 <i>i</i> _{5yr} (<i>mm/hour</i>) 123.30 109.79	Restricted Flow Q _r , 5-Year Pondin Peak Flow Q _p =2.78xCi _{5y} A (L/s) 30.85 27.47	IOTAL L/s)= g Q , (L/s) 15.00 15.00	43.33 overflows to: D 15.00 Q _p -Q _r (L/s) 15.85 12.47	Volume 5yr (m ³) 6.66 6.73	Drainage Area Area (Ha) C = Variable (min) 7 9	CB24 0.100 0.90 <i>i_{2yr} (<u>mm/hour</u>) 90.66 80.87</i>	Restricted Flow Q, (L 2-Year Pondin Peak Flow Q _p =2.78xCi _{2y} A (L's) 22.68 20.23	/s)= Q, (L/s) 15.00 15.00	overflows to: 15.00 Q _p -Q _r (L/s) 7.68 5.23	Dun Skipper Drive Volume 2yr (m ³) 3.23 2.83
Drainage Area Area (Ha) C = Tc Variable (min) 13 15 16 17	CB24 0.10(1.00 <i>i</i> 100yr (<i>mm/hour</i>) 155.11 142.89 137.55 122.62	0 Restricted Flow Q, 100-Year I Peak Flow Q _p =2.78xC1 toop A (U/s) 43.12 39.72 38.24 9.67	3.28 L/s)= 200ding Q, (L/s) 15.00 15.00 15.00 15.00 15.00	overflows to: 15.00 Q _p - Q _r (L/s) 28.12 24.72 23.24 19.77	Dun Skipper Drive Volume 100yr (m ³) 21.93 22.25 22.31 22.31	Drainage Area Area (Ha) C C = Variable (min) 7 9 10	CB24 0.100 0.90 <i>i syr</i> (mm/hour) 123.30 109.79 104.19	Restricted Flow Q, 5-Year Pondin Peak Flow Q _p =2.78xCi _{5y} A (<i>Us</i>) 30.85 27.47 26.07 24.02	L/s)= g Q _r (L/s) 15.00 15.00 15.00 15.00	43.33 overflows to: D 15.00 Q _p -Q _r (L/s) 15.85 12.47 11.107 0.92	Volume 5yr (m ³) 6.66 6.73 6.64	Trainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11	CB24 0.100 0.90 <i>i_{2yr}</i> (<i>mm/hour</i>) 90.66 80.87 76.81 76.81	Restricted Flow Q, (L 2-Year Pondli Peak Flow Q _p = 2.78xCi _{2y} A (L's) 22.68 20.23 19.22 4.04	/s)= Ig Q _r <u>(L/s)</u> 15.00 15.00 15.00 15.00	overflows to: 15.00 Q _p -Q _r (L(s) 7.68 5.23 4.22 2.24	Dun Skipper Drive Volume 2yr (m ³) 3.23 2.83 2.53 2.53
Trainage Area Area (Ha) C = Tc Variable (min) 13 15 16 17 19	CB24 0.10(1.00 <i>i</i> 100yr (<i>mm/hour</i>) 155.11 142.89 137.55 132.63 123.87	0 0 0 0 0 0 0 0 0 0 0 0 0 0	3.28 20nding Q, (L/s) 15.00 15.00 15.00 15.00	overflows to: 15.00 <i>Q_p</i> - <i>Q_r</i> (<i>L</i> /s) 28.12 24.72 23.24 21.87 19.44	Volume 100yr (m³) 21.93 22.25 22.31 22.31 22.31 22.31 22.16	Trainage Area Area (Ha) C = Variable (min) 7 9 10 11 13	CB24 0.100 0.90 <i>isyr</i> (<i>mm/hour</i>) 123.30 109.79 104.19 99.19 99.63	Restricted Flow Q, 5-Year Pondin Peak Flow Q _p =2-78xCl _{3y} A (L/s) 30.85 27.47 26.07 24.82 22.68	L/s)= g Q , (L/s) 15.00 15.00 15.00 15.00	43.33 overflows to: D 15.00 Q _p -Q _r (L/s) 15.85 12.47 11.07 9.82 7.68	Volume 5yr (m ³) 6.66 6.73 6.64 6.48 5.99	Trainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13	CB24 0.100 0.90 90.66 80.87 76.81 73.17 66.93	Restricted Flow Q _r (L 2-Year Pondi Peak Flow Q _p =2.78xCi _{2p} A (L/s) 22.68 20.23 19.22 18.31 16.75	/s)= Ig Q , (L/s) 15.00 15.00 15.00 15.00	overflows to: 15.00 Q _p - Q _r (L/s) 7.68 5.23 4.22 3.31 1.75	Dun Skipper Drive Volume 2yr (m ³) 3.23 2.83 2.18 1.36
Drainage Area Area (Ha) C Variable (min) 13 15 16 17 19 19	CB24 0.10(1.00 <i>i</i> _{100yr} (<i>mm/hour</i>) 155.11 142.89 137.55 132.63 123.87	$\begin{array}{c} \textbf{IOTAL}\\ \textbf{IOTAL}\\ \textbf{O} \\ \textbf{Restricted Flow } \textbf{Q}_{p} = 2.78c(1)0_{p}\textbf{A}\\ \textbf{Q}_{p} = 2.78c(1)0_{p}\textbf{A}\\ \textbf{Q}_{p} = 3.78c(1)0_{p}\textbf{A}\\ \textbf{Q}_{p} = 3$	3.28 20nding Q, (L/s) 15.00 15.00 15.00 15.00 15.00	overflows to: 15.00 Q _p - Q _r (<i>L</i> (<i>s</i>) 28.12 24.72 23.24 21.87 19.44	Dun Skipper Drive Volume 100yr (m ³) 21 93 22 25 22.31 22.31 22.16	Trainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13	CB24 0.100 0.90 <i>i</i> _{Syr} (<i>mm/hour</i>) 123.30 109.79 104.19 99.19 99.63	Restricted Flow Q, 5-Year Pondin Peak Flow Q _p =2.78xCis _p A (J/s) 30.85 27.47 26.07 24.82 22.68	L/s)= g (<i>L</i> /s) 15.00 15.00 15.00 15.00	43.33 overflows to: D 15.00 Q _p -Q _r (L/s) 15.85 12.47 11.07 9.82 7.68	Volume 5yr (m ³) 6.66 6.73 6.64 6.48 5.99	Trainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13	CB24 0.100 0.90 i _{2yr} (<i>mm/hour</i>) 90.66 80.87 76.81 73.17 66.93	Restricted Flow Q, (L 2-Year Pondin <i>Peak Flow</i> <i>Q_p</i> =2.78 <i>x</i> (2 <i>x_p</i> A (<i>Ls</i>) 22.68 20.23 19.22 18.31 16.75	/s)= Q C r 15 .00 15 .00 15 .00 15 .00 15 .00	overflows to: 15.00 <i>Q_p-Q_r</i> <i>(L/s)</i> 7.68 5.23 4.22 3.31 1.75	Dun Skipper Drive 2yr (m ³) 3.23 2.83 2.18 1.36
Drainage Area Area (Ha) C = Variable (min) 13 15 16 17 19	CB24 0.10(1.0(<i>i</i> _{100yr} (<i>mm/hour</i>) 155.11 142.89 137.55 132.63 123.87	Peak Flow Q _i 0 0 0 0 0 0	3.28 2000 2000 3.28 2000 200 2000 2	overflows to: 15.00 Q _p -Q _r <u>(L/s)</u> 28.12 24.72 23.24 19.44 19.44 ³)	Dun Skipper Drive Volume 100yr (m ³) 21.93 22.25 22.31 22.31 22.16	Drainage Area Area (Ha) C C = C Variable (min) 7 9 10 11 13 13	CB24 0.100 0.90 (<i>mm/hour</i>) 123.30 109.79 104.19 99.19 90.63	Restricted Flow Q, 5-Year Pondin Peak Flow Q _p =2.78xCi _{sp} A (L/s) 30.86 27.47 26.07 24.82 22.68 St	U(s)= g Q , (L/s) 15.00 15.00 15.00 15.00 0 0 0 0 0 0 0 0 0 0 0 0	43.33 overflows to: D 15.00 Q _ρ - Q _r (L/s) 15.85 12.47 11.07 9.82 7.68	Volume 5yr (m ³) 6.66 6.64 6.48 5.99	Treat Treat C = C Variable (min) 7 9 10 11 13 13	CB24 0.100 0.90 i _{3yr} (mm/hour) 90.66 80.87 76.81 73.17 66.93	Restricted Flow Q, (L 2-Year Pondin Peak Flow Q = 2.78xCi 2pA (L/s) 22.68 20.23 19.22 18.31 16.75 Sto	/s)= Qr (L/s) 15.00 15.00 15.00 15.00 15.00 75.00 75.00 75.00	overflows to: 15.00 Q _p - Q _r (L/s) 7.68 5.23 4.22 4.22 1.75	Volume 2yr (m³) 3.23 2.53 2.18 1.36
Trainage Area Area (Ha) C = Tc Variable (min) 13 15 16 17 19	CB24 0.100 1.00 (<i>mm/hour</i>) 155.11 142.89 137.55 132.63 123.87 123.87	0 0 0 0 0 0 0 0 0 0 0 0 0 0	3.28 L/s)= 200ding Q, (L/s) 15.00 15.00 15.00 15.00 Storage (m) Surface	overflows to: 15.00 Q _p -Q _r (L's) 28.12 24.72 23.24 21.87 21.87 3) Sub-surface	Volume 100yr (m³) 22.25 22.31 22.31 22.16 Balance	Trainage Area Area (Ha) C = Variable (min) 7 9 10 11 13	CB24 0.100 0.90 <i>i_{syr}</i> (<i>mm/hour</i>) 123.30 109.79 104.19 90.63 90.63	Restricted Flow Q _s S-Year Pondin Peak Flow Q _p =2.78xCi _{Sy} A (L/s) 30.85 27.47 22.68 St Required	U(s)= g Q, (L/s) 15.00 15.00 15.00 15.00 15.00 0 0 0 0 0 0 0 0 0 0 0 0	43.33 overflows to: D 15.00 Q _p -Q _r (L/s) 15.85 12.47 11.07 9.82 7.68 Sub-surface	Volume 5yr (m ³) 6.66 6.73 6.64 6.48 5.99 Balance Balance	Trea (Ha) C = Tc Variable (min) 7 9 10 13	CB24 0.100 0.90 1 _{3yr} (mm/hour) 90.66 80.87 76.81 73.17 66.93 0 verflow	Restricted Flow Q, (U 2-Year Pondia Peak Flow Q _p = 2.78xCl _{2p} A (L/s) 22.68 20.23 19.22 18.31 16.75 Sto Required	/s)= 1g Q, (L/s) 15.00 15	overflows to: 15.00 Q _p -Q _r (L(s) 7.68 5.23 4.22 3.31 1.75 Sub-surface	Un Skipper Drive 2yr (m ³) 3.23 2.83 2.18 1.36 Balance Balance
Trainage Area Area (Ha) C = Tc Variable (min) 13 15 16 17 19	CB24 0.100 1.00 1.00 1.55.11 142.89 137.55 132.63 123.87 Overflow 0.00	101AL 0 0 0 0 0 0 0 0 0 0 0 0 0	3.28 20nding Q, (L/s) 15.00 15.00 15.00 15.00 15.00 Storage (m) Storage (m)	overflows to: 15.00 $Q_p \cdot Q_r$ (U's) 28.12 24.72 23.24 21.87 19.44 $^3)$ Sub-surface 0	Dun Skipper Drive Volume 100yr (m ³) 21.93 22.26 22.31 22.31 22.16 Balance 22.31	Drainage Area Area (Ha) C C = Variable (min) 7 9 10 11 13	CB24 0.100 0.90 <i>i</i> _{5yr} (<i>mm/hour</i>) 123.30 109.79 104.19 99.19 90.63 Overflow 0.00	Restricted Flow Q, 5-Year Pondim Peak Flow Q _p =2.78xCi _{3p} A (J/s) 30.85 27.47 26.07 24.82 22.68 St Required 6.64	U/s)= g Q , (L/s) 15.00 15.00 15.00 15.00 orage (m ³) Surface 0.00	43.33 overflows to: D 15.00 Q _p -Q _r (US) 15.85 12.47 10.07 9.82 7.68 Sub-surface 0.00	Volume 5yr (m ³) 6.66 6.73 6.64 6.48 5.99 Balance 6.64	Trainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13	CB24 0.100 0.90 i _{2y} r (mn/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00	Restricted Flow Q, (L 2-Year Pondin Peak Flow Q _p =2.78xC1 _{2p} A (L/s) 22.68 20.23 19.22 18.31 16.75 Sto Required 2.53	/s)= Q, (L/s) 15.00 15.00 15.00 15.00 15.00 15.00 surface 0.00	overflows to: 15.00 Q _p - Q _r (<i>L</i> (<i>s</i>) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00	Volume 2yr (m³) 2.23 2.83 2.18 1.36 Balance 2.53
Drainage Area Area (Ha) C = Variable (min) 13 15 16 17 19	CB24 0.10(1.0) <i>i_{100yr}</i> (<i>mm/hour</i>) 155.11 142.89 137.55 132.63 123.87 Overflow 0.00	IOTAL 0 0 Restricted Flow Q _r 100-Year I Peak Flow Q _P = 278XC1 toop A 43.12 39.72 38.24 36.87 34.44 Required 22.31	3.28 2000	overflows to: 15.00 Q _p -Q _r (L/s) 28.12 24.72 23.24 21.87 19.44 ³) Sub-surface 0 overflows to:	Dun Skipper Drive Volume 100yr (m ³) 21.93 22.25 22.31 22.31 22.31 Balance 22.31 MH21	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13	CB24 0.100 0.90 <i>i_{syr}</i> (<i>mm/hour</i>) 123.30 109.79 104.19 90.63 Overflow 0.00	Restricted Flow Q _i 5-Year Pondin <i>Peak Flow</i> Q _p =2.78xCispA (<i>Us</i>) 30.85 27.47 26.07 24.82 22.68 St Required 6.64	U(s)= g Q, (L/s) 15.00 15.00 15.00 15.00 15.00 0 0 0 0 0 0 0 0 0 0 0 0	43.33 overflows to: D 15.00 Q _p -Q, (L/s) 15.85 12.47 11.07 9.82 7.68 Sub-surface 0.00 overflows to: M	Volume 5yr (m ³) 6.66 6.73 6.64 6.48 5.99 Balance 6.64 H21	Drainage Area Area (Ha) C = Variable (min) 7 9 10 11 13	CB24 0.100 0.90 i _{2yr} (mn/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00	Restricted Flow Q, (L 2-Year Pondin <i>Q_p</i> =2.78xCi _{2p} A (L/s) 22.68 20.23 19.22 18.31 16.75 Sto Required 2.53	/s)= 1g Q, (L/s) 15.00 15	overflows to: 15.00 <i>Q_p-Q_r</i> <i>(Us)</i> 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: 1	Volume Zyr (m ³) 2.23 2.83 2.83 2.18 1.36 Balance 2.53 MH21
Trainage Area Area (Ha) C = Variable (min) 13 15 16 17 19	CB24 0.100 1.00 155.11 142.89 137.65 132.63 123.87 Overflow 0.00	Peak Flow Q _i 0 Restricted Flow Q _i 0 Peak Flow Q _i = 2.78XC1 toop. A (L/s) 38.24 38.24 38.24 34.44 Required 22.31	3.28 20nding Q, (L/s) 15.00 15.00 15.00 15.00 15.00 Storage (m Surface 0.00	overflows to: 15.00 Q _p -Q _r (L/s) 28.12 24.72 23.24 19.44 19.44 3) Sub-surface 0 overflows to:	Dun Skipper Drive Volume 100yr (m ³) 21.93 22.31 22.31 22.31 22.31 22.31 22.31 22.31 MH21	Drainage Area Area (Ha) C C = C Variable (min) 7 9 10 11 13 -	CB24 0.100 0.90 (mm/hour) 123.30 109.79 104.19 90.63 Overflow 0.00	Restricted Flow Q, 5-Year Pondin Peak Flow Q _p =2.78XCispA (L/s) 30.85 27.47 26.07 24.82 22.68 St Required 6.64	U(s)= g Q, (L/s) 15.00 15.00 15.00 15.00 00 00 00 00 00 00 00 00 00	43.33 overflows to: D 15.00 Q _p - Q _r (L/s) 15.85 12.47 11.07 9.82 7.68 Sub-surface 0.00 overflows to: N	Volume 5yr (m ³) 6.66 6.73 6.64 6.64 5.99 Balance 6.64 4H21	Trea (Ha) C = Variable (min) 7 9 10 11 13	CB24 0.100 0.90 i _{3yr} (mm/hour) 90.66 80.87 76.81 76.81 73.17 66.93 Overflow 0.00	Restricted Flow Q, (L 2-Year Pondin Peak Flow Q = 2.78X CigrA (L/s) 22.68 20.23 19.22 18.31 16.75 Stor Required 2.53	/s)= 1g Q , (L/s) 15.00 15.00 15.00 15.00 15.00 rage (m ³) Surface 0.00	overflows to: 15.00 Q _p -Q _r (L/s) 7.68 5.23 4.22 4.22 4.22 3.31 1.75 Sub-surface 0.00 overflows to: 1	Volume 2yr (m ³) 2.83 2.18 1.36 Balance 2.53 MH21
Drainage Area Area (Ha) C = Tc. Variable (min) 13 16 17 19 Drainage Area	CB24 0.100 1.00 1.00 1.00 1.00 1.00 1.00 1.	101AL 0 0 Restricted Flow Q, 1 100-Year 1 Peak Flow Q _p = 2.78xCl 100yr A (L/S) 43.12 39.72 39.72 38.24 34.44 Required 22.31	3.28 Ponding Q , (L/s) 15.00 15.00 15.00 Storage (m) Storage (m)	overflows to: 15.00	Dun Skipper Drive 100yr (m ³) 21.93 22.25 22.31 22.31 22.16 Balance 22.31 MH21	Drainage Area Area (Ha) C C = Variable (min) 7 9 10 11 13 Drainage Area Drainage Area	CB24 0.100 0.90 <i>i_{syr}</i> (<i>mm/hour</i>) 123.30 109.79 104.19 99.19 90.63 Overflow 0.00	Restricted Flow Q, 5-Year Pondin Peak Flow Q _p =2.78xCi _{5y} A (L/s) 30.85 27.47 26.07 24.82 22.68 St Required 6.64 B25	g Q, 15.00 15.00 15.00 15.00 15.00 15.00 0 15.00 0 15.00 0 0.00	43.33 overflows to: D 15.00 Q _p -Q, (US) 15.85 12.47 11.07 9.82 7.68 Sub-surface 0.00 overflows to: N	Volume 5yr (m ³) 6.66 6.73 6.64 6.48 5.99 Balance 6.64 4H21	Drainage Area Area (Ha) C = T _c Variable (min) 7 9 10 11 13 Drainage Area	CB24 0.100 0.90 <i>i_{2yr}</i> (<i>mn/hour</i>) 90.66 80.87 73.17 73.17 66.93 60.93 0.00	Restricted Flow Q, (L 2:Year Pondia Peak Flow Q _p =2.78xCl _{2p} A (L's) 22.68 20.23 19.22 18.31 16.75 Sto Required 2.53	/s)= 1g Q, (L/s) 15.00 15.00 15.00 15.00 15.00 rage (m ³) Surface 0.00	overflows to: 15.00 Q_{ρ} - Q_{r} (L/s) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: I	Volume 2yr (m ²) 3.23 2.83 2.18 1.36 Balance 2.53 MH21
Drainage Area Area (Ha) C = Tc Variable (min) 13 15 16 17 19 Drainage Area Area (Ha)	CB24 0.100 1.00 1.00 1.00 1.00 1.00 1.00 1.	OTAL OTAL O	3.28 Ponding Q, (L's) 15.00 15.00 15.00 15.00 Storage (m Surface 0.00	overflows to: 15.00 Q _p -Q _r (Us) 28.12 24.72 23.24 21.87 19.44 3) Sub-surface 0 overflows to:	Dun Skipper Drive Volume 100yr (m ³) 22.25 22.31 22.31 22.16 Balance 22.31 MH21	Drainage Area Area (Ha) C C = Variable (min) 7 7 9 10 11 13 13	CB24 0.100 0.90 <i>i</i> _{5yr} (<i>mm/hour</i>) 123.30 109.79 104.19 99.19 90.63 Overflow 0.00 Overflow	Restricted Flow Q, 5-Year Pondin Peak Flow Q _p =2.78xCisp.A 00.85 22.47 26.07 24.82 22.68 St Required 6.64 B25 Restricted Flow Q.	L/s)= g Q , <u>(L/s)</u> 15.00 15.00 15.00 rage (m ³) Surface 0.00 l	43.33 overflows to: D 15.00 Q _p -Q _r (L/s) 15.85 12.47 11.07 9.82 7.68 Sub-surface 0.00 overflows to: N	Volume 5yr (m ³) 6.66 6.73 6.64 6.48 5.99 Balance 6.64 4H21	Trainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13	CB24 0.100 0.90 (mm/hour) 90.66 80.87 76.81 76.81 73.17 66.93 Overflow 0.00	Restricted Flow Q, (L 2-Year Pondin <i>Peak Flow</i> <i>Q_p</i> =2.78 <i>x</i> (<i>z_pA</i> (<i>L</i> /s) 22.68 20.23 19.22 18.31 16.75 Sto Required 2.53	/s)= 1g Q, (L/s) 15.00 15.00 15.00 15.00 15.00 15.00 15.00 0.00 (a)=	overflows to: 15.00 Q _p -Q _r (Us) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: 1	Dun Skipper Drive Volume Zyr (m ³) 3.23 2.83 2.18 1.36 Balance 2.53 MH21
Drainage Area Area (Ha) C = Tc Variable (min) 13 15 16 17 19 Drainage Area Area (Ha) C = C	CB24 0.10(1.0) <i>i</i> _{100yr} (<i>mm/hour</i>) 155.11 142.89 137.55 132.63 123.87 Overflow 0.00 CB25 0.02(1.0)	IOTAL 0 0 Restricted Flow Q, 100-Year I Peak Flow Q,=22 Restricted, Itop, A 43.12 39.72 38.24 36.87 34.44 Required 22.31 0 0 0 0	3.28 Ponding Q, (L/s) 15.00 15.00 15.00 15.00 15.00 Surface 0.00 U/s)= Dendinc	overflows to: 15.00 <i>Q_p-Q_r</i> <i>(L/s)</i> 28.12 24.72 23.24 21.87 19.44 ³) Sub-surface 0 overflows to: 6.00	Dun Skipper Drive Volume 100yr (m ³) 21.93 22.26 22.31 22.31 22.16 Balance 22.31 MH21	Drainage Area Area (Ha) C C = Tc Variable (min) (min) 7 9 10 11 13 Drainage Area Area (Ha) C = C =	CB24 0.100 0.90 <i>i_{syr}</i> (<i>mm/hour</i>) 123.30 109.79 104.19 90.63 Overflow 0.00 Overflow 0.00	Restricted Flow Q, 5-Year Pondin Peak Flow Q _p =2.78xCi ₃ xA (L/s) 30.85 27.47 26.07 24.82 22.68 St Required 6.64 B25 Restricted Flow Q,	L/s)= 9 Q, (L/s) 15.00 15.00 15.00 15.00 15.00 orage (m ³) Surface 0.00	43.33 overflows to: D 15.00 Q _p - Q , (L/s) 15.85 12.47 11.07 9.82 7.68 Sub-surface 0.00 overflows to: N 6.00	Volume 5yr (m ³) 6.66 6.73 6.64 6.48 5.99 Balance 6.64 1H21	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 11 13 Drainage Area Area (Ha) C =	CB24 0.100 0.90 i _{2yr} (mm/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB25 0.020 0.90	Restricted Flow Q, (L 2-Year Pondin <i>Q_p</i> =2.78xCi _{2p} A (L/s) 22.68 20.23 19.22 18.31 16.75 Sto Required 2.53 Restricted Flow Q, (L 2 Year Part 10 2 Year 2 Part 10 2 Year 10 2	/s)= 1g Q , (L/s) 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.	overflows to: 15.00 <i>Q_p-Q_r</i> <i>(US)</i> 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: I 6.00	Dun Skipper Drive Volume 2yr (m ³) 3.23 2.63 2.63 2.18 1.36 Balance 2.53 MH21
Drainage Area Area (Ha) C = Tc Variable (min) 13 16 17 19 Drainage Area Area (Ha) C = T	CB24 0.100 1.00 1.00 (<i>mm/hour</i>) 155.11 142.89 137.55 132.63 123.87 123.87 0.00 CB25 0.021 0.021 1.00	101AL 100-Year 1 Peak Flow Q _p = 2.78xCl 100pr A (L/S) 43.12 39.72 38.24 34.34 Required 22.31 0 0 Restricted Flow Q _i 100-Year 1 100-Year 1 Peak Elviri	3.28 Ponding Q , (L/s) 15.00 15.00 15.00 15.00 Storage (m' Surface 0.00 Storage (m' Surface 0.00	overflows to: 15.00 Q _p -Q _r (L/s) 28.12 24.72 21.87 19.44 ³) Sub-surface 0 overflows to: 6.00	Dun Skipper Drive Volume 100yr (m ³) 21.93 22.25 22.31 22.31 22.31 22.16 Balance 22.31 MH21	Drainage Area Area (Ha) C C = Variable (min) 7 9 10 11 13 Mrea (Ha) C C = C	CB24 0.100 0.90 <i>i_{syr}</i> (<i>mm/hour</i>) 123.30 109.79 104.19 99.19 90.63 Overflow 0.00 0.20 0.200 0.90	Restricted Flow Q, 5-Year Pondin Peak Flow Q _p =2.78xCi _{3p} A (L/s) 30.85 27.47 24.82 22.68 St Required 6.64 B25 Restricted Flow Q, 5-Year Pondin Peak Flow	L/s)= g Q, (L/s)= 15.00 15.00 15.00 15.00 15.00 15.00 0.00 Surface 0.00 L/s)= g	43.33 overflows to: D 15.00 Q _p -Q _r (L/s) 15.85 12.47 11.07 9.82 7.68 Sub-surface 0.00 overflows to: N 6.00	Volume 5yr (m ³) 6.66 6.73 6.64 6.64 6.64 6.64 8alance 6.64 HH21	Drainage Area Area (Ha) C C = Trea (Ha) Yariable (min) T 7 10 11 13 13 Area (Ha) C = C =	CB24 0.100 0.90 <i>i_{3yr}</i> (<i>mn/hour</i>) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB25 0.020 0.90	Restricted Flow Q, (I 2-Year Pondia Peak Flow Q _p = 2.78xCl _{2p} A (L/s) 22.68 20.23 18.31 16.75 Stc Required 2.53 Restricted Flow Q, (I 2.Year Pondia Restricted Flow Q, (I 2.Year Pondia	/s)= 1g Q, (L's) 15.00 15	overflows to: 15.00 Q _p -Q _r (L/s) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: I 6.00	Volume 2yr (m ³) 3.23 2.83 2.18 1.36 Balance 2.53 MH21
Drainage Area Area (Ha) C = Tr. Variable (min) 13 15 16 17 19 Drainage Area Area (Ha) C = Tr. Variable	CB24 0.100 1.00 1.00 1.00 1.55.11 142.89 137.55 132.63 123.87 0verflow 0.00 CB25 0.020 1.00	101AL 100-Year 1 Peak Flow Q _p = 2.78C1 too _p A (L/S) 43.12 39.72 38.24 36.87 34.44 Required 22.31 0 0 Restricted Flow Q ₁ 100-Year 1 Peak Flow Q ₀ = 2.78F(L) = A	3.28 Ponding Q, (L/s) 15.00 15.00 15.00 15.00 15.00 Storage (m Surface 0.00 L/s)= Ponding Q,	overflows to: 15.00 $Q_p \cdot Q_r$ (<i>L's</i>) 28.12 24.72 23.24 21.87 19.44 ³) Sub-surface 0 overflows to: 6.00 $Q_p \cdot Q_r$	Dun Skipper Drive Volume 100yr (m ³) 21.93 22.26 22.31 22.31 22.16 Balance 22.31 MH21 Volume 100yr	Drainage Area Area (Ha) C C = Variable (min) 7 7 10 11 13 Drainage Area Area (Ha) C = Tc	CB24 0.100 0.90 <i>i</i> _{5yr} (mm/hour) 123.30 109.79 104.19 99.19 90.63 Overflow 0.00 0.00 <i>i</i> _{5yr} 0.020 0.90 <i>i</i> _{5yr}	Restricted Flow Q, 5-Year Pondim Peak Flow Q _p =2.78XCl _{3p} A (U/s) 30.85 27.47 26.07 24.82 22.68 St Required 6.64 B25 Restricted Flow Q, 5-Year Pondim Peak Flow Q = 278XCL A	L(s)= g Q , (L(s)) 15.00 15.00 15.00 15.00 orage (m ³) Surface 0.00 J L (s)= g Q ,	43.33 overflows to: D 15.00 $Q_{\rho}-Q_{r}$ (L/s) 15.85 12.47 10.07 9.82 7.68 Sub-surface 0.00 overflows to: N 6.00 $Q_{\rho}-Q_{r}$	Volume 5yr (m ³) 6.66 6.73 6.64 6.48 5.99 Balance 6.64 H121	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13 C = Drainage Area Area (Ha) C = Tc Variable	CB24 0.100 0.90 i _{2y} , (mn/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB25 0.020 0.90	Restricted Flow Q, (L 2-Year Pondir Peak Flow Q _p =2.78xC1 _{2p} A (L/s) 22.68 20.23 19.22 18.31 16.75 Sto Required 2.53 Restricted Flow Q, (L 2-Year Pondir Peak Flow Q, =278YC1, A	/s)= 19 Q, (L's0) 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 (s)= (g)= Q,	overflows to: 15.00 $Q_{p}-Q_{r}$ (L's) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: 1 6.00 $Q_{p}-Q_{r}$	Bun Skipper Drive Volume 2yr (m³) 2.23 2.83 2.18 1.36 Balance 2.53 MH21 Volume 2vr
Drainage Area Area (Ha) C C = Image Area Variable (min) 13 15 16 17 19 Image Area Area (Ha) C = Trea (Ha) C =	CB24 0.100 1.00 1.00 0.00 0.00 CB25 0.020 0	IOTAL 0 Restricted Flow Q, 100-Year I Peak Flow Q_p=2.78XC1 toop.A (L/S) 43.12 39.72 38.24 38.87 34.44 34.44 Required 22.31 0 Restricted Flow Q, 100-Year I Peak Flow Q_p=2.78XC1 toop.A 100-Year I	3.28 Ponding Q, (L/s) 15.00 15.00 15.00 15.00 15.00 15.00 Surface 0.00 Surface 0.00 L/s)= Ponding Q, (L's)	overflows to: 15.00 $Q_p \cdot Q_r$ (<i>L</i> /s) 28.12 24.72 23.24 19.44 3) Sub-surface 0 overflows to: 6.00 $Q_p \cdot Q_r$ (<i>L</i> /s)	Dun Skipper Drive Volume 100yr (m ³) 21 93 22 26 22 31 22 31 22 31 22 31 22 31 22 31 22 31 22 31 22 31 MH21 MH21 Volume 100yr (m ³)	Drainage Area Area (Ha) C C = C Variable (min) (min) 7 9 10 11 13 Drainage Area Area (Ha) C = C Variable Variable (min) T _c	CB24 0.100 0.90 <i>i_{syr}</i> (mm/hour) 123.30 109.79 104.19 90.63 Overflow 0.00 0.00 0.90 <i>i_{syr}</i> (mm/hour)	Restricted Flow Q, 5-Year Pondin $Peak$ Flow Q_p =2.78xCisp,A (L/s) 30.85 27.47 26.07 24.82 22.68 St Required 6.64 B25 Restricted Flow Q, 5-Year Pondin Peak Flow Q 5-Year Pondin Peak Flow Q -7.78xCisp,A $\ell_{(r)}^{(r)}$	L/s)= g Q , <u>(L/s)</u> 15.00 15.00 15.00 15.00 orage (m ³) Surface 0.00 orage (m ³) L /s)= g Q , <u>(L/s)</u> =	43.33 overflows to: D 15.00 Q _p -Q _r (L/s) 15.85 12.47 11.07 9.82 7.68 Sub-surface 0.00 overflows to: N 6.00 Q _p -Q _r (L/s)	Volume 5yr (m ³) 6.66 6.73 6.64 6.48 5.99 Balance 6.64 H21 Volume 5yr (m ³)	Drainage Area Area (Ha) C = Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C = T _c Variable (min)	CB24 0.100 0.90 i _{3yr} (mm/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB25 0.020 0.90 i _{3yr} (mm/hour)	Restricted Flow Q, (I 2-Year Pondin Peak Flow Qp=2.78xCl_2p,A (L/s) 22.68 20.23 19.22 18.31 16.75 Stor Required 2.53 Restricted Flow Q, (I Peak Flow Qp=2.78xCl_2p,A (L/s)	/s)= 9 9 15.00 15.0	overflows to: 15.00 $Q_{p}-Q_{r}$ (<i>L's</i>) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: I 6.00 $Q_{p}-Q_{r}$ (<i>L's</i>)	Balance 2.53 MH21
Drainage Area Area (Ha) C = Tc Variable (min) 13 15 16 17 19 Drainage Area Area (Ha) C = Tc Variable (min) 8	CB24 0.100 1.00 155.11 142.89 137.55 132.63 123.87 Overflow 0.00 CB25 0.022 1.00 irooyr (mm/hour) 199.20	IOTAL 0 Restricted Flow Q, 1 100-Year 1 Peak Flow Q _p =2.78xCl togr A (L/3) 43.12 39.72 38.24 36.87 34.34 34.44 Required 22.31 0 Restricted Flow Q, 1 0 Restricted Flow Q, 2.31 0 Restricted Flow Q, 100-Year 1 100-Year 1 Peak Flow Q _p =2.78xCl togr A (L/3) 11.08 11.08	3.28 20nding Q, (L/s) 15.00 15.0	overflows to: 15.00 $Q_{p}-Q_{r}$ (L/s) 28.12 24.72 24.72 21.87 19.44 ³) Sub-surface 0 overflows to: 6.00 $Q_{p}-Q_{r}$ (L/s) 5.08	Dun Skipper Drive Volume 100yr (m ³) 22.25 22.31 22.31 22.31 22.31 22.31 22.31 MH21 MH21 Volume 100yr (m ³) 2.44	Drainage Area Area (Ha) C C = (min) Yariable (min) 7 10 11 13 Mrea (Ha) C C = C T _c Variable Mrea (Ha) C C = (min) Narable (min) 8 8	CB24 0.100 0.90 <i>i_{syr}</i> (<i>mm/hour)</i> 123.30 109.79 109.79 90.63 Overflow 0.00 0.020 0.020 0.90 <i>i_{syr}</i> (<i>mm/hour)</i> 116.11	Stear Pondin $Peak$ Flow Q_p $Peak$ Flow Q_p Q_p $2.78xCi_{Sy}A$ (L/s) 30.85 27.47 26.07 24.82 22.68 St Required 6.64 B25 Restricted Flow Q_i S-Year Pondin $Peak$ Flow Q_p =2.78xCi _{Sy} A (L/s) 5.81	L/s)= g Q, (L/s)= I5.00 15.00 15.00 15.00 15.00 15.00 15.00 Surface U(s)= g Q, (L/s)= G, (L/s)=	43.33 overflows to: D 15.00 Q _p -Q _r (L/s) 15.85 12.47 11.07 9.82 7.68 Sub-surface 0.00 overflows to: N 6.00 Q _p -Q _r (L/s) -0.19	Bun Skipper Drive Syr 5yr 6.6 6.73 6.64 6.48 5.99 Balance 6.64 4.48 5.99 Unit of the state of th	Drainage Area Area (Ha) C C = Trc Variable (min) 7 9 10 11 13 13 Drainage Area Area (Ha) C = C C = C Marea (Ha) C C = Trc Variable (min) 8 8	CB24 0.100 0.90 <i>i_{3yr}</i> (<i>mn/hour</i>) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB25 0.920 0.90 <i>i_{3yr}</i> <i>i_{13yr}</i> <i>i_{13yr}</i> 0.90	Restricted Flow Q, (I 2:Year Pondia Peak Flow Q _p = 2:78xCl _{2p} A (L/s) 22.68 20.23 19.22 18.31 16.75 Sto Required 2.53 Restricted Flow Q, (I 2:Year Pondia Q _p = 2:78xCl _{2p} A (L/s) 4.28	/s)= 1g Q, (L's) 15.00 15.00 15.00 15.00 15.00 15.00 15.00 0.00 /s)= 15.00 15.0	overflows to: 15.00 $Q_{\rho}-Q_{r}$ (L's) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: I 6.00 $Q_{\rho}-Q_{r}$ (L's) -1.72	Dun Skipper Drive 2yr (m ³) 3.23 2.83 2.18 1.36 Balance 2.53 MH21 Volume 2yr (m ³) 0.83
Drainage Area Area (Ha) C = Tc Variable (min) 13 16 17 19 C = Drainage Area Area (Ha) C = Variable (min) 8 9	CB24 0.100 1.00 1.00 0.00 0.00 0.00 0.02 0.021 0.02 0.021 0.02 0.021 0.02 0.021	IOTAL 0 Restricted Flow Q, 100-Year I Peak Flow Qp = 2.78C1 100pr A (L/S) 43.12 39.72 38.24 36.87 34.44 Required 22.31 0 Restricted Flow Q, 100-Year I Peak Flow Qp = 2.75(100pr A 100-Year I Peak Flow 10.0-Year I 11.08 11.08 11.047	3.28 20nding Q, (L/s) 15.00 15.00 15.00 15.00 Storage (m Surage (m Surage (m Q, (L/s) Conding Q, (L/s) Conding Q, Conding Q, Conding Co	overflows to: 15.00 $Q_p \cdot Q_r$ (<i>L</i> (<i>s</i>) 28.12 24.72 23.24 21.87 19.44 ³) Sub-surface 0 overflows to: 6.00 $Q_p \cdot Q_r$ (<i>L</i> (<i>s</i>) 5.08 4.47	Dun Skipper Drive Volume 100yr (m ³) 22.25 22.31 22.31 22.16 Balance 22.31 MH21 Volume 100yr (m ³) 2.44 2.41	Drainage Area Area (Ha) C C = Variable (min) 7 9 10 11 13 C = C Tr c Variable (min) 7 9 0 10 13 C = C Variable (min) C = 0 Variable (min) 8 9	CB24 0.100 0.90 <i>i</i> _{5yr} (<i>mm/hour</i>) 123.30 109.79 104.19 99.19 90.63 Overflow 0.00 <i>C</i> 0.90 <i>i</i> _{5yr} (<i>mm/hour</i>) 116.11 109.79	Restricted Flow Q, 5-Year Pondin Peak Flow Q _p =2.78C/syA 20.85 27.47 26.07 24.82 22.68 St Required 6.64 B25 Restricted Flow Q, 5-Year Pondin Peak Flow Q _p =2.78C/syA (L/s) 5.81 5.81	L(s)= g Q, (L(s)) 15.00 15.00 15.00 15.00 15.00 orage (m ³) Surface 0.00 L(s)= g Q, (L/s) 6.00 6.00	43.33 overflows to: D 15.00 Q _p - Q _r (<i>L</i> /s) 15.85 12.47 10.07 9.82 7.68 Sub-surface 0.00 overflows to: N 6.00 Q _p - Q _r (<i>L</i> /s) -0.19 -0.51	Volume 5yr (m ³) 6.66 6.73 6.64 6.64 5.99 Balance 6.64 HH21 Volume 5yr (m ³) -0.09 -0.27	Drainage Area Area (Ha) C = Variable (min) 7 9 10 11 13 C = Variable (rainage Area Area (Ha) C = Variable (min) 8 9	CB24 0.100 0.90 i _{2yr} (mn/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB25 0.020 0.90 i _{2yr} (mn/hour) 85.46 80.87	Restricted Flow Q, (I 2-Year Pondit Peak Flow Qp=2.78xC1 _{2p} A (L/s) 22.68 20.23 10.22 18.31 16.75 Ster Restricted Flow Q, (I Peak Flow Qp=2.78cC1 _{2p} A Ster Restricted Flow Q, (I Peak Flow Qp=2.74C1 _{2p} A (L/s) 4.28 4.05	J(s)= 19 Q, (L(s)) 15.00 15.00 15.00 15.00 15.00 15.00 Surface 0.00 /s)= 19 Q, (L/s) 6.00 6.00	overflows to: 15.00 Q _p - Q _r (<i>L</i> (<i>s</i>) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: 1 6.00 Q _p - Q _r (<i>L</i> (<i>s</i>) -1.72 -1.95	Balance 2.53 Balance 2.53 MH21
Drainage Area Area (Ha) C C = Variable (min) 13 15 16 17 19 Drainage Area Area (Ha) C = C Tr_c Variable Mean (Ha) C 0 S 10 10	CB24 0.100 1.00 155.11 142.89 137.55 132.63 132.87 123.87 0verflow 0.00 CB25 0.020 1.00 <i>i</i> 100 <i>i</i> 100 <i>i</i> 100 <i>i</i> 100 <i>i</i> 100 0.021 1.00	IOTAL 0 Restricted Flow Q, 100-Year I Peak Flow Qp=2.78xC1 top, A (L/S) 38.24 38.24 38.67 34.44 Required 22.31 0 Restricted Flow Q, 100-Year I Peak Flow 0 Restricted Flow Q, 100-Year I Peak Flow 0 Peak Flow 11.08 10.47 9.93 9.93	3.28 Ponding Q, (L/s) 15.00 15.00 15.00 15.00 15.00 15.00 Storage (m Surface 0.00 Conding Q, (L/s) Conding Q, (L/s) Conding Con	overflows to: 15.00 $Q_p - Q_r$ (<i>L</i> (<i>s</i>) 24.72 23.24 21.87 19.44 ³) Sub-surface 0 overflows to: 6.00 $Q_p - Q_r$ (<i>L</i> (<i>s</i>) 5.08 4.47 3.33	Dun Skipper Drive Volume 100yr (m ³) 22.25 22.31 22.31 22.31 Balance 22.31 MH21 Volume 100yr (m ³) 2.44 2.41 2.41 2.36	Drainage Area Area (Ha) C C = C Variable (min) 7 9 10 11 13 C Drainage Area Area (Ha) C = C Variable (min) B 9 10 10	CB24 0.100 0.90 <i>i</i> _{5yr} (<i>mm/hour</i>) 123.30 109.79 104.19 90.63 Overflow 0.00 0.020 0.90 0.90 <i>i</i> _{5yr} (<i>mm/hour</i>) 116.11 109.79 104.19		L/s)= g Q , <u>(L/s)</u> 15.00 15.00 15.00 15.00 Surface 0.00 Surface 0.00 Surface 0.00 Control	43.33 overflows to: D 15.00 Q _ρ - Q _r (L/s) 15.85 12.47 11.07 9.82 7.68 Sub-surface 0.00 overflows to: N 6.00 Q _ρ - Q _r (L/s) -0.19 -0.51 -0.79	Volume Syr (m³) 6.66 6.73 6.64 5.99 Balance 6.64 H21 Volume Syr (m³) -0.09 -0.27 -0.47	Drainage Area Area (Ha) C = Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C = Tr Variable (min) 8 9 10	CB24 0.100 0.90 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB25 0.020 0.90 i _{2yr} (mm/hour) 85.46 80.87 76.81	Restricted Flow Q, (I 2-Year Pondin Peak Flow Q _p =2.78xCi _{2p} A 22.68 20.23 19.22 18.31 16.75 Stor Required 2.53 Restricted Flow Q, (I 2.42 Restricted Flow Q, (I Peak Flow Q _p =2.78xCi _{2p} A 4.28 4.05 3.84	/s)= 19 Q , (L/s) 15.00	overflows to: 15.00 $Q_{p}-Q_{r}$ (<i>L</i> (<i>s</i>)) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: 1 6.00 $Q_{p}-Q_{r}$ (<i>L</i> (<i>s</i>)) -1.72 -1.95 -2.16	Dun Skipper Drive Volume 2yr (m ³) 2.83 2.83 2.83 2.18 1.36 Balance 2.53 MH21 Volume 2yr (m ³) -0.83 -1.05 -1.29
Drainage Area Area (Ha) C = Tc Variable (min) 13 15 16 17 19 Drainage Area Area (Ha) C = C = Tc Variable (min) 8 9 10 11 13	CB24 0.100 1.00 0.100 0.100 0.100 0.100 0.155.11 142.89 137.55 132.63 123.87 123.87 0.00 CB25 0.022 1.00 1.00 1.00 0.022 1.00	IOTAL 0 Restricted Flow Q, 1 100-Year 1 Peak Flow Q _p =2.78xCl toop A (L/s) 43.12 39.72 38.84 38.84 34.44 Required 22.31 0 0 Restricted Flow Q, 100-Year 1 0 0	3.28 20nding Q, (L/s) 15.00 00 15.00 00 00 00 00 00 00 00 00 00	overflows to: 15.00 $Q_{p}-Q_{r}$ (L's) 28.12 24.72 24.72 21.87 19.44 3) Sub-surface 0 overflows to: 6.00 $Q_{p}-Q_{r}$ (L's) 5.08 4.47 3.93 3.93 3.45 2.62	Dun Skipper Drive Volume 100yr (m ²) 21.93 22.25 22.31 22.31 22.31 22.31 22.31 MH21 Volume 100yr (m ³) 2.44 2.41 2.44 2.41 2.36 2.27 2.05	Drainage Area Area (Ha) C C = (min) Yariable (min) 10 11 13 C Drainage Area Area (Ha) C = C T _c Variable (min) C T _c Variable (min) 8 9 10 11 12	CB24 0.100 0.90 i _{syr} (mm/hour) 123.30 109.79 104.19 99.19 90.63 Overflow 0.00 0.90 isyr (mm/hour) 116.11 109.79 116.11 109.79 90.19 90.919	Stricted Flow Q, 5-Year Pondin Peak Flow Q_p =2.78xCi _{3r} A (L/s) 30.85 27.47 26.07 24.82 26.08 St Required 6.64 B25 Restricted Flow Q, 5-Year Pondin Peak Flow Q_p=2.78xCi _{3r} A (L/s) 5.81 5.49 5.21 4.96 4.70	L/s)= g Q, (L/s)= g 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 0.00 0.00 U/s)= g Q, (L/s)= 6.00 6.00 6.00	43.33 overflows to: D 15.00 Q _p -Q _r (L/s) 15.85 12.47 11.07 9.82 7.68 Sub-surface 0.00 overflows to: N 6.00 Q _p -Q _r (L/s) -0.19 -0.51 -0.79 -1.04 -1.04 -1.04 -1.04	Volume Syr 5yr (m ³) 6.66 6.64 6.48 5.99 Balance 6.64 6.64 4.83 H21 Volume Syr (m ³) -0.09 -0.09 -0.09 -0.09 -0.09 -0.09 -0.08 -0.91	Drainage Area Area (Ha) C C = Trc Variable (min) 7 9 10 11 13 13 Drainage Area Area (Ha) C = C Variable (min) C = C Variable (min) 8 9 10 11 13 10	CB24 0.100 0.90 <i>i_{3yr}</i> (<i>mn/hour</i>) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 <i>CB25</i> 0.020 0.90 <i>i_{3yr}</i> (<i>mn/hour</i>) 85.46 80.87 76.81 73.17 76.81 73.17 76.81	Restricted Flow Q, (L 2-Year Pondia Peak Flow Q _p = 2.78xCl _{2p} A (L/s) 22.68 20.23 19.22 18.31 16.75 Sto Required 2.53 Restricted Flow Q, (L 2-Year Pondia Peak Flow Q _p = 2.78xCl _{2p} A (L/s) 4.28 4.05 3.84 3.66 3.50	Js)= 1g Q, (L/s) 15.00 0.00 /s)= 12 Q, (L/s) (6.00 6.00 6.00	overflows to: 15.00 $Q_{\rho}-Q_{r}$ (L/s) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: I 6.00 $Q_{\rho}-Q_{r}$ (L/s) -1.72 -1.95 -2.16 -2.34 -2.50	Dun Skipper Drive 2yr (m ³) 3.23 2.83 2.18 1.36 Balance 2.53 MH21 Volume 2yr (m ³) -0.83 -1.05 -1.54 -1.54 -1.54
Drainage Area Area (Ha) C = Tc. Variable (min) 13 16 17 19 C = C = C = Variable (min) C = Variable (min) 8 9 10 11 13	CB24 0.100 1.00 1.00 1.00 1.00 1.00 1.00 1.	$\begin{array}{c} \text{IOTAL} \\ \hline \\ 0 \\ 0 \\ \text{Restricted Flow Q}_{i} \\ \hline \\ \hline \\ Poak Flow \\ Q_{p} = 2.78 \times CI_{100y} A \\ (L/s) \\ \hline \\ 39.72 \\ $	3.28 Ponding Q, (L/s) 15.00 15.00 15.00 15.00 15.00 15.00 Storage (m Surface 0.00	overflows to: 15.00 $Q_p \cdot Q_r$ (<i>L</i> (<i>s</i>) 28.12 24.72 23.24 21.87 19.44 ³) Sub-surface 0 overflows to: 6.00 $Q_p \cdot Q_r$ (<i>L</i> (<i>s</i>) 5.08 4.47 3.93 3.45 2.62	Dun Skipper Drive Volume 100yr (m ³) 21.93 22.25 22.31 22.31 22.16 Balance 22.31 MH21 Volume 100yr (m ³) 2.44 2.41 2.36 2.27 2.05	Drainage Area Area (Ha) C C = Variable (min) 7 9 10 11 13 C = C Tr c Variable (min) C To C To C Urainage Area C Area (Ha) C C = C Variable (min) 8 9 10 11 12 12	CB24 0.100 0.90 <i>i</i> _{5yr} (<i>mm/hour</i>) 123.30 109.79 104.19 90.63 90.63 Overflow 0.00 0.90 <i>i</i> _{5yr} (<i>mm/hour</i>) 116.11 109.79 104.19 99.19 99.19 94.70	Restricted Flow Q, 5-Year Pondin Peak Flow $Q_p=2.78xCi_{sy}A$ (Us) 30.85 27.47 24.82 22.68 St Required 6.64 B25 Restricted Flow Q, $Q_p=2.78xCi_{sy}A$ (Us) 5.81 5.21 5.21 5.21 4.96 4.74	L(s)= g q , (L(s)) 15.00 15.00 15.00 15.00 orage (m ³) surface 0.00 L(s)= g q , (L(s))= g q , (L(s))= b , (L(s))= (L	$\begin{array}{c} 43.33\\ \text{overflows to: D}\\ \hline 15.00\\ \hline \textbf{Q}_{p}\textbf{-}\textbf{Q}_{r}\\ (L/s)\\ \hline 15.85\\ 12.47\\ 11.07\\ 9.82\\ 7.68\\ \hline \textbf{Sub-surface}\\ 0.00\\ \text{overflows to: N}\\ \hline \textbf{G}_{p}\textbf{-}\textbf{Q}_{r}\\ (L/s)\\ \hline \textbf{-}0.19\\ -0.51\\ -0.79\\ -1.04\\ -1.26\\ \hline \end{array}$	Volume 5yr (m ³) 6.66 6.73 6.64 6.48 5.99 Balance 6.64 HH21 Volume 5yr (m ³) -0.09 -0.27 -0.68 -0.91	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13 C = C = Variable (min) C = Variable (min) 8 9 10 11 12	CB24 0.100 0.90 i _{2yr} (mm/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB25 0.020 0.90 <i>i</i> _{2yr} (mm/hour) 85.46 80.87 76.81 73.17 69.89	State Restricted Flow Q, (I 2:Year Pondia Peak Flow Qp=2:75xC1_2p, A (L/s) 22.68 20.23 19.22 18.31 16.75 Stor Restricted Flow Q, (I 2:Year Pondia Peak Flow Qp=2:2Year Pondia Peak Flow Qp=2:2Year Pondia 4.28 4.05 3.86 3.50	J(s)= 19 Q, (L's) 15.00	overflows to: 15.00 Q _p - Q _r (<i>L</i> (<i>s</i>) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: 1 6.00 Q _p - Q _r (<i>L</i> (<i>s</i>) -1.72 -1.95 -2.16 -2.34 -2.50	Balance 2.53 2.18 1.36 Balance 2.53 WH21 Volume
Drainage Area Area (Ha) C = Tc Variable (min) 13 15 16 17 19 Drainage Area Area (Ha) C = Variable (min) 8 9 10 11 13	CB24 0.100 1.00 1.00 0.00 0.02	IOTAL 0 0 Restricted Flow Q, 100-Year I Peak Flow Qp = 2.78xC1 ioop, A 39,72 38,24 36,87 34.44 Required 22.31 0 Restricted Flow Q, 100-Year I Peak Flow Q - 2.78xC1 ioop, A (L/s) 11.08 10.47 9.93 9.45 8.62	3.28 Ponding Q, (L/s) 15.00 15.00 15.00 5.00 Storage (m Q, (L/s)= Ponding Q, (L/s)= Conding Q, (L/s)= Storage (m) 6.00	overflows to: 15.00 $Q_p \cdot Q_r$ (<i>L</i> (<i>s</i>) 28.12 24.72 23.24 21.87 19.44 ³) Sub-surface 0 overflows to: 6.00 $Q_p \cdot Q_r$ (<i>L</i> (<i>s</i>) 5.08 4.47 3.93 3.93 3.45 2.62 ³)	Dun Skipper Drive Volume 100yr (m ³) 22.31 22.31 22.31 22.31 22.31 22.31 MH21 Volume 100yr (m ³) 2.44 2.36 2.27 2.27 2.05	Drainage Area Area (Ha) C C = Variable (min) 7 7 10 11 13 Drainage Area Area (Ha) C = C Tc Variable (min) C Tc Variable (min) 8 9 10 11 12	CB24 0.100 0.90 <i>i</i> _{5yr} (mm/hour) 123 30 109 79 104.19 90.63 Overflow 0.00 0.00 0.90 0.00 0.9	Restricted Flow Q, 5-Year Pondin Peak Flow Q_p =2.78XCl _{3p} A (J/s) 22.47 26.07 24.82 22.68 St Required 6.64 B25 Restricted Flow Q, 5-Year Pondin Peak Flow Q_p =2.78XCl _{3p} A (U/s) 5.81 5.49 5.21 4.96 4.74 St	L/s)= g Q , (L/s) 15.00 15.00 15.00 orage (m ³) L /s)= g Q , (L/s)= g Q , (L/s)= G , G , 	43.33 overflows to: D 15.00 Q _p - Q _r (L/s) 15.85 12.47 11.07 9.82 7.68 Sub-surface 0.00 overflows to: N 6.00 Q _p - Q _r (L/s) -0.19 -0.51 -0.79 -0.79 -1.04 -1.26	Volume 5yr (m ³) 6.66 6.73 6.64 6.73 6.64 6.48 5.99 Balance 6.64 HH21 Volume 5yr (m ³) -0.09 -0.27 -0.91	Drainage Area Area (Ha) C = Tc Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C = Variable (min) 8 9 10 11 12	CB24 0.100 0.90 i _{2yr} (mm/hour) 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB25 0.020 0.90 i _{2yr} (mm/hour) 85.46 80.87 76.81 73.17 69.89	Restricted Flow Q, (I 2-Year Pondin Peak Flow Q _p =2.78xC1 _{2p} A (L/s) 22.68 20.23 19.22 18.31 16.75 Sto Required 2.53 Required 2.53 Restricted Flow Q, (I 2.Year Pondit Peak Flow Q ₂ =2.78xC1 _{2p} A (L/s) 4.05 3.84 3.66 3.50	/s)= 19 Q , (L/s) 15.00 15.0	overflows to: 15.00 $Q_p \cdot Q_r$ (L's) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: 1 6.00 $q_p \cdot Q_r$ (L's) -1.72 -1.95 -2.16 -2.34 -2.50	Dun Skipper Drive Volume 2yr (m ³) 2.23 2.83 2.53 1.36 Balance 2.53 MH21 Volume 2yr (m ³) -0.83 -1.05 -1.29 -1.84 -1.80
Drainage Area Area (Ha) C = Tc Variable (min) 13 15 16 17 19 Drainage Area Area (Ha) C = Tc Variable (min) 8 9 10 11 13	CB24 0.100 1.00 0.100 0.100 0.100 0.100 0.100 0.155.11 142.89 137.65 132.63 123.87 123.87 123.87 123.87 0.00 0.020 0.022 0.022 0.022 0.022 0.022 1.00 1.00 0.02 0.022 1.00 0.02 0.022 1.00 0.022 0.022 1.00 0.022 0	IOTAL 0 Restricted Flow Q, 1 00 Restricted Flow Q, 1 0 Restricted Flow Q, 1 0 Restricted Flow Q, 1 0 39.72 38.87 36.87 38.84 34.44 Required 22.31 0 Restricted Flow Q, 1 100-Year 1 Poak Flow Q, 2.78xCl tooyr A (L/S) 11.05 11.047 9.93 9.45 8.62 Required	3.28 Ponding Q , (L/s) 15.00 15.00 15.00 15.00 Storage (m' Surface 0.00 Conding Q , (L/s) Conding Q , Conding Q , Conding C , C	overflows to: 15.00 Q_p-Q_r (L's) 28.12 24.72 23.24 21.87 19.44 ³) Sub-surface 0 overflows to: 6.00 Q_p-Q_r (L's) 5.08 4.47 3.33 3.45 3.45 2.62 ³) Sub-surface	Dun Skipper Drive Volume 100yr (m ³) 21.93 22.25 22.31 22.31 22.31 22.31 22.31 22.31 MH21 Volume 100yr (m ³) 2.44 2.41 2.41 2.43 2.27 2.05 Balance Contemport	Drainage Area Area (Ha) C C = (min) Yariable (min) 7 9 10 11 13 (min) Area (Ha) C C = (min) Tc Variable (min) (min) B 9 10 11 12 12	CB24 0.100 0.90 1 _{5yr} (mm/hour) 123.30 109.79 104.19 99.19 90.63 Overflow 0.00 CC 0.020 0.90 1 _{5yr} (mm/hour) 116.11 109.79 116.11 109.79 116.11 109.79 116.11 109.79 116.11 109.79 116.11 109.79 116.11 109.79 116.11 109.79 116.11 109.79 116.11 109.79 116.11 109.79 116.11 109.79 117.30 0.90 0.	Stear Pondin $Peak Flow$ $Q_p = 2.78 \times Ci_{Sy} A$ (L/s) 30.85 27.47 26.07 24.82 22.68 St Required 6.64 B25 Restricted Flow Q_r $S - Year Pondin Peak Flow Q_p = 2.78 \times Ci_{Sy} A (L/s) 5.81 5.49 5.21 4.96 4.74 St Required $	Iteration Iteration <t< td=""><td>43.33 overflows to: D 15.00 Q_ρ-Q_r (L/s) 15.85 12.47 11.07 9.82 7.68 Sub-surface 0.00 overflows to: N 6.00 Q_ρ-Q_r (L/s) -0.19 -0.51 -0.51 -0.79 -1.04 -1.26 Sub-surface</td><td>Volume 5yr (m³) 6.66 6.73 6.64 6.73 6.64 6.73 6.64 6.48 5.99 Balance 6.64 H21 Volume 5yr (m³) -0.09 -0.27 -0.68 -0.91 Balance Balance</td><td>Drainage Area Area (Ha) C = Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C = Te Variable (min) 8 9 10 11 12</td><td>CB24 0.100 0.90 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB25 0.020 0.90 i23r (mm/hour) 85.46 80.87 76.81 73.17 69.89</td><td>Restricted Flow Q, (U 2-Year Pondia Peak Flow Q_p = 2.78xCl_{2p}, A (L/s) 22.68 20.23 19.22 18.31 16.75 Stoc Required 2.53 Restricted Flow Q, (U 2-Year Pondia Q_p = 2.78xCl_{2p}, A (L/s) 4.28 4.05 3.84 3.66 3.50 Stoc Required</td><td>/s)= 9 9 9 15.00 1</td><td>overflows to: 15.00 $Q_{p}-Q_{r}$ (US) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: I 6.00 $Q_{p}-Q_{r}$ (US) -1.72 -1.95 -2.16 -2.34 -2.50 Sub-surface</td><td>Balance 2yr (m³) 3.23 2.83 2.18 1.36 Balance 2.53 MH21 Volume 2yr (m³) -0.83 -1.05 -1.54 -1.80 Balance</td></t<>	43.33 overflows to: D 15.00 Q _ρ - Q _r (L/s) 15.85 12.47 11.07 9.82 7.68 Sub-surface 0.00 overflows to: N 6.00 Q _ρ - Q _r (L/s) -0.19 -0.51 -0.51 -0.79 -1.04 -1.26 Sub-surface	Volume 5yr (m ³) 6.66 6.73 6.64 6.73 6.64 6.73 6.64 6.48 5.99 Balance 6.64 H21 Volume 5yr (m ³) -0.09 -0.27 -0.68 -0.91 Balance Balance	Drainage Area Area (Ha) C = Variable (min) 7 9 10 11 13 Drainage Area Area (Ha) C = Te Variable (min) 8 9 10 11 12	CB24 0.100 0.90 90.66 80.87 76.81 73.17 66.93 Overflow 0.00 CB25 0.020 0.90 i23r (mm/hour) 85.46 80.87 76.81 73.17 69.89	Restricted Flow Q, (U 2-Year Pondia Peak Flow Q _p = 2.78xCl _{2p} , A (L/s) 22.68 20.23 19.22 18.31 16.75 Stoc Required 2.53 Restricted Flow Q, (U 2-Year Pondia Q _p = 2.78xCl _{2p} , A (L/s) 4.28 4.05 3.84 3.66 3.50 Stoc Required	/s)= 9 9 9 15.00 1	overflows to: 15.00 $Q_{p}-Q_{r}$ (US) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: I 6.00 $Q_{p}-Q_{r}$ (US) -1.72 -1.95 -2.16 -2.34 -2.50 Sub-surface	Balance 2yr (m³) 3.23 2.83 2.18 1.36 Balance 2.53 MH21 Volume 2yr (m³) -0.83 -1.05 -1.54 -1.80 Balance
Drainage Area Area (Ha) C = Tc Variable (min) 13 16 17 19 Drainage Area Area (Ha) C = Tc Variable (min) B 9 10 11 13	CB24 0.100 1.00 1.00 1.00 1.00 155.11 142.89 137.55 132.63 123.87 123.87 0.00 0.00 CB25 0.02 0.02 1.00 1.00 Imm/hour) 199.20 188.25 178.56 169.91 155.11 155.11 Overflow 0.00 0.00	IOTAL 0 0 Restricted Flow Q, 1 0 <tr< td=""><td>3.28 Ponding Q, (L/s) 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 0.00 Storage (m' Surface 0.00 Q, (L/s) Ponding Q, (L/s) Surface 0.00 6.00</td><td>overflows to: 15.00 $Q_p \cdot Q_r$ (L/s) 28.12 24.72 24.72 21.87 19.44 ³) Sub-surface 0 overflows to: 6.00 $Q_p \cdot Q_r$ (L/s) 5.08 4.47 2.50 4.47 2.50 5.08 4.47 2.50 5.08 4.47 2.50 5.08 4.47 2.50 5.08 4.47 2.50 5.08 4.47 2.50 5.08 4.47 2.50 5.08 4.47 5.08 5.08 4.47 5.08 5.0</td><td>Dun Skipper Drive Volume 100yr (m²) 21.93 22.25 22.31 22.31 22.16 Balance 22.31 MH21 Volume 100yr (m³) 2.44 2.41 2.36 2.27 2.05 Balance 2.09</td><td>Drainage Area Area (Ha) C C = (min) 7 9 10 11 13 C Drainage Area Area (Ha) C = C Variable (min) 0 10 11 13 C = (min) B 9 10 11 12 12</td><td>CB24 0.100 0.90 i_{5yr} (mm/hour) 123.30 109.79 104.19 99.19 90.63 Overflow 0.020 0.020 0.020 15yr (mm/hour) 116.11 109.79 145.11 109.79 94.70 Overflow 0.00</td><td>$\begin{tabular}{lllllllllllllllllllllllllllllllllll$</td><td>L/s)= g Q, (L/s)= 15.00 15.00 15.00 15.00 15.00 15.00 0.00 15.00 15.00 0.00 15.00 15.00 0.00 15.00 0.0</td><td>43.33 overflows to: D 15.00 Q_p-Q_r (US) 15.85 12.47 11.07 9.82 7.68 0.00 overflows to: N 6.00 Q_p-Q_r (US) -0.19 -0.51 -0.51 -0.79 -1.04 -1.26 Sub-surface 0.00</td><td>Volume Syr 5yr (m²) 6.66 6.73 6.64 6.48 5.99 6.64 8.48 5.99 Balance 6.64 1.121 1.12 Volume 5yr 9.0 -0.09 -0.09 -0.27 -0.47 -0.68 -0.91 -0.91 Balance 0.00</td><td>Drainage Area Area (Ha) C C = (min) 7 9 10 11 13 13 Drainage Area Area (Ha) C = (min) Yariable (min) 0 13 13 13 Drainage Area Area (Ha) C = (min) 8 9 10 11 12 12</td><td>CB24 0.100 0.90 <i>i</i>_{2yr} (<i>mn/hour</i>) 90.66 80.87 73.17 66.93 Overflow 0.00 <i>CB25</i> 0.020 0.90 <i>i</i>_{2yr} (<i>mn/hour</i>) 85.46 80.87 73.17 69.89 Overflow 0.00</td><td>Restricted Flow Q, (I 2-Year Pondia Peak Flow Qp = 2.78xCl zpr A (L/s) 22.68 20.23 18.31 16.75 Stor Required 2.53 Restricted Flow Q, (I 2-Year Pondia Peak Flow Qp = 2.78xCl zpr A (L/s) 4.05 3.84 3.66 3.50 Stor Required 0.00</td><td>Js)= Ig Q, 15.00</td><td>overflows to: 15.00 Q_{ρ}-Q_{r} (L/S) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: I 6.00 Q_{ρ}-Q_{r} (L/S) -1.72 -1.95 -2.16 -2.34 -2.50 Sub-surface 0.00</td><td>Volume 2yr (m³) 3.23 2.83 2.18 1.36 Balance 2.53 MH21 Volume 2yr (m³) -0.83 -1.54 -1.54 -1.54 -0.00</td></tr<>	3.28 Ponding Q, (L/s) 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 0.00 Storage (m' Surface 0.00 Q, (L/s) Ponding Q, (L/s) Surface 0.00 6.00	overflows to: 15.00 $Q_p \cdot Q_r$ (L/s) 28.12 24.72 24.72 21.87 19.44 ³) Sub-surface 0 overflows to: 6.00 $Q_p \cdot Q_r$ (L/s) 5.08 4.47 2.50 4.47 2.50 5.08 4.47 2.50 5.08 4.47 2.50 5.08 4.47 2.50 5.08 4.47 2.50 5.08 4.47 2.50 5.08 4.47 2.50 5.08 4.47 5.08 5.08 4.47 5.08 5.0	Dun Skipper Drive Volume 100yr (m ²) 21.93 22.25 22.31 22.31 22.16 Balance 22.31 MH21 Volume 100yr (m ³) 2.44 2.41 2.36 2.27 2.05 Balance 2.09	Drainage Area Area (Ha) C C = (min) 7 9 10 11 13 C Drainage Area Area (Ha) C = C Variable (min) 0 10 11 13 C = (min) B 9 10 11 12 12	CB24 0.100 0.90 i _{5yr} (mm/hour) 123.30 109.79 104.19 99.19 90.63 Overflow 0.020 0.020 0.020 15yr (mm/hour) 116.11 109.79 145.11 109.79 94.70 Overflow 0.00	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	L/s)= g Q, (L/s)= 15.00 15.00 15.00 15.00 15.00 15.00 0.00 15.00 15.00 0.00 15.00 15.00 0.00 15.00 0.0	43.33 overflows to: D 15.00 Q _p -Q _r (US) 15.85 12.47 11.07 9.82 7.68 0.00 overflows to: N 6.00 Q _p -Q _r (US) -0.19 -0.51 -0.51 -0.79 -1.04 -1.26 Sub-surface 0.00	Volume Syr 5yr (m²) 6.66 6.73 6.64 6.48 5.99 6.64 8.48 5.99 Balance 6.64 1.121 1.12 Volume 5yr 9.0 -0.09 -0.09 -0.27 -0.47 -0.68 -0.91 -0.91 Balance 0.00	Drainage Area Area (Ha) C C = (min) 7 9 10 11 13 13 Drainage Area Area (Ha) C = (min) Yariable (min) 0 13 13 13 Drainage Area Area (Ha) C = (min) 8 9 10 11 12 12	CB24 0.100 0.90 <i>i</i> _{2yr} (<i>mn/hour</i>) 90.66 80.87 73.17 66.93 Overflow 0.00 <i>CB25</i> 0.020 0.90 <i>i</i> _{2yr} (<i>mn/hour</i>) 85.46 80.87 73.17 69.89 Overflow 0.00	Restricted Flow Q, (I 2-Year Pondia Peak Flow Qp = 2.78xCl zpr A (L/s) 22.68 20.23 18.31 16.75 Stor Required 2.53 Restricted Flow Q, (I 2-Year Pondia Peak Flow Qp = 2.78xCl zpr A (L/s) 4.05 3.84 3.66 3.50 Stor Required 0.00	Js)= Ig Q, 15.00	overflows to: 15.00 Q_{ρ} - Q_{r} (L/S) 7.68 5.23 4.22 3.31 1.75 Sub-surface 0.00 overflows to: I 6.00 Q_{ρ} - Q_{r} (L/S) -1.72 -1.95 -2.16 -2.34 -2.50 Sub-surface 0.00	Volume 2yr (m ³) 3.23 2.83 2.18 1.36 Balance 2.53 MH21 Volume 2yr (m ³) -0.83 -1.54 -1.54 -1.54 -0.00

Drainage Area	MH21	Restricted Flow ICC) (1 /e)=	22.00]	Drainage Area	MH21					Drainage Area	MH21				
C =	1.00	Restricted Flow Qr	or swm calc (L/S)=	16.50	50% reduction for sub- surface storage	C =	0.24	Restricted Flow Q	(L/s)=	16.50		C =	0.240	Restricted Flow Q,	L/s)=	16.50	
-		100-Year	Ponding					5-Year Pondi	ng					2-Year Pondi	ng		
T _c	lun-	Peak Flow	0.	00.	Volume	T _c	le.	Peak Flow	0.	00.	Volume	T _c	10-	Peak Flow	0.	00	Volume
Variable	• 100yr	Q _p =2.78xCi _{100yr} A	47		100yr	Variable	- Syr	Q _p =2.78xCi _{5yr} A	4 7		5yr	Variable	• 2yr	Q _p =2.78xCi _{2yr} A	4 7	up ur	2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(<i>m</i> ⁻)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ⁻)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(<i>m</i> ⁻)
34	84.27	56.22	16.50	39.72	81.03	18	74.97	45.02	16.50	28.52	30.80	13	66.93	40.19	16.50	23.69	18.48
35	82.58	55.10	16.50	38.60	81.05	19	72.53	43.55	16.50	27.05	30.84	14	64.23	38.57	16.50	22.07	18.54
36	80.96	54.02	16.50	37.52	81.04	20	70.25	42.18	16.50	25.68	30.82	15	61.77 57.42	37.09	16.50	20.59	18.53
50	11.55	52.00	10.00	00.00	00.00	22	00.15	00.12	10.00	20.22	50.05		57.42	54.40	10.00	17.50	10.04
			Storage (m ³)				S	torage (m ³)					St	orage (m3)		
	Overflow 24.40	105 45	Surface 11 79	Sub-surface 96.68	Balance 0.00		Overflow 0.00	30.84	Surface 11 79	Sub-surface 96.68	Balance 0.00		Overflow 0.00	18 54	Surface 11 79	Sub-surface 96.68	Balance 0.00
	21.10	100.10		00.00	0.00		0.00	00.01		00.00	0.00		0.00	10.01		00.00	0.00
Length (m)	Dia (m)	Area (m ²)	Volume (m ³)			Structure		Depth	Area (m ²)	Volume (m ³)							
8.30	0.200	0.031	0.26			CB21 (600mm x 600mm) CB22 (600mm x 600mm)		1.40 1.40	0.36	0.50							
8.62	0.300	0.071	0.61			MH21 (1200mm)		3.40	1.13	3.84							
		TOTAL	0.97			MH23 (1200mm)		1.97	1.13	2.23							
						Underground Chamber			TOTAL	95.72							
				overflows to:	CBMH20					overflows to: (CBMH20					overflows to: (CBMH20
Drainage Area	CBMH2	Drainage Area	Plan - CBMH	12		Drainage Area	CBMH2	2				Drainage Area	CBMH2	1			
Area (Ha)	0.080				-	Area (Ha)	0.08	5				Area (Ha)	0.080				
C =	1.00	Restricted Flow Q _r	(L/s)=	20.00		C =	0.9	Restricted Flow Qr	(L/s)=	20.00		C =	0.90	Restricted Flow Q _r (L/s)=	20.00	
-	1	100-Year	Ponding			-		5-Year Pondi	ıg	T T			1	2-Year Pondi	ng	1	
l _c Variable	i _{100yr}	Peak Flow	Q,	Q _p -Q,	Volume 100vr	l _c Variable	i _{5yr}	Peak Flow	Q,	$Q_p - Q_r$	Volume 5vr	l _c Variable	i _{2yr}	Peak Flow	Q,	Qp-Qr	Volume 2vr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m^3)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
7	211.67	47.07	20.00	27.07	11.37	1	203.51	40.73	20.00	20.73	1.24	7	90.66	18.15	20.00	-1.85	-0.78
9	188.25	41.87	20.00	21.87	11.81	3	166.09	33.24	20.00	13.24	2.38	9	80.87	16.19	20.00	-3.81	-2.06
10	169.91	39.71	20.00	19.71	11.83	4 5	152.51	28.26	20.00	8.26	2.53	10	76.81	15.37	20.00	-4.63	-3.53
13	155.11	34.50	20.00	14.50	11.31	7	123.30	24.68	20.00	4.68	1.97	13	66.93	13.40	20.00	-6.60	-5.15
			Storago (m ³	`				•	torago (m ³)					64	orado (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	0.00	11.83	6.21	0.00	5.62		0.00	2.53	6.21	0.00	0.00		0.00	0.00	6.21	0.00	0.00
				overflows to:	CB10												
								-						-			
Drainage Area	CB10	Drainage Area	Plan - MH1D			Drainage Area	CB10)				Drainage Area	CB10				
Area (Ha)	0.110	Restricted Flow O	(1 /s)=	45.00	7	Area (Ha)	0.110) Restricted Flow ()	(1 /e)=	45.00		Area (Ha)	0.110	Restricted Flow O (/e)=	45.00	
C =	1.00	100 Voor	(L/s)-	45.00	1	C =	0.9	E Voar Bondi	(L/S)=	45.00			0.90	2 Voor Bondi	na	45.00	
τ.	1	Peak Flow	Ponding		Volume	T.		Peak Flow	ig	<u>г г</u>	Volume	τ.	1	2-fear Ponul	ng	1	Volume
Variable	i _{100yr}	Q p=2.78xCi 100yr A	Q,	$Q_p - Q_r$	100yr	Variable	i _{Syr}	Qp=2.78xCi 5yr A	Q,	$Q_p - Q_r$	5yr	Variable	i _{2yr}	Q p=2.78xCi 2yr A	Q,	Q _p -Q _r	2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
3	286.05	87.47	45.00	42.47	7.65	0	230.48	63.43	45.00	18.43	0.00	7	90.66	24.95	45.00	-20.05	-8.42
5	242.70	74.22	45.00	29.22	8.77	3	166.09	45.71	45.00	0.71	0.03	10	76.81	22.20	45.00	-22.74	-12.20
6	226.01	69.11	45.00	24.11	8.68	4	152.51	41.97	45.00	-3.03	-0.73	11	73.17	20.14	45.00	-24.86	-16.41
8	199.20	60.92	45.00	15.92	7.64	6	131.57	36.21	45.00	-8.79	-3.16	13	66.93	18.42	45.00	-26.58	-20.73
			Storage (m ³)				s	torage (m ³)					St	orage (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	5.62	14.38	6.81	0.00	7.57		0.00	0.13	6.81	0.00	0.00		0.00	0.00	6.81	0.00	0.00
				overflows to:	CBMH20					overflows to: (CBMH20					overflows to:	CBMH20
	0.57						0.53	a					0.57	1			
Drainage Area	0.080	Drainage Area	Plan - CBIMH	10		Area (Ha)	0.08/	2				Drainage Area	0.080				
C =	1.00	Restricted Flow Q	(L/s)=	30.00	7	C =	0.9	Restricted Flow Q	(L/s)=	30.00		C =	0.90	Restricted Flow Q _r (L/s)=	30.00	
		100-Year	Ponding					5-Year Pondi	ng					2-Year Pondi	ng		
T _c	L.	Peak Flow	0	00	Volume	T _c	L.	Peak Flow	0	00	Volume	T _c	1.	Peak Flow	0	00	Volume
Variable	* 100yr	Q _p =2.78xCi _{100yr} A	wr,	w _p -w _r	100yr	Variable	* 5yr	Q _p =2.78xCi _{5yr} A	<i>ч</i> ,	wp ² wr	5yr	Variable	* 2yr	Q _p =2.78xCi _{2yr} A	×,	wp'wr	2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m°)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m°)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m°)
5	242.70	53.98	30.00	23.98	7.19	-1	200.90	40.73	30.00	10.73	0.64	9	80.87	16.19	30.00	-13.81	-4.90
6	226.01	50.26	30.00	20.26	7.30	2	182.69	36.57	30.00	6.57	0.79	10	76.81	15.37	30.00	-14.63	-8.78
7 Q	211.67	47.07	30.00	17.07	7.17	3	166.09	33.24	30.00	3.24	0.58	11	73.17	14.65	30.00	-15.35	-10.13
5	100.25	41.07	30.00	11.07	0.41		141.10	20.20	30.00	-1.74	=0.32	13	00.95	13.40	30.00	-10.00	=12.33
			Storage (m ³)				s	torage (m ³)					St	orage (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	0.00	7.30	0.97	0.00	0.33		0.04	1.43	0.97	0.00	0.40		0.00	0.00	0.97	0.00	0.00
																	CDO
				overflows to:	CB8					overflows to: (CB8					overflows to: (CD0

Drainage Area	CB	6 Drainage Area	Plan - CBM	H1B		Drainage Area	CB6	Į				Drainage Area	CB6				
C =	1.0	0 Restricted Flow Q _r (L/s)=	20.00		C =	0.90	Restricted Flow Q _r	(L/s)=	20.00		C =	0.90	Restricted Flow Q _r (I	_/s)=	20.00	
		100-Year F	onding					5-Year Pondir	ıg	•				2-Year Pondi	ng		
T _c	1100-0	Peak Flow	Q,	QQ.	Volume	T _c	le	Peak Flow	Q.	QQ.	Volume	T _c	12-	Peak Flow	Q.	QQ.	Volume
Variable	(mm/hour)	Q _p =2.78xCi _{100yr} A	(1 (0)	(1 (2)	100yr	Variable	(mm (he un)	$Q_p = 2.78 \times Ci_{5yr} A$	(1 (2)	(1.6)	5yr	Variable	(m_m/h_o.ur)	$Q_p = 2.78 \times Ci_{2yr} A$	(1 (a)	() (n)	2yr (m ³)
5	242.70	47.23	20.00	27.23	8.17	0	230.48	40.37	20.00	20.37	0.00	7	90.66	15.88	20.00	-4.12	-1.73
7	211.67	41.19	20.00	21.19	8.90	2	182.69	32.00	20.00	12.00	1.44	9	80.87	14.16	20.00	-5.84	-3.15
8	199.20	38.76	20.00	18.76	9.01	3	166.09	29.09	20.00	9.09	1.64	10	76.81	13.45	20.00	-6.55	-3.93
11	169.91	33.06	20.00	13.06	8.62	6	131.57	23.04	20.00	3.04	1.10	13	66.93	11.72	20.00	-8.28	-6.46
			0	3.													
	Overflow	Required	Storage (m Surface	Sub-surface	Balance	-	Overflow	Required	orage (m ⁻) Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance
	0.00	9.01	13.66	0.00	0.00		0.00	1.64	13.66	0.00	0.00		0.00	0.00	13.66	0.00	0.00
				overflows to:	CB8					overflows to:	CB8					overflows to:	CB8
		_		01011011010	000			_		0101101010	020			_		01011011010	020
Drainage Area	CB	5 Drainage Area	Plan - CBM	H1A		Drainage Area	CB5	ļ				Drainage Area	CB5				
Area (Ha)	0.06	0 Restricted Flow Q. (/s)=	15.00	1	Area (Ha)	0.060	Restricted Flow Q.	(L/s)=	15.00		Area (Ha)	0.060	Bestricted Flow Q. (/s)=	15.00	
0 -		100-Year F	ondina	10.00		T	0.50	5-Year Pondir	(<u> </u>	13.00		1	0.54	2-Year Pondi	na	15.00	
T _c		Peak Flow	0	0.0	Volume	T _c	,	Peak Flow	0	0.0	Volume	T _c		Peak Flow	0	0.0	Volume
Variable	100yr	Q _p =2.78xCi _{100yr} A	w,	ap-ar	100yr	Variable	5yr	Q _p =2.78xCi _{5yr} A	w,	Qp-Qr	5yr	Variable	2yr	Q _p =2.78xCi _{2yr} A	w,	Qp-Qr	2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
9	188.25	31.40	15.00	16.40	8.86	3	166.09	24.93	15.00	9.93	1.79	9	80.87	12.14	15.00	-2.86	-1.54
10	178.56	29.78	15.00	14.78	8.87	4	152.51	22.89	15.00	7.89	1.89	10	76.81	11.53	15.00	-3.47	-2.08
11	155.11	28.34 25.87	15.00	13.34	8.80	7	123.30	18.51	15.00	3.51	1.80	11	66.93	10.98	15.00	-4.02	-2.65
						•											
-	Overflow	Required	Surface (m	N) Sub-surface	Balance	_	Overflow	Required	orage (m°) Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance
	0.00	8.87	3.41	0.00	5.46		0.00	1.89	3.41	0.00	0.00		0.00	0.00	3.41	0.00	0.00
				overflows to:	CB8					overflows to:	CB8					overflows to	CB8
		_						-						-			
Drainage Area	CB	B Drainage Area	Plan - MH1I	В		Drainage Area	CB8	ł				Drainage Area	CB8				
C =	0.17	0 Restricted Flow Q _r (L/s)=	47.00	l I	C =	0.170	Restricted Flow Qr	(L/s)=	47.00		C =	0.90	Restricted Flow Q _r (I	_/s)=	47.00	
	1	100-Year F	onding					5-Year Pondir	g				I	2-Year Pondi	ng		
T _c	i 100wr	Peak Flow	Q,	QQ,	Volume	T _c	i swr	Peak Flow	Q,	Q,,-Q,	Volume	T _c	i 2wr	Peak Flow	Q,	Q,-Q,	Volume
Variable (min)	(mm/hour)	$Q_p = 2.78 \times CI_{100yr} A$	(1 /c)	(1 /c)	100yr (m ³)	Variable (min)	(mm/hour)	$Q_p = 2.78 \times Cl_{5yr} A$	(1 /c)	(1 (c)	5yr (m ³)	Variable (min)	(mm/hour)	$Q_p = 2.78 \times CI_{2yr} A$	(1/c)	(1 /c)	2yr (m ³)
6	226.01	106.81	47.00	59.81	21.53	1	203.51	86.56	47.00	39.56	2.37	7	90.66	38.56	47.00	-8.44	-3.54
8	199.20	94.14	47.00	47.14	22.63	3	166.09	70.64	47.00	23.64	4.26	9	80.87	34.40	47.00	-12.60	-6.80
10	178.56	84.39	47.00	37.39	22.43	5	152.51	60.05	47.00	17.87	4.29 3.91	11	76.81	32.67	47.00	-14.33	-10.48
12	162.13	76.62	47.00	29.62	21.33	7	123.30	52.45	47.00	5.45	2.29	13	66.93	28.47	47.00	-18.53	-14.46
			Storage (m	1 ³)				St	orage (m ³)					Ste	orage (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance
	5.79	28.45	24.90	1.60	1.95		0.00	4.29	24.90	1.60	0.00		0.00	0.00	24.90	1.60	0.00
Length (m)	Dia (m)	Area (m ²)	Volume (m ³)			Structure		Depth	Area (m ²)	Volume (m ³)							
6.00	0.450	0.159	0.95	-		CB8 (600mm x 600mm)		1.80	0.36	0.65							
				everflew- t													
				overnows to:	MHIA												
Drainage Area	CB	4 Drainage Area	Plan - MH10	0A		Drainage Area	CB4	I				Drainage Area	CB4				
Area (Ha)	0.03	0 Restricted Flow Q. (/s)=	6.00	1	Area (Ha)	0.030	Restricted Flow O	(1/s)=	6.00		Area (Ha)	0.030) Restricted Flow O. (I	/s)=	6.00	
C -	1.0	100-Year F	onding	0.00		1	0.90	5-Year Pondir	(2/0)	0.00		I -	0.50	2-Year Pondi	na	0.00	
T _c	1	Peak Flow	0	0.0	Volume	T _c	1.	Peak Flow	٥.	0.0	Volume	T _c	1.	Peak Flow	0	0.0	Volume
Variable	• 100yr	Q _p =2.78xCi _{100yr} A	•••	ap-ar	100yr	Variable	- Syr	Q _p =2.78xCi _{5yr} A	•••	ap-ar	5yr	Variable	2yr	Q _p =2.78xCi _{2yr} A	u r	ar p−ar	2yr
(min) 9	(mm/hour) 188.25	(L/s) 15.70	(L/S) 6.00	(L/s) 9.70	(m ⁻) 5.24	(min) 3	(mm/hour) 166.09	(L/s) 12.47	(L/s) 6.00	(L/s) 6.47	(m ⁻) 1.16	(min) 7	(mm/hour) 90.66	(L/S) 6.81	(L/s) 6.00	(L/S) 0.81	(<i>m</i> ⁻) 0.34
11	169.91	14.17	6.00	8.17	5.39	5	141.18	10.60	6.00	4.60	1.38	9	80.87	6.07	6.00	0.07	0.04
12	162.13	13.52	6.00	7.52	5.42 5.41	6	131.57	9.88	6.00	3.88	1.40	10	76.81	5.76	6.00	-0.24	-0.14 -0.34
15	142.89	11.92	6.00	5.92	5.33	9	109.79	8.24	6.00	2.24	1.21	13	66.93	5.02	6.00	-0.98	-0.76
			Storage /	3)					orage (m ³)					C+-	orage (m ³)		
-	Overflow	Required	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance	=	Overflow	Required	Surface	Sub-surface	Balance
	0.00	5.42	10.62	0.00	0.00		0.00	1.40	10.62	0.00	0.00		0.00	0.00	10.62	0.00	0.00
				overflows to:	CBMH1					overflows to:	CBMH1					overflows to:	CBMH1

| Drainage Area | CBMH
 | 1 Drainage Area
 | MH10B
 | | | Drainage Area | CBMH1
 | Į | |
 | | Drainage Area | CBMH1 | | |
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--|---|
| Area (Ha)
C = | 0.08
 | Restricted Flow Q. (
 | L/s)=
 | 20.00 | Ì | Area (Ha)
C = | 0.080
 | Restricted Flow Q. (| L/s)= | 20.00
 | | Area (Ha)
C = | 0.080 | Restricted Flow Q. (L | /s)= | 20.00
 | |
| • | 1.0
 | 100-Year F
 | Ponding
 | 20.00 | | 1 | 0.00
 | 5-Year Pondin | a | 20.00
 | | | 0.00 | 2-Year Pondi | 10 | 20.00
 | |
| Tc |
 | Peak Flow
 |
 | | Volume | Tc | | |
 | Peak Flow | 9 |
 | Volume | T _c | | Peak Flow | .9 |
 | Volume |
| Variable | 1 100yr
 | Q = 2.78xCi 100yr A
 | Q,
 | $Q_p - Q_r$ | 100yr | Variable | I _{5yr}
 | Q = 2.78xCi 5vr A | Q, | $Q_p - Q_r$
 | 5yr | Variable | I 2yr | Q = 2.78xCi 2mA | Q, | $Q_p - Q_r$
 | 2yr |
| (min) | (mm/hour)
 | (L/s)
 | (L/s)
 | (L/s) | (m ³) | (min) | (mm/hour)
 | (L/s) | (L/s) | (L/s)
 | (m ³) | (min) | (mm/hour) | (L/s) | (L/s) | (L/s)
 | (m ³) |
| 7 | 211.67
 | 47.07
 | 20.00
 | 27.07 | 11.37 | 1 | 203.51
 | 40.73 | 20.00 | 20.73
 | 1.24 | 7 | 90.66 | 18.15 | 20.00 | -1.85
 | -0.78 |
| 9 | 188.25
 | 41.87
 | 20.00
 | 21.87 | 11.81 | 3 | 166.09
 | 33.24 | 20.00 | 13.24
 | 2.38 | 9 | 80.87 | 16.19 | 20.00 | -3.81
 | -2.06 |
| 10 | 178.56
 | 39.71
 | 20.00
 | 19.71 | 11.83 | 4 | 152.51
 | 30.53 | 20.00 | 10.53
 | 2.53 | 10 | 76.81 | 15.37 | 20.00 | -4.63
 | -2.78 |
| 13 | 155.11
 | 34.50
 | 20.00
 | 14.50 | 11.74 | 7 | 123.30
 | 24.68 | 20.00 | 4.68
 | 1.97 | 13 | 66.93 | 13.40 | 20.00 | -6.60
 | -5.15 |
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 |
 | Storage (m
 | 1 ³) | | _ |
 | Sto | orage (m ³) | <u>.</u>
 | | _ | | Sto | orage (m ³) |
 | |
| | Overflow
0.00
 | 11.83
 | 0 00
 | Sub-surface | 11.83 | | Overflow
0.00
 | 2 53 | 0 00 | Sub-surface
 | 2 53 | | Overflow
0.00 | 0.00 | 0 00 | Sub-surface
 | Balance
0.00 |
| | 0.00
 | 11.00
 | 0.00
 | 0.00 | 11.00 | | 0.00
 | 2.00 | 0.00 | 0.00
 | 2.00 | | 0.00 | 0.00 | 0.00 | 0.00
 | 0.00 |
| |
 |
 |
 | overflows to: | MH1A | |
 | | | overflows to: N
 | 1H1A | | | | | overflows to: I
 | /H1A |
| Drainage Area | МН1/
 | 4
 |
 | | | Drainago Area | МН1А
 | T | |
 | | Drainago Area | МН1Л | 1 | |
 | |
| Area (Ha) | 0.15
 | 50
 |
 | | | Area (Ha) | 0.160
 | ł | |
 | | Area (Ha) | 0.150 | | |
 | |
| C = | 1.0
 | 0 Restricted Flow Q _r (
 | L/s)=
 | 43.00 | | C = | 0.90
 | Restricted Flow Qr (| L/s)= | 43.00
 | | C = | 0.90 | Restricted Flow Qr (L | /s)= | 43.00
 | |
| - | 1
 | 100-Year F
 | Ponding
 | | | 1 | | |
 | 5-Year Pondin | a |
 | | | | 2-Year Pondi | าต |
 | |
| Τ. |
 | Peak Flow
 | -
 | | Volume | T. |
 | Peak Flow | 9 |
 | Volume | τ. | | Peak Flow | .9 |
 | Volume |
| Variable | I _{100yr}
 | Q = = 2.78xCi 100mr A
 | Q,
 | $Q_p - Q_r$ | 100vr | Variable | i _{5yr}
 | Q = 2.78xCi 5 A | Q, | $Q_p - Q_r$
 | 5vr | Variable | i _{2yr} | Q = = 2.78xCi > A | Q, | $Q_p - Q_r$
 | 2vr |
| (min) | (mm/hour)
 | (L/s)
 | (L/s)
 | (L/s) | (m ³) | (min) | (mm/hour)
 | (L/s) | (L/s) | (L/s)
 | (m ³) | (min) | (mm/hour) | (L/s) | (L/s) | (L/s)
 | (m ³) |
| 5 | 242.70
 | 101.21
 | 43.00
 | 58.21 | 17.46 | 2 | 182.69
 | 73.13 | 43.00 | 30.13
 | 3.62 | 7 | 90.66 | 34.03 | 43.00 | -8.97
 | -3.77 |
| 7 | 211.67
 | 88.27
 | 43.00
 | 45.27 | 19.01 | 4 | 152.51
 | 61.05 | 43.00 | 18.05
 | 4.33 | 9 | 80.87 | 30.35 | 43.00 | -12.65
 | -6.83 |
| 8 | 199.20
 | 83.07
 | 43.00
 | 40.07 | 19.23 | 5 | 141.18
 | 56.52 | 43.00 | 13.52
 | 4.05 | 10 | 76.81 | 28.82 | 43.00 | -14.18
 | -8.51 |
| 11 | 169.91
 | 70.85
 | 43.00
 | 27.85 | 18.38 | 8 | 116.11
 | 46.48 | 43.00 | 3.48
 | 1.67 | 13 | 66.93 | 25.12 | 43.00 | -17.88
 | -13.95 |
| | 1
 |
 |
 | | | | | |
 | | |
 | | | | | |
 | |
| |
 |
 | Storage (m
 | 1 ³) | | _ | | |
 | Sto | orage (m ³) |
 | | _ | | Sto | orage (m3) |
 | |
| | Overflow
 | Required
 | Surface
 | Sub-surface | Balance | | Overflow
 | Required | Surface | Sub-surface
 | Balance | | Overflow | Required | Surface | Sub-surface
 | Balance |
| | 13.78
 | 33.01
 | 10.83
 | 0.00 | 22.18 | | 2.53
 | 6.58 | 10.83 | 0.00
 | 0.00 | | 0.00 | 0.00 | 10.83 | 0.00
 | 0.00 |
| |
 |
 |
 | overflows to: | CBMH20 | |
 | | | overflows to: C
 | BMH20 | | | | | overflows to: (
 | CBMH20 |
| |
 |
 |
 | | | | | |
 | | |
 | | | | | |
 | |
| Drainago Area |
 |
 |
 | | | | | |
 | | |
 | | | | | |
 | |
| brainage Area | CBMH2
 | 0 Previously CB1
 | 8, Drainage
 | e Area Plan - N | IH11 | Drainage Area | CBMH20
 | I | |
 | | Drainage Area | CBMH20 | | |
 | |
| Area (Ha) | 0.10
 | 0 Previously CB1
 | 8, Drainage
 | e Area Plan - N | IH11 | Drainage Area
Area (Ha) | CBMH20
0.160
 | | |
 | | Drainage Area
Area (Ha) | CBMH20
0.100 | | |
 | |
| Area (Ha)
C = | 0.10
 | 0 Previously CB1
10
18 Restricted Flow Q _r (1
 | l 8, Drainage
L/s)=
 | e Area Plan - M
15.00 | IH11 | Drainage Area
Area (Ha)
C = | CBMH20
0.160
0.30
 | Restricted Flow Q _r (| L/s)= | 15.00
 | | Drainage Area
Area (Ha)
C = | CBMH20
0.100
0.30 | Restricted Flow Q _r (L | ./s)= | 15.00
 | |
| Area (Ha)
C = | 0.10
 | Previously CB1 Restricted Flow Q _r (100-Year F
 | 8, Drainage
L/s)=
Ponding
 | e Area Plan - M
15.00 | IH11 | Drainage Area
Area (Ha)
C = | CBMH20
0.160
0.30
 | Restricted Flow Q _r (
5-Year Pondin | L/s)= | 15.00
 | | Drainage Area
Area (Ha)
C = | CBMH20
0.100
0.30 | Restricted Flow Q, (L
2-Year Pondin | ./s)=
1g | 15.00
 | |
| Area (Ha)
C = | 0.10
0.3
 | Previously CB1 Previously CB1 Restricted Flow Qr (100-Year F Peak Flow
 | 28, Drainage
L/s)=
Ponding
Q,
 | Area Plan - N
15.00 | Volume | Drainage Area
Area (Ha)
C = | CBMH20
0.160
0.30
 | Restricted Flow Q _r (
5-Year Ponding
Peak Flow | L/s)=
g | 15.00
 | Volume | Drainage Area
Area (Ha)
C =
T _c | CBMH20
0.100
0.30 | Restricted Flow Q _r (L
2-Year Pondin
Peak Flow | ./s)=
ng
Q, | 15.00
Q ₀ - Q ₄
 | Volume |
| Area (Ha)
C =
T _c
Variable | 0.10
0.3
 | Previously CB1 00 188 Restricted Flow Qr (0 100-Year Flow Peak Flow Q p=2.78xCi 100yr A
 | 8, Drainage
L/s)=
Ponding
Q,
 | Q _p -Q _r | Volume
100yr | Drainage Area
Area (Ha)
C =
T _c
Variable | CBMH20
0.160
0.30
 | Restricted Flow Q_r (
5-Year Pondim
Peak Flow
$Q_p = 2.78 \times Ci_{Syr} A$ | L/s)=
g
Q, | 15.00
Q _p -Q _r
 | Volume
5yr | Drainage Area
Area (Ha)
C =
T _c
Variable | CBMH20
0.100
0.30 | Restricted Flow Q _r (L
2-Year Pondin
Peak Flow
Q _p =2.78xCi _{2yr} A | ./s)=
1g
Q, | 15.00
Q _p -Q _r
 | Volume
2yr |
| Area (Ha)
C =
T _c
Variable
(min) | CBMH20
0.10
0.3
i _{100yr}
(mm/hour)
296.05
 | 0 Previously CB1
10
18 Restricted Flow Q, (
100-Year F
Peak Flow
Q _p = 2.78xCi 100yr A
(L/s)
20, 92
 | 28, Drainage
L/s)=
Ponding
Q,
(L/s)
 | e Area Plan - N
15.00
Q _p -Q _r
(L/s) | Volume
100yr
(m ³)
2.67 | Drainage Area Area (Ha) C = T_c Variable (min) | CBMH20
0.160
0.30
i _{5yr}
(mm/hour)
202.51
 | Restricted Flow Q _r (
5-Year Ponding
Peak Flow
Q _p = 2.78xCi _{syr} A
(L/s)
27.16 | L/s)=
Q,
(L/s) | 15.00
Q _p -Q _r
(L/s)
 | Volume
5yr
(m ³) | Drainage Area
Area (Ha)
C =
T _c
Variable
(min) | CBMH20
0.100
0.30
i _{2yr}
(mm/hour) | Restricted Flow Q _r (L
2-Year Pondin
Peak Flow
Q _p =2.78xCi _{2yr} A
(L/s)
12.05 | /s)=
1g
Q,
(L/s) | 15.00
Q _p -Q _r
(L/s)
 | Volume
2yr
(m ³) |
| Traininge Area Area (Ha) C = T_c Variable (min) 3 4 | CBMH2(
0.10
0.3
i _{100yr}
(mm/hour)
286.05
262.41
 | 0
Previously CB1
10
18
Restricted Flow Q _r (
100-Year F
Peak Flow
Q _ρ =2.78xCi _{100yr} A
(L/s)
29.82
27.36
 | 28, Drainage
L/s)=
Ponding
Q,
(L/s)
15.00
15.00
 2 Area Plan - N
15.00
Q _p -Q _r
(L/s)
14.82
12.36 | Volume
100yr
(m ³)
2.67
2.97 | Trainage Area Area (Ha) C = Tc Variable (min) 1 2 | CBMH20
0.160
0.30
<i>i</i> _{5yr}
(<i>mm/hour</i>)
203.51
182.69
 | Restricted Flow Q _r (
5-Year Ponding
Peak Flow
Q _p =2.78xCi _{Syr} A
(L/s)
27.16
24.38 | L/s)=
g
Q ,
(L/s)
15.00
15.00 | 15.00
Q _p - Q _r
(L/s)
12.16
9.38
 | Volume
5yr
(m ³)
0.73
1.13 | Trainage Area Area (Ha) C = Tc Variable (min) 0 1 | CBMH20
0.100
0.30
<i>i_{2yr}</i>
(<i>mm/hour</i>)
167.22
148.14 | Restricted Flow Q _r (L
2-Year Pondin
Peak Flow
Q _p =2.78xCi _{2yr} A
(L/s)
13.95
12.36 | ./s)=
Q _r
(L/s)
15.00
15.00 | 15.00
Q _p - Q _r
(L/s)
-1.05
-2.64
 | Volume
2yr
(m ³)
0.00
-0.16 |
| Traininge Area Area (Ha) C = Variable (min) 3 4 5 | CBMH22
0.10
0.3
i _{100yr}
(mm/hour)
286.05
262.41
242.70
 | Previously CB1 00 Previously CB1 100 Restricted Flow Q, (I 100-Year F Peak Flow Q _ρ =2.78xCi 100gr A (L/s) 29.82 27.36 25.30 25.30
 | Q, Q, (L/s)= Q, (L/s) 15.00 15.00 15.00
 | 2 Area Plan - N
15.00
Q _p -Q _r
(L/s)
14.82
12.36
10.30 | Volume
100yr
(m ³)
2.67
2.97
3.09 | Trainage Area Area (Ha) C = Tc Variable (min) 1 2 3 | CBMH20
0.160
0.30
<i>i</i> _{5yr}
(<i>mm/hour</i>)
203.51
182.69
166.09
 | Restricted Flow Q, (
5-Year Pondin
Peak Flow
Q _p =2.78xCi _{Syr} A
(L/s)
27.16
24.38
22.16 | L/s)=
Q ,
(L/s)
15.00
15.00
15.00 | 15.00
Q _p - Q _r
(L/s)
12.16
9.38
7.16
 | Volume
5yr
(m ³)
0.73
1.13
1.29 | Trainage Area Area (Ha) C = Tc Variable (min) 0 1 2 | CBMH20
0.100
0.30
<i>i_{2yr}</i>
(mm/hour)
167.22
148.14
133.33 | Restricted Flow Q, (L
2-Year Pondii
Peak Flow
Q _p=2.78xC1 _gr,A
(L/s)
13.95
12.36
11.12 | /s)=
Q,
(L/s)
15.00
15.00
15.00 | 15.00
Q _p - Q _r
(L/s)
-1.05
-2.64
-3.88
 | Volume
2yr
(m ³)
0.00
-0.16
-0.47 |
| Traininge Area Area (Ha) C = Trc Variable (min) 3 4 5 6 | CBMH2(
0.10
0.3
i100yr
(mm/hour)
286.05
262.41
242.70
226.01
 | Previously CB1 00 Previously CB1 00 8 Restricted Flow Q, (100) 100-Year F Peak Flow Qp=2.75xC1 100pr A (L/s) 29.82 27.36 29.530 23.56 23.56
 | <i>b</i>, <i>Drainage</i> <i>c</i>/s)= <i>Q</i>, <i>(L/s)</i> <i>15.00</i> <i>15.00</i> <i>15.00</i> <i>15.00</i> <i>15.00</i>
 | 2 Area Plan - N
15.00
Q _p -Q _r
(L/s)
14.82
12.36
10.30
8.56 | H11
Volume
100yr
(m ³)
2.67
2.97
3.09
3.08 | Trainage Area Area (Ha) C = Variable (min) 1 2 3 4 | CBMH20
0.160
0.30
<i>i</i> _{5yr}
(mm/hour)
203.51
182.69
166.09
152.51
 | Restricted Flow Q, (
5-Year Pondin
Peak Flow
Q _p =2.78xCi _{5y} A
(L/s)
27.16
24.38
22.16
20.35 | L/s)=
Q ,
(L/s)
15.00
15.00
15.00 | 15.00
Q _p - Q _r
(L/s)
12.16
9.38
7.16
5.35
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28 | Trea (Ha) C = Tc Variable (min) 0 1 2 3 | CBMH20
0.100
0.30
<i>i_{2yr}</i>
(mm/hour)
167.22
148.14
133.33
121.46 | Restricted Flow Q _r (L
2-Year Pondit
Peak Flow
Q _p =2.78xCi _{2pr} A
(L/s)
13.95
12.36
11.12
10.13 | /s)=
Q ,
(L/s)
15.00
15.00
15.00 | 15.00
Q _p - Q _r
(L/s)
-1.05
-2.64
-3.88
-4.87
 | Volume
2yr
(m ³)
0.00
-0.16
-0.47
-0.88 |
| Trainage Area Area (Ha) C = Tc Variable (min) 3 4 5 6 7 | CBMH22
0.10
0.3
<i>i</i> _{100yr}
(<i>mm/hour</i>)
286.05
262.41
242.70
226.01
226.01
211.67
 | Previously CB1 0 Perviously CB1 100-Year F Peak Flow Qp=27.8xC10op.A (L/s) 29.82 27.36 23.56 22.07
 | Image Ponding Qr (L/s) 15.00 15.00 15.00 15.00 15.00 15.00
 | Qp-Qr (L/s) 14.82 12.36 10.30 8.56 7.07 | H11
Volume
100yr
(m ³)
2.67
2.97
3.09
3.08
2.97 | Trainage Area Area (Ha) C = Te Variable (min) 1 2 3 4 5 | CBMH20
0.16C
0.30C
<i>i_{5yr}</i>
(<i>mm/hour</i>)
203.51
182.69
166.09
152.51
141.18
 | Restricted Flow Q _r (
5-Year Pondin
Peak Flow
Q _p =2.78xCl _{5y} A
(L/s)
27.16
24.38
22.16
20.35
18.84 | g
Q ,
(L/s)
15.00
15.00
15.00
15.00 | 15.00
Q _p - Q _r
(L/s)
12.16
9.38
7.16
5.35
3.84
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15 | Trainage Area Area (Ha) C = Tc Variable (min) 0 1 2 3 4 | CBMH20
0.100
0.30
<i>i_{2yr}</i>
(<i>mn/hour</i>)
167.22
148.14
133.33
121.46
111.72 | Restricted Flow Q _r (L
2-Year Pondii
Peak Flow
Q _p =2.78xCi _{2yr} A
(L/s)
13.95
12.36
11.12
10.13
9.32 | /s)=
Q ,
(L/s)
15.00
15.00
15.00
15.00
15.00 | 15.00
Q _p - Q _r
(L/s)
-1.05
-2.64
-3.88
-4.87
-5.68
 | Volume
2yr
(m ³)
0.00
-0.16
-0.47
-0.88
-1.36 |
| Trainage Area Area (Ha) C = Tc Variable (min) 3 4 5 6 7 | CBMH2(
0.10
0.3
<i>i</i> 100yr
(<i>mm/hour</i>)
286.05
262.41
242.70
226.01
226.01
211.67
 | 0 Previously CB1
10 Previously CB1
10 Restricted Flow Q, (
100-Year F
Peak Flow
Q _p =2.78xC1toprA
(L/s)
27.36
25.30
23.56
22.07
 | Q Drainage Ponding Q, (L/s) 15.00 15.00 15.00 15.00 15.00 15.00 15.00 Storage (m) 15.00
 | Area Plan - №
15.00 Q _p -Q _r (L/s) 14.82 12.36 10.30 8.56 7.07 31 | H11
Volume
100yr
(m ³)
2.67
2.97
3.09
3.08
2.97 | Trainage Area Area (Ha) C = Tc Variable (min) 1 2 3 4 5 | CBMH20
0.16C
0.30
i _{5yr}
(mm/hour)
203.51
182.69
166.09
152.51
141.18
 | Restricted Flow Q, (
5-Year Pondim
Peak Flow
Q _p =2.78xCi _{sy} A
(L's)
27.16
24.38
22.16
20.35
18.84
Std | g
Q ,
(L/s)
15.00
15.00
15.00
15.00
15.00 | 15.00
Q _p - Q _r
(L / s)
12.16
9.38
7.16
5.35
3.84
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15 | Trainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 | CBMH20
0.100
0.30
i _{2yr}
(mm/hour)
167.22
148.14
133.33
121.46
111.72 | Restricted Flow Q, (L
2-Year Pondia
Peak Flow
Q _p =2.78xCi _{2p} A
(L/s)
13.95
12.36
11.12
10.13
9.32
Sto | /s)=
Q ,
(L/s)
15.00
15.00
15.00
15.00
15.00
15.00
Description | 15.00
Q _p - Q _r
(L / s)
-1.05
-2.64
-3.88
-4.87
-5.68
 | Volume
2yr
(m ³)
0.00
-0.16
-0.47
-0.88
-1.36 |
| Trainage Area Area (Ha) C = Te Variable (min) 3 4 5 6 7 | СВМН2(
0.10
0.3
(<i>mm/hour</i>)
286.05
286.41
242.70
226.01
226.01
211.67
Оverflow
 | 0 Previously CB1
0
100-Year F
Peak Flow
Q _p =2.78×Cl 100yr A
(L/S)
29.92
27.36
25.30
23.56
22.07
Required
 | 8, Drainage Ponding Q, (L/s) 15.00 15.00 15.00 15.00 15.00 Storage (m Surface
 | a Area Plan - N 15.00 Q _p -Q _r (L/s) 14.82 10.30 8.56 7.07 3) Sub-surface | H11
Volume
100yr
(m ³)
2.67
2.97
3.09
3.08
2.97
Balance | Trainage Area Area (Ha) C = Variable (min) 1 2 3 4 5 | CBMH20
0.160
0.30
i _{5yr}
(mm/hour)
203.51
182.69
166.09
152.51
141.18

 | Restricted Flow Q, (5-Year Ponding Peak Flow Q _p =2.78xCl _{Sy} A (L/s) 27.16 24.38 22.16 20.35 18.84 Stat Required | L/s)=
g
Q ,
(L/s)
15.00
15.00
15.00
15.00
15.00
Drage (m ³)
Surface | 15.00
Q _p - Q _r
(L/S)
12.16
9.38
7.16
5.35
3.84
Sub-surface
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15
Balance | Drainage Area
Area (Ha)
C =
Variable
(min)
0
1
2
3
4 | CBMH20
0.100
0.30
<i>i</i> _{2yr}
(<i>mn/hour</i>)
167.22
148.14
133.33
121.46
111.72
Overflow | Restricted Flow Q, (L 2-Year Pondia Peak Flow Qp = 2.78xCl _{2y} A (L/s) 13.95 12.36 11.12 10.13 9.32 Stor Required | /s)=
Ig
Q _r
(L/s)
15.00
15.00
15.00
15.00
surface
Surface | 15.00
Q _p - Q _r
(<i>L</i> /s)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
 | Volume
2yr
(m ³)
-0.00
-0.16
-0.47
-0.88
-1.36
Balance |
| Lratingte Area
Area (Ha)
C =
T _c
Variable
(min)
3
3
4
5
6
6
7 | CBMH2(
0.10
0.3
286.05
262.41
242.70
226.01
211.67
Overflow
29.75
 | Previously CB1 0 Previously CB1 100-Year F 100-Year F Peak Flow 0p = 2.78cC1 100pr A (L/s) 29.82 27.36 25.30 23.56 22.07
 | 8, Drainage
L/s)=
200ding
Q,
(L/s)
15.00
15.00
15.00
15.00
15.00
15.00
Surface
109.61
 | α Area Plan - N 15.00 Q _ρ -Q _r (L/s) 12.36 10.30 8.56 7.07 3) Sub-surface 0.00 | H11
Volume
100yr
(m ³)
2.67
2.97
3.09
3.08
2.97
Balance
0.00 | Trainage Area Area (Ha) C = Tc Variable (min) 1 2 3 4 5 | CBMH20 0.160 0.30 ispr (mm/hour) 203.51 182.69 166.09 152.51 141.18 Overflow 0.00
 | Restricted Flow Q, (
5-Year Pondin
Peak Flow
Q _p =2.78xCi _{5p} A
(<i>Us</i>)
27.16
24.38
22.16
22.16
22.16
22.35
18.84
Ste
Required
1.29 | L/s)=
g
Q ,
(L/s)
15.00
15.00
15.00
15.00
15.00
Drage (m ³)
Surface
109.61 | 15.00
Q _p - Q ,
(L/s)
12.16
9.38
7.16
5.35
3.84
Sub-surface
0.00
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00 | Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 | CBMH20 0.100 0.30 i _{2y} (mn/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 | Restricted Flow Qr, (L 2-Year Pondin Peak Flow Qr=2.78X:0rrA (L/s) 13.95 12.36 11.12 9.32 Stor Required 0.00 | /s)=
Q r
(L/s)
15.00
15.00
15.00
15.00
15.00
15.00
0
prage (m ³)
Surface
109.61 | 15.00
Q _p - Q _r
(<i>L</i> (s)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
 | Volume
2yr
(m ³)
-0.06
-0.16
-0.47
-0.88
-1.36
Balance
0.00 |
| Cratiliage Area
Area (Ha)
C =
T _c
Variable
(min)
4
5
6
7 | СВМН22
0.10
0.3
<i>i</i> 100pr
(mm/hour)
286.05
262.41
242.70
226.01
211.67
Оverflow
29.75
 | 0 Previously CB1
0
100
100-Year F
Peak Flow
Q _p =2.78×Cl 100 _P A
(L/s)
29.82
27.36
22.82
23.56
22.07
Required
32.84
 | 8, Drainage L/s)= Ponding Q, (L/s) 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00
 | | H11
Volume
100yr
(m ³)
2.67
2.97
3.09
3.08
2.97
Balance
0.00 | Trainage Area Area (Ha) C = Tc Variable (min) 1 2 3 4 5 | CBMH20 0.160 0.30 isyr (mm/hour) 203.51 182.69 166.09 152.51 141.18 Overflow 0.00 0.00
 | Restricted Flow Q _i (
5-Year Pondin
Peak Flow
Q _p =2.78xCi _{3p} A
(L/s)
27.16
24.38
22.16
20.35
18.84
State
Required
1.29 | L/s)=
g
Q ,
(L/s)
15.00
15.00
15.00
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5.00
15.00
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15.00
15.0 | 15.00 Q _ρ -Q _τ (L/s) 12.16 9.38 7.16 5.35 3.84 Sub-surface 0.00
 | Volume
5yr
(m ³)
1.13
1.29
1.28
1.15
Balance
0.00 | Drainage Area
Area (Ha)
C =
Variable
(min)
0
1
2
3
4 | CBMH20 0.100 0.30 i _{2yr} (mm/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 0.00 | Restricted Flow Q, (L 2-Year Pondin Peak Flow Q,=27.8K2isy,A (L/s) 13.95 12.36 11.12 10.13 9.32 Stc Required 0.00 | /s)=
Q ,
(L/s)
15.00
15.00
15.00
15.00
15.00
Surface
109.61 | 15.00
Q _p -Q _r
(L/s)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
 | Volume
2yr
(m ³)
-0.16
-0.47
-0.88
-1.36
Balance
0.00 |
| Trainage Area Area (Ha) C = Tc Variable (min) 3 4 5 6 7 | СВМН22
0.10
0.10
0.3
1 100yr
(mm/hour)
286.05
262.41
242.70
226.01
242.70
226.01
211.67
Оverflow
29.75
 | 0 Previously CB1
0
100
100-Year F
Peak Flow
Q _p =2.78×Cl 100 ₂ A
(L/s)
29.82
27.36
23.56
22.07
Required
32.84
 | 8, Drainage
L/s)=
2000
0,
(L/s)
15.00
15.00
15.00
15.00
15.00
15.00
Storage (m
Surface
109.61
 | a Area Plan - N 15.00 Q _p -Q _r (L/s) 14.82 12.36 10.30 8.56 7.07 Sub-surface 0.00 overflows to: | H11 Volume 100yr (m ³) 2.67 2.97 3.09 3.08 2.97 Balance 0.00 offsite | Drainage Area Area (Ha) C = Variable (min) 1 2 3 4 5 | CBMH20 0.160 0.30 isyr (mm/hour) 203.51 182.69 166.09 152.51 141.18 0 Overflow 0.00
 | Restricted Flow Q _i (
5-Year Pondiny
Peak Flow
Q _p =2.78xCi _{3p} A
(L/s)
22.16
24.38
22.16
20.35
18.84
Str
Required
1.29 | L/s)=
g
Q ,
(L/s)
15.00
15.00
15.00
15.00
orage (m ³)
Surface
109.61 | 15.00
Q _p - Q _r
(<i>L/S</i>)
12.16
9.38
7.16
5.35
3.84
Sub-surface
0.00
overflows to: o
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15
1.15
Balance
0.00
ffsite | Drainage Area
Area (Ha)
C =
Variable
(min)
0
1
2
3
4 | CBMH20 0.100 0.30 i _{3y} (mn/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 0.00 | Restricted Flow Q, (L 2-Year Pondin Peak Flow Qp = 2.78kCl ₃₇ A (L/s) 13.95 12.36 11.12 10.13 9.32 Stor Required 0.00 | /s)=
Q,
(L/s)
15.00
15.00
15.00
15.00
15.00
rage (m ³)
Surface
109.61 | 15.00
Q _ρ - Q _τ
(<i>L</i> /s)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
 | Volume 2yr (m ³) 0.00 -0.16 -0.88 -1.36 Balance 0.00 |
| Crainage Area | CBMH22
0.10
0.3
0.3
<i>i</i> 100yr
(mm/hour)
286.05
262.41
242.70
226.01
211.67
Overflow
29.75
 | 0 Previously CB1 0 0 100 100-Year F 100-Year F 0
 | L/s)=
Ponding
<i>Q</i> ,
(<i>L</i> /s)
15.00
15.00
15.00
Storage (m
Surface
109.61
Plan - MH7. | a Area Plan - N
15.00
Q _p -Q _r
(L/s)
14.82
12.36
10.30
7.07
Sub-surface
0.00
overflows to:
A
 | H11
Volume
100yr
(m ³)
2.67
2.97
3.09
3.08
2.97
Balance
0.00
offsite | Trainage Area Area (Ha) C = Tc Variable (min) 1 2 3 4 5 | CBMH20
0.160
0.30
isgr
(mm/hour)
203.51
182.69
166.09
152.51
141.18
Overflow
0.00
 | Restricted Flow Q _i (
5-Year Pondin
Peak Flow
Q _p =2.78xCi _{pr} A
(L/s)
27.16
24.38
22.16
22.16
22.35
18.84
Ste
Required
1.29 | L/s)=
g
Q ,
(L/s)
15.00
15.00
15.00
15.00
15.00
surface
109.61 | 15.00 Qp-Qr (L/S) 12.16 9.38 7.16 5.35 3.84 Sub-surface 0.00 overflows to: o
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00
ffsite | Drainage Area
Area (Ha)
C =
Variable
(min)
0
1
2
3
4 | CBMH20
0.100
0.30
i _{3y} r
(mm/hour)
167.22
148.14
133.33
121.46
111.72
Overflow
0.00 | Restricted Flow Qr, (L 2-Year Pondin Peak Flow Qr 2.78xCl 2gr,A (L/s) 13.95 12.36 12.36 11.12 9.32 Stor Required 0.00 0 | /\$)=
Q ,
(L/s)
15.00
15.00
15.00
15.00
15.00
D ,
D | 15.00
Q _p - Q _r
(<i>L</i> (<i>s</i>)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00 | Volume
2yr
(m ³)
0.00
-0.16
-0.47
-0.88
-1.36
Balance
0.00 |
| Trainage Area C = T _c Variable (min) 3 4 5 6 7 Drainage Area Area (Ha) | CBMH22
0.10
0.10
0.3
i100yr
(mm/hour)
286.05
262.41
242.70
226.01
242.70
226.01
242.70
226.01
242.70
29.75
RAA
0.30
 | 0 Previously CB1 0 Previously CB1 100-Year F 100-Year F Peak Flow 0, - (L/s) 29.82 27.36 27.36 25.30 23.56 22.07 Required 32.84 Drainage Area 1 00 00
 | 8, Drainage
L/s)=
Ponding
Q _r
(L/s)
15.00
15.00
15.00
15.00
15.00
Storage (m
Surface
109.61
Plan - MH7/
 | | H11 Volume 100yr (m ³) 2.67 2.97 3.09 3.08 2.97 Balance 0.00 offsite | Drainage Area Area (Ha) C = Tc Variable (min) 1 2 3 4 5 Drainage Area Area (Ha) | CBMH20
0.160
0.30
i _{5yr}
(mm/hour)
203.51
162.69
166.09
152.51
141.18
Overflow
0.00
 | Restricted Flow Q, (
5-Year Pondin
Peak Flow
Q _p =2.78xCi _{5y} A
(L/a)
27.16
22.16
22.16
22.16
22.16
22.16
22.35
18.84
Stor
Required
1.29 | L/s)=
g
Q ,
(L/s)
15.00
15.00
15.00
15.00
15.00
s
urface
109.61 | 15.00 Q _p -Q _r (L/s) 12.16 9.38 7.16 3.84 Sub-surface 0.00 overflows to: o
 | Volume
5yr
(m ³)
1.13
1.29
1.28
1.15
Balance
0.00
ffsite | Drainage Area Area (Ha) C = Tc Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) | CBMH20
0.100
0.30
i _{2yr}
(mm/hour)
167.22
148.14
133.33
121.46
111.72
Overflow
0.00 | Restricted Flow Q, (L
2-Year Pondin
Peak Flow
Q = 2.78X (2y, A
(L/s)
13.96
11.12
10.13
9.32
Sto
Required
0.00 | /s)=
Q
Q
r
15.00
15.00
15.00
15.00
15.00
surface
109.61 | 15.00
Q _p - Q _r
(<i>LS</i>)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
 | Volume
2yr
(m ³)
-0.16
-0.47
-0.88
-1.36
Balance
0.00 |
| Trainage Area Area (Ha) C = Tc Variable (min) 3 4 5 6 7 Drainage Area Area (Ha) C = | CBMH22
CBMH22
0.10
0.10
0.3
1 100yr
(mm/hour)
286.05
262.41
242.70
226.01
242.70
226.01
242.70
226.01
241.67
Overflow
29.75
RA
0.33
1.0
 | 0 Previously CB1 00 00 100-Year F 100-Year F 0 28,82 27.36 27.36 25.50 22.07 Required 32.84 100-Restricted Flow Q, (00) 00 Required 32.84
 | Start Start <th< td=""><td>a Area Plan - №
15.00</td><td>H11 Volume 100yr (m³) 2.67 2.97 3.09 3.08 2.97 Balance 0.00 offsite</td><td>Drainage Area Area (Ha) C = Tc Variable (min) 1 2 3 4 5 Drainage Area Area (Ha) C =</td><td>CBMH20 0.160 0.30 isyr (mm/hour) 203.51 182.69 166.09 152.51 141.18 Overflow 0.00 0.30</td><td>Restricted Flow Q_i 5-Year Pondim Peak Flow Q_p=2.78xCi_{pr}A (L/s) 22.16 22.16 20.35 18.84 Stc Required 1.29 Restricted Flow Q_i</td><td>L/s)=
g
Q,
(L/s)
15.00
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15.00
15.00
Drage (m³)
Surface
109.61</td><td>15.00
Q_p-Q,
(US)
12.16
9.38
7.16
5.35
3.84
Sub-surface
0.00
overflows to: o
27.00</td><td>Volume
5yr
(m³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00
ffsite</td><td>Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C =</td><td>CBMH20 0.100 0.30 i₃, (mn/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00</td><td>Restricted Flow Q, (I 2-Year Pondin Peak Flow Qp=2.78xC1₂₀A 13.95 12.36 11.12 10.13 9.32 Stor Required 0.00</td><td>/s)=
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(L/s)
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15</td><td>15.00
Q_ρ-Q_r
(<i>L</i>/s)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00</td><td>Volume
2yr
(m³)
0.00
-0.16
-0.47
-0.88
-1.36
Balance
0.00</td></th<> | a Area Plan - №
15.00
 | H11 Volume 100yr (m ³) 2.67 2.97 3.09 3.08 2.97 Balance 0.00 offsite | Drainage Area Area (Ha) C = Tc Variable (min) 1 2 3 4 5 Drainage Area Area (Ha) C = | CBMH20 0.160 0.30 isyr (mm/hour) 203.51 182.69 166.09 152.51 141.18 Overflow 0.00 0.30
 | Restricted Flow Q _i 5-Year Pondim Peak Flow Q _p =2.78xCi _{pr} A (L/s) 22.16 22.16 20.35 18.84 Stc Required 1.29 Restricted Flow Q _i | L/s)=
g
Q ,
(L/s)
15.00
15.00
15.00
15.00
Drage (m ³)
Surface
109.61 | 15.00
Q _p - Q ,
(US)
12.16
9.38
7.16
5.35
3.84
Sub-surface
0.00
overflows to: o
27.00
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00
ffsite | Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = | CBMH20 0.100 0.30 i ₃ , (mn/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 | Restricted Flow Q, (I 2-Year Pondin Peak Flow Qp=2.78xC1 ₂₀ A 13.95 12.36 11.12 10.13 9.32 Stor Required 0.00 | /s)=
1g
Q,
(L/s)
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15.00
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Q _ρ - Q _r
(<i>L</i> /s)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00
 | Volume
2yr
(m ³)
0.00
-0.16
-0.47
-0.88
-1.36
Balance
0.00 |
| Trainage Area C = Te Variable (min) 3 4 5 6 7 Drainage Area Area (Ha) C = | CBMH22
0.10
0.3
0.3
<i>i</i> 100yr
(mm/hour)
286.05
262.41
242.70
226.01
2226.01
211.67
Overflow
29.75
 | 0) Previously CB1
100
100
100-Year F
Peak Flow
Q _p =2.78C1 100yr A
(L/S)
29.82
27.36
23.56
23.56
23.56
22.07
Required
32.84
A Drainage Area I
100
N Restricted Flow Q _i (
100-Year F
 | Storage 20nding Qr, (L/s) 15.00 15.00 15.00 15.00 15.00 15.00 Storage (m Surface Plan - MH7/J L(s)= Ponding
 | a Area Plan - N
15.00
Q _p -Q,
(L/s)
14.82
12.36
10.30
10.30
7.07
Sub-surface
0.00
overflows to:
A
27.00 | H11 Volume 100yr (m ³) 2.67 2.97 3.09 3.08 2.97 Balance 0.00 offsite | Drainage Area Area (Ha) C C = Variable (min) 1 2 3 4 5 5 Area (Ha) C = C = | CBMH20 0.160 0.30 ispr (mm/hour) 203.51 182.69 166.09 152.51 141.18 Overflow 0.00 0.300 0.300 0.900
 | Restricted Flow Q _i (5-Year Pondin Peak Flow Q _p =2.78xCi _{pp} A (L/s) 22.16 22.18 22.16 22.16 20.36 18.84 Sto Required 1.29 Restricted Flow Q _i (5-Year Pondin | L/s)=
g
Q ,
(L/s)
15.00
15.00
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Drage (m ³)
Surface
109.61 | 15.00
Q _p - Q _r
(L/s)
12.16
9.38
7.16
5.35
3.84
Sub-surface
0.00
overflows to: o
27.00
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00
ffsite | Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = | CBMH20 0.100 0.30 i2yr (mm/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 0.300 0.300 0.900 | Restricted Flow Q, (L 2-Year Pondin Peak Flow Qp=2.78xCi_2p,A (L/s) 13.95 12.36 11.12 10.13 9.32 Stc Required 0.00 Restricted Flow Q, (L 2-Year Pondii | /s)=
Pg
Q,
(L/s)
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Q _p - Q _r
(<i>L</i> (<i>s</i>)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00
 | Volume
2yr
(m ³)
0.00
-0.16
-0.47
-0.86
-1.36
Balance
0.00 |
| Drainage Area Te Te Variable (min) 3 4 5 6 7 | CBMH22
0.10
0.10
0.3
0.3
1007
(mm/hour)
286.05
262.41
242.70
226.01
242.70
226.01
242.70
226.01
241.67
Overflow
29.75
RAA
0.30
1.0
 | 0 Previously CB1 0 Previously CB1 100-Year F Peak Flow 0 Peak Flow 0 Peak Flow 29.82 27.36 27.36 25.30 23.86 22.07 Required 32.84 Drainage Area I 10 Peak Flow 0 Restricted Flow Q. (100-Year F Peak Flow
 | 8, Drainage L(s)= Ponding Q, (L(s)) (
 | a Area Plan - M 15.00 <i>Q_p</i>-<i>Q_r</i> <i>(L/s)</i> 14.82 12.36 10.30 8.56 7.07 3³) Sub-surface 0.00 overflows to: <i>Q</i> /ul> | H11 Volume 100yr (m ³) 2.67 2.97 3.08 2.97 0.00 offsite Volume | Drainage Area Area (Ha) C = Tc Variable (min) 1 2 3 4 5 Drainage Area Area (Ha) C = Trainage Area | CBMH20 0.160 0.30 ispr (mm/hour) 203.51 162.69 166.09 152.51 141.18 Overflow 0.00 RA 0.300 0.90
 | Restricted Flow Q, (
5-Year Pondin
Peak Flow
Q _p =2.78xCi _{5p} A
(<i>Us</i>)
27.16
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Required
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Restricted Flow Q, (
5-Year Pondin
Peak Flow | L/s)=
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Q,
(L/s)
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prage (m ³)
Surface
109.61
L/s)=
g | 15.00
Q _p - Q ,
(LS)
12.16
9.38
7.16
5.35
3.84
Sub-surface
0.00
overflows to: o
27.00
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00
ffsite | Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = Trea (Ha) C = Trea (Ha) | CBMH20 0.100 0.30 i2yr (mm/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 RA 0.300 0.300 | Restricted Flow Q, (I 2-Year Pondin Peak Flow Qp=2.78X:0p,A (L/s) 13.95 12.36 11.12 10.13 9.32 Stor Required 0.00 Restricted Flow Q, (I 2-Year Pondin Peak Flow | /s)=
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(L/s)
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Q _p - Q ,
(US)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00 | Volume
2yr
(m ³
)
-0.16
-0.47
-0.88
-1.36
Balance
0.00 |
| Drainage Area C = T _c Variable (min) 3 4 5 6 7 Drainage Area Area (Ha) C = T _c Variable | CBMH22
0.10
0.10
0.3
1 _{100yr}
(mm/hour)
286.05
262.41
242.70
226.01
242.70
226.01
211.67
Overflow
29.75
RA
0.30
0.30
1.0
1.0
1.00yr
 | 0) Previously CB1
00
100-Year F
Peak Flow
Q _p = 2.78×Cl 100 _P A
(L/s)
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27.36
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 | Status Status 20nding Q, Q, (L/s) 15,00 15,00 15,00 15,00 15,00 15,00 Storage (m) Storage (m) Surface 109,61 Plan - MH7/J L/s)= Ponding Q, |
$\begin{array}{c c} \textbf{a Area Plan - N} \\ \hline \textbf{a Area Plan - N} \\ \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \\ \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} \hline \hline \textbf{a fs.00} $ | H111 Volume 100yr (m ³) 2.67 2.97 3.09 3.08 2.97 Balance 0.00 offsite Volume 100yr | Drainage Area Area (Ha) C = Tc Variable (min) 1 2 3 4 5 Prainage Area Area (Ha) C - | CBMH20 0.160 0.30 isyr (mm/hour) 203.51 182.69 166.09 152.51 141.18 | Restricted Flow Q, (
5-Year Pondim
Peak Flow
Q _p =2.78xCi _{pr}
A
(L/s)
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22.16 | L/s)=
g
Q ,
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15.00
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Drage (m ³)
Surface
109.61
L/s)=
g
Q , | 15.00
Q _p - Q _r
(<i>L</i> / <i>S</i>)
12.16
9.38
7.16
5.35
3.84
Sub-surface
0.00
overflows to: o
27.00
Q _p - Q _r | Volume
5yr
(m ³
)
0.73
1.29
1.29
1.28
1.15
Balance
0.00
ffsite | Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = T _c Variable T _c Variable | CBMH20
0.100
0.30
i ₃ w
(mm/hour)
167.22
148.14
133.33
121.46
111.72
Overflow
0.00
RA
0.300
0.90
0.90 | Restricted Flow Q, (I 2-Year Pondin Peak Flow Q_p =2.78xC1 $_{3p}$ A (L's) 13.95 12.36 11.12 10.13 9.32 Stor Required 0.00 Restricted Flow Q, (I 2-Year Pondin Peak Flow Q_p=2.78xC1 $_{3p}$ A | /s)=
Q ,
(L/s)
15.00
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Drage (m ³)
Surface
109.61
/s)=
Dg
Q , | 15.00
Q _ρ - Q _r
(<i>L</i> /s)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00
Q _ρ - Q _r | Volume
2yr
(m ²)
0.00
-0.16
-0.47
-0.88
-1.36
Balance
0.00
Volume
2yr |
| Drainage Area Tc Tc Variable (min) 3 4 5 6 7 | CBMH22
0.10
0.10
0.3
0.3
0.3
0.3
286.05
286.05
286.21
242.70
226.01
211.67
Overflow
29.75
RA
0.30
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 | <u>0</u> Previously CB1 <u>0</u> <u>100-Year F Peak Flow Q_p=2.78xC1 tooyr A (L/s) 29.82 27.36 23.56 23.56 22.07 <u>29.84 </u> Drainage Area I <u>00 Restricted Flow Q_p (L/s) <u>100-Year F Peak Flow Q_p=2.78xC1 tooyr A (L/s) [100-Year I]] </u></u></u>
 | 8, Drainage L(s)= Ponding Q, (L(s) 15.00 15.00 15.00 15.00 15.00 Storage (m Surface 109.61 Plan - MH7/J L(s)= Ponding Q, (L(s))
 | a Area Plan - N
15.00
Q _p -Q,
(L/s)
14.82
12.36
10.30
8.56
7.07
3 ³)
Sub-surface
0.00
overflows to:
A
27.00
Q _p -Q,
(L/s) | H11 Volume 100yr (m ³) 2.67 2.97 3.09 3.08 2.97 Balance 0.00 offsite Volume 100yr (m ³) | Drainage Area Area (Ha) C = Variable (min) 1 2 3 4 5 Drainage Area Area (Ha) C = Tc Variable (min) | CBMH20
0.160
0.30
isyr
(mm/hour)
203.51
182.69
166.09
152.51
141.18
Overflow
0.00
RA
0.300
0.900
isyr
(mm/hour)
 | $\begin{tabular}{lllllllllllllllllllllllllllllllllll$ | L/s)=
g
Q,
(L/s)
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Q _p - Q _r
(L/s)
12.16
9.38
7.16
5.35
3.84
Sub-surface
0.00
overflows to: o
27.00
Q _p - Q _r
(L/s)
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00
ffsite | Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = Trea (Ha) C = Variable (min) | CBMH20 0.100 0.330 i _{2y} (mm/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 RA 0.300 0.90 i _{2y} (mm/hour) | Restricted Flow Q, (L
2-Year Pondin
$Q_p = 2.78c(1_{2p}A)$
(L/s)
13.95
12.36
11.12
10.13
9.32
Sto
Restricted Flow Q, (L
2-Year Pondin
Peak Flow
$Q_p = 2.78c(1_{2p}A)$
(L/s) | /s)=
Q,
(L/s)
15.00
15.00
15.00
15.00
15.00
vrage (m ³)
Surface
109.61
/s)=
Q,
(L/s) | 15.00
Q _ρ - Q _r
(L (s)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00
Q _ρ - Q _r
(L (s)
 | Volume
2yr
(m ³)
0.00
-0.16
-0.47
-0.88
-1.36
Balance
0.00
Volume
2yr
(m ³) |
| Drainage Area C = T _c Variable (min) 3 4 5 6 7 | CBMH22
0.10
0.10
0.3
i100y
(mm/hour)
286.05
262.41
242.70
226.01
242.70
226.01
242.70
226.01
242.70
226.05
262.41
0.10
242.70
29.75
R/A
0.33
1.0
1.00y
i100y
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 | 0 Previously CB1 0 Previously CB1 100-Year F Peak Flow 0 0, -2.78c(1:0), A 29.82 27.38 27.36 25.30 23.86 22.07 Required 32.84 Drainage Area I 10 Restricted Flow Q, (2.07) 100 Restricted Flow Q, (2.07)
 | 8, Drainage
L/s)=
Ponding
Q,
(L/s)
15.00
15.00
15.00
15.00
15.00
Storage (m
Surface
109.61
Plan - MH7/
L/s)=
Ponding
Q,
(L/s)
27.00 | α Area Plan - N 15.00 (L/s) 14.82 12.36 10.30 8.56 7.07 3) Sub-surface 0.00 overflows to: 4 27.00 Q _p -Q _r (L/s) 59.61
 | H11 Volume 100yr (m ³) 2.67 2.97 3.09 3.08 2.97 Balance 0.00 offsite Volume 100yr (m ³) 89.41 | Drainage Area Area (Ha) C = T _c Variable (min) 1 2 3 4 5 Variable C = T Variable (min) C = T _c Variable (min) T ₃ | CBMH20 0.160 0.30 ispr (mm/hour) 203.51 182.69 166.09 152.51 141.18 0verflow 0.00 .300 0.300 .90 ispr (mm/hour) 90.63 .63
 | Restricted Flow Q _i (5-Year Pondin <i>Peak Flow</i> Q _p =2.78xCl _{3p} A (L/s) 27.16 24.38 22.16 20.35 18.84 Ste Required 1.29 Restricted Flow Q _i 5-Year Pondin <i>Peak Flow</i> Q _p =2.78xCl _{3p} A (L/s) 68.03 | L/s)=
g
Q,
(L/s)
15.00
15.00
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15.00
Surface
109.61
L/s)=
g
Q,
(L/s)
27.00 | 15.00
Q _p - Q ,
(L/s)
12.16
9.38
7.16
5.35
3.84
Sub-surface
0.00
overflows to: o
27.00
Q _p - Q ,
(L/s)
4 1.03
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00
ffsite
Volume
5yr
(m ³)
32.00 | Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = Tc Variable Marea (Ha) C = Tc Variable Marea (Ha) C = C = Marea (Ha) B | CBMH20 0.100 0.30 i _{2yr} (mm/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 RA 0.300 0.90 izyr (mm/hour) 85.46 | Restricted Flow Q, (I 2-Year Pondin Peak Flow Qp=2.78XG1prA (L/s) 13.95 12.36 11.12 10.13 9.32 Stor Required 0.00 Restricted Flow Qr, (I Peak Flow Qp=2.78xG12prA (L/s) 9.32 | /s)=
Q ,
(L/s)
15.00
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Drage (m ³)
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/s)=
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Q ,
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27.00 | 15.00
Q _ρ - Q _r
(<i>L's</i>)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00
Q _ρ - Q _r
(<i>L's</i>)
37.14
 | Volume
2yr
(m ³)
0.00
-0.16
-0.47
-0.88
-1.36
Balance
0.00
Volume
2yr
(m ³)
17.83 |
| Drainage Area Area (Ha) C = Tc Variable (min) 3 4 5 6 7 Drainage Area Area (Ha) C = C = Tc Variable (min) 25 25 25 27 | CBMH22 CBMH22<
 | <u>0</u> Previously CB1 <u>00</u> <u>100-Year F</u> <u>100-Year F</u> <u>00 a general definition of the second definition</u>
 | 8, Drainage L(s)= Ponding Q, (L(s) 15.00 15.00 15.00 15.00 15.00 Storage (n, Surface 109.61 Plan - MH7/ L(s)= Ponding Q, (L(s) 27.00 27.00 27.00
 | $\begin{array}{c c} \mathbf{a} \mbox{ Area Plan - N} \\ \hline & 15.00 \\ \hline & \mathbf{a}, \mathbf{c}, $ | H11 Volume 100yr (m ³) 2.67 2.97 3.09 3.08 2.97 Balance 0.00 offsite Volume 100yr (m ³) 89.52 89.52 | Drainage Area Area (Ha) C = Tc Variable (min) 1 2 3 4 5 Area (Ha) C Tc Variable Area (Ha) C Tc Variable (min) 13 14 14 | CBMH20 0.160 0.30 isyr (mm/hour) 203.51 182.69 182.69 152.51 141.18 Overflow 0.00 0.300 0.90 0.90 isyr (mm/hour) 0.00 0.90 | Restricted Flow Q _i (
5-Year Pondin :
Peak Flow
$Q_p =
2.78xCi_{sp}A$
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3.84
Sub-surface
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Q _p - Q ,
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Volume
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(m ³)
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1.29
1.28
1.15
Balance
0.00
ffsite
Volume
5yr
(m ³)
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32.13
32.15 | Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = Variable (min) 0 0 1 2 3 4 Variable (min) 8 10 4 | CBMH20 0.100 0.30 i _{2y} (mn/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 is 0.00 is 0.30 0.300 0.300 0.300 0.90 | Restricted Flow Q, (I 2-Year Pondin $Q_p = 2.78\kappa C_{3p}A$ $(L's)$ 13.95 12.36 11.12 10.13 9.32 Stor Required 0.00 Restricted Flow Q, (I 2-Year Pondin Peak Flow $Q_p = 2.78\kappa C_{3p}A$ (L's) 0.00 | Js)=
ng
Q,
(L's)
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Q _ρ - Q _r
(<i>L</i> (<i>s</i>)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00
Q _ρ - Q _r
(<i>L</i> (<i>s</i>)
-37.14
-30.65
-37.14
-30.65
-37.04
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-37 | Volume
2yr
(m ³)
0.00
-0.16
-0.47
-0.88
-1.36
Balance
0.00
Volume
2yr
(m ³)
17.83
18.39
18.39 |
| Drainage Area Area (Ha) C = Tc Variable (min) 3 4 5 6 7 | CBMH22
0.10
0.10
0.3
0.3
0.3
0.3
286.05
286.05
286.24
242.70
226.01
242.70
226.01
242.70
226.01
242.70
29.75
0.30
1.0
0.30
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0.3
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 | <u>0</u> Previously CB1 <u>0</u> <u>100-Year F Peak Flow Q_p=2.78xC1 tooyr A (L/s) 29.82 27.36 23.56 23.56 23.56 23.69 23.84 0 <u>00 Restricted Flow Q_i(1) 0 100-Year F Peak Flow Q_p=2.78xC1 tooyr A (L/s) 100-Year F 100-Year F</u></u>
 | 8, Drainage
L(s)=
Ponding
Q,
(L's)
15.00
15.00
15.00
15.00
15.00
15.00
15.00
Storage (m
Surface
09.61
Plan - MH7//
L(s)=
Ponding
Q,
(L's)=
27.00
27.00
27.00
27.00 | a Area Plan - N
15.00
Q _p -Q,
(L/s)
14.82
12.36
10.30
8.56
7.07
Sub-surface
0.00
overflows to:
A
27.00
Q _p -Q,
(L/s)
50.61
57.38
55.28
55.29
 | H11 Volume 100yr (m ³) 2.67 2.97 3.09 3.08 2.97 Balance 0.00 offsite Volume 1000yr (m ³) 89.41 89.52 89.56 89.53 | Drainage Area Area (Ha) C = Variable (min) 1 2 3 4 5 Variable (Ha) C = Variable Tr Variable (min) C = Variable (min) 13 14 15 16 | CBMH20 0.160 0.33 ispr (mm/hour) 203.51 182.69 182.69 166.09 152.51 141.18 Overflow 0.00 ispr (mm/hour) 90.63 86.93 32.56 80.46
 | Restricted Flow Q, (
5-Year Pondin
Peak Flow
Q_p =2.78xCi ₃ pA
(L/s)
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22.2.16
22.2.16
22.2.16
22.2.16
22.36
18.84
Stu
Required
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Restricted Flow Q, (
5-Year Pondin
Peak Flow
Q_p =2.78xCi ₃ pA
(L/s)
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65.25
62.72
60.39 | L/s)=
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(L/s)
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Q _p - Q _r
(L(s)
12.16
9.38
7.16
5.35
3.84
Sub-surface
0.00
overflows to: o
27.00
Q _p - Q _r
(L(s)
41.03
38.25
33.39
 | Volume
5yr
(m ³)
0.73
1.13
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1.28
1.15
Balance
0.00
ffsite
Volume
5yr
(m ³)
32.00
32.13
32.06 | Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = Treating Variable (min) 8 10 11 12 | CBMH20 0.100 0.30 i _{2y} (mm/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 IRA 0.300 0.90 Isympty isympty isympty isympty 0.00 | Restricted Flow Qr, (L 2-Year Pondin Peak Flow $Q_p = 2.78cL_{2p}A$ (L/s) 13.95 12.36 11.12 10.13 9.32 Stc Required 0.00 Restricted Flow Qr, (L Peak Flow Q $p = 2.78cL_{2p}A$ (L/s) 64.14 57.65 52.46 | /s)=
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Q _ρ - Q _r
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-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00
Q _ρ - Q _r
(<i>L</i> (<i>s</i>)
37.14
30.65
27.92
27.92
25.46
 | Volume
2yr
(m ³)
0.00
-0.16
-0.88
-1.36
-1.36
Balance
0.00
Volume
2yr
(m ³)
17.83
18.39
18.43
18.43 |
| Drainage Area Area (Ha) C = T _c Variable (min) 3 4 5 6 7 | CBMH22
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286.05
262.41
242.70
226.01
242.70
226.01
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226.01
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226.05
262.41
0.10
242.70
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L/s)=
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10.0</td> <td>$\begin{array}{c c} \mathbf{A} \mbox{ rea Plan - N} \\ \hline 15.00 \\ \hline \ 15.00 \\ \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$</td> <td>H111 Volume 100yr (m³) 2.67 2.97 3.09 3.08 2.97 3.09 0.00 offsite Volume 100yr (m³) 89.41 89.52 89.56 89.53 89.45</td> <td>Drainage Area Area (Ha) C = T_c Variable (min) 1 2 3 4 5 Area (Ha) C = Trainage Area Area (Ha) To Trainage Area Area (Ha) To To To To To</td> <td>CBMH20 0.160 0.307 0.351 0.351 0.20351 0.20351 182.69 166.09 152.51 141.18 0verflow 0.00 RA 0.300 0.90 0.90 0.90 0.90 0.90 0.90 0.9</td> <td>$\begin{tabular}{lllllllllllllllllllllllllllllllllll$</td> <td>L/s)=
g
Q,
(L/s)
15.00
15.00
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5yr
(m³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00
ffsite
Volume
5yr
(m³)
32.00
32.13
32.15
32.06
31.88</td> <td>Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = Tc Variable Marea (Ha) C = Tc Variable 10 10 11 12 14</td> <td>CBMH20
0.100
0.30
i_{2yr}
(mm/hour)
167.22
148.14
133.33
121.46
111.72
Overflow
0.00
RA
0.300
0.90
i_{2yr}
(mm/hour)
85.46
76.81
73.17
69.89
64.23</td> <td>Restricted Flow Q, (L
2-Year Pondin
Q_p=2.78xCi_{2y}A
(L/s)
13.95
12.36
11.12
10.13
9.32
Sto
Required
0.00
Restricted Flow Q, (L
2-Year Pondin
Peak Flow
Q_p=2.78xCi_{2y}A
(L/s)
64.14
57.65
54.92
52.46
48.21</td> <td>/s)=
Q,
(L/s)
15.00
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Drage (m³)
Surface
109.61
(L/s)=
Q,
(L/s)
27.00
27.00
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27.00</td>
<td>15.00
Q_ρ-Q_r
(<i>L</i>(<i>s</i>))
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00
Q_ρ-Q_r
(<i>L</i>(<i>s</i>))
-37.14
-30.65
-27.92
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(m³)
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17.82</td> | 8, Drainage
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(L/s)
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10.0 | $\begin{array}{c c} \mathbf{A} \mbox{ rea Plan - N} \\ \hline 15.00 \\ \hline \ 15.00 \\ \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$
 | H111 Volume 100yr (m ³) 2.67 2.97 3.09 3.08 2.97 3.09 0.00 offsite Volume 100yr (m ³) 89.41 89.52 89.56 89.53 89.45 | Drainage Area Area (Ha) C = T _c Variable (min) 1 2 3 4 5 Area (Ha) C = Trainage Area Area (Ha) To Trainage Area Area (Ha) To To To To To | CBMH20 0.160 0.307 0.351 0.351 0.20351 0.20351 182.69 166.09 152.51 141.18 0verflow 0.00 RA 0.300 0.90 0.90 0.90 0.90 0.90 0.90 0.9
 | $\begin{tabular}{lllllllllllllllllllllllllllllllllll$ | L/s)=
g
Q,
(L/s)
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0 | 15.00 Q _p - Q , (L/s) 12.16 9.38 7.16 5.35 3.84 Sub-surface 0.00 overflows to: o 27.00 Q _p -Q, (L/s) 41.03 38.25 33.39 31.25
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00
ffsite
Volume
5yr
(m ³)
32.00
32.13
32.15
32.06
31.88 | Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = Tc Variable Marea (Ha) C = Tc Variable 10 10 11 12 14 | CBMH20
0.100
0.30
i _{2yr}
(mm/hour)
167.22
148.14
133.33
121.46
111.72
Overflow
0.00
RA
0.300
0.90
i _{2yr}
(mm/hour)
85.46
76.81
73.17
69.89
64.23 | Restricted Flow Q, (L
2-Year Pondin
Q _p =2.78xCi _{2y} A
(L/s)
13.95
12.36
11.12
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Required
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Restricted Flow Q, (L
2-Year Pondin
Peak Flow
Q _p =2.78xCi _{2y} A
(L/s)
64.14
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Q _ρ - Q _r
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(m ³)
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Balance
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Volume
2yr
(m ³)
17.83
18.39
18.43
18.33
17.82 |
| Drainage Area Area (Ha) C = Tc Variable (min) 3 4 5 6 7 Drainage Area Area (Ha) C = C = C = 25 25 25 26 27 28 29 | CBMH2 CBMH2 <th< td=""><td><u>0</u> Previously CB1 <u>00</u> <u>100-Year F</u> <u>100-Year F</u> <u>00 A g = 2.78×Cl 100 g = 1.73%</u> <u>100 Year F low Q = 2.78×Cl 100 g = 2.73%</u> <u>29.82 27.3%</u> <u>23.56 22.07 23.56 22.07 <u>23.56 22.07</u> <u>23.56 22.07 <u>23.56 22.07 23.56 22.07 <u>23.56 22.07 </u>23.56 22.07 <u>23.56 22.07 23.56 22.07 <u>23.56 22.07 </u>23.56 22.07 <u>23.56 22.07 23.56 22.07 <u>23.56 22.07 </u>23.56 22.07 <u>23.56 22.07 23.56 22.07 <u>23.56 100 P A (L/S) 000 Peak Flow Q = 2.78×Cl 100 P A (L/S) 000 <u>84.38 84.38 82.28 80.29 <u>80.29 78.41 </u> </u></u></u></u></u></u></u></u></td><td>8, Drainage L/s)= Ponding Q, (L/s) 15.00 15.00 15.00 15.00 Storage (m, Surface 109.61) Plan - MH7/L(s)= Ponding Qr, (L/s)= 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00</td><td>$\begin{array}{c c} \mathbf{a} \mbox{ Area Plan - N} \\ \hline & 15.00 \\ \hline & \mathbf{a} \\ \hline & \mathbf{a} \ \hline & \mathbf{a} \\ \hline & \mathbf{a} \ \hline & \mathbf{a} \ \hline \\ & \mathbf$</td><td>H11 Volume 100yr (m³) 2.67 2.97 3.09 3.08 2.97 Balance 0.00 offsite Volume 100yr (m³) 89.51 89.56 69.53 89.45</td><td>Drainage Area Area (Ha) C = Tc Variable (min) 1 2 3 4 5 Area (Ha) C Tc Variable Area (Ha) C Tc Variable (min) 13 14 15 16 17</td><td>CBMH20 0.160 0.30 isyr (mm/hour) 203.51 182.69 182.69 152.51 141.18 000 0.00 0.300 0.00 0.300 0.90 0.300 0.90 0.300 0.90 0.300 0.91 0.63 0.92 0.356 0.3.66 93.56 0.0.63 60.46 77.61 100 <td>Restricted Flow Q_i (
5-Year Pondin
Peak Flow
$Q_p = 2.78xCi_{sp}A$
(<i>L/s</i>)
22.16
24.38
20.35
18.84
Star Required Rest Star Required Rest Star Required Rest Star Rest Flow Q_i
5-Year Pondin
Peak Flow
$Q_p = 2.78xCi_{sp}A$
(<i>L/s</i>)
66.03
65.26
62.72
60.39
58.25</td><td>L/s)=
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Q_p-Q,
(US)
12.16
9.38
7.16
5.35
3.84
Sub-surface
0.00
overflows to: o
27.00
Q_p-Q,
(US)
41.03
38.25
35.72
33.39
31.25</td><td>Volume
5yr
(m³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00
ffsite
Volume
5yr
(m³)
32.00
32.13
32.15
32.06
31.88</td><td>Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Variable (min) 8 10 11 12 14</td><td>CBMH20 0.100 0.30 i_{2y} (mn/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 isy (mn/hour) 65.46 76.81 73.17 69.89 64.23</td><td>Restricted Flow Q, (I 2-Year Pondin $Q_p = 2.78\kappa C_{3p}A$ (L's) 13.95 12.36 11.12 10.13 9.32 Stot Required 0.00 Restricted Flow Q, (I Peak Flow $Q_p = 2.78\kappa C_{3p}A$
Q_colspan="2">Colspan="2"Colspa="2"Colspa="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspa</td><td>Js)=
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(L/s)
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27.00</td><td>15.00
Q_ρ-Q_τ
(<i>L</i>(<i>s</i>)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00
Q_ρ-Q_τ
(<i>L</i>(<i>s</i>)
37.14
30.65
27.92
25.46
21.21</td><td>Volume
2yr
(m³)
0.00
-0.16
-0.47
-0.88
-1.36
Balance
0.00
Volume
2yr
(m³)
17.83
18.39
18.39
18.33
17.82</td></td></th<> | <u>0</u> Previously CB1 <u>00</u> <u>100-Year F</u> <u>100-Year F</u> <u>00 A g = 2.78×Cl 100 g = 1.73%</u> <u>100 Year F low Q = 2.78×Cl 100 g = 2.73%</u> <u>29.82 27.3%</u> <u>23.56 22.07 23.56 22.07 <u>23.56 22.07</u> <u>23.56 22.07 <u>23.56 22.07 23.56 22.07 <u>23.56 22.07 </u>23.56 22.07 <u>23.56 22.07 23.56 22.07 <u>23.56 22.07 </u>23.56 22.07 <u>23.56 22.07 23.56 22.07 <u>23.56 22.07 </u>23.56 22.07 <u>23.56 22.07 23.56 22.07 <u>23.56 100 P A (L/S) 000 Peak Flow Q = 2.78×Cl 100 P A (L/S) 000 <u>84.38 84.38 82.28 80.29 <u>80.29 78.41 </u> </u></u></u></u></u></u></u></u>
 | 8, Drainage L/s)= Ponding Q, (L/s) 15.00 15.00 15.00 15.00 Storage (m, Surface 109.61) Plan - MH7/L(s)= Ponding Qr, (L/s)= 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00
 | $\begin{array}{c c} \mathbf{a} \mbox{ Area Plan - N} \\ \hline & 15.00 \\ \hline & \mathbf{a} \\ \hline & \mathbf{a} \ \hline & \mathbf{a} \\ \hline & \mathbf{a} \ \hline & \mathbf{a} \ \hline \\ & \mathbf$ | H11 Volume 100yr (m ³) 2.67 2.97 3.09 3.08 2.97 Balance 0.00 offsite Volume 100yr (m ³) 89.51 89.56 69.53 89.45 | Drainage Area Area (Ha) C = Tc Variable (min) 1 2 3 4 5 Area (Ha) C Tc Variable Area (Ha) C Tc Variable (min) 13 14 15 16 17 | CBMH20 0.160 0.30 isyr (mm/hour) 203.51 182.69 182.69 152.51 141.18 000 0.00 0.300 0.00 0.300 0.90 0.300 0.90 0.300 0.90 0.300 0.91 0.63 0.92 0.356 0.3.66 93.56 0.0.63 60.46 77.61 100 <td>Restricted Flow Q_i (
5-Year Pondin
Peak Flow
$Q_p = 2.78xCi_{sp}A$
(<i>L/s</i>)
22.16
24.38
20.35
18.84
Star Required Rest Star Required Rest Star Required Rest Star Rest Flow Q_i
5-Year Pondin
Peak Flow
$Q_p = 2.78xCi_{sp}A$
(<i>L/s</i>)
66.03
65.26
62.72
60.39
58.25</td> <td>L/s)=
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27.00
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27.00</td> <td>15.00
Q_p-Q,
(US)
12.16
9.38
7.16
5.35
3.84
Sub-surface
0.00
overflows to: o
27.00
Q_p-Q,
(US)
41.03
38.25
35.72
33.39
31.25</td> <td>Volume
5yr
(m³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00
ffsite
Volume
5yr
(m³)
32.00
32.13
32.15
32.06
31.88</td> <td>Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Variable (min) 8 10 11 12 14</td> <td>CBMH20 0.100 0.30 i_{2y} (mn/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 isy (mn/hour) 65.46 76.81 73.17 69.89 64.23</td> <td>Restricted Flow Q, (I 2-Year Pondin $Q_p = 2.78\kappa C_{3p}A$ (L's) 13.95 12.36 11.12 10.13 9.32 Stot Required 0.00 Restricted Flow Q, (I Peak Flow $Q_p = 2.78\kappa C_{3p}A$ Q_colspan="2">Colspan="2"Colspa="2"Colspa="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspa</td>
<td>Js)=
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Q_ρ-Q_τ
(<i>L</i>(<i>s</i>)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00
Q_ρ-Q_τ
(<i>L</i>(<i>s</i>)
37.14
30.65
27.92
25.46
21.21</td> <td>Volume
2yr
(m³)
0.00
-0.16
-0.47
-0.88
-1.36
Balance
0.00
Volume
2yr
(m³)
17.83
18.39
18.39
18.33
17.82</td> | Restricted Flow Q _i (
5-Year Pondin
Peak Flow
$Q_p = 2.78xCi_{sp}A$
(<i>L/s</i>)
22.16
24.38
20.35
18.84
Star Required Rest Star Required Rest Star Required Rest Star Rest Flow Q_i
5-Year Pondin
Peak Flow
$Q_p = 2.78xCi_{sp}A$
(<i>L/s</i>)
66.03
65.26
62.72
60.39
58.25 | L/s)=
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Q _p - Q ,
(US)
12.16
9.38
7.16
5.35
3.84
Sub-surface
0.00
overflows to: o
27.00
Q _p - Q ,
(US)
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38.25
35.72
33.39
31.25 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00
ffsite
Volume
5yr
(m ³)
32.00
32.13
32.15
32.06
31.88 | Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Variable (min) 8 10 11 12 14 | CBMH20 0.100 0.30 i _{2y} (mn/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 isy (mn/hour) 65.46 76.81 73.17 69.89 64.23 | Restricted Flow Q, (I 2-Year Pondin $Q_p = 2.78\kappa C_{3p}A$ (L's) 13.95 12.36 11.12 10.13 9.32 Stot Required 0.00 Restricted Flow Q, (I Peak Flow $Q_p = 2.78\kappa C_{3p}A$ Q_colspan="2">Colspan="2"Colspa="2"Colspa="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspa | Js)=
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(L/s)
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Q _ρ - Q _τ
(<i>L</i> (<i>s</i>)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00
Q _ρ - Q _τ
(<i>L</i> (<i>s</i>)
37.14
30.65
27.92
25.46
21.21 | Volume
2yr
(m ³)
0.00
-0.16
-0.47
-0.88
-1.36
Balance
0.00
Volume
2yr
(m ³)
17.83
18.39
18.39
18.33
17.82 |
| Drainage Area Area (Ha) C = Tc Variable (min) 3 4 5 6 7 | CBMH22
CBMH22
0.10
0.10
0.3
0.3
286.05
286.05
286.21
242.70
226.01
242.70
226.01
242.70
226.01
242.70
29.75
RA
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Vorflow
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 | <u>0</u> Previously CB1 <u>0</u> <u>100-Year F Peak Flow Q_p = 2.78×Cl 100_p/A (L/s) 29.82 27.36 23.56 22.07 Required 32.84 Drainage Area i <u>00 Restricted Flow Q_i(1) Restricted Flow Q <u>100-Year F Peak Flow Q_p = 2.78×Cl 100_p/A (L/s) 86.61 84.33 82.28 80.29 78.41 </u></u></u>
 | 8, Drainage
L(s)=
Ponding
Q,
(L's)
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$\begin{array}{c c} a \ Area \ Plan - \ N \\ \hline 15.00 \\ \hline \\ \hline \\ \hline \\ (L/s) \\ \hline \\ 14.82 \\ \hline \\ 12.36 \\ \hline \\ 10.30 \\ \hline \\ 8.56 \\ \hline \\ 7.07 \\ \hline \\ \hline \\ 8.56 \\ \hline \\ 7.07 \\ \hline \\ \hline \\ \hline \\ 8.56 \\ \hline \\ 0.00 \\ overflows \ lo: \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ $ | H11 Volume 100yr (m ³) 2.67 2.97 3.09 3.08 2.97 Balance 0.00 offsite Volume 100yr (m ³) 89.41 89.52 89.53 89.45 | Drainage Area Area (Ha) C = Tc Variable (min) 1 2 3 4 5 Area (Ha) C = Trainage Area (min) 13 14 15 16 17 | CBMH20 0.160 0.33 isyr (mm/hour) 203.51 182.69 166.09 152.51 141.18 Overflow 0.00 Image: state st
 | Restricted Flow Q, (
5-Year Pondin
$Peak FlowQ_p=2.78xCi_{sp}A$
(L/s)
22,16
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Restricted Flow Q, (
5-Year Pondin
$Peak FlowQ_p=2.78xCi_{sp}A$
(L/s)
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2 | $\begin{array}{c} 15.00 \\ \hline \\ \textbf{Q}_{p}\textbf{-}\textbf{Q}_{r} \\ (L(s)) \\ 12.16 \\ 9.38 \\ 7.16 \\ 5.35 \\ 3.84 \\ \hline \\ \textbf{Sub-surface} \\ 0.00 \\ overflows to: o \\ 0 \\ overflows to: o \\ 27.00 \\ \hline \\ \textbf{Q}_{p}\textbf{-}\textbf{Q}_{r} \\ (L(s)) \\ 41.03 \\ 38.25 \\ 35.72 \\ 33.39 \\ 31.25 \\ \hline \end{array}$
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00
ffsite
Volume
5yr
(m ³)
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32.13
32.06
31.88 | Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = Variable (min) 8 10 11 12 14 | CBMH20 0.100 0.30 i _{2y} (mm/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 is 0.00 is 0.300 0.90 is is is 0.00 | Restricted Flow Q, (L 2-Year Pondin Peak Flow $Q_p = 2.78xC_{2p}A$ (L/s) 13.95 12.36 11.12 10.13 9.32 Sto Required 0.00 Restricted Flow Q, (U 2.Year Pondin Peak Flow $Q_p = 2.78xC_{2p}A$ (L/s) 64.14 57.65 52.46 48.21 | /s)=
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2 | 15.00
Q _p - Q _r
(<i>L</i> (<i>s</i>)
-1.05
-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00
Q _p - Q _r
(<i>L</i> (<i>s</i>)
37.14
30.65
27.92
25.46
21.21
 | Volume
2yr
(m ³)
0.00
-0.16
-0.88
-1.36
Balance
0.00
Volume
2yr
(m ³)
17.83
18.39
18.43
18.33
17.82 |
| Drainage Area Area (Ha) C = T _c Variable (min) 3 4 5 6 7 | CBMH22
0.10
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94.01
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 | <u>0</u> Previously CB1 <u>00</u> <u>100-Year B</u> <u>100-Year B</u> <u>100-Year B</u> <u>100-Year B</u> <u>100-Year B</u> <u>100-Year B</u> <u>20,862 27,36 22,366 <u>22,366 22,366 22,367 <u>23,566 22,07 </u> <u>23,864 </u> <u>23,566 </u> <u>22,07 </u> <u>23,864 </u> <u>32,844 </u> <u>00 </u> <u>00 </u> <u>Required 32,844 </u> <u>32,844 </u> <u>00 </u> <u>00 Restricted Flow 0, (100-Year B <u>66,611 </u> <u>84,385 </u> <u>80,29 </u> <u>78,411 </u> <u>866,61 </u> <u>84,381 </u> <u>80,29 </u> <u>78,41 </u> </u></u></u>
 | Storage (m/s) 20nding Qr, Qr, Qr, (L/s) 15.00 15.00 15.00 15.00 15.00 15.00 15.00 Storage (m Surface 109.61 109.61 Plan - MH7/L L/s)= 20nding Qr, Q7.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 27.00 | $\begin{array}{c c} \mathbf{a} \mbox{ Area Plan - N} \\ \hline 15.00 \\ \hline \\ (L/s) \\ 14.82 \\ 12.36 \\ 10.30 \\
10.30 \\ 10$ | H111 Volume 100yr (m ³) 2.67 2.97 3.09 3.08 2.97 Balance 0.00 offsite Volume 100yr (m ³) 89.51 89.55 89.45 89.45 Balance 0.00 | Drainage Area Area (Ha) C C = T _c Variable (min) 1 1 2 3 4 5 5 C = C = C = Trainage Area Area (Ha) C = C = Trainage Area Area (Ha) C = Trainage Area Marca (Ha) C = Trainage Area 13 14 15 16 17 | CBMH20 0.160 0.30 ispr (mm/hour) 203.51 182.69 166.09 152.51 141.18 Overflow 0.00 RA 0.300 0.90 ispr (mm/hour) 90.63 80.46 80.46 77.61 Overflow 0.00
 | Restricted Flow Q _i (
5-Year Pondin
Peak Flow
Q_p = 2.78xCi _{3p} A
(<i>L</i> s):
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Restricted Flow Q_i
5-Year Pondin
Peak Flow
Q_p = 2.78xCi _{3p} A
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1 | 15.00 Q _ρ - Q _τ (L/s) 12.16 9.38 7.16 5.35 3.84 Sub-surface 0.00 overflows to: o 27.00 Q _ρ - Q _τ (L/s) 41.03 38.25 33.39 31.25 Sub-surface 0.00
 | Volume
5yr
(m ³)
0.73
1.13
1.29
1.28
1.15
Balance
0.00
ffsite
Volume
5yr
(m ³)
32.00
32.13
32.06
31.88
Balance
0.00 | Drainage Area Area (Ha) C = Variable (min) 0 1 2 3 4 Drainage Area Area (Ha) C = Tc Variable Marca (Ha) C = Tc Variable (Min) 8 10 11 12 14 | CBMH20 0.100 0.33 i _{2yr} (mm/hour) 167.22 148.14 133.33 121.46 111.72 Overflow 0.00 isyr (mm/hour) 85.46 76.81 73.17 69.89 64.23 Overflow 0.00 | Restricted Flow Q, (I 2-Year Pondin Peak Flow Q _p =2.78xCl _{2p} A (L/s) 13.95 12.36 11.12 10.13 9.32 Sto Required 0.00 Restricted Flow Q, (I 2-Year Pondin Peak Flow Q _p =2.78xCl _{2p} A 64.14 57.65 54.92 52.46 48.21 Sto Required | /s)=
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Q _ρ - Q _r
(<i>L</i> (<i>s</i>)
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-2.64
-3.88
-4.87
-5.68
Sub-surface
0.00
27.00
Q _ρ - Q _r
(<i>L</i> (<i>s</i>)
37.14
30.65
27.92
25.46
21.21
Sub-surface
0.00
 | Volume
2yr
(m ³)
0.00
-0.16
-0.47
-0.88
-1.36
Balance
0.00
Volume
2yr
(m ³)
17.83
18.33
18.33
18.33
18.33
18.33
17.82
Balance
0.00 |

Drainage Area	RB	Drainage Area	Plan - MH2	A		Drainage Area	RB	[Drainage Area	RB	1			
Area (Ha) C =	0.190	Restricted Flow Q. (L/s)=	20.00		Area (Ha) C =	0.190	Restricted Flow Q. (L/s)=	20.00		Area (Ha) C =	0.190	Restricted Flow Q. (/s)=	20.00	
0	1.0	100-Year F	ondina	20.00			0.00	5-Year Pondin	a	20.00			0.00	2-Year Pondi	na	20.00	
T _c		Peak Flow	0		Volume	T _c		Peak Flow		0.0	Volume	T _c	,	Peak Flow		0.0	Volume
Variable	1 100yr	Q p=2.78xCi 100yr A	Q,	$\omega_p - \omega_r$	100yr	Variable	I _{5yr}	Q _p =2.78xCi _{5yr} A	Q,	$Q_p - Q_r$	5yr	Variable	1 _{2yr}	Q p=2.78xCi 2yr A	Q,	$Q_p \cdot Q_r$	2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
20	119.95	63.36	20.00	43.36	52.03	11	99.19	47.15	20.00	27.15	17.92	6	96.64	45.94	20.00	25.94	9.34
22	112.88	57.93	20.00	39.62	52.30	13	90.63	43.08	20.00	23.08	18.01	9	80.87	40.62	20.00	20.62	9.90
24	106.68	56.35	20.00	36.35	52.34	15	83.56	39.72	20.00	19.72	17.75	10	76.81	36.51	20.00	16.51	9.91
26	101.18	53.44	20.00	33.44	52.17	17	77.61	36.89	20.00	16.89	17.23	12	69.89	33.23	20.00	13.23	9.52
			Storago (n	3)				St.	brado (m ³)					S+/	vrago (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance	_	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	0.00	52.35	57.00	0.00	0.00		0.00	17.91	57.00	0.00	0.00		0.00	9.96	57.00	0.00	0.00
Drainage Area	RC	Drainage Area	Plan - MH7			Drainage Area	RC	ī				Drainage Area	RC	1			
Area (Ha)	0.050		1011 - 101117			Area (Ha)	0.050					Area (Ha)	0.050				
C =	1.00	Restricted Flow Q _r (L/s)=	8.00		C =	0.90	Restricted Flow Q _r (L/s)=	8.00		C =	0.90	Restricted Flow Q _r (I	_/s)=	8.00	
		100-Year F	onding			1		5-Year Pondin	g					2-Year Pondi	ng		
T _c	Lun-	Peak Flow	0.	00.	Volume	T _c	le.	Peak Flow	0.	00.	Volume	T _c	10-	Peak Flow	0.	00	Volume
Variable	* 100yr	Q _p =2.78xCi _{100yr} A	۹r	arp-arr	100yr	Variable	* syr	Q _p =2.78xCi _{5yr} A	w,	arp−arr	5yr	Variable	* Zyr	Q p = 2.78xCi 2yr A	w r	ap-ar	2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)
12	162.13	22.54	8.00	14.54	10.47	5	141.18	17.66	8.00	9.66	2.90	2	133.33	16.68	8.00	8.68	1.04
15	142.89	19.86	8.00	11.86	10.68	8	116.11	14.53	8.00	6.53	3.12	5	103.57	12.96	8.00	4.96	1.49
16	137.55	19.12	8.00	11.12	10.67	9	109.79	13.74	8.00	5.74	3.10	6	96.64	12.09	8.00	4.09	1.47
18	128.08	17.80	8.00	9.80	10.59	11	99.19	12.41	8.00	4.41	2.91	8	85.46	10.69	8.00	2.69	1.29
			Storage (n	n ³)				Ste	orage (m ³)					Ste	orage (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	0.00	10.68	13.50	1.00	0.00		0.00	3.13	13.50	0.00	0.00		0.00	1.49	13.50	0.00	0.00
		_															
				<u>~</u>				T									
Drainage Area	RD	Drainage Area	Plan - MH1	с		Drainage Area	RD	ļ				Drainage Area	RD				
Drainage Area Area (Ha) C =	0.050	Drainage Area	Plan - MH1	C 8.00		Drainage Area Area (Ha) C =	RD 0.050 0.90	Restricted Flow Q, (L/s)=	8.00		Drainage Area Area (Ha) C =	RD 0.050 0.90	Restricted Flow Q _r (I	_/s)=	8.00	
Drainage Area Area (Ha) C =	RD 0.050 1.00	Drainage Area	Plan - MH1 L/s)= Ponding	C 8.00		Drainage Area Area (Ha) C =	RD 0.050 0.90	Restricted Flow Q _r (L/s)=	8.00		Drainage Area Area (Ha) C =	RD 0.050 0.90	Restricted Flow Q _r (I	_/s)=	8.00	
Drainage Area Area (Ha) C = T _c	RD 0.056 1.00	Drainage Area Restricted Flow Q _r (100-Year F Peak Flow	Plan - MH1 L/s)= Ponding	c 8.00	Volume	Drainage Area Area (Ha) C =	RD 0.050 0.90	Restricted Flow Q _r (5-Year Pondin Peak Flow	L/s)= g	8.00	Volume	Drainage Area Area (Ha) C = T _c	RD 0.050 0.90	Restricted Flow Q _r (I 2-Year Pondi Peak Flow	./s)= ng	8.00	Volume
Drainage Area Area (Ha) C = T _c Variable	0.050 1.00	Drainage Area Restricted Flow Q _r (100-Year F Peak Flow Q _p =2.78xCi 100yr A	Plan - MH1 L/s)= Ponding Q,	C 8.00 Q _p -Q _r	Volume 100yr	Drainage Area Area (Ha) C = T _c Variable	RD 0.050 0.90 i _{5yr}	Restricted Flow Q _r (5-Year Pondin Peak Flow Q _p =2.78xCi _{Syr} A	L/s)= g Q,	8.00 Q _p -Q _r	Volume 5yr	Drainage Area Area (Ha) C = T _c Variable	RD 0.050 0.90 i _{2yr}	Restricted Flow Q _r (I 2-Year Pondi Peak Flow Q _p =2.78xCi _{2yr} A	_/s)= ng Q,	8.00 Q _p -Q _r	Volume 2yr
Drainage Area Area (Ha) C = T _c Variable (min)	RD 0.056 1.00 i _{100yr} (mm/hour)	Drainage Area	Plan - MH1 L/s)= Ponding Q, (L/s)	C 8.00 Q _p -Q _r (L/s)	Volume 100yr (m³)	Drainage Area Area (Ha) C = T_c Variable (min)	RD 0.050 0.90 i _{5yr} (mm/hour)	Restricted Flow Q _r (5-Year Pondin Peak Flow Q _p =2.78xCi _{syr} A (L/s)	L/s)= g Q, (L/s)	8.00 Q _p -Q _r (L/s)	Volume 5yr (m³)	Drainage Area Area (Ha) C = T _c Variable (min)	RD 0.050 0.90 i _{2yr} (mm/hour)	Restricted Flow Q _r (I 2-Year Pondi Peak Flow Q _p =2.78xCi _{2yr} A (L/s)	_/s)= ng Q, (L/s)	8.00 Q _p -Q _r (L/s)	Volume 2yr (m³)
Trainage Area Area (Ha) C = T _c Variable (min) 12 14	RD 0.050 1.00 <i>i</i> 100yr (<i>mm/hour</i>) 162.13 149.72	Drainage Area (Restricted Flow Q, (100-Year F Peak Flow Q p = 2.78xCi 100yr A (L/s) 22.54	Plan - MH1 L/s)= Ponding Q, (L/s) 8.00	C 8.00 Q _p -Q _r (L/s) 14.54 12.67	Volume 100yr (m ³) 10.47	Drainage Area Area (Ha) C = Tc Variable (min) 7	RD 0.050 0.90 i _{5yr} (mm/hour) 141.18 122.20	Restricted Flow Q _r (5-Year Pondin Peak Flow Q _p =2.78xCi _{syr} A (L/s) 17.66 15.42	L/s)= g Q , (L/s) 8.00 8.00	8.00 Q _p -Q _r (L/s) 9.66 7.42	Volume 5yr (m ³) 2.90	Trainage Area Area (Ha) C = Tc Variable (min) 2 4	RD 0.050 0.90 <i>i_{2yr}</i> (mm/hour) 133.33 1111 72	Restricted Flow Q _r (I 2-Year Pondi Peak Flow $Q_p = 2.78 \times Ci_{2yr} A$ (L/s) 16.68 12.09	./s)= Q _r <u>(L/s)</u> 8.00 8.00	8.00 Q _p -Q _r (L/s) 8.68 5.09	Volume 2yr (m ³) 1.04
Trainage Area Area (Ha) C = Variable (min) 12 14 15	RD 0.05(1.00 <i>i</i> _{100yr} (<i>mm/hour</i>) 162.13 148.72 142.89	Drainage Area (Restricted Flow Q, (100-Year F Peak Flow Q p = 2.78xCl 100yr A (L/s) 22.54 20.67 19.86	Plan - MH1 L/s)= Ponding Q, (L/s) 8.00 8.00 8.00	C 8.00 Q _p -Q _r (L/s) 14.54 12.67 11.86	Volume 100yr (m ³) 10.47 10.64 10.68	Trainage Area Area (Ha) C = Tc Variable (min) 5 7 8	RD 0.050 0.90 <i>i_{5yr} (mm/hour)</i> 141.18 123.30 116.11	Restricted Flow Q _r (5-Year Pondin Peak Flow Q _p = 2.78xCi _{Syr} A (L/s) 17.66 15.43 14.53	L/s)= Q r (L/s) 8.00 8.00 8.00	8.00 Q _p -Q _r (L/s) 9.66 7.43 6.53	Volume 5yr (m ³) 2.90 3.12 3.13	Trainage Area Area (Ha) C = T_c Variable (min) 2 4 5	RD 0.050 0.90 <i>i_{2yr} (mm/hour)</i> 133.33 111.72 103.57	Restricted Flow Q, (I 2-Year Pond Peak Flow Q _p = 2.78xCl _{2y} A (L/s) 16.68 13.98 12.96	L/s)= Q r (L/s) 8.00 8.00 8.00	8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96	Volume 2yr (m ³) 1.04 1.43 1.49
Trainage Area Area (Ha) C = T_c Variable (min) 12 14 15 16	RD 0.05(1.00 <i>i</i> 100yr (<i>mm/hour</i>) 162.13 148.72 142.89 137.55	Prainage Area Restricted Flow Q, (100-Year F Peak Flow Q _p =2.78xCi 100y A (L/s) 22.54 20.67 19.86 19.12	Plan - MH1 L/s)= Ponding Q, (L/s) 8.00 8.00 8.00 8.00 8.00	C 8.00 (L/s) 14.54 12.67 11.86 11.12	Volume 100yr (m ³) 10.47 10.64 10.68 10.67	Drainage Area Area (Ha) C = Variable (min) 5 7 8 9	RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79	Restricted Flow Q, (5-Year Pondin Peak Flow Q _p =2.78xCl _{5y} A (L/s) 17.66 15.43 14.53 13.74	L/s)= Q , (L/s) 8.00 8.00 8.00 8.00	8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74	Volume 5yr (m ³) 2.90 3.12 3.13 3.10	Trainage Area Area (Ha) C = Tc Variable (min) 2 4 5 6	RD 0.050 0.90 <i>i_{2yr} (mm/hour)</i> 133.33 111.72 103.57 96.64	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCl _{2y} A (L/s) 16.68 13.98 12.96 12.09	_/s)= Q , <u>(L/s)</u> 8.00 8.00 8.00 8.00	8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.09	Volume 2yr (m ³) 1.04 1.43 1.49 1.47
Drainage Area Area (Ha) C = Variable (min) 12 14 15 16 18	RD 0.05(1.00 <i>i</i> 100yr (<i>mm/hour</i>) 162.13 148.72 142.89 137.55 128.08	Drainage Area Restricted Flow Q, (100-Year F Peak Flow Q _p =2.78xC1topr 22.54 20.67 19.86 19.12 17.80	Plan - MH1 L/s)= Ponding Q, (L/s) 8.00 8.00 8.00 8.00 8.00 8.00	C 8.00 (L/s) 14.54 12.67 11.86 11.12 9.80	Volume 100yr (m ³) 10.47 10.64 10.68 10.67 10.59	Trainage Area Area (Ha) C = Tc Variable (min) 5 7 8 9 11	RD 0.050 0.90 i _{5yr} (mn/hour) 141.18 123.30 116.11 109.79 99.19 99.19	Restricted Flow Q, (5-Year Pondin Peak Flow Q _p =2.78xCl _{5y} A (L/s) 17.66 15.43 14.53 13.74 12.41	L/s)= Q, (L/s) 8.00 8.00 8.00 8.00 8.00	8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91	Drainage Area Area (Ha) C = Variable (min) 2 4 5 6 8	RD 0.050 0.90 i2yr (mn/hour) 133.33 111.72 103.57 96.64 85.46	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCl _{2p} A (L/s) 16.68 13.98 12.96 12.09 10.69	/s)= Qr (L/s) 8.00 8.00 8.00 8.00 8.00	8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.09 2.69	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29
Trainage Area Area (Ha) C = Tc Variable (min) 12 14 15 16 18	RD 0.055 1.00 <i>i</i> 100yr (<i>mm/hour</i>) 162.13 148.72 142.89 137.55 128.08	Paranage Area DRestricted Flow Q, () 100-Year F Peak Flow Q _p =2.78xCi 100pA (L/S) 22.54 20.67 19.86 19.12 17.80	Plan - MH1 L/s)= Ponding Q, (L/s) 8.00 8.0	C 8.00 Q _p -Q _r (L/s) 14.54 12.67 11.86 11.12 9.80 3 ³	Volume 100yr (m ³) 10.47 10.64 10.68 10.67 10.59	Trainage Area Area (Ha) C = Tc Variable (min) 5 7 8 9 11	RD 0.050 0.90 i _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19	Restricted Flow Q _c (5-Year Pondin Peak Flow Q _p =2.78xCi _{sy} A (U/s) 17.66 15.43 14.53 13.74 12.41 Stu	L/s)= g Q , (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 8.00 9.00 8.00 9.000 9.0000 9.0000 9.0000 9.0000 9.0000 9.0000 9.0000 9.0000 9.0000 9.0000 9.0000 9.0000 9.00000 9.00000 9.0000000000	8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91	Trainage Area Area (Ha) C = Variable (min) 2 4 5 6 8	RD 0.050 0.90 i _{3yr} (mn/hour) 133.33 111.72 103.57 96.64 85.46	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCi _{2y} A (L/s) 16.68 13.98 12.96 12.09 10.69 Std	/s)= Q , (L/s) 8.00 8.00 8.00 8.00 8.00 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.0000 9.0000 9.0000 9.0000 9.0000 9.0000 9.0000 9.00000 9.00000 9.00000 9.0000000000	8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.09 2.69	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29
Trainage Area Area (Ha) C = Tc Variable (min) 12 14 15 16 18	RD 0.056 1.00 i 100yr (mm/hour) 162.13 148.72 142.89 137.55 128.08 0Verflow	Drainage Area Drainage Area Destricted Flow Q, (100-Year F Peak Flow Q _ρ =2.78cC1 iooyr A (L/s) 22.54 20.67 19.86 19.12 17.80 Required	Plan - MH1 2onding Q, (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 Storage (n Surface	C 8.00 Q _p -Q _r (LS) 14.54 12.67 11.86 11.12 9.80 ³) Sub-surface	Volume 100yr (m ³) 10.47 10.64 10.66 10.67 10.59 Balance	Trainage Area Area (Ha) C = Variable (min) 5 7 8 9 11	RD 0.050 0.90 i _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow	Restricted Flow Q, (5-Year Pondin Peak Flow Q _p =2.78xCi _{5p} A (L/s) 17.66 15.43 14.53 13.74 12.41 Str Required	L/s)= g Q , (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 9.00 8.00 8.00 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.0000 9.0000 9.0000 9.0000 9.0000 9.0000 9.0000 9.00000 9.00000 9.00000 9.0000000000	8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance	Drainage Area Area (Ha) C = Variable (min) 2 4 5 6 6 8	RD 0.050 0.90 i _{2yr} (mn/hour) 133.33 111.72 103.57 96.64 85.46 85.46	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCl _{3p} A (L/s) 16.68 13.98 12.96 10.69 10.69	/s)= Q , (L/s) 8.00 8.00 8.00 8.00 8.00 Drage (m ³) Surface	8.00 Q _p -Q _r (L/S) 8.68 5.98 4.96 4.96 4.09 2.69	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance
Trainage Area Area (Ha) C = Variable (min) 12 14 15 16 18	RD 0.056 1.00 i100pr (mm/hour) 162.13 148.72 142.89 137.55 128.08 Overflow 0.00	Drainage Area Drainage Area Restricted Flow Q _i (1 100-Year F Peak Flow Q _p =2.78xC1 100pr A 122.54 20.67 19.86 19.12 17.80 Required 10.68	Plan - MH1 Ponding Q, (L/s) 8.00	C 8.00 (L/s) 14.54 14.54 11.66 11.12 9.80 3 ³) Sub-surface 1.00	Volume 100yr (m ³) 10.47 10.64 10.68 10.67 10.59 Balance 0.00	Drainage Area Area (Ha) C = Variable (min) 5 7 8 9	RD 0.050 0.990 ispr (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00	Restricted Flow Q ₁ 5-Year Pondin Peak Flow Q _p =2.78xCi _{pr} A (L/s) 17.66 15.43 14.53 14.53 13.74 12.41 Ste Required 3.13	L/s)= g (L/s) 8.00 8.00 8.00 8.00 8.00 brage (m ³) Surface 11.25	8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00	Drainage Area Area (Ha) C = Variable (min) 2 4 5 6 8	RD 0.0500 0.90 i3,33 111.72 103.57 96.64 85.46 Overflow 0.00	Restricted Flow Q, (I 2-Year Pondi Peak Flow Qp=278xCipyA (L/s) 16.68 13.96 12.96 10.69 Sta Required 1.49	/s)= Q r (L/s) 8.00 8.00 8.00 8.00 8.00 9.00 9.00 9.00 9.00 11.25	8.00 Q _p - Q _r (L/s) 8.88 5.98 4.96 4.99 2.69 Sub-surface 0.00	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00
Trainage Area Area (Ha) C = Tc Variable (min) 12 14 15 16 18	RD 0.055 1.00 i100yr (mm/hour) 162.13 148.72 148.72 142.89 0.05flow 0.00	Prainage Area Restricted Flow Q, (100-Year F Peak Flow Q _p =2.78x(100p, A (L/s) 22.54 20.67 19.86 19.12 17.80 Required 10.68	Plan - MH1 L/s)= Ponding Q, (L/s) 8.00 8.0	C 8.00 (L/s) 14.54 12.67 11.86 11.12 9.80 1.00 Sub-surface 1.00	Volume 100yr (m ³) 10.47 10.64 10.67 10.59 Balance 0.00	Trainage Area Area (Ha) C = Tc Variable (min) 5 7 8 9 11	RD 0.050 0.90 i _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00	Restricted Flow Q, 5-Year Pondin Peak Flow Q _p =2.78xCi ₅ _p A (L/s) 17.66 15.43 14.53 13.74 12.41 Stu Required 3.13	L/s)= g (L/s) 8.00 8.00 8.00 8.00 8.00 b c c c c c c c c	8.00 Q _p -Q _r 9.66 7.43 5.74 4.41 Sub-surface 0.00	Volume 5yr (m ³) 2.90 3.12 3.13 2.91 Balance 0.00	Drainage Area Area (Ha) C = Variable (min) 2 4 5 6 8	RD 0.050 0.390 i3yr (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q p=2.78xClgxA (L/s) 16.68 13.98 12.96 12.99 10.69 Stu Required 1.49	/s)= Q , (L/s) 8.00 8.00 8.00 8.00 8.00 Drage (m ³) Surface 11.25	8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.96 2.69 Sub-surface 0.00	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00
Trainage Area Area (Ha) C = Tc Variable (min) 12 14 15 16 18	RD 0.055 1.00 i.00 i.00 i.00 i.00 i.00 i.01 i.00 0.055 0.00 EXTERNAL 1.55	Drainage Area Drainage Area Destricted Flow Q, { 100-Year Peak Flow Q _p =2.78xCl 100yr A 22.54 20.67 19.86 17.80 Required 10.68	Plan - MH1 L/s)= Ponding Q, (L/s) 8.00 8.0	C 8.00 (U.S) 14.54 12.67 11.86 11.12 9.80 9.80 3) Sub-surface 1.00	Volume 100yr (m ¹) 10.47 10.64 10.68 10.67 10.59 Balance 0.00	Drainage Area Area (Ha) C = Tc Variable (min) 5 7 8 9 11	RD 0.050 0.90 i _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1550	Restricted Flow Q _i 5-Year Pondin Peak Flow Q _p =2.78xCi _{3p} A (L/s) 17.66 15.43 14.53 13.74 12.41 Stu Required 3.13	L/s)= g Q , (L/s) 8.00 8.00 8.00 8.00 8.00 Drage (m ³) Surface 11.25	8.00 Q _p - Q _r <u>9.66</u> 7.43 6.53 5.74 4.41 Sub-surface 0.00	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00	Drainage Area Area (Ha) C = Variable (min) 2 4 5 6 8	RD 0.050 0.300 133.33 111.72 103.57 96.64 0.00 Overflow 0.000 EXTERNAL 1.550	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCl _{2y} A (L/s) 16.68 13.98 12.99 10.69 Star Required 1.49	/s)= Qr (L/s) 8.00 8.00 8.00 8.00 8.00 9.00 8.00 11.25	8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.09 2.69 Sub-surface 0.00	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00
Drainage Area Area (Ha) C = Tr. Variable (min) 12 14 15 16 18 Drainage Area Area (Ha) C =	RD 0.055 1.00 1.00 1.00 1.00 1.00 162.13 148.72 137.55 128.08 Overflow 0.00 EXTERNAL 1.555 1.00	Drainage Area Drainage Area Restricted Flow Q, (100-Year F Peak Flow Q _p =2.78xC1 iogr A 10, 25, 54 20, 67 19, 86 19, 12 17, 80 Required 10, 68 0 Restricted Flow Q, (Plan - MH1 L/s)= Ponding Q, (L/s) 8.00 8.0	C 8.00 (L/s) 14.54 12.67 11.86 11.12 9.80 3 ³) Sub-surface 1.00	Volume 100yr (m ³) 10.47 10.64 10.67 10.59 Balance 0.00	Drainage Area Area (Ha) C = Tc Variable (min) 5 7 8 9 11 Drainage Area Area (Ha) C =	RD 0.050 0.90 ispr (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.880	Restricted Flow Q ₁ 5-Year Pondin Peak Flow Q _p = 2 78xCi _{sp} A 17 .66 15 .43 13 .74 12 .41 Stu Required 3 .13 Restricted Flow Q ₁	L/s)= g Q , (L/s) 8.00 8.00 8.00 8.00 8.00 00 8.00 00 8.00 00 00 00 00 00 00 00 00 00	8.00 Q _p - Q _r (US) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00	Drainage Area Area (Ha) C = Tc Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C =	RD 0.050 0.90 i _{2y} (mn/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCi _{2p} A (L/s) 16.68 13.98 12.96 10.69 Stat Required 1.49	/s)= ng Q, (L/s) 8.00 8.00 8.00 8.00 8.00 9.00 9.00 9.00 11.25 /s)=	8.00 Q _p - Q _r (<i>L</i> /s) 8.68 5.98 4.96 4.09 2.69 Sub-surface 0.00 291.58	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00
Trainage Area Area (Ha) C = Tc Variable (min) 12 14 15 16 18 Drainage Area Area (Ha) C =	RD 0.055 1.00 <i>i</i> tooyr (mm/hour) 162.13 148.72 142.89 137.55 128.08 Overflow 0.00 EXTERNAL 1.00	Drainage Area () Drainage Area () Restricted Flow Q, () 100-Year F Peak Flow Q _p =2.78xC1 (00p, A 22.54 20.67 19.86 19.12 17.80 Required 10.68 D Restricted Flow Q, (100-Year F	Plan - MH1 L/s)= Ponding Q, (L/s) 8.00 Storage (n L/s)= Ponding	C 8.00 (L/s) 14.54 12.67 11.86 11.12 9.80 3 ³ Sub-surface 1.00 291.58	Volume 100yr (m ³) 10.47 10.64 10.65 10.67 10.59 Balance 0.00	Drainage Area Area (Ha) C C = Tc Variable (min) 5 7 8 9 11 11 Drainage Area Area (Ha) C = C	RD 0.050 0.90 isyr (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80	Restricted Flow Q, (5-Year Pondin Peak Flow Q _p =2.78xCi _{sp} A (L/s) 17.66 15.43 14.53 13.74 12.41 Stu Required 3.13 Restricted Flow Q, (5-Year Pondin	L/s)= g Q, (L/s) 8.00 8.00 8.00 8.00 brage (m ³) Surface 11.25 L/s)= g	8.00 Q _p - Q _r (L/s) 9.66 7.43 5.74 4.41 Sub-surface 0.00 291.58	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00	Drainage Area Area (Ha) C = Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C =	RD 0.050 0.90 i3r (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80	Restricted Flow Q, (I 2-Year Pondi Peak Flow Qp=278Xcl3prA (L/s) 16.68 13.98 12.96 10.69 Ste Required 1.49 Restricted Flow Q, (I 2-Year Pondi	/s)= ng Q, (L/s) 8.00 8.00 8.00 8.00 8.00 0 0 0 0 0 0 0 0 0 0 0 0	8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.99 2.69 Sub-surface 0.00 291.58	Volume 2yr (m ³) 1.43 1.43 1.49 1.47 1.29 Balance 0.00
Trainage Area Area (Ha) C = Tc Variable (min) 12 14 15 16 18 Drainage Area Area (Ha) C = Tc	RD 0.055 1.00 1.00 inm/hour) 162.13 148.72 142.89 137.55 128.08 Overflow 0.00 EXTERNAL 1.551 1.00	Drainage Area Drainage Area Restricted Flow Q, (100-Year F Peak Flow Qp = 2.78x(100pr A (L/s) 22.54 20.67 19.86 19.12 17.80 Required 10.68 0 Restricted Flow Q, (100-Year F Peak Flow	Plan - MH1 (/s)= Ponding Q, (L/s) 8.00 8.0	C 8.00 (L/s) 14.54 12.67 11.86 11.12 9.80 9.80 1.00 Sub-surface 1.00 291.58	Volume 100yr (m ²) 10.47 10.64 10.67 10.59 Balance 0.00	Drainage Area Area (Ha) C = Tc Variable (min) 5 7 8 9 11 Drainage Area Area (Ha) C = Tr	RD 0.055 0.90 i _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80	Restricted Flow Q, 5-Year Pondin Peak Flow Q _p =2.78xCi ₅ _p A (L/s) 17.66 15.43 14.53 13.74 12.41 Stu Required 3.13 Restricted Flow Q, 5-Year Pondin Peak Flow	L/s)= g (L/s) 8.00 8.00 8.00 8.00 8.00 0 s .00 0 s .00 s .00	8.00 Q _p - Q , (L/s) 9.66 7.43 5.74 4.41 Sub-surface 0.00 291.58	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00	Drainage Area Area (Ha) C = Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C = T _c	RD 0.050 0.90 i3yr (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q,=27.8Xcl ₂ xA (L/s) 16.68 13.98 12.96 10.69 Ste Required 1.49 Restricted Flow Q, (I 2-Year Pondi Peak Flow	/s)= Q , (L/s) 8.00 8.00 8.00 8.00 8.00 Surface 11.25 //s)= ng	8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.96 2.69 2.69 Sub-surface 0.00 291.58	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00
Trainage Area Area (Ha) C = Tc Variable (min) 12 14 15 16 18 Drainage Area Area (Ha) C = C = Tc Variable	RD 0.055 1.00 1 100pr (mm/hour) 162.13 148.72 137.55 128.08 Overflow 0.00 EXTERNAL 1.550 1.00	Drainage Area Drainage Area Destricted Flow Q, (100-Year Peak Flow Q _p = 2.78xCl 100yr A (L/s) 22.54 20.67 19.86 19.12 17.80 Required 10.68 Destricted Flow Q, (100-Year Peak Flow Q _p =2.78xCl 100yr A	Plan - MH1 L(s)= Ponding Q, (L/s) 8.00 8.0	C 8.00 (L/S) 14.54 12.67 11.86 11.12 9.80 3 ³) Sub-surface 1.00 291.58 Q _p -Q _r	Volume 100yr (m ²) 10.47 10.64 10.67 10.59 Balance 0.00 Volume 100yr	Drainage Area Area (Ha) C C = Tc Variable (min) 5 7 8 9 11 Drainage Area Area (Ha) C = C = Tc Variable Variable	RD 0.050 0.90 isyr (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80 isyr	Restricted Flow Q, (5-Year Pondin Peak Flow Q _p =2.78xCi _{pr} A (L/s) 17.66 15.43 13.74 12.41 Str Required 3.13 Restricted Flow Q, (5-Year Pondin Peak Flow Q _p =2.78xCi _{pr} A	L/s)= g Q , (L/s) 8.00 8.00 8.00 8.00 s .00 s .0	8.00 Q _ρ -Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume 5yr	Drainage Area Area (Ha) C = Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C = 7 Variable 7 Variable	RD 0.050 0.90 i _{2y} (mn/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80 i _{2y}	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCi _{2p} A (L/s) 16.68 13.98 12.09 10.69 Stat Required 1.49 Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCi _{2p} A	/s)= ng Q, (L/s) 8.00 8.00 8.00 8.00 0 0 0 0 0 0 0 0 0 0 0 0	8.00 Q _p - Q _r (L/S) 8.68 5.98 4.99 2.69 Sub-surface 0.00 291.58 Q _p - Q _r	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr
Drainage Area Area (Ha) C = T_c Variable (min) 12 14 15 16 18 Drainage Area Area (Ha) C = Variable (min)	RD 0.055 1.00 i100yr (mm/hour) 162.13 148.72 142.89 137.55 128.08 Overflow 0.00 EXTERNAL 1.561 1.00 i100yr (mm/hour)	Drainage Area Drainage Area Restricted Flow Q, (100-Year F Peak Flow Q _p = 2.78xC1 ioop: A (L/s) 22.54 20.67 19.86 19.12 17.80 Required 10.68 D Destricted Flow Q, (100-Year F Peak Flow Q _p = 2.78xC1 ioop: A (L/s)	Plan - MH1 L(s)= Ponding Q, (L(s) 8.00 8.0	C 8.00 (L/s) 14.54 12.67 11.86 11.12 9.80 3 ³) Sub-surface 1.00 291.58 Q _p -Q _r (L/s)	Volume 100yr (m ³) 10.47 10.64 10.67 10.59 Balance 0.00 Volume 100yr (m ³)	Drainage Area Area (Ha) C C = Tc Variable (min) 5 7 8 9 11 11 Drainage Area Area (Ha) C = C Variable Variable (min) C = Tc Variable (min) (min)	RD 0.050 0.90 i _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80 i _{5yr} (mm/hour)	Restricted Flow Q _i 5-Year Pondin Peak Flow Q _p =2.78xCi _{pp} A (L/s) 17.66 15.43 14.53 13.74 12.41 Sta Required 3.13 Restricted Flow Q _i 5-Year Pondin Peak Flow Q _p =2.78xCi _{sp} A (L/s)	L/s)= g Q, (L/s) 8.00 8.00 8.00 8.00 8.00 9.00 8.00 11.25 L/s)= g Q, (L/s)	8.00 Q _p -Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58 Q _p -Q _r (L/s)	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume 5yr (m ³)	Drainage Area Area (Ha) C = Tc Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C = Tc Variable (Min) C = Variable (Variable) (min)	RD 0.050 0.90 i _{2y} (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80 i _{2yr} (mm/hour)	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q_p =2.78xCi _{2p} A (L/s) 16.68 13.98 12.96 12.09 10.69 Star Restricted Flow Q, (I 2.Year Pondi Peak Flow Q _p =2.78xCi _{2p} A (L/s)	/s)= Q , (L/s) 8.00 8.00 8.00 8.00 Surface 11.25 /s)= ng Q , (L/s)	8.00 Q _p -Q _r (L/s) 8.68 5.98 4.96 4.99 2.69 Sub-surface 0.00 291.58 Q _p -Q _r (L/s)	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr (m ³)
Drainage Area Area (Ha) C = Tc Variable (min) 12 14 15 16 18 Drainage Area Area (Ha) C = Tc Variable (min) 10 42	RD 0.055 1.00 <i>i</i> 100yr (mm/hour) 162.13 148.72 142.89 137.55 128.08 Overflow 0.00 EXTERNAL <i>i</i> 100yr (mm/hour) 178.56 178.57 178.59	Prainage Area Drainage Area Restricted Flow Q, (100-Year F Peak Flow Q _p =2.78xC1:00p, A 22.54 22.64 19.86 19.12 17.80 Required 10.68 D Restricted Flow Q, (100-Year F Peak Flow Q _p =2.78xC1:00p, A (L/s) 769.41 600 e 2	Plan - MH1 L/s)= Ponding Q, (L/s) 8:00 8:0	C 8.00 (L/s) 14.54 12.67 11.86 11.12 9.80 3 ³ Sub-surface 1.00 291.58 Q _p -Q _r (L/s) 477.83 407.05	Volume 100yr (m ³) 10.47 10.64 10.67 10.59 Balance 0.00 Volume 100yr (m ³) 286.70 203.09	Drainage Area Area (Ha) C = Tc Variable (min) 5 7 8 9 11 Drainage Area Area (Ha) C = Tc Variable (min) 2 4	RD 0.050 0.300 isyr (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80 isyr (mm/hour) 182.69 182.69 182.65 182.65	Restricted Flow Q, (5-Year Pondin Peak Flow Q _p =2.78xCi _{pr} A (L'sc) 17.66 15.43 14.53 13.74 12.41 Stu Required 3.13 Restricted Flow Q, (5-Year Pondin Peak Flow Q _p =2.78xCi _{pr} A (L's) 629.76	L/s)= g Q , (L/s) 8.00 8.00 8.00 8.00 Surface 11.25 g Q , (L/s)= g Q , (L/s)= g Q , (L/s)= g	8.00 $Q_{\rho}-Q,$ (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58 Q_{\rho}-Q, (L/s) 338.18 224.46	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume 5yr (m ³) 40.58	Drainage Area Area (Ha) C = Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C = Tc Variable (min) 0 2	RD 0.050 0.90 i3r 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80 i33r i67.22 167.22 129.29	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q,=27.8X.Clgr,A (L/s) 16.68 13.98 12.96 12.99 10.69 Sta Required 1.49 Restricted Flow Q, (I 2-Year Pondi Peak Flow Q,=2.78X.Clgr,A (L/s) 576.45 450 e2	/s)= Q , (L/s) 8.00 8.00 8.00 8.00 Surface 11.25 Surface 11.25 C (s)= Ng Q , (L/s) 291.58 291	8.00 Q _p -Q _r (L/s) 8.68 5.98 4.96 4.99 2.69 Sub-surface 0.00 291.58 Q _p -Q _r (L/s) 284.87 168.94	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr (m ³) 0.00 20.14
Drainage Area Area (Ha) C = Tc Variable (min) 12 14 15 16 18 Drainage Area Area (Ha) C = Tc, Variable (min) 10 12 13	RD 0.055 1.00 i.00 1.00 i.00 i.00 i.00 i.01 i.02 i.03 i.048.72 i.02 i.02 0.00 EXTERNAL i.00 i.00 <td>Drainage Area i Drainage Area i Destricted Flow Q, (100-Year F Peak Flow Q_p = 2.78xCl tooyr A 22.54 20.67 19.86 19.12 17.80 Required 10.68 D Destricted Flow Q, (100-Year F Peak Flow Q_p = 2.78xCl tooyr A 22.769xCl tooyr A (L/s) 769.41 698.63 668.36</td> <td>Plan - MH1 L(s)= Ponding Q, (L/s) 8.00 8.0</td> <td>C 8.00 $Q_{p}-Q_{r}$ (L/S) 14.54 12.67 11.86 11.12 9.80 9.80 1.00 Sub-surface 1.00 291.58 $Q_{p}-Q_{r}$ (L/S) 407.05 376.78</td> <td>Volume 100yr (m²) 10.47 10.64 10.65 10.67 10.59 Balance 0.00 Volume 100yr (m²) 286.70 293.08 293.08</td> <td>Drainage Area Area (Ha) C = Tc Variable (min) 5 7 8 9 11 Area (Ha) C = C = Variable (min) C = Variable (min) C = Variable (min) 2 4 5</td> <td>RD 0.050 0.90 ispr (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80 ispr (mm/hour) 182.69 152.51 141.18</td> <td>Restricted Flow Q_i S-Year Pondin Peak Flow Q_p=2.78xCi_{pr}A (L/s) 17.66 15.43 14.53 13.74 12.41 Star Required 3.13 Restricted Flow Q_i Star Pondin Peak Flow Q_p=2.78xCi_{pr}A (L/s) 629.76 525.73 486.67</td> <td>L/s)= g Q, (L's) 8.00</td> <td>8.00 Q_ρ-Q_r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58 Q_ρ-Q_r (L/s) 338.18 234.15 195.09</td> <td>Volume 5yr (m³) 2.90 3.12 3.13 3.10 2.91 2.91 2.91 2.91 2.91 2.91 2.91 2.91</td> <td>Drainage Area Area (Ha) C = Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C = C = Variable (min) 0 2 3</td> <td>RD 0.050 0.90 i_{2y} (mn/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80 i_{2y} (mn/hour) 167.22 133.33 121.46</td> <td>Restricted Flow Q, (I 2-Year Pondi Peak Flow Qp=2.78xC1₂₀A (L/s) 16.68 13.98 12.96 12.09 10.69 Stat Required 1.49 Peak Flow Qp=2.78xC1₂₀A Qp=2.78xC1₂₀A 576.45 459.62</td> <td>/s)= Q, (L/s) 8.00 8.00 8.00 8.00 Surface 11.25 Surface 11.25 /s)= Q, (L/s) 291.58 291.58</td> <td>8.00 Q_p-Q_r (<i>L</i>(<i>s</i>) 8.68 5.98 4.96 4.09 2.69 2.69 Sub-surface 0.00 291.58 Q_p-Q_r (<i>L</i>(<i>s</i>) 284.87 168.04 127.13</td> <td>Volume 2yr (m²) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr (m²) 0.00 20.16 22.88</td>	Drainage Area i Drainage Area i Destricted Flow Q, (100-Year F Peak Flow Q _p = 2.78xCl tooyr A 22.54 20.67 19.86 19.12 17.80 Required 10.68 D Destricted Flow Q, (100-Year F Peak Flow Q _p = 2.78xCl tooyr A 22.769xCl tooyr A (L/s) 769.41 698.63 668.36	Plan - MH1 L(s)= Ponding Q, (L/s) 8.00 8.0	C 8.00 $Q_{p}-Q_{r}$ (L/S) 14.54 12.67 11.86 11.12 9.80 9.80 1.00 Sub-surface 1.00 291.58 $Q_{p}-Q_{r}$ (L/S) 407.05 376.78	Volume 100yr (m ²) 10.47 10.64 10.65 10.67 10.59 Balance 0.00 Volume 100yr (m ²) 286.70 293.08 293.08	Drainage Area Area (Ha) C = Tc Variable (min) 5 7 8 9 11 Area (Ha) C = C = Variable (min) C = Variable (min) C = Variable (min) 2 4 5	RD 0.050 0.90 ispr (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80 ispr (mm/hour) 182.69 152.51 141.18	Restricted Flow Q _i S-Year Pondin Peak Flow Q _p =2.78xCi _{pr} A (L/s) 17.66 15.43 14.53 13.74 12.41 Star Required 3.13 Restricted Flow Q _i Star Pondin Peak Flow Q _p =2.78xCi _{pr} A (L/s) 629.76 525.73 486.67	L/s)= g Q , (L's) 8.00	8.00 Q _ρ -Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58 Q _ρ -Q _r (L/s) 338.18 234.15 195.09	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 2.91 2.91 2.91 2.91 2.91 2.91 2.91	Drainage Area Area (Ha) C = Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C = C = Variable (min) 0 2 3	RD 0.050 0.90 i _{2y} (mn/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80 i _{2y} (mn/hour) 167.22 133.33 121.46	Restricted Flow Q, (I 2-Year Pondi Peak Flow Qp=2.78xC1 ₂₀ A (L/s) 16.68 13.98 12.96 12.09 10.69 Stat Required 1.49 Peak Flow Qp=2.78xC1 ₂₀ A Qp=2.78xC1 ₂₀ A 576.45 459.62	/s)= Q , (L/s) 8.00 8.00 8.00 8.00 Surface 11.25 Surface 11.25 /s)= Q , (L/s) 291.58 291.58	8.00 Q _p - Q _r (<i>L</i> (<i>s</i>) 8.68 5.98 4.96 4.09 2.69 2.69 Sub-surface 0.00 291.58 Q _p - Q _r (<i>L</i> (<i>s</i>) 284.87 168.04 127.13	Volume 2yr (m ²) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr (m ²) 0.00 20.16 22.88
Drainage Area Area (Ha) C = r. Variable (min) 12 14 15 16 18 Drainage Area Area (Ha) C = Variable (min) 10 12 13 14	RD 0.055 1.00 1.00 1.00 1.00 1.01 162.13 148.72 142.89 137.55 128.08 Overflow 0.00 EXTERNAL 1.56 1.00 1.78.56 162.13 178.56 162.13 155.11 148.72	Drainage Area () Drainage Area () Restricted Flow Q, () 100-Year F Peak Flow Q _p =2.78xC1 (oby, A) 22.54 20.67 19.86 19.12 17.80 Required 10.68 0 Restricted Flow Q, () Peak Flow Q _p =2.78xC1 (oby, A) 0 Required 10.68 0 0 698.63 698.63 640.85	Plan - MH1 L(s)= Ponding Q, (L/s) 8.00 8.	C 8.00 (L/S) 14.54 12.67 11.86 11.12 9.80 3 ³) Sub-surface 1.00 291.58 Q _p -Q _r (L/S) 407.05 376.78 349.27	Volume 100yr (m ²) 10.47 10.64 10.67 10.59 Balance 0.00 Volume 100yr (m ³) 286.70 293.08 293.38	Drainage Area Area (Ha) C Tc Variable (min) 5 7 8 9 11 Drainage Area Area (Ha) C = Tc Variable (min) C = Variable (min) 2 4 5 6	RD 0.050 0.90 ispr (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1550 0.80 ispr (mm/hour) 162.69 152.51 141.18	Restricted Flow Q _i Peak Flow $Q_p = 2.78xCi_{sp}A$ (L/s) 17.66 15.43 13.74 12.41 Str Required Required Restricted Flow Q _i $Q_p = 2.78xCi_{sp}A$ (L/s) $Q_p = 2.78xCi_{sp}A$ (L/s) 629.76 529.73 486.67 455.54	L(s)= g Q, (L(s) 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.00 11.25 11.25 L(s)= g Q, (L(s) 291.58 291.58 291.58	8.00 Q _p - Q _r (US) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58 Q _p - Q _r (US) 338.18 234.15 195.09 161.96	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume 5yr (m ³) 40.58 56.19 58.63 58.31	Drainage Area Area (Ha) C = Tc Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C = Variable (min) 0 2 3 4	RD 0.0500 0.90 i _{2p} (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80 i _{2pr} (mm/hour) 167.22 133.33 121.46 11.72	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCi _{2p} A (L/s) 16.68 12.96 12.09 10.69 Stt Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCi _{2p} A (L/s) Stat Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCi _{2p} A (L/s) 576.45 455.62 418.71 385.13	J/s)= ng Q, (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 11.25 11.25 11.25 11.25 11.25 11.25 11.25 291.58 291.58 291.58	8.00 Q _p -Q _r (L/s) 8.68 5.98 4.96 4.09 2.69 Sub-surface 0.00 291.58 Q _p -Q _r (L/s) 284.87 108.04 127.13 95.55	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr (m ³) 0.00 20.16 22.88 22.45
Drainage Area Area (Ha) C = Tc Variable (min) 12 14 15 16 18 Drainage Area Area (Ha) C = Variable (min) 10 12 13 14 16	RD 0.055 1.00 1.00 1.00 1.00 1.00 162.13 148.72 142.89 137.55 128.08 Overflow 0.00 EXTERNAL 1.55 1.78.56 162.13 155.11 155.11 137.55	Image Area Drainage Area Restricted Flow Q, (100-Year F Peak Flow Q _p = 2.78xC1 iooy: A (L/s) 22.54 20.67 19.86 19.12 17.80 Required 10.68 D Restricted Flow Q, (100-Year F Peak Flow Q _p = 2.78xC1 iooy: A (L/s) 769.41 698.63 640.85 592.70	Plan - MH1 Us)= Ponding Q, (Us) 8.000 8.00	C 8.00 (L/s) 14.54 12.67 11.86 11.12 9.80 3 ³) Sub-surface 1.00 291.58 Q _p -Q _r (L/s) 477.83 4477.83 4477.05 376.78 349.27 301.12	Volume 100yr (m ³) 10.47 10.68 10.67 10.59 Balance 0.00 Volume 100yr (m ³) 286.70 293.89 293.89 283.89	Drainage Area Area (Ha) C C = Tc Variable (min) 5 7 8 9 11 11 Drainage Area Area (Ha) C = C Variable (min) C = C Variable (min) C = C 0 0 4 5 6 8	RD 0.050 0.90 ispr (mm/hour) 141.18 123.30 116.11 00.979 99.19 Overflow 0.00 EXTERNAL 182.69 152.51 141.18 131.57 116.11	Restricted Flow Q, (5-Year Pondin Peak Flow Q_p =2.78xCi _{pr} A (L/s) 17.66 15.43 14.53 14.53 13.74 12.41 Stu Required 3.13 Restricted Flow Q, (5-Year Pondin Peak Flow Q_p =2.78xCi _{pr} A (L/s) 629.76 52.73 486.67 486.67	L/s)= g Q , (L/s) 8.00 8.00 8.00 8.00 8.00 Surface 11.25 Surface 11.25 g Q , (L/s)= g Q , (L/s)= 29 1.58 291.58 291.58	8.00 Q _p -Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58 Q _p -Q _r (L/s) 338.18 234.15 195.09 161.96 108.68	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume 5yr (m ³) 40.58 5yr (m ³) 40.58 58.53 58.53 58.31 52.17	Drainage Area Area (Ha) C = Tc Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C = Tc Variable (min) 0 2 3 4 6	RD 0.050 0.90 i _{2y} (mm/hour) 133.33 111.72 103.57 96.64 0.00 EXTERNAL 1.550 0.80 1.550 0.80 1.550 0.80 1.550 96.64 167.22 133.33 121.46 111.72 96.64	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q,=2.78xC1 _{2y} A 16.68 13.96 12.96 10.69 Ster Required 1.49 Peak Flow Q,=2.78xC1 _{2y} A (L's) Freak Flow Q,=2.78xC1 _{2y} A (L's) 576.45 459.62 418.71 385.13 333.13	/s)= ng Q, (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 8.00 9.00 8.00 11.25 (/s)= ng Q, (L/s) 291.58 291.58 291.58	8.00 Q _p -Q _r (L/s) 8.68 5.98 4.96 4.99 2.69 Sub-surface 0.00 291.58 Q _p -Q _r (L/s) 284.87 127.13 93.55 41.55	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr (m ³) 0.00 20.16 22.88 22.45 14.96
Drainage Area Area (Ha) C = Te Variable (min) 12 14 15 16 18 Drainage Area Area (Ha) C = Te Variable (min) 10 12 13 14 16	RD 0.055 1.00 i.00 1.00 i.00 1.00 i.00 162.13 148.72 137.55 0.00 EXTERNAL 1.556 1.62.13 1.00 1.555 1.00 1.00 1.78.56 162.13 155.11 148.72 137.55	Drainage Area i Drainage Area i Destricted Flow Q, (100-Year F Peak Flow Q _p =2.78xCl 100pr A 12.54 22.65 19.12 17.80 Required 10.68 0 Restricted Flow Q, (10.68 0 Restricted Flow Q, (100-Year F Peak Flow Q _p =2.78xCl 100pr A (L/s) 769.41 668.36 640.85 592.70	Plan - MH1 L(s)= Ponding Q, (L(s) 8.00 8.01 8.01 8.01 8.01 8.02 8.22 8.2	C 8.00 $Q_{p}-Q_{r}$ (<i>L/s</i>) 14.54 12.67 11.86 11.12 9.80 9.80 9.80 9.80 9.80 9.80 9.80 9.80 9.80 9.80 (<i>L/s</i>) 291.58 $Q_{p}-Q_{r}$ (<i>L/s</i>) 407.05 376.78 339.27 301.12	Volume 100yr (m ²) 10.47 10.64 10.68 10.67 10.59 Balance 0.00 Volume 100yr (m ²) 286.70 293.08 293.38 289.08	Drainage Area Area (Ha) C = Tc Variable (min) 5 7 8 9 11 Drainage Area Area (Ha) C = Variable (min) C = Variable (min) 2 4 5 6 8	RD 0.050 0.90 isyr (mm/hour) 141.18 123.30 1109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80 isyr (mm/hour) 182.69 152.51 141.18 131.57 116.11	Restricted Flow Q, $(1, 5-Year Pondin Q_p = 2.78xCi_{sy}A (U/s)$ 17.66 15.43 14.53 13.74 12.41 Stur Required 3.13 Restricted Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 6-Year Pondin Peak Flow Q, $(2, 5-Ya)$ 15-Year Pondin Peak Flow Peak F	L/s)= g (L/s) 8.00 8.00 8.00 8.00 brage (m ³) Surface 11.25 g Q , (L/s)= g Q , (L/s)= g Q , (L/s)= 29 1.58 291.58	8.00 Q _p -Q _r 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58 Q _p -Q _r (L/s) 338.18 234.15 195.09 161.96 108.68	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume 5yr (m ³) 40.58 56.19 58.63 58.31 52.17	Drainage Area Area (Ha) C = Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C = Tc Variable (min) C = Tc Variable (min) C = 3 4 6 3 4 6	RD 0.050 0.90 i3r 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 167.22 13.33 121.46 111.72 96.64	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q = 2.78xCig_A (L/s) 16.68 13.98 12.96 12.99 10.69 Sta Required 1.49 Restricted Flow Q, (I Peak Flow Q = 2.78xCig_A (L/s) 576.45	/s)= ng Q, (L/s) 8.00 8.00 8.00 8.00 8.00 9.0	8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.96 2.69 Sub-surface 0.00 291.58 Q _p - Q _r (L/s) 284.87 168.04 127.13 93.55 41.55	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr (m ³) 0.00 20.16 22.45 14.96
Drainage Area Area (Ha) C = Tc Variable (min) 12 14 15 16 18 Drainage Area Area (Ha) C = C = Variable (min) 10 12 14 16	RD 0.055 1.00 1.00 1.00 1.00 162.13 148.72 137.55 128.08 Overflow 0.00 EXTERNAL 1.55 1.62.13 1.65.51 1.65.51 148.72 137.55 Overflow	Image Area i Drainage Area i Destricted Flow Q, (100-Year F Peak Flow Q _p = 2.78xCl 100yr A (L/s) 22.54 20.67 19.86 19.12 17.80 Required 10.68 0 Restricted Flow Q, (100-Year F Peak Flow Q _p = 2.78xCl 100yr A (L/s) 769.41 698.63 640.85 592.70 Required	Plan - MH1 L(s)= Ponding Q, (L/s) 8.00 8.0	C 8.00 $Q_{p}-Q_{r}$ (L/S) 14.54 12.67 11.86 11.12 9.80 $^{3}^{3}$ Sub-surface 1.00 291.58 $Q_{p}-Q_{r}$ (L/S) 477.83 407.05 376.78 349.27 301.12 3 Sub-surface	Volume 100yr (m ²) 10.47 10.64 10.67 10.59 Balance 0.00 Volume 100yr (m ²) 286 70 293.08 293.38 289.05 Balance	Drainage Area Area (Ha) C = Tc Variable (min) 5 7 8 9 11 Drainage Area Area (Ha) C = Variable (min) 2 Variable (min) 2 4 5 6 8	RD 0.050 0.90 ispr (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 152.61 152.61 152.61 152.61 131.67 116.11 Overflow	Restricted Flow Q _i (5-Year Pondin Peak Flow $Q_p = 2.78xCi_{sp}A$ (<i>L/s</i>) 17.66 15.43 14.53 13.74 12.41 12.41 Stript of Constant Stript of Constant Stri	L/s)= g Q , (L/s) 8.00	8.00 Q _ρ -Q _r (L/s) 9.66 7.43 5.74 5.74 5.74 9.66 7.43 5.74 9.66 7.73 9.66 7.43 5.74 9.00 291.58 Q _ρ -Q _r (L/s) 338.18 224.15 196.09 108.68 Sub-surface	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume 5yr (m ³) 40.58 56.19 56.19 56.53 58.53 52.17 Balance	Drainage Area Area (Ha) C = Tc Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C = Tc Variable (min) 0 2 3 4 6	RD 0.0500 0.90 i ₃ 11.72 103.33 111.72 103.67 96.64 85.46 Overflow 0.00 EXTERNAL 167.22 133.33 121.46 111.72 96.64	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCl _{2p} A (L/s) 16.68 13.98 12.96 10.69 Stt Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCl _{2p} A 459 62 418.71 385.13 333.13 Stt Required	J/s)= ng Q, (L/s) 8.00 8.00 8.00 8.00 8.00 9.00 8.00 11.25 12.15	8.00 Q _ρ -Q _r (L/s) 8.68 5.98 4.09 2.69 Sub-surface 0.00 291.58 Q _ρ -Q _r (L/s) 284.87 168.04 127.13 93.55 41.55	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr (m ³) 0.00 20.16 22.88 22.45 14.96 Balance
Drainage Area Area (Ha) C = Tc Variable (min) 12 14 15 16 18 Drainage Area Area (Ha) C = Variable (min) 10 12 13 14 16	RD 0.055 0.056 1.00 1.00 1.00 1.01 1.02 1.03 148.72 137.55 128.08 Overflow 0.00 EXTERNAL 1.55 1.00 1.78.56 162.13 155.11 178.55 137.55 Overflow 0.00	Image Area () Drainage Area () Destricted Flow Q, () 100-Year F Peak Flow Q _p =2.78cC1 (op, A) 22.54 20.67 19.86 19.12 17.80 Required 10.68 Deak Flow Q _p =2.78cC1 (op, A) 100-Year F Peak Flow Q _p =2.78cC1 (op, A) (L/s) Chool (100-Year F) Peak Flow Q _p =2.78c(1 (op, A) 698.63 668.36 640.85 592.70 Required 293.89	Plan - MH1 L(s)= Ponding Q, (L(s) 8.00 8.0	C 8.00 (L/s) 14.54 12.67 11.86 11.12 9.80 3 ³) Sub-surface 1.00 291.58 Q _p -Q _r (L/s) 407.05 376.78 349.27 301.12 ³) Sub-surface 0.00	Volume 100yr (m ²) 10.47 10.64 10.67 10.59 Balance 0.00 Volume 100yr (m ²) 286.70 293.89 289.08 Balance 23.89	Drainage Area Area (Ha) C - - Variable (min) - 5 - 7 - 8 9 11 - - -	RD 0.050 0.90 ispr (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 182.69 152.51 141.18 131.57 116.11 Overflow 0.00	Restricted Flow Q _i 5-Year Pondin <i>Peak Flow Q_p</i> =2.78xCi _{pr} A (L/s) 17.66 15.43 14.53 13.74 12.41 String A Restricted Flow Q _i <i>String A</i> Restricted Flow Q _i <i>Q_p</i> =2.78xCi _{5p} A <i>L</i> (<i>x</i>) <i>Stringe A String A Required String A String A String A String A</i>	L/s)= g Q, (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 8.00 11.25 Surface 11.25 Q, (L/s)= g Q, (L/s)= 291.58 291.5	8.00 Q _ρ -Q _τ (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58 Q _ρ -Q _τ (L/s) 338.18 2234.15 196.09 161.96 108.68	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume 5yr (m ³) 40.56 56.19 58.53 58.51 52.17 Balance 0.00	Drainage Area Area (Ha) C = Tc Variable (min) 2 5 6 8 Drainage Area Area (Ha) C = Variable (min) 0 2 3 4 6	RD 0.050 0.90 i _{2y} (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 167.22 13.33 121.46 111.72 96.64 Overflow 0.00	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78x(2 _p A 16.68 13.98 12.96 12.09 10.69 Stt Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78x(2 _p A (L/s) 576.45 459.62 418.71 385.13 333.13 Sta Required 22.88	J/s)= ng Q, (L/s) 8.00 8	8.00 Q _p -Q _r (L/s) 8.68 5.99 4.96 4.09 2.69 Sub-surface 0.00 291.58 Q _p -Q _r (L/s) 284.87 168.04 127.13 93.55 41.55 Sub-surface 0.00	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr (m ³) 0.00 20.16 22.45 14.96 Balance 0.00
Drainage Area Area (Ha) C = Tr. Variable (min) 12 14 15 16 18 Drainage Area Area (Ha) C = Variable (min) 10 12 13 14 16	RD 0.055 1.00 1.00 1.00 1.00 1.00 162.13 148.72 142.89 137.55 128.08 Overflow 0.00 EXTERNAL 178.56 162.13 155.11 178.55 128.02 0.00 Overflow 0.00	Drainage Area Drainage Area Restricted Flow Q, (100-Year F Qp = 2.78xC1 ioop: A (L/s) 22.54 20.67 19.86 19.12 17.80 Required 10.68 D Required Flow Q, (100-Year F Peak Flow Qp = 2.78xC1 ioop: A (L/s) 769.41 668.36 640.85 592.70 Required 2.93.89	Plan - MH1 Us)= Ponding Q, (Us) 8.00	C 8.00 8.00 $Q_{p}-Q_{r}$ (L/s) 14.54 12.67 11.86 11.12 9.80 3 ³) Sub-surface 1.00 291.58 $Q_{p}-Q_{r}$ (L/s) 407.05 376.78 349.27 301.12 301.12 	Volume 100yr (m ³) 10.47 10.64 10.67 10.59 Balance 0.00 Volume 100yr (m ³) 286.70 293.08 293.88 289.08	Drainage Area Area (Ha) C C = Tc Variable (min) 5 7 8 9 11 11 Drainage Area Area (Ha) C = C Variable (min) C = C Variable (min) C = 5 6 8	RD 0.050 0.90 ispr (mm/hour) 141.18 123.30 116.11 00.979 99.19 Overflow 0.00 EXTERNAL 182.69 152.51 141.18 116.11 Overflow 0.00	Restricted Flow Q, (5-Year Pondin Peak Flow Q_p =2.78xCi _{pr} A (L/s) 17.66 15.43 14.53 13.74 12.41 Stu Required 3.13 Restricted Flow Q, (5-Year Pondin Peak Flow Q_p =2.78xCi _{pr} A (L/s) 629.76 525.73 480.67 480.67 480.67 525.73 480.67 525.73 480.67 55.53 58.53	L/s)= g Q, (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 8.00 11.25 L/s)= g Q, (L/s)= 291.58 29	8.00 Q _p -Q _r (L/s) 9.866 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58 Q _p -Q _r (L/s) 338.18 234.15 196.09 161.96 108.68 Sub-surface 0.00	Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume 5yr (m ³) 40.58 56.19 58.53 58.53 58.53 58.31 52.17	Drainage Area Area (Ha) C = Tc Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C = Variable (min) 0 2 3 4 6	RD 0.050 0.90 i _{2y} (mm/hour) 133.33 111.72 103.57 96.64 0.000 EXTERNAL 1.550 0.80 i _{2yr} (mm/hour) 167.22 133.33 121.46 0.00 Overflow 0.00	Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCi ₂ _p A (L/s) 16.68 13.98 12.96 12.09 10.69 Sta Restricted Flow Q, (I 2-Year Pondi Peak Flow Q _p =2.78xCi ₂ _p A (L/s) 576.45 459.62 418.71 333.13 Sta Required 2.288	/s)= ng Q, (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 11.25 11.25 yrage (m ³) 291.58	8.00 Q _p -Q _r (L/s) 8.68 5.98 4.96 4.99 2.69 Sub-surface 0.00 291.58 Q _p -Q _r (L/s) 284.87 188.04 127.13 92.55 41.55 Sub-surface 0.00	Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr (m ³) 0.00 20.16 22.45 14.96 Balance 0.00

	Area	Flow
Buildings		63.00
Site		377.00
Uncontrolled	0.06	27.92
External		291.58
	0.060	759.50
Allowable		760.00
		TRUE









User Inputs

SC-310

Chamber Model:

<u>Results</u>

Ł

8" (2.4 m) MAX

18" (450 mm) MIN*

DEPTH OF STONE TO BE DETERMINED BY SITE DESIGN ENGINEER 6" (150 mm) MIN

6" (150 mm) MIN F

16" (405 mm)

ł

12" (300 mm) TYP

- 34" (865 mm) ---

Outlet Control Structure:	Yes	Installed Storage Volume:	99.64 cubic motors
Project Name:	148290 Dun Skipper	Storage Volume.	0.42 subis restars
Engineer:	Amy Zhuang	Storage volume Per Chamber:	0.42 cubic meters.
Project Location:	Ontario	Number of Chambers Required:	72
Measurement Type:	Metric	Number Of End Caps Required:	16
Required Storage Volume:	88.00 cubic meters.	Chamber Rows:	8
Stone Porosity:	30%	Maximum Length:	21.51 m.
Stone Foundation Depth:	200 mm.	Maximum Width:	8.77 m.
Stone Above Chambers:	600 mm.	Approx. Bed Size Required:	186.96 square me- ters.
Design Constraint Dimensions:	(9.01 m. x 22.01 m.)	Average Cover Over Chambers:	N/A .
		<u>System Compor</u>	<u>nents</u>
		Amount Of Stone Required:	196 cubic meters
		Volume Of Excavation (Not Including Fill):	226 cubic meters
		Total Non-woven Geotextile Required	d: 537 square meters
		Woven Geotextile Required (excludin Isolator Row):	g 27 square meters
		Woven Geotextile Required (Isolator Row):	30 square meters
		Total Woven Geotextile Required:	56 square meters
		Impervious Liner Required:	0 square meters
EMBEDMENT STONE SHALL BE A CLEAN, CRUSHED AND STONE WITH AN AASHTO M43 DESIGNATION BETWEEN CHAMBERS SHALL MEET THE REQUIREN ASTM F2418 POLYPROPLENE (PP) OR ASTM F922 POLYETHYLENE (PE) ADS GEOSYTHETICS GUT N GEOTEXTILE ALL ARQUNC CLEAN	ANGULAR #3 AND #57 HENTS FOR HAMBERS CHAMBERS ON-WOVEN CRUSHED.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTU FINES, COMPACT IN 6° (150 mm) MAX LIFTS TO 95% F DENSITY. SEE THE TABLE OF ACCEPTABLE FILL MAT CHAMBERS SHALL BE BE DESIGNED IN ACCORDANC "STANDARD PRACTICE FOR STRUCTURAL DESIGN O CORRUGATED WALL STORMWATER COLLECTION OF DAVIENT LAYER (DESIGNED)	JRES, <35% 'ROCTOR IERIALS. DE WITH ASTM F2787 DF THERMOPLASTIC HAMBERS".
ANGULAR EMBEDM	ENT STONE	BY SITE DESIGN ENGINEER)	

END CAP

PERIMETER STONE EXCAVATION WALL (CAN BE SLOPED OR VERTICAL)

12" (300 mm) MIN

SITE DESIGN ENGINEER IS RESPONSIBLE FOR THE ENSURING THE REQUIRED BEARING CAPACITY OF SUBGRADE SOILS

MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24 (600 mm).

6" (150 mm) MIN



500-333 Preston Street

Ottawa, Ontario K1S 5N4 Canada IBI GROUP ibigroup.com

Orifice coefficients											
Cv =	0.60										

-							Theo	pretical		Recommended
	Invert	Diameter	Centre ICD	Max. Pond Elevation	Hydraulic Slope	Target Flow	Orifice	Actual Flow	Orifice	Actual Flow
	(m)	(mm)	(m)	(m)	(m)	(I/s)	(m)	(I/s)	(m)	(I/s)
CB20	99.050	200	99.150	100.750	1.600	15.00	0.067	15.00	0.067	15.00
CB24	99.940	200	100.040	101.340	1.300	15.00	0.070	15.00	0.070	15.00
CB25	100.170	200	100.270	101.670	1.400	6.00	0.044	6.00	0.044	6.00
CBMH20	98.474	300	98.624	100.500	1.876	15.00	0.064	15.00	0.064	15.00
MH21	98.373	300	98.523	100.550	2.027	33.00	0.093	33.00	0.093	33.00
MH22	98.422	300	98.572	100.750	2.178	6.00	0.039	6.00	0.039	6.00
						90.00				89.99

ORIFICE SIZING

155 Dun Skipper Drive 148290-6.0 | Rev #2 | 2025-02-18 Prepared By: WZ | Checked By: RM



IBI GROUP 400-333 Preston Street Ottawa, Ontario K1S 5N4 Canada tel 613 225 1311 fax 613 225 9868 ibigroup.com

	LOCA.	FION					AREA (Ha)				RATIONAL DE				DESIGN FLOW					SEWER DATA										
STREET		FROM	то	C=	C=	C= C=	C= C=	C=	C= C=	C= IN	D CL	UM IN	NLET	TIME	TOTAL	i (2)	i (5)	i (10)	i (100)	2yr PEAK	5yr PEAK	10yr PEAK	100yr PEAK FIXED	DESIGN	CAPACITY	LENGTH	PIPE SIZE (mm)	SLOPE	VELOCITY	AVAIL CAP (2yr)
0	/			0.20	0.30	0.40 0.50 0	.55 0.6	5 0.70	0.75 0.90	1.00 2.78	AC 2.7	8AC ((min)	IN PIPE	(min)	(mm/hr)	(mm/hr)	(mm/hr)	(mm/hr)	FLOW (L/s	FLOW (L/s)	FLOW (L/s)) FLOW (L/s) FLOW (L/s	FLOW (L/s)	(L/s)	(m)	DIA W H	(%)	(m/s)	(L/s) (%)
											-									10.00				10.00						
		CB3	MH9-MH8						0.12	0.2	25 0.	25 1	10.00	0.11	10.11	76.81	104.19	122.14	1/8.56	19.22	26.07	30.56	44.68	19.22	34.22	6.73	200	1.00	1.055	15.00 43.84%
		CB2	MH9-MH8						0.02	0.0	05 0.	05 1	10.00	0.12	10.12	76.81	104.19	122.14	178.56	3.84	5.21	6.11	8.94	3.84	34.22	7.69	200	1.00	1.055	30.37 88.77%
		MH9	MH8						0.47	0.0	0 0.	30 1	10.12	0.64	10.76	76.34	103.56	121.39	177.40	22.92	31.09	30.45	53.28	22.92	158.41	53.17	3/5	0.75	1.389	135.48 85.53%
		CB1	MH8-MH7						0.17	0.3	35 U.	35 1	10.00	0.17	10.17	76.81	104.19	122.14	178.50	21.22	36.93	43.29	03.29	21.22	34.22	10.80	200	1.00	1.055	6.99 <u>20.44%</u>
		MH8	MH/						0.05	0.0	0 0.	12 1	10.76	0.41	11.17	74.01	100.35	117.01	171.90	48.45	05.70	17.00	112.54	48.45	33.73	20.20	250	0.75	1.060	5.28 9.82% 24.61 71.02%
		BLDG D	MH7-MH5						0.05	0.	13 0.	75 1	10.00	0.20	10.20	70.01	104.19	122.14	170.50	9.01	79.01	15.20	124.02	9.01	34.22	12.00	200	1.00	1.055	24.01 / 1.92%
		BLDG A	MHF						0.30	0.7	5 U.	70 I 52 I	11 17	0.16	10.10	70.01	104.19	122.14	169.52	57.05	150.57	91.00	257.00	57.05	02.04	12.97	250	1.00	1.224	4.39 7.07%
			IVINS							0.0	1.	33 1	11.17	0.40	11.05	72.50	90.39	115.51	100.52	111.00	130.37	170.40	237.90	111.00	230.39	30.03	430	0.00	1.403	119.31 31.7970
		CB4	MH10_CBMH1						0.03	0.0	0.8	08 1	10.00	0.12	10.12	76.81	104 10	122.14	178 56	5.76	7.82	0.17	13.40	5.76	34.22	7 78	200	1.00	1 055	28.45 83.15%
		MH10	CBMH1						0.00	0.0		08 1	10.00	0.72	10.12	76.34	103.55	121.38	177.44	5.73	7.77	9.11	13.32	5.73	48.06	41.57	250	0.60	0.948	42.33 88.08%
			conni							0.0				0.10	10.00	10.01	100.00	121.00		0.10		0.11	10.02	0.10	10.00			0.00	0.010	12.00 00.00%
		CB5	CBMH1-CBMH2						0.06	0.1	5 0.	15 1	10.00	0.36	10.36	76.81	104.19	122.14	178.56	11.53	15.64	18.34	26.81	11.53	34.22	22.72	200	1.00	1.055	22.69 66.30%
		CB6	CBMH1-CBMH2						0.07	0.1	8 0.	18 1	10.00	0.15	10.15	76.81	104.19	122.14	178.56	13.45	18.25	21.39	31.27	13.45	34.22	9.78	200	1.00	1.055	20.76 60.69%
		CB7	CBMH1-CBMH2						0.08	0.2	20 0.	20 1	10.00	0.15	10.15	76.81	104.19	122.14	178.56	15.37	20.86	24.45	35.74	15.37	34.22	9.59	200	1.00	1.055	18.84 55.07%
		CBMH1	CBMH2						0.08	0.2	20 0.	80 1	10.85	0.80	11.66	73.68	99.89	117.07	171.12	58.99	79.98	93.73	137.00	58.99	66.53	63.40	250	1.15	1.313	7.54 11.33%
		CBMH2	MH4							0.0	00 0.	80 1	11.66	0.68	12.33	70.98	96.18	112.71	164.70	56.83	77.01	90.24	131.87	56.83	59.68	33.14	300	0.35	0.818	2.86 4.79%
		CB9	MH1-MH2						0.15	0.3	38 0.	38 1	10.00	0.28	10.28	76.81	104.19	122.14	178.56	28.82	39.10	45.84	67.01	28.82	34.22	17.68	200	1.00	1.055	5.39 15.76%
		CB8	MH1-MH2						0.17	0.4	l3 0.	43 1	10.00	0.24	10.24	76.81	104.19	122.14	178.56	32.67	44.32	51.95	75.95	32.67	34.22	14.99	200	1.00	1.055	1.55 4.53%
		BLDG C	MH1-MH2						0.05	0.1	3 0.	13 1	10.00	0.22	10.22	76.81	104.19	122.14	178.56	9.61	13.03	15.28	22.34	9.61	34.22	14.20	200	1.00	1.055	24.61 71.92%
		CB10	MH1-MH2						0.13	0.3	33 0.	.33 1	10.00	0.27	10.27	76.81	104.19	122.14	178.56	24.98	33.89	39.73	58.08	24.98	34.22	17.04	200	1.00	1.055	9.23 26.99%
		CB11	MH1-MH2						0.03	0.0	08 0.	08 1	10.00	0.11	10.11	76.81	104.19	122.14	178.56	5.76	7.82	9.17	13.40	5.76	34.22	6.75	200	1.00	1.055	28.45 83.15%
		CB12	CB13						0.06	0.1	5 0.	15 1	10.00	0.18	10.18	76.81	104.19	122.14	1/8.56	11.53	15.64	18.34	26.81	11.53	34.22	11.50	200	1.00	1.055	22.69 66.30%
Idana Cammanial									4.50		0 4	77 4	10.00	0.07	44.45	75.75	400.74	400.40	470.05	004.00	400.40	574.54	000.00	004.00	450.04	01.01		0.50	4 550	04.50 00.000/
Idone Commercial		MH1	MH2						1.58	3.4	4.	45 4	10.28	0.87	11.15	75.75	102.74	120.43	176.05	301.30	490.12	574.51	839.82	301.30	452.94	81.04	600	0.50	1.552	91.59 20.22%
		CB13	MH2-MH3						0.18	0.4	10.0	45 1	10.00	0.01	10.01	76.81	104.19	122.14	178.50	34.59	46.92	55.01	80.42	34.59	40.49	1.00	200	1.40	1.248	5.90 14.50%
		BLDG B	MH2-MH3					_	0.22	0.5	0 5	20 I 77 I	11.15	0.20	11.20	70.81	104.19	122.14	1/8.00	42.28	57.35	666.14	98.29	42.28	62.04	19.00	250	0.30	1.224	19.70 31.85% 61.00 12.70%
		CR14						_	0.15	0.0	0 5. 0 0	20 1	10.00	0.14	10.02	76.91	90.49	110.42	179.56	419.32	300.41	45.94	973.30	419.32	400.32	10.00	200	1.00	1.300	5 20 15 76%
		CB14	10113-10114						0.15	0.0	0.	30 1	10.00	0.03	10.03	70.01	104.19	122.14	170.50	20.02	39.10	43.04	07.01	20.02	34.22	1.05	200	1.00	1.055	3.39 13.70%
		CB15	CBMH3					-	0.09	0.1	9 0	19 1	10.00	0.31	10.31	76.81	104 19	122 14	178 56	14 41	19 55	22.92	33.51	14 41	34.22	19.85	200	1.00	1.055	19.80 57.88%
		CD15	CBIVITS						0.05	0.1	0.	10 1	10.00	0.01	10.01	70.01	104.10	122.14	110.00	14.41	10.00	22.02	00.01	14.41	04.22	10.00		1.00	1.000	10.00 01.00%
		CB18	MH11		0.16					0.1	3 0.	13 1	10.00	0.27	10.27	76.81	104.19	122.14	178.56	10.25	13.90	16.30	23.83	10.25	27.59	13.80	200	0.65	0.851	17.34 62.85%
		MH11	CBMH3							0.0	0 0.	13 1	10.27	0.34	10.61	75.78	102.79	120.48	176.12	10.11	13.72	16.08	23.50	10.11	27.59	17.50	200	0.65	0.851	17.47 63.34%
												-								-	-									
		CBMH3	MH3-MH4				0.02	2		0.0	04 0.	36 1	10.31	0.35	10.67	75.62	102.57	120.22	175.74	27.01	36.64	42.95	62.78	27.01	27.59	17.94	200	0.65	0.851	0.57 2.07%
		MH3	MH4							0.0	0 6.	50 1	11.29	1.01	12.30	72.19	97.84	114.66	167.58	469.49	636.36	745.75	1,089.88	469.49	519.40	69.31	750	0.20	1.139	49.91 9.61%
		MH4	MH5							0.0	00 7.	30 1	12.30	0.20	12.51	68.96	93.42	109.46	159.93	503.74	682.38	799.52	1,168.19	503.74	580.71	15.46	750	0.25	1.273	76.96 13.25%
		CB17	MH5-MH12						0.09	0.2	23 0.	23 1	10.00	0.04	10.04	76.81	104.19	122.14	178.56	17.29	23.46	27.50	40.21	17.29	34.22	2.55	200	1.00	1.055	16.92 49.45%
		CB16	MH5-MH12		0.01					0.0	0.	01 1	10.00	0.14	10.14	76.81	104.19	122.14	178.56	0.64	0.87	1.02	1.49	0.64	34.22	9.09	200	1.00	1.055	33.58 98.13%
		MH5	MH12							0.0	9.	07 1	12.51	0.34	12.85	68.36	92.59	108.48	158.49	619.90	839.64	983.73	1,437.28	619.90	687.10	31.13	750	0.35	1.507	67.20 9.78%
		MH12	EX 1350 SEWER							0.0	9.	07 1	12.85	0.17	13.02	67.36	91.21	106.86	156.12	610.81	827.17	969.05	1,415.73	610.81	687.10	15.71	750	0.35	1.507	76.29 11.10%
																											r			
									<u> </u>													+					┌───┼──┼			
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Definitions:			I	Notes								Dee	signed:		IEB	I	I		No		L	<u> </u>		Pavision	L	L			Dato	
$\Omega = 2.78 \text{CiA}$ where:				1 Man	ninge og	oefficient (n) = 0	013					Des	signeu:		JLD				1				- Submin	sion No. 1					2010-03-20	
$\Omega = 2.700$ M, where $\Omega = 2.700$ M m m m m m m m m m m m m m m m m m m	s ner Second (I /e)			T. Wall	miys co		.015												2				- Subinis Revieed por C	City Commente					2019-00-00	
$\Delta = \Delta rea in Heaterce /$	a per Gecoria (L/S) Ha)			1								Cha	ockod.		IIM				۷.				Newsed per C	ity comments					2020-04-20	1
i = Rainfall intensity in	millimeters per hour (r	nm/hr)		1								one	eckeu.		01111															
[i = 732.951 / (TC+6	199)^0 8101	2 YEAR		1																1										
i = 998.071 / (TC+6)	053)^0 8141	5 YEAR		1								Dwg	a Refera	ence.	119351-50	0				-										
[i = 1174.184 / (TC+	6.014)^0.8161	10 YEAR										2.14	a			-				File R	eference:				Date:				Sheet No:	
[i = 1735.688 / (TC+	6.014)^0.8201	100 YEAR		1																1103	51.5.7 1			2	019-03-30				1 of 1	
2	/ •··•=•]																			1130				-						

STORM SEWER DESIGN SHEET

4836 Bank Street City of Ottawa Home Hardware



IBI GROUP 333 PRESTON STREET OTTAWA, ON K1S 5N4

STORMWATER MANAGEMENT

Formulas and Descriptions

 $i_{2yr} = 1.2$ year Intensity = 732.951 / $(T_c+6.199)^{0.810}$ $i_{5yr} = 1.5$ year Intensity = 998.071 / $(T_c+6.053)^{0.814}$ $i_{100yr} = 1:100$ year Intensity = 1735.688 / $(T_c+6.014)^{0.820}$ T_c = Time of Concentration (min) C = Average Runoff Coefficient A = Area (Ha) Q = Flow = 2.78CiA (L/s)

Maximum Allowable Release Rate

Restricted Flowrate

Taken from City of Ottawa approved Design Brief "Pathways at Findlay Creek" (D07-16-13-0023) drainage area EXT 4

EXT 4 Release Rate	760.00 L/s
Area EXT 4 _{TOTAL} =	4.04 Ha
Area Subject Lands	2.49
Perscentage Share of release rate	62%
$Q_{TOTAL} =$	468.42 L/s

Uncontrolled Release (Q uncontrolled = 2.78*C*i 100yr *A uncontrolled)

<i>C</i> =	0.625
$T_c =$	10 min
i _{100yr} =	178.56 mm/hr
$A_{uncontrolled} =$	0.01 Ha
$Q_{uncontrolled} =$	3.10 L/s

Maximum Allowable Release Rate (Q max allowable = Q restricted - Q uncontrolled)

Q_{max allowable} = 465.31 L/s

MODIFIED RATIONAL METHOD (100-Year & 5-Year Ponding)

Drainage Area	MH9/MH9E	3				Drainage Area	МН9/МН9В					Drainage Area	MH9/MH9B							
Area (Ha)	0.14	4				Area (Ha)	0.14					Area (Ha)	0.140)						
C =	0.98	8 Restricted Flow Q _r (L	_/s)=	10.00		C =	0.78	Restricted Flow Q_r (L/s)=	10.00		C =	0.78	Restricted Flow Q _r (L	_/s)=	10.00				
		100-Year Pon	ding				5-Year Ponding							2-Year Ponding						
T _c Variable	i _{100yr}	Peak Flow Q _p =2.78xCi _{100yr} A	Q,	Q _p -Q _r	Volume 100yr	T _c Variable	i _{5yr}	Peak Flow Q _p =2.78xCi _{5yr} A	Q,	Q _p -Q _r	Volume 5yr	T _c Variable	i _{2yr}	Peak Flow Q _p =2.78xCi _{2yr} A	Q,	Q _p -Q _r	Volume 2yr			
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)			
30	91.87	34.86	10.00	24.86	44.75	13	90.63	27.51	10.00	17.51	13.66	10	76.81	23.32	10.00	13.32	7.99			
32	87.89	33.35	10.00	23.35	44.83	15	83.56	25.37	10.00	15.37	13.83	11	73.17	22.21	10.00	12.21	8.06			
33	86.03	32.65	10.00	22.65	44.84	16	80.46	24.43	10.00	14.43	13.85	12	69.89	21.22	10.00	11.22	8.08			
34	84.27	31.98	10.00	21.98	44.83	17	77.61	23.56	10.00	13.56	13.83	13	66.93	20.32	10.00	10.32	8.05			
36	80.96	30.72	10.00	20.72	44.76	19	72.53	22.02	10.00	12.02	13.70	15	61.77	18.75	10.00	8.75	7.88			
		S	torage (m ³)					Storage (m ³)						Sto	orage (m ³)					
	Overflow 0.00	Required 44.84	Surface 20.64	Sub-surface 10.07	Balance 14.13		Overflow 0.00	Required 13.85	Surface 20.64	Sub-surface 10.07	Balance 0.00		Overflow 0.00	Required 8.08	Surface 20.64	Sub-surface 10.07	Balance 0.00			
Length (m)	Dia (m)	Area (m ²)	Volume (m ³)			Structure		Depth	Area (m ²)	Volume (m ³)										
54.91	0.375	0.110	6.06			CB3 (600mm x 600mm)		1.80	0.36	0.65										
6./3	0.200	0.031	0.21			CB2 (600mm x 600mm)		1.80	0.36	0.65										
7.69	0.200	0.031	6.51			CBMHTU (1200mm round)		2.00	1.13	3.56										

			Storage (m ³)			
	Overflow	Required	Surface	Sub-surface	Balance	-
	0.00	44.84	20.64	10.07	14.13	
Length (m)	Dia (m)	Area (m ²)	Volume (m ³)			Structure
54.91	0.375	0.110	6.06			CB3 (600mm x 600mm
6.73	0.200	0.031	0.21			CB2 (600mm x 600mm
7.69	0.200	0.031	0.24			CBMH10 (1200mm rou
			6.51			·

overflows to: CB1

PROJECT: 4836 Bank St DATE: 2019-10-08 FILE: 119351.5.7 REV #: DESIGNED BY: JEB CHECKED BY: JM

overflows to: CB1

overflows to: CB1

		-						•									
Drainage Area	<u>CB1</u>	7				Drainage Area	<u>CB1</u>					Drainage Area	CB1				
Area (Ha)	0.17	PROSTRICTOR Flow O (l /c)_	10.00		Area (Ha)	0.17	Restricted Flow O (L/c)_	10.00		Area (Ha)	0.16	D Bestricted Flow O (/c)_	10.00	
C =	0.88		L/S)=	16.00		C =	0.70		L/S)=	16.00		C =	0.70		L/S)=	16.00	
_		100-Year Por	naing					5-Year Ponding		1		_		2-Year Pondi	ng	1	
T _c	i _{100yr}	Peak Flow	Q,	$Q_p - Q_r$	Volume	l _c	i _{5yr}	Peak Flow	Q,	$Q_p - Q_r$	Volume	l _c	i _{2yr}	Peak Flow	Q,	$Q_p - Q_r$	Volume
variable (min)	(mm/bour)	$Q_p = 2.78 \times CI_{100yr} A$	(1 /c)	(1/c)	(m^3)	variable (min)	(mm/bour)	$Q_p = 2.78 \times CI_{5yr} A$	(1/c)	(1 / c)	5yr (m ³)	variable (min)	(mm/bour)	$Q_p = 2.78 \times CI_{2yr} A$	(1/c)	(1/0)	2yr (m ³)
(<i>IIIII)</i> 19	123.87	(L/S) 49.72	(L/S)	(L/S) 33.72	38.44	(11111) 7	123.30	(<i>L/S)</i> 39.59	(L/S) 16.00	(L / S) 23.59	9.91	(11111) 	(<i>IIIII/II0UI)</i> 111 72	(L/S) 35.87	(L/S) 16.00	(<i>L/S)</i> 19.87	4 77
21	116.30	46.68	16.00	30.68	38.65	9	109.79	35.25	16.00	19.25	10.40	6	96.64	31.03	16.00	15.03	5.41
22	112.88	45.31	16.00	29.31	38.68	10	104.19	33.46	16.00	17.46	10.47	7	90.66	29.11	16.00	13.11	5.51
23	109.68	44.02	16.00	28.02	38.67	11	99.19	31.85	16.00	15.85	10.46	8	85.46	27.44	16.00	11.44	5.49
25	103.85	41.68	16.00	25.68	38.52	13	90.63	29.10	16.00	13.10	10.22	10	76.81	24.66	16.00	8.66	5.20
		S	Storage (m ³)					Sto	rage (m ³)					St	orade (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance
	14.13	52.82	50.59	5.58	0.00		0.00	10.47	50.59	5.58	0.00		0.00	5.51	50.59	5.58	0.00
Length (m) 31.00	Dia (m) 0.450	Area (m ²) 0.159	Volume (m ³) 4.93 4.93	overflows to:	CB17	Structure CB3 (600mm x 600mm)		Depth 1.80	Area (m²) 0.36	Volume (m ³) 0.65 0.65 overflows to:	CB17					overflows to: 0	CB17
Drainage Area	CB16	1				Drainage Area	CB16	1				Drainage Area	CB16				
Area (Ha)	0.010)				Area (Ha)	0.010					Area (Ha)	0.010	0			
C =	0.38	Restricted Flow Q _r (L/s)=	6.00		C =	0.30	Restricted Flow Q _r (L/s)=	6.00		C =	0.30	0 Restricted Flow Q _r (L/s)=	6.00	
		100-Year Por	ndina					5-Year Ponding						2-Year Pondi	na		
Te		Peak Flow			Volume	Te		Peak Flow			Volume	Te		Peak Flow			Volume
Variable	İ _{100yr}	$Q_{p} = 2.78 \times Ci_{100 \times r} A$	Q _r	$Q_p - Q_r$	100yr	Variable	i _{5yr}	$Q_{p} = 2.78 \times Ci_{5 \times r} A$	Q _r	$Q_p - Q_r$	5yr	Variable	i _{2yr}	$Q_p = 2.78 \times Ci_{2vr} A$	Q _r	$Q_p - Q_r$	2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
-6	57497.20	599.41	16.00	583.41	-210.03	-6	10904.38	90.94	6.00	84.94	-30.58	-7	#NUM!	#NUM!	6.00	#NUM!	#NUM!
-4	977.56	10.19	16.00	-5.81	1.39	-4	555.75	4.63	6.00	-1.37	0.33	-5	632.75	5.28	6.00	-0.72	0.22
-3	702.38	7.32	16.00	-8.68	1.56	-3	402.34	3.36	6.00	-2.64	0.48	-4	387.14	3.23	6.00	-2.77	0.67
-2	555.31	5.79	16.00	-10.21	1.23	-2	319.47	2.66	6.00	-3.34	0.40	-3	285.77	2.38	6.00	-3.62	0.65
0	398.62	4.16	16.00	-11.84	0.00	0	230.48	1.92	6.00	-4.08	0.00	-1	192.83	1.01	6.00	-4.39	0.26
		S	Storage (m ³)					Sto	rage (m ³)					St	orage (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance
	0.00	1.56	0.31	0.00	1.25		0.00	0.48	0.31	0.00	0.17		0.00	0.67	0.31	0.00	0.36
				overflewe to						overflovve to	0017					overflowe tou	
Drainaga Araa	CB17	7		overnows to:	JB17	Drainaga Araa	CD17	1		overnows to:	CB17	Drainaga Araa	CD17	7		overnows to: (JB17
							0.090	-						0			
	1.00	Restricted Flow Q. (L/s)=	9.00			0.090	Restricted Flow Q. (L/s)=	9.00			0.090	Restricted Flow Q. (L/s)=	9.00	
		100-Vear Por	nding	0.00			0.00	5-Vear Ponding	, I	0.00		1	0.0	2-Vear Pondi	na	0.00	
T		Peak Flow			Volume	T		Peak Flow			Volume	Т		Peak Flow			Volume
Variable	і _{100yr}	$Q_{n} = 2.78 \times Ci_{100} \times A$	Q,	$Q_p - Q_r$	100vr	Variable	i _{5yr}	$Q_{n} = 2.78 \times Ci_{\text{from}} A$	Q _r	$Q_p - Q_r$	5vr	Variable	i _{2yr}	$Q_{n} = 2.78 \times Ci_{2m} A$	Q,	$Q_p - Q_r$	2vr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m^3)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m^3)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m^3)
22	112.88	28.24	9.00	19.24	25.40	10	104.19	23.46	9.00	14.46	8.68	7	90.66	20.42	9.00	11.42	4.79
24	106.68	26.69	9.00	17.69	25.47	12	94.70	21.32	9.00	12.32	8.87	9	80.87	18.21	9.00	9.21	4.97
25	103.85	25.98	9.00	16.98	25.47	13	90.63	20.41	9.00	11.41	8.90	10	76.81	17.29	9.00	8.29	4.98
26	101.18	25.32	9.00	16.32	25.45	14	86.93	19.58	9.00	10.58	8.88	11	73.17	16.48	9.00	7.48	4.93
28	96.27	24.09	9.00	15.09	25.35	16	80.46	18.12	9.00	9.12	8.75	13	66.93	15.07	9.00	6.07	4.74
		S	Storage (m ³)					Sto	rage (m ³)					St	orage (m ³)		
	Overflow 1.25	Required 26.73	Surface 0.84	Sub-surface 5.10	Balance 20.79		Overflow 0.17	Required 9.06	Surface 0.84	Sub-surface 5.10	Balance 3.13	-	Overflow 0.00	Required 4.98	Surface 0.84	Sub-surface 5.10	Balance 0.00
Length (m) 28.00	Dia (m) 0.450	Area (m ²) 0.159	Volume (m ³) 4.45 4.45			Structure CB3 (600mm x 600mm)		Depth 1.80	Area (m²) 0.36	Volume (m ³) 0.65 0.65							
				overflows to:	CB15					overflows to:	CB15					overflows to: (CB15



overflows to: CB12/CB13/CB14

CB15					Drainage Area	CB15				
0.090					Area (Ha)	0.090				
0.75	Restricted Flow Qr (I	_/s)=	6.00		C =	0.75	Restricted Flow Qr (I	_/s)=	6.00	
	5-Year Ponding						2-Year Pondi	na		
	Poak Elow	1	I I I	Volumo	T		Dock Flow	i g	Г Г	Volumo
i _{5yr}		Q,	$Q_p - Q_r$	volume	I _c Verieble	i _{2yr}		Q,	$Q_p - Q_r$	volume
<i>"</i>	$Q_p = 2.78 \times CI_{5yr} A$			5yr	variable	<i>, , ,</i> , , , , , , , , , , , , , ,	$Q_p = 2.78 \times CI_{2yr} A$			2yr
m/hour)	(L/s)	(L/s)	(L/s)	(m [*])	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m*)
90.63	17.01	6.00	11.01	8.59	9	80.87	15.18	6.00	9.18	4.95
83.56	15.68	6.00	9.68	8.71	11	73.17	13.73	6.00	7.73	5.10
80.46	15.10	6.00	9.10	8.73	12	69.89	13.12	6.00	7.12	5.12
77.61	14.56	6.00	8.56	8.73	13	66.93	12.56	6.00	6.56	5.12
72.53	13.61	6.00	7.61	8.67	15	61.77	11.59	6.00	5.59	5.03
		0					_	0		
	Stor	'age (m')					Sto	orage (m°)		
verflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
3.13	11.86	66.27	5.10	0.00		0.00	5.12	66.27	5.10	0.00
	Depth	Area (m ²)	Volume (m ³)							
	1.80	0.36	0.65							
			0.65							
			overflows to:	out					overflows to: o	but
СВМН3					Drainage Area	СВМН3				
0.020					Area (Ha)	0.020				
0.90	Restricted Flow Q _r (I	_/s)=	6.00		C =	0.90	Restricted Flow Qr (I	_/s)=	6.00	
	5-Voar Donding		Į		1		2-Voar Dondi	na	_	
								iig	1 1	
i _{5vr}	Peak Flow	Q,	$Q_{p}-Q_{r}$	Volume	Ι _c	i ovr	Peak Flow	Q,	$Q_{p}-Q_{r}$	Volume
ey.	Q _p =2.78xCi _{5yr} A		μ.	5yr	Variable		Q _p =2.78xCi _{2yr} A		μ.	2yr
m/hour)	(L/s)	(L/s)	(L/s)	(m³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)
230.48	11.53	6.00	5.53	0.00	-2	229.26	11.47	6.00	5.47	-0.66
82.69	9.14	6.00	3.14	0.38	0	167.22	8.37	6.00	2.37	0.00
66.09	8.31	6.00	2.31	0.42	1	148.14	7.41	6.00	1.41	0.08
52.51	7.63	6.00	1.63	0.39	2	133.33	6.67	6.00	0.67	0.08
31.57	6.58	6.00	0.58	0.21	4	111.72	5.59	6.00	-0.41	-0.10
	Stor	r age (m³)					Sto	orage (m ³)		
verflow	Required	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance
0.00	0.42	4.17	0.00	0.00		0.00	0.08	4.17	0.00	0.00
			overflows to:	CB12/13/14					overflows to: (CB12/13/14
							_			
CB11					Drainage Area	CB11				
0.030					Area (Ha)	0.030				
0.90	Restricted Flow Q. (I	_/s)=	15.00		C =	0.90	Restricted Flow Q. (I	_/s)=	15 00	
5.00	5 Voor Donding	,	10.00			0.00	O Voor Dond	,	10.00	
	5-Tear Ponding		1		_		2-Tear Pondi	iig	1 1	
İ 5vr	Peak Flow	Q,	Q,-Q,	Volume	Τ _c	i our	Peak Flow	Q,	QQ_	Volume
Jyi	Q _p =2.78xCi _{5yr} A	<i>→</i> /	- <i>p</i> - <i>r</i>	5yr	Variable	- <i>∠yı</i>	Q _p =2.78xCi _{2yr} A	<i>∽</i> /	- <i>p</i> - <i>r</i>	2yr
m/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
319.47	23.98	15.00	8.98	-1.08	-4	387.14	29.06	15.00	14.06	-3.37
230.48	17.30	15.00	2.30	0.00	-2	229.26	17.21	15.00	2.21	-0.26
203.51	15.28	15.00	0.28	0.02	-1	192.83	14.47	15.00	-0.53	0.03
82.69	13.71	15.00	-1.29	-0.15	0	167.22	12.55	15.00	-2.45	0.00
52.51	11.45	15.00	-3.55	-0.85	2	133.33	10.01	15.00	-4.99	-0.60
	-				4		-			
	Stor	ade (m ³)					St	orage (m ³)		
verflow	Required	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Ralance
0.00	0 02	0 02				0.00	0 03	0 02		
0.00	0.02	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00

overflows to: CB12/CB13/CB14

overflows to: CB12/CB13/CB14

Drainage Area	CB12/0	CB13/CB14				Drainage Area	CB12/C	B13/CB14				Drainage Area	2/CB13/CB14	1			
Area (Ha)	0.330)				Area (Ha)	0.330)				Area (Ha)	0.330)			
C =	1.00) Restricted Flow Q _r (L	/s)=	73.00		C =	0.90	Restricted Flow Q _r (L/s)=	73.00		C =	0.90	Restricted Flow Q _r (L	/s)=	73.00	
		100-Year Pon	ding					5-Year Ponding						2-Year Pondii	ng		
T _c Variable	i _{100yr}	Peak Flow Q _p =2.78xCi _{100yr} A	Q _r	Q _p - Q _r	Volume 100yr	T _c Variable	i _{5yr}	Peak Flow Q _p =2.78xCi _{5yr} A	Q _r	Q _p -Q _r	Volume 5yr	T _c Variable	i _{2yr}	Peak Flow Q _p =2.78xCi _{2yr} A	Q _r	Q _p -Q _r	Volume 2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
9	188.25	172.70	73.00	99.70	53.84	2	182.69	150.84	73.00	77.84	9.34	0	167.22	138.07	73.00	65.07	0.00
10	178.56	163.81	73.00	90.81	54.49	4	152.51	125.92	73.00	52.92	12.70	2	133.33	110.09	73.00	37.09	4.45
11	169.91	155.87	73.00	82.87	54.70	5	141.18	116.57	73.00	43.57	13.07	3	121.46	100.29	73.00	27.29	4.91
12	162.13	148.74	73.00	75.74	54.53	6	131.57	108.63	73.00	35.63	12.83	4	111.72	92.25	73.00	19.25	4.62
14	148.72	136.44	73.00	63.44	53.29	8	116.11	95.87	73.00	22.87	10.98	6	96.64	79.79	73.00	6.79	2.44
		St	t orage (m ³)					Sto	rage (m ³)					Sto	orage (m ³)		
-	Overflow	Required	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	6.34	61.03	54.36	5.07	1.60		0.00	13.07	54.36	5.07	0.00		0.00	4.91	54.36	5.07	0.00
Length (m)	Dia (m)	Area (m ²)	Volume (m ³)			Structure		Depth	Area (m ²)	Volume (m ³)							
12.00	0.375	0.110	1.22			CB12 (600mm x 600mm)		1.80	0.30	0.65							
12.00	0.450	0.159	1.91			$CB13 (600mm \times 600mm)$		1.80	0.30	0.05							
		-	3 13					1.00	0.00	1 94							
			0.10							1.04							
				overflows to: C	B10					overflows to:	CB10					overflows to:	CB10
Drainage Area	CB10	1				Drainage Area	CB10	1				Drainage Area	CB10	1			
Area (Ha)	0.130	0				Area (Ha)	0.130)				Area (Ha)	0.130)			
C =	1.00) Restricted Flow Q _r (L	/s)=	45.00		C =	0.90	Restricted Flow Q _r (L/s)=	45.00		C =	0.90	Restricted Flow Q _r (L	/s)=	45.00	
		100-Year Pon	ding					5-Year Ponding	ļ					2-Year Pondi	ng		
T _c Variable	i _{100yr}	Peak Flow Q _p =2.78xCi _{100vr} A	Q,	Q _p - Q _r	Volume 100yr	T _c Variable	i _{5yr}	Peak Flow Q _p =2.78xCi _{5vr} A	Q _r	Q _p -Q _r	Volume 5yr	T _c Variable	İ _{2yr}	Peak Flow Q _p =2.78xCi _{2vr} A	Q _r	Q _p -Q _r	Volume 2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
5	242.70	87.71	45.00	42.71	12.81	-1	266.98	86.84	45.00	41.84	-2.51	-2	229.26	74.57	45.00	29.57	-3.55
6	226.01	81.68	45.00	36.68	13.20	1	203.51	66.19	45.00	21.19	1.27	0	167.22	54.39	45.00	9.39	0.00
7	211.67	76.50	45.00	31.50	13.23	2	182.69	59.42	45.00	14.42	1.73	1	148.14	48.19	45.00	3.19	0.19
8	199.20	71.99	45.00	26.99	12.96	3	166.09	54.02	45.00	9.02	1.62	2	133.33	43.37	45.00	-1.63	-0.20
10	178.56	64.53	45.00	19.53	11.72	5	141.18	45.92	45.00	0.92	0.28	4	111.72	36.34	45.00	-8.66	-2.08
<u> </u>	Storage (m ³)					_		Sto	rage (m ³)					Sto	orage (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	5.62	18.85	6.81	0.00	12.04		0.00	1.73	6.81	0.00	0.00		Balance	#VALUE!	6.81	0.00	#VALUE!

	Overflow	Required	Surface	Sub-surface	Balance	
	6.34	61.03	54.36	5.07	1.60	
Length (m)	Dia (m)	Area (m ²)	Volume (m ³)			Structure
11.07	0.375	0.110	1.22			CB12 (600mm x 6
12.00	0.450	0.159	1.91			CB13 (600mm x 6
						CB14 (600mm x f

			1						1					1			
Drainage Area	CB12/C	B13/CB14	J			Drainage Area	CB12/C	B13/CB14				Drainage Area	2/CB13/CB14				
Area (Ha)	0.330		1. (-)			Area (Ha)	0.330		1 (-)			Area (Ha)	0.330		(-)		
C =	1.00	Restricted Flow Q_r (L	L/S)=	73.00		C =	0.90	Restricted flow Qr (L/S)=	73.00		C =	0.90	Restricted Flow Qr (L	(S)=	73.00	
		100-Year Pon	nding					5-Year Ponding						2-Year Pondir	Ig		
T _c	İ 100.0	Peak Flow	Q.	Q.,-Q.	Volume	T _c	i 5.m	Peak Flow	Q,	QQ_	Volume	T _c	i aur	Peak Flow	Q.	QQ_	Volume
Variable	- 100y1	$Q_p = 2.78 x Ci_{100yr} A$		= p = r	100yr	Variable	- Syr	Q _p =2.78xCi _{5yr} A	~ /	-p $-r$	5yr	Variable	- 291	$Q_p = 2.78 \times Ci_{2yr} A$		- <i>p</i> - <i>r</i>	2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)
9	188.25	172.70	73.00	99.70	53.84	2	182.69	150.84	73.00	77.84	9.34	0	167.22	138.07	73.00	65.07	0.00
10	178.56	163.81	73.00	90.81	54.49	4	152.51	125.92	73.00	52.92	12.70	2	133.33	110.09	73.00	37.09	4.45
11	169.91	155.87	73.00	82.87	54.70	5	141.18	116.57	73.00	43.57	13.07	3	121.46	100.29	73.00	27.29	4.91
12	162.13	148.74	/3.00	/5./4	54.53	6	131.57	108.63	/3.00	35.63	12.83	4	111./2	92.25	/3.00	19.25	4.62
14	148.72	136.44	73.00	63.44	53.29	8	116.11	95.87	73.00	22.87	10.98	0	96.64	79.79	73.00	6.79	2.44
		S	storage (m ³)					Sto	rage (m³)					Sto	rage (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	6.34	61.03	54.36	5.07	1.60		0.00	13.07	54.36	5.07	0.00		0.00	4.91	54.36	5.07	0.00
		• (2)	X I I I S					D	• (2)	N I (3)							
Length (m)	Dia (m)	Area (m ⁻)	volume (m ⁻)			Structure		Depth	Area (m ⁻)	Volume (m ⁻)							
12.00	0.375	0.110	1.22			CB12 (600mm x 600mm)		1.80	0.30	0.65							
12.00	0.430	0.155	1.91			CB13 (600mm x 600mm)		1.80	0.36	0.65							
			3.13	-				1.00	0.00	1.94							
			0110														
				overflows to:	CB10					overflows to: C	CB10					overflows to:	CB10
Drainago Aroa	CR10	1				Drainage Area	CB10	1				Drainage Area	CB10	1			
Area (Ha)	0.130					Area (Ha)	0.130					Area (Ha)	0.130	-			
2 –	1.00	Restricted Flow Qr (I	L/s)=	45.00			0.100	Restricted Flow Q _r (L/s)=	45.00		C. –	0.100	Restricted Flow Qr (L	/s)=	45.00	
5 –	1.00	100-Year Pon	nding	10.00			0.00	5-Year Ponding	,	10.00		0 -	0.00	2-Year Pondir		10.00	
T _c		Peak Flow			Volume	T _c		Peak Flow			Volume	T _c		Peak Flow	<u> </u>		Volume
Variable	l _{100yr}	$Q_{n} = 2.78 \times Ci_{100} \times A$	Q_r	$Q_p - Q_r$	100vr	Variable	I _{5yr}	Q = = 2.78xCi = A	Qr	$Q_p - Q_r$	5vr	Variable	I _{2yr}	Q = =2.78xCi 2/4 A	Q_r	$Q_p - Q_r$	2vr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m^{3})	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m^{3})
5	242.70	87.71	45.00	42.71	12.81	-1	266.98	86.84	45.00	41.84	-2.51	-2	229.26	74.57	45.00	29.57	-3.55
6	226.01	81.68	45.00	36.68	13.20	1	203.51	66.19	45.00	21.19	1.27	0	167.22	54.39	45.00	9.39	0.00
7	211.67	76.50	45.00	31.50	13.23	2	182.69	59.42	45.00	14.42	1.73	1	148.14	48.19	45.00	3.19	0.19
8	199.20	71.99	45.00	26.99	12.96	3	166.09	54.02	45.00	9.02	1.62	2	133.33	43.37	45.00	-1.63	-0.20
10	178.56	64.53	45.00	19.53	11.72	5	141.18	45.92	45.00	0.92	0.28	4	111.72	36.34	45.00	-8.66	-2.08
		S	storage (m ³)			Sto	rage (m ³)					Sto	rage (m ³)				
•	Overflow	Required	Surface	Sub-surface	Balance	- –	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	5.62	18.85	6.81	0.00	12.04		0.00	1.73	6.81	0.00	0.00		Balance	#VALUE!	6.81	0.00	#VALUE!

	Storage (m ³)									
Overflow	Required	Surface	Sub-surface	Balance						
5.62	18.85	6.81	0.00	12.04						

overflows to: CB18

overflows to: CB18

overflows to: CB18



CBMH2					Drainage Area	CBMH2				
0.080					Area (Ha)	0.080				
0.90	Restricted Flow Q _r (L	_/s)=	20.00		C =	0.90	Restricted Flow Q _r (L	_/s)=	20.00	
	5-Year Ponding						2-Year Pondi	ng		
i _{5yr}	Peak Flow	Q,	$Q_p - Q_r$	Volume _	<i>T_c</i>	i _{2vr}	Peak Flow	Q,	$Q_p - Q_r$	Volume
	$Q_p = 2.78 \times Ci_{5yr} A$	(1 /-)		5yr	Variable		$Q_p = 2.78 \times Ci_{2yr} A$	(1. (-)		2yr
n/hour)	(L/s)	(L/s)	(L/s)	(<i>m</i> ²)	(<i>min</i>)	(<i>mm/hour</i>)	(L/s)	(L/s)	(<i>L/s</i>)	(<i>m[*]</i>)
66 09	33.24	20.00	13 24	2.38	-1	192.63	29.65	20.00	9.65	0.58
52.51	30.53	20.00	10.53	2.53	2	133.33	26.69	20.00	6.69	0.80
41.18	28.26	20.00	8.26	2.48	3	121.46	24.31	20.00	4.31	0.78
23.30	24.68	20.00	4.68	1.97	5	103.57	20.73	20.00	0.73	0.22
	Stor	(m^3)					Sta	$rade (m^3)$		
verflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
0.00	2.53	6.21	0.00	0.00		0.00	0.80	6.21	0.00	0.00
CB7					Drainage Area	CB7				
0.080					Area (Ha)	0.080				
0.90	Restricted Flow Q _r (L	_/s)=	30.00		C =	0.90	Restricted Flow Q _r (L	_/s)=	30.00	
	5-Year Ponding						2-Year Pondi	ng		
;	Peak Flow	~		Volume	T _c	:	Peak Flow	0		Volume
I 5yr	Q _p =2.78xCi _{5vr} A	Q _r	ω _p -ω _r	5yr	Variable	l _{2yr}	Q _p =2.78xCi _{2vr} A	Q,	Qp-Qr	2yr
n/hour)	(L/s)	<u>(L/s)</u>	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	<u>(L/s)</u>	(L/s)	(m ³)
66.98	53.44	30.00	23.44	-1.41	-3	285.77	57.20	30.00	27.20	-4.90
03.51	40.73	30.00	10.73	0.64	-1	192.83	38.60	30.00	8.60	-0.52
82.69	36.57	30.00	6.57	0.79	0	167.22	33.47	30.00	3.47	0.00
66.09 41.18	33.24	30.00	3.24	0.58	3	148.14	29.65	30.00	-0.35	-0.02
41.10	20.20	30.00	-1.74	-0.52	5	121.40	24.01	30.00	-3.09	-1.02
	Stor	age (m ³)					Sto	orage (m ³)		
erflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
0 00	0.79	6.97	0.00	0.00		0.00	0.00	6 07	0.00	0.00
0.00				0.00		0.00	0.00	0.97	0.00	0.00
0.00				0.00		0.00	0.00	0.97		
0.00			overflows to: (0.00 CB8		0.00	0.00	0.97	overflows to: (CB8
P3/L3			overflows to: (0.00 CB8	Drainage Area	CB6	0.00	0.97	overflows to: (CB8
P3/L3 0.160			overflows to: (0.00 CB8	Drainage Area Area (Ha)	0.00 CB6 0.070	0.00	0.97	overflows to: (CB8
P3/L3 0.160 0.45	Restricted Flow Q _r (L	_/S)=	overflows to: (20.00	0.00 CB8	Drainage Area Area (Ha) C =	0.00 CB6 0.070 0.45	Restricted Flow Q _r (L	_/S)=	overflows to: (20.00	CB8
P3/L3 0.160 0.45	Restricted Flow Q _r (L 5-Year Ponding	/S)=	overflows to: (20.00	0.00 CB8	Drainage Area Area (Ha) C =	0.00 CB6 0.070 0.45	Restricted Flow Q _r (L 2-Year Pondi	_/s)=	overflows to: 0	CB8
P3/L3 0.160 0.45	Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i>	_/S)=	overflows to: (20.00	CB8 Volume	Drainage Area Area (Ha) C = T _c	0.00 CB6 0.070 0.45	Restricted Flow Q _r (L 2-Year Pondi Peak Flow	./s)= ng	overflows to: (CB8 Volume
P3/L3 0.160 0.45	Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr} A$./s)= Q _r	overflows to: (20.00	CB8 Volume 5yr	Drainage Area Area (Ha) C = T _c Variable	0.00 CB6 0.070 0.45 <i>i</i> _{2yr}	Restricted Flow Q _r (L 2-Year Pondi Peak Flow Q _p =2.78xCi _{2vr} A		0.00 overflows to: (20.00 Q _p - Q _r	CB8 Volume 2yr
P3/L3 0.160 0.45 i _{5yr} n/hour)	Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{5yr} <i>A</i> (L/s)	_/S)= 	overflows to: (20.00 $Q_p - Q_r$ (L/s)	Volume 5yr (m ³)	Drainage Area Area (Ha) C = T _c Variable (min)	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour)	Restricted Flow Q_r (L 2-Year Pondi <i>Peak Flow</i> $Q_p = 2.78xCi_{2yr}A$ (L/s)	./s)= ng Q , (L/s)	0.00 overflows to: (20.00 <i>Q_p-Q_r</i> (<i>L/s</i>)	Volume (m ³)
<i>P3/L3</i> 0.160 0.45 <i>i₅yr</i> <i>n/hour)</i> 03.51	Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{5yr} <i>A</i> <i>(L/s)</i> 40.73	/s)= Q _r <u>(L/s)</u> 20.00	overflows to: (20.00 <i>Q_p-Q_r</i> (<i>L/s</i>) 20.73	U.00 CB8 Volume 5yr (m ³) 1.24	Drainage Area Area (Ha) C = T _c Variable (min) -4	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14	Restricted Flow Q_r (L 2-Year Pondi <i>Peak Flow</i> $Q_p = 2.78xCi_{2yr}A$ (L/s) 33.90	./s)= ng Q, (L/s) 20.00	0.00 overflows to: (20.00 <i>Q_p-Q_r</i> (<i>L/s</i>) 13.90	Volume 2yr (m ³) -3.34
<i>P3/L3</i> 0.160 0.45 <i>i</i> ₅yr <i>n/hour)</i> 03.51 66.09	Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{5yr} <i>A</i> (L/s) 40.73 33.24	/s)= Q r <u>(L/s)</u> 20.00 20.00	overflows to: (20.00 20.00 (<i>L/s</i>) 20.73 13.24	U.00 CB8 Volume 5yr (m ³) 1.24 2.38	Drainage Area Area (Ha) C = T _c Variable (min) -4 -2	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) <u>387.14</u> 229.26	Restricted Flow Q _r (L 2-Year Pondi <i>Peak Flow</i> <i>Q_p</i> =2.78xCi _{2yr} A (L/s) 33.90 20.08	./s)= ng Q, (L/s) 20.00 20.00	0.00 overflows to: (20.00 Q _p -Q _r (L/s) 13.90 0.08	Volume 2yr (m³) -3.34 -0.01
<i>P3/L3</i> 0.160 0.45 <i>i₅yr</i> <i>n/hour)</i> 03.51 66.09 52.51	Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s) 40.73 33.24 30.53	/s)= Q _r <u>(L/s)</u> 20.00 20.00 20.00	overflows to: (20.00 20.00 (L/s) 20.73 13.24 10.53	U.00 CB8 Volume 5yr (m ³) 1.24 2.38 2.53	Drainage Area Area (Ha) C = T _c Variable (min) -4 -2 -1	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} <i>(mm/hour)</i> 387.14 229.26 192.83 407.00	Restricted Flow Q _r (L 2-Year Pondi <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{2yr} <i>A</i> <i>(L/s)</i> 33.90 20.08 16.89	./s)= ng Q, (L/s) 20.00 20.00 20.00	0.00 overflows to: (20.00 <i>Q_p-Q_r</i> (<i>L/s</i>) 13.90 0.08 -3.11	Volume 2yr (m³) -3.34 -0.01 0.19
<i>P3/L3</i> 0.160 0.45 <i>i</i> ₅yr <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30	Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p</i> = 2.78xCi _{5yr} A (L/s) 40.73 33.24 30.53 28.26 24.69	/s)= Q _r <u>(L/s)</u> 20.00 20.00 20.00 20.00	overflows to: ($Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.69	U.00 CB8 Volume 5yr (m ³) 1.24 2.38 2.53 2.48 1.97	Drainage Area Area (Ha) C = T _c Variable (min) -4 -2 -1 0 2	<i>CB6</i> 0.070 0.45 <i>i</i> _{2yr} (<i>mm/hour</i>) 387.14 229.26 192.83 167.22 133.22	Restricted Flow Q _r (L 2-Year Pondi <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{2yr} <i>A</i> <i>(L/s)</i> 33.90 20.08 16.89 14.64 11.69	/s)= ng Q _r (L/s) 20.00 20.00 20.00 20.00	0.00 overflows to: (20.00 20.00 <i>Q_p-Q_r</i> (<i>L/s</i>) 13.90 0.08 -3.11 -5.36 -8.32	Volume 2yr (m³) -3.34 -0.01 0.19 0.00
<i>P3/L3</i> 0.160 0.45 <i>i₅yr</i> <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30	Restricted Flow Q_r (L 5-Year Ponding <i>Peak Flow</i> $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 40.73 33.24 30.53 28.26 24.68	/s)= Q _r (L/s) 20.00 20.00 20.00 20.00 20.00	overflows to: (20.00 20.00 20.73 13.24 10.53 8.26 4.68	USU USU Volume 5yr (m ³) 1.24 2.38 2.48 1.97	Drainage Area Area (Ha) C = T _c Variable (min) -4 -2 -1 0 2	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} <i>(mm/hour)</i> 387.14 229.26 192.83 167.22 133.33	Restricted Flow Q _r (L 2-Year Pondi <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{2yr} <i>A</i> <i>(L/s)</i> 33.90 20.08 16.89 14.64 11.68	./s)= ng Q, (L/s) 20.00 20.00 20.00 20.00 20.00	0.00 overflows to: (20.00 20.00 (<i>L/s</i>) 13.90 0.08 -3.11 -5.36 -8.32	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00
<i>P3/L3</i> 0.160 0.45 <i>i</i> ₅yr <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30	Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{5yr} <i>A</i> <i>(L/s)</i> 40.73 33.24 30.53 28.26 24.68 Stor	/s)= Q _r <u>(L/s)</u> 20.00 20.00 20.00 20.00 20.00 age (m ³)	overflows to: (20.00 20.00 20.73 13.24 10.53 8.26 4.68	Volume 5yr (m³) 1.24 2.38 2.53 2.48 1.97	Drainage Area Area (Ha) C = T_c Variable (min) -4 -2 -1 0 2	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33	Restricted Flow Q _r (L 2-Year Pondi <i>Peak Flow</i> <i>Q_p</i> =2.78xCi _{2yr} A (L/s) 33.90 20.08 16.89 14.64 11.68 Sto	J(s)= ng Q, (L/s) 20.00 20.00 20.00 20.00 20.00 20.00 prage (m ³)	0.00 overflows to: 0 20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00
<i>P3/L3</i> 0.160 0.45 <i>i₅yr</i> <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30	Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{5yr} <i>A</i> <i>(L/s)</i> 40.73 33.24 30.53 28.26 24.68 Stor Required	/s)= Q _r (L/s) 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface	overflows to: (20.00 20.00 20.73 13.24 10.53 8.26 4.68	U.00 CB8 Volume 5yr (m ³) 1.24 2.38 2.53 2.48 1.97 Balance	Drainage Area Area (Ha) C = T _c Variable (min) -4 -2 -1 0 2	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow	Restricted Flow Q _r (L 2-Year Pondi <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{2yr} <i>A</i> <i>(L/s)</i> 33.90 20.08 16.89 14.64 11.68 Sto Required	./s)= ng Q _r (L/s) 20.00	0.00 overflows to: (20.00 20.00 (<i>L/s</i>) 13.90 0.08 -3.11 -5.36 -8.32 Sub-surface	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00
<i>P3/L3</i> 0.160 0.45 <i>i</i> ₅yr <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 'erflow 0.00	Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p =2.78xCi</i> 5yr <i>A</i> <i>(L/s)</i> 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53	/s)= Q _r <u>(L/s)</u> 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66	overflows to: (20.00 20.00 20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00	0.00 CB8 Volume 5yr (m ³) 1.24 2.38 2.53 2.48 1.97 Balance 0.00	Drainage Area Area (Ha) C = T _c Variable (min) -4 -2 -1 0 2	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow 0.00	Restricted Flow Q _r (L 2-Year Pondin <i>Peak Flow</i> <i>Q_p</i> =2.78xCi _{2yr} A (L/s) 33.90 20.08 16.89 14.64 11.68 Sto Required 0.19	J(s)= ng Q, (L/s) 20.00 2	0.00 overflows to: 0 20.00 Q _p -Q _r (L/s) 13.90 0.08 -3.11 -5.36 -8.32	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00
<i>P3/L3</i> 0.160 0.45 <i>i₅yr</i> <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 'erflow 0.00	Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53	/s)= Q _r (L/s) 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68	Volume 5yr (m³) 1.24 2.38 2.48 1.97	Drainage Area Area (Ha) C = T _c Variable (min) -4 -2 -1 0 2	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow 0.00	Restricted Flow Q _r (L 2-Year Pondiu Peak Flow Q _p =2.78xCi _{2yr} A (L/s) 33.90 20.08 16.89 14.64 11.68 Sto Required 0.19	./s)= ng Q _r (L/s) 20.00	0.00 overflows to: (20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00
<i>P3/L3</i> 0.160 0.45 <i>i</i> ₅yr <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 ′erflow 0.00	Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p</i> =2.78xCi _{5yr} A (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53	/s)= Q , <u>(L/s)</u> 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68	Volume 5yr (m³) 1.24 2.38 2.48 1.97	Drainage Area Area (Ha) C = T _c Variable (min) -4 -2 -1 0 2	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow 0.00	Restricted Flow Q _r (L 2-Year Pondir <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{2yr} <i>A</i> (L/s) 33.90 20.08 16.89 14.64 11.68 Sto Required 0.19	J(s)= ng Q _r <u>(L/s)</u> 20.00 20.00 20.00 20.00 20.00 Drage (m ³) Surface 13.66	0.00 overflows to: 0 20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00
<i>P3/L3</i> 0.160 0.45 <i>i₅yr</i> <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 ′erflow 0.00	Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p=2.78xCi</i> _{5yr} <i>A</i> (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53	/s)= Q _r <u>(L/s)</u> 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68	Volume 5yr (m³) 1.24 2.38 2.53 2.48 1.97	Drainage Area Area (Ha) C = T _c Variable (min) -4 -2 -1 0 2 Drainage Δrea	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow 0.00	Restricted Flow Q _r (L 2-Year Pondiu Peak Flow Q _p =2.78xCi _{2yr} A (L/s) 33.90 20.08 16.89 14.64 11.68 Sto Required 0.19	/s)= ng Q, (L/s) 20.00 20	0.00 overflows to: (20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00
<i>P3/L3</i> 0.160 0.45 <i>i</i> ₅yr <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 ′erflow 0.00	Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p</i> =2.78xCi _{5yr} A (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53	/s)= Q _r <u>(L/s)</u> 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: (Volume 5yr (m³) 1.24 2.38 2.48 1.97	Drainage Area Area (Ha) C = T _c Variable (min) -4 -2 -1 0 2 Drainage Area Area (Ha)	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow 0.00 CB5 0.060	Restricted Flow Q _r (L 2-Year Pondir <i>Peak Flow</i> <i>Q_p</i> =2.78xCi _{2yr} A (L/s) 33.90 20.08 16.89 14.64 11.68 Sto Required 0.19	J(s)= ng Q _r (L/s) 20.00	0.00 overflows to: 0 20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32 Sub-surface 0.00 overflows to: 0	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00
<i>Р3/L3</i> 0.160 0.45 <i>i_{5уг}</i> <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 ′erflow 0.00	Restricted Flow Q _r (L 5-Year Ponding Peak Flow Q _p =2.78xCi _{5yr} A (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q _r (L	/s)= Q _r <u>(L/s)</u> 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: (Volume 5yr (m³) 1.24 2.38 2.53 2.48 1.97	Drainage Area Area (Ha) C = T _c Variable (min) -4 -2 -1 0 2	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow 0.00 CB5 0.060 0.90	Restricted Flow Q _r (L 2-Year Pondiu Peak Flow Q _p =2.78xCi _{2yr} A (L/s) 33.90 20.08 16.89 14.64 11.68 Sto Required 0.19 Restricted Flow Q _r (L	/s)= ng Q, (L/s) 20.00 20	0.00 overflows to: (20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32 Sub-surface 0.00 overflows to: (Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00
<i>P3/L3</i> 0.160 0.45 <i>i</i> ₅yr <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 ′erflow 0.00	Restricted Flow Qr (L 5-Year Ponding Peak Flow Qp = 2.78xCi 5yr A (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Qr (L 5-Year Ponding	/s)= Q _r <u>(L/s)</u> 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: (15.00	U.00 CB8 Volume 5yr (m ³) 1.24 2.38 2.53 2.48 1.97 Balance 0.00 CB8	Drainage Area Area (Ha) C = T _c Variable (min) -4 -2 -1 0 2	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow 0.00 CB5 0.060 0.90	Restricted Flow Q _r (L 2-Year Pondin Peak Flow Q _p = 2.78xCi _{2yr} A (L/s) 33.90 20.08 16.89 14.64 11.68 Stor Required 0.19 Restricted Flow Q _r (L 2-Year Pondin	/s)= ng Q _r (L/s) 20.00	0.00 overflows to: 0 20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32 Sub-surface 0.00 overflows to: 0 15.00	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00
<i>Р3/L3</i> 0.160 0.45 <i>i_{5уг}</i> <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 ′erflow 0.00 [*] erflow 0.00	Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{5yr} <i>A</i> (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i>	/s)= Q _r (L/s) 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: (Volume 5yr (m³) 1.24 2.38 2.53 2.48 1.97 Balance 0.00 CB8	Drainage AreaArea (Ha)C = T_c Variable(min)-4-2-102	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow 0.00 CB5 0.060 0.90	Restricted Flow Qr (L 2-Year Pondin Peak Flow Qp = 2.78xCi 2yr A (L/s) 33.90 20.08 16.89 14.64 11.68 Store Required 0.19 Restricted Flow Qr (L 2.78ar Pondin Peak Flow	/s)= ng Q, (L/s) 20.00 20	0.00 overflows to: (20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32 Sub-surface 0.00 overflows to: (Volume 2yr (m ³) -3.34 -0.01 0.19 0.00 -1.00
<i>P3/L3</i> 0.160 0.45 <i>i</i> _{5yr} <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 ′erflow 0.00 [′] erflow 0.00	Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$	/s)= Q _r (L/s) 20.00 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: (15.00	Volume 5yr (m³) 1.24 2.38 2.48 1.97 Balance 0.00 CB8	Drainage AreaArea (Ha)C = T_c Variable(min)-4-2-102	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow 0.00 CB5 0.060 0.90 <i>i</i> _{2yr}	Restricted Flow Q _r (L 2-Year Pondin Peak Flow Q _p = 2.78xCi _{2yr} A (L/s) 33.90 20.08 16.89 14.64 11.68 Store Required 0.19 Restricted Flow Q _r (L 2-Year Pondin Peak Flow Q _p = 2.78xCi _{2wr} A	/s)= ng Q _r (L/s) 20.00	0.00 overflows to: (20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32 Sub-surface 0.00 overflows to: (Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00
<i>P3/L3</i> 0.160 0.45 <i>i</i> ₅yr <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 ^r erflow 0.00 ^{erflow} 0.00 <i>CB5</i> 0.060 0.90	Restricted Flow Q _r (L 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr} A$ (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q _r (L 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr} A$ (L/s)	/s)= Q _r (L/s) 20.00 20	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: (15.00	0.00 CB8 Volume 5yr (m³) 1.24 2.38 2.53 2.48 1.97 Balance 0.00 CB8 Volume 5yr (m³)	Drainage AreaArea (Ha)C = T_c Variable(min)-4-2-102	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow 0.00 CB5 0.060 0.90 <i>i</i> _{2yr} (mm/hour)	Restricted Flow Q_r (L 2-Year Pondiu Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s) 33.90 20.08 16.89 14.64 11.68 Sto Required 0.19 Restricted Flow Q_r (L 2-Year Pondiu Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	J(s)= ng Q, (L/s) 20.00 0 0 0 0 0 0 0 0 0 0 0 0	0.00 overflows to: (20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32 Sub-surface 0.00 overflows to: (15.00	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00
<i>P3/L3</i> 0.160 0.45 <i>i</i> _{5yr} <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 ^r erflow 0.00 <i>cB5</i> 0.060 0.90 <i>i</i> _{5yr} <i>n/hour)</i> 03.51	Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s) 30.55	/s)= Q _r (L/s) 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66 /s)= Q _r (L/s) 15.00	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: (15.00 $Q_p - Q_r$ (L/s) 15.55	0.00 CB8 Volume 5yr (m³) 1.24 2.38 2.48 1.97 Balance 0.00 CB8 Volume 5yr (m³) 0.00 CB8	Drainage Area Area (Ha) C = T _c Variable (min) -4 -2 -1 0 2	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow 0.00 CB5 0.060 0.90 <i>i</i> _{2yr} (mm/hour) 192.83	Restricted Flow Q _r (L 2-Year Pondiu Peak Flow Q _p = 2.78xCi _{2yr} A (L/s) 33.90 20.08 16.89 14.64 11.68 Sto Required 0.19 Restricted Flow Q _r (L Peak Flow Q _p = 2.78xCi _{2yr} A (L/s) 28.95	./s)= ng Q, (L/s) 20.00 0 0 0 0 0 0 0 0 0 0 0 0	0.00 overflows to: (20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32 Sub-surface 0.00 overflows to: (15.00 $Q_p - Q_r$ (L/s) 13.95	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 Balance 0.00 CB8 Volume 2yr (m³) -0.84
<i>P3/L3</i> 0.160 0.45 <i>i</i> ₅yr <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 'erflow 0.00 ^{'erflow} 0.00 <i>CB5</i> 0.060 0.90 <i>i</i> ₅yr <i>i</i> ₅yr <i>n/hour)</i> 03.51 66.09	Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 30.55 24.93	/s)= Q _r (L/s) 20.00 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66 13.66 (L/s) 15.00 15.00	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: (15.00 4.68 15.00 15.00 15.55 9.93	0.00 CB8 Volume 5yr (m³) 1.24 2.38 2.48 1.97 Balance 0.00 CB8 Volume 5yr (m³) 0.00 CB8	Drainage AreaArea (Ha)C = T_c Variable(min)-4-2-102 Drainage AreaArea (Ha)C = T_c Variable(min)-11	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow 0.00 CB5 0.060 0.90 <i>i</i> _{2yr} (mm/hour) 192.83 148.14	Restricted Flow Q_r (L 2-Year Pondii Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s) 33.90 20.08 16.89 14.64 11.68 Store Required 0.19 Restricted Flow Q_r (L Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s) 28.95 22.24	./s)= ng Q, (L/s) 20.00 0 0 0 0 0 0 0 0 0 0 0 0	0.00 overflows to: 0 20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32 Sub-surface 0.00 overflows to: 0 15.00 $4p - Q_r$ (L/s) 13.95 7.24	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00 Balance 0.00 CB8 Volume 2yr (m³) -0.84 0.43
<i>P3/L3</i> 0.160 0.45 <i>i</i> _{5yr} <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 [•] erflow 0.00 [•] erflow 0.00 <i>CB5</i> 0.060 0.90 <i>i</i> _{5yr} <i>n/hour)</i> 03.51 65.09 52.51	Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 30.55 30.55 24.93 22.89 22.89	_/s)= Q _r <u>(L/s)</u> 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66 13.66 C _r <u>(L/s)</u> 15.00 15.00 15.00	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: (15.00 15.00 15.55 9.93 7.89	0.00 CB8 Volume 5yr (m³) 1.24 2.38 2.53 2.48 1.97 Balance 0.00 CB8 Volume 5yr (m³) 0.93 1.79 1.89	Drainage AreaArea (Ha)C = T_c Variable(min)-4-2-102	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow 0.00 0.00 0.00 0.90 <i>i</i> _{2yr} (mm/hour) 192.83 148.14 133.33	Restricted Flow Q_r (L 2-Year Pondiu Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s) 33.90 20.08 16.89 14.64 11.68 Sto Required 0.19 Restricted Flow Q_r (L 2-Year Pondiu Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s) 28.95 22.24 20.02	J(s)= ng Q r (L/s) 20.00 13.66 13.66	0.00 overflows to: 0 $Q_p - Q_r$ (L/s) 13.90 0 0.08 - -3.11 - -5.36 - -8.32 0 Sub-surface 0.00 overflows to: 0 15.00 15.00 13.95 7.24 5.02	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 Balance 0.00 CB8 Volume 2yr (m³) -0.84 0.43 0.60
<i>P3/L3</i> 0.160 0.45 <i>i</i> _{5yr} <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 ^r erflow 0.00 <i>CB5</i> 0.060 0.90 <i>i</i> _{5yr} <i>n/hour)</i> 03.51 66.09 52.51 41.18 0.90 52.51 41.18	Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s) 30.55 24.93 22.89 21.19 40.71	/s)= Q _r (L/s) 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66 13.66 /s)= Q _r (L/s) 15.00 15.00 15.00 15.00 15.00	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68 4.68 Sub-surface 0.00 overflows to: (15.00 15.00 15.55 9.93 7.89 6.19	0.00 CB8 Volume 5yr (m³) 1.24 2.38 2.48 1.97 Balance 0.00 CB8 Volume 5yr (m³) 0.00 CB8	Drainage AreaArea (Ha)C = T_c Variable(min)-4-2-102 Drainage AreaArea (Ha)C = T_c Variable(min)-1123	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 Overflow 0.00 0.00 0.00 0.90 <i>i</i> _{2yr} (mm/hour) 192.83 148.14 133.33 121.46	Restricted Flow Q_r (L 2-Year Pondiu Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s) 33.90 20.08 16.89 14.64 11.68 Sto Required 0.19 Restricted Flow Q_r (L 2-Year Pondiu Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s) 28.95 22.24 20.02 18.23 45.55	./s)= ng Q, (L/s) 20.00 13.66 13.66 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00 15.00	0.00 overflows to: 0 $Q_p - Q_r$ (L/s) 13.90 0 0.08 - -3.11 - -5.36 - -8.32 0 Sub-surface 0.00 overflows to: 0 15.00 15.00 15.00 13.95 7.24 5.02 3.23 0.55 -	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00 Balance 0.00 CB8 Volume 2yr (m³) -0.84 0.43 0.60 0.58
<i>P3/L3</i> 0.160 0.45 <i>i</i> ₅yr <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 'erflow 0.00 <i>CB5</i> 0.060 0.90 <i>i</i> ₅yr <i>n/hour)</i> 03.51 65.09 52.51 41.18 23.30	Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 30.55 24.93 22.89 21.19 18.51	_/s)=	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: (15.00 15.00 15.55 9.93 7.89 6.19 3.51	Unit of the second seco	Drainage AreaArea (Ha)C =T cVariable (min)-4-2-1022-102-102-102-102-111235	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 167.22 133.33 167.22 133.33 167.22 133.33 167.22 133.33 167.22 133.33 167.22 133.33 167.22 133.33 167.22 133.33 167.22 133.33 167.22 133.33 167.22 133.33 167.22 133.33 121.46 103.57	Restricted Flow Q_r (L 2-Year Pondii Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s) 33.90 20.08 16.89 14.64 11.68 Store Required 0.19 Restricted Flow Q_r (L Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s) 28.95 22.24 20.02 18.23 15.55	J(s)= ng Q, (L/s) 20.00 13.66 13.66	0.00 overflows to: 0 20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32 Sub-surface 0.00 overflows to: 0 15.00 15.00 13.95 7.24 5.02 3.23 0.55	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00 Balance 0.00 2yr (m³) -0.84 0.43 0.60 0.58 0.16
<i>P3/L3</i> 0.160 0.45 <i>i</i> _{5yr} <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 <i>'erflow</i> 0.00 <i>CB5</i> 0.060 0.90 <i>i</i> _{5yr} <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30	Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q_r (L Stor Stor Required 2.53 Restricted Flow Q_r (L Deak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 30.55 24.93 22.89 21.19 18.51	/s)= Q _r (L/s) 20.00 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66 /s)= Q _r (L/s) 15.00 15.00 15.00 15.00 15.00 15.00 15.00	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68 4.68 0.00 overflows to: (0.00 overflows to: (15.00 15.00 15.55 9.93 7.89 6.19 3.51	0.00 CB8 Volume 5yr (m³) 1.24 2.38 2.53 2.48 1.97 Balance 0.00 CB8 Volume 5yr (m³) 0.93 1.79 1.89 1.86 1.47	Drainage AreaArea (Ha)C = T_c Variable(min)-4-2-102 T_cVariableArea (Ha)C =T_cVariable(min)-11235	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 167.22 133.33 00verflow 0.00 0.00 0.90 <i>CB5</i> 0.060 0.90 <i>i</i> _{2yr} (mm/hour) 192.83 148.14 133.33 121.46 103.57	Restricted Flow Q _r (L 2-Year Pondiu Peak Flow Q _p =2.78xCi _{2yr} A (L/s) 33.90 20.08 16.89 14.64 11.68 Sto Required 0.19 Restricted Flow Q _r (L 2-Year Pondiu Peak Flow Q _p =2.78xCi _{2yr} A (L/s) 28.95 22.24 20.02 18.23 15.55	./s)= ng Q, (L/s) 20.00 13.66 13.66 15.00	0.00 overflows to: 0 20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32 Sub-surface 0.00 overflows to: 0 15.00 15.00 13.95 7.24 5.02 3.23 0.55	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00 Balance 0.00 200 201 0.00 -0.84 0.43 0.60 0.58 0.16
<i>P3/L3</i> 0.160 0.45 <i>i</i> ₅yr <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 <i>'erflow</i> 0.00 <i>CB5</i> 0.060 0.90 <i>i</i> ₅yr <i>n/hour)</i> 03.51 65.09 52.51 41.18 23.30	Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 30.55 24.93 22.89 21.19 18.51 Stor	/s)= Q _r (L/s) 20.00 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66 (L/s) 15.00 15	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: (15.00 15.00 15.00 15.55 9.93 7.89 6.19 3.51	0.00 CB8 Volume 5yr (m³) 1.24 2.38 2.53 2.48 1.97 Balance 0.00 CB8 Volume 5yr (m³) 0.93 1.79 1.89 1.86 1.47	Drainage AreaArea (Ha)C =T_cVariable (min)-4-2-1022-102-102-102-10-11235	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 167.22 133.33 167.22 0.060 0.00 0.00 <i>CB5</i> 0.060 0.90 <i>i</i> _{2yr} (mm/hour) 192.83 148.14 133.33 121.46 103.57	Restricted Flow Q_r (L 2-Year Pondiu Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s) 33.90 20.08 16.89 14.64 11.68 Sto Required 0.19 Restricted Flow Q_r (L 2-Year Pondiu Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s) 28.95 22.24 20.02 18.23 15.55 Sto	J(s)= Part of the second sec	0.00 overflows to: 0 20.00 $Q_p - Q_r$ (L/s) 13.90 0.08 -3.11 -5.36 -8.32 Sub-surface 0.00 overflows to: 0 15.00 15.00 13.95 7.24 5.02 3.23 0.55	Volume 2yr (m³) -3.34 -0.01 0.19 0.00 -1.00 Balance 0.00 CB8 Volume 2yr (m³) -0.84 0.43 0.60 0.58 0.16
<i>P3/L3</i> 0.160 0.45 <i>i</i> _{5yr} <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 <i>cerflow</i> 0.00 <i>CB5</i> 0.060 0.90 <i>i</i> _{5yr} <i>n/hour)</i> 03.51 66.09 52.51 41.18 23.30 <i>cerflow</i> 0.351 66.09 <i>cerflow</i> 0.00 <i>cerflow</i> 0.00	Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s) 40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s) 30.55 24.93 22.89 21.19 18.51 Stor Required 1.89 1.89	/s)= Q _r (L/s) 20.00 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 13.66 /s)= Q _r (L/s) 15.00 15.00 15.00 15.00 15.00 15.00 3urface 3.41	overflows to: (20.00 $Q_p - Q_r$ (L/s) 20.73 13.24 10.53 8.26 4.68 4.68 0.00 overflows to: (0.00 overflows to: (15.00 15.00 15.55 9.93 7.89 6.19 3.51	0.00 CB8 Volume 5yr (m³) 1.24 2.38 2.53 2.48 1.97 Balance 0.00 CB8 Volume 5yr (m³) 0.93 1.79 1.89 1.86 1.47 Balance 0.00	Drainage AreaArea (Ha)C = T_c Variable(min)-4-2-102	0.00 CB6 0.070 0.45 <i>i</i> _{2yr} (mm/hour) 387.14 229.26 192.83 167.22 133.33 167.22 133.33 0verflow 0.00 0.00 0.90 <i>i</i> _{2yr} (mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow #VALUE!	Restricted Flow Q _r (L 2-Year Pondiu Peak Flow Q _p =2.78xCi _{2yr} A (L/s) 33.90 20.08 16.89 14.64 11.68 Sto Required 0.19 Restricted Flow Q _r (L 2-Year Pondiu Peak Flow Q _p =2.78xCi _{2yr} A (L/s) 28.95 22.24 20.02 18.23 15.55 Sto Required #VALUE!	./s)= ng Q, (L/s) 20.00	0.00 overflows to: 0 20.00 20.00 20.00 13.90 0.08 - -3.11 - -5.36 - -8.32 0 Sub-surface 0.00 overflows to: 0 15.00 15.00 15.00 3.23 0.55 3.23 0.55 0.00	Volume 2yr (m ³) -3.34 -0.01 0.19 0.00 -1.00



0.170					Drainage Area	CBS	1			
0.90					Area (Ha)	0.170				
	Restricted Flow Q _r (L	_/s)=	47.00		C =	0.90	Restricted Flow Q _r (L	/s)=	47.00	
	5-Year Ponding						2-Year Pondir	ng		
i	Peak Flow	0	00	Volume	T _c	i	Peak Flow	0	00	Volume
' Syr	Q _p =2.78xCi _{5yr} A	Q _r	a _p a _r	5yr	Variable	• 2yr	Q _p =2.78xCi _{2yr} A	α _r	$\mathbf{a}_{p}\mathbf{a}_{r}$	2yr
ו/hour)	(L/s)	(L/s)	(L/s)	(m³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)
)3.51	86.56	47.00	39.56	2.37	-1	192.83	82.02	47.00	35.02	-2.10
36.09	70.64	47.00	23.64	4.26		148.14	63.01	47.00	16.01	0.96
52.51	64.87	47.00	17.87	4.29	2	133.33	56.71	47.00	9.71	1.17
+1.18	60.05 52.45	47.00	13.05	3.91		121.46	51.66	47.00	4.66	0.84
.0.00	32.43	47.00	0.40	2.23		100.07	44.00	47.00	-2.55	-0.00
	Stor	r age (m ³)					Sto	orage (m ³)		
erflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
).00	4.29	24.90	1.60	0.00		0.00	1.17	24.90	1.60	0.00
	Depth 1.80	Area (m ²) 0.36	Volume (m ³) 0.65 0.65							
	/									
CB4					Drainage Area	CB4				
0.030					Area (Ha)	0.030				
0.90	Restricted Flow Q _r (L	_/s)=	6.00		C =	0.90	Restricted Flow Q_r (L	/s)=	6.00	
	5-Year Ponding		-				2-Year Pondir	ng	-	
i 5. m	Peak Flow	0	00	Volume	T _c	1	Peak Flow	0	00	Volume
syr	Q _p =2.78xCi _{5yr} A	œ _r	$r p \sim r$	5yr	Variable	₽ 2yr	Q _p =2.78xCi _{2yr} A	ч _r	$r p \sim r$	2yr
/høur)	<u>(</u> L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	<u>(L</u> /s)	(L/s)	(m ³)
6.09	12.47	6.00	6.47	1.16	1	148.14	11.12	6.00	5.12	0.31
1.18	10.60	6.00	4.60	1.38	3	121.46	9.12	6.00	3.12	0.56
1.57	9.88	6.00	3.88	1.40	4	111.72	8.39	6.00	2.39	0.57
3.30	9.26	6.00	3.26	1.37	5	103.57	7.77	6.00	1.77	0.53
9.79	8.24	6.00	2.24	1.21	7	90.66	6.81	6.00	0.81	0.34
	0.						01-			
orflow	Bequired	surface	Sub-surface	Balance		Overflow	Bequired	Surface	Sub-surface	Balance
).00	1.40	10.62	0.00	0.00		0.00	0.57	10.62	0.00	0.00
			overflows to: (CBMH1					overflows to: C	BMH1
					Dreinere Aree		1			
0.000	Restricted Flow Q. (I	/s)=	20.00			0.080	Restricted Flow Q. (I	/s)=	20.00	
0.00	5 Voor Donding	_, _,	20.00			0.00	2 Voar Bondir		20.00	
	Deak Flow		г	Volume			2-Tear Fondi Peak Flow	iy		Volumo
5yr	$Q = 2.78 \times Ci_{-} A$	Q,	Q _p -Q _r	5vr	' c Variable	i _{2yr}	0 -2.78 x Ci A	Q _r	$Q_p - Q_r$	2vr
	$\alpha_p = 2.10 \times 015 yr$	(1 /c)	(1/c)	(m^3)						2.01
(hour)	(1/3)	(– / 3/		(111)	(min)	(mm/bour)	(1/e)	(I /e)	(1/e)	(m^3)
/hour)	<u>40 73</u>	20 00	20.72	(<i>III)</i> 1 24	(<i>min</i>)	(<i>mm/hour)</i>	(L/s)	(L∕s) 20.00	<i>(L/s)</i> 18.60	(m ³)
/ hour) 3.51 6.09	40.73 33.24	20.00 20.00	20.73 13.24	1.24	(<i>min</i>) -1 1	(mm/hour) 192.83 148.14	(L/s) 38.60 29.65	(L/s) 20.00 20.00	<i>(L/s)</i> 18.60 9.65	(m ³) -1.12 0.58
/ hour) 3.51 6.09 2.51	40.73 33.24 30.53	20.00 20.00 20.00	20.73 13.24 10.53	1.24 2.38 2.53	(<i>min</i>) -1 1 2	(mm/hour) 192.83 148.14 133.33	(L/s) 38.60 29.65 26.69	(L/s) 20.00 20.00 20.00	(L/s) 18.60 9.65 6.69	(m ³) -1.12 0.58 0.80
/ hour) 3.51 6.09 2.51 1.18	40.73 33.24 30.53 28.26	20.00 20.00 20.00 20.00	20.73 13.24 10.53 8.26	1.24 2.38 2.53 2.48	(min) -1 1 2 3	(mm/hour) 192.83 148.14 133.33 121.46	(L/s) 38.60 29.65 26.69 24.31	(L/s) 20.00 20.00 20.00 20.00	(L/s) 18.60 9.65 6.69 4.31	(m ³) -1.12 0.58 0.80 0.78
/ hour) 3.51 6.09 2.51 1.18 3.30	40.73 33.24 30.53 28.26 24.68	20.00 20.00 20.00 20.00 20.00	20.73 13.24 10.53 8.26 4.68	(<i>m</i>) 1.24 2.38 2.53 2.48 1.97	(min) -1 1 2 3 5	(mm/hour) 192.83 148.14 133.33 121.46 103.57	(L/s) 38.60 29.65 26.69 24.31 20.73	(L/s) 20.00 20.00 20.00 20.00 20.00	(L/s) 18.60 9.65 6.69 4.31 0.73	(m ³) -1.12 0.58 0.80 0.78 0.22
/hour) 3.51 6.09 2.51 1.18 3.30	40.73 33.24 30.53 28.26 24.68	20.00 20.00 20.00 20.00 20.00	20.73 13.24 10.53 8.26 4.68	1.24 2.38 2.53 2.48 1.97	(min) -1 1 2 3 5	(mm/hour) 192.83 148.14 133.33 121.46 103.57	(L/s) 38.60 29.65 26.69 24.31 20.73	(L/s) 20.00 20.00 20.00 20.00 20.00	(L/s) 18.60 9.65 6.69 4.31 0.73	(m ³) -1.12 0.58 0.80 0.78 0.22
/hour) 3.51 6.09 2.51 1.18 3.30	40.73 33.24 30.53 28.26 24.68 Stor	20.00 20.00 20.00 20.00 20.00	20.73 13.24 10.53 8.26 4.68	(<i>III</i>) 1.24 2.38 2.53 2.48 1.97	(min) -1 1 2 3 5	(mm/hour) 192.83 148.14 133.33 121.46 103.57	(L/s) 38.60 29.65 26.69 24.31 20.73 Sto	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³)	(L/s) 18.60 9.65 6.69 4.31 0.73	(m ³) -1.12 0.58 0.80 0.78 0.22
/hour) 3.51 6.09 2.51 1.18 3.30 rflow	40.73 33.24 30.53 28.26 24.68 Stor Required 2 53	20.00 20.00 20.00 20.00 20.00 20.00 age (m ³) Surface 0.00	20.73 13.24 10.53 8.26 4.68 Sub-surface	(m) 1.24 2.38 2.53 2.48 1.97 Balance 2.53	(min) -1 1 2 3 5	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00	(L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80
/hour) 3.51 6.09 2.51 1.18 3.30 erflow .00	40.73 33.24 30.53 28.26 24.68 Stor Required 2.53	20.00 20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00	20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00	(<i>III</i>) 1.24 2.38 2.53 2.48 1.97 Balance 2.53	(min) -1 1 2 3 5	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00	(L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00	(L/s) 18.60 9.65 6.69 4.31 0.73	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80
/hour) 3.51 6.09 2.51 1.18 3.30 erflow .00	40.73 33.24 30.53 28.26 24.68 Stor Required 2.53	20.00 20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00	20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: 0	(<i>III</i>) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9	(min) -1 1 2 3 5	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00	CL/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00 overflows to: C	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9
/hour) 3.51 6.09 2.51 1.18 3.30 erflow .00	40.73 33.24 30.53 28.26 24.68 Stor Required 2.53	20.00 20.00 20.00 20.00 20.00 *age (m ³) Surface 0.00	20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: 0	(<i>III</i>) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9	(min) -1 1 2 3 5 -1	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00	(L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00 overflows to: C	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9
/hour) 3.51 6.09 2.51 1.18 3.30 rflow .00	40.73 33.24 30.53 28.26 24.68 Stor Required 2.53	20.00 20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00	20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: 0	(<i>III</i>) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9	(min) -1 1 2 3 5	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00	(L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80	(L/s) 20.00 20.00 20.00 20.00 20.00 orage (m ³) Surface 0.00	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00 overflows to: C	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80
/hour) 3.51 6.09 2.51 1.18 3.30 erflow .00 CB9 0.160 0.45	40.73 33.24 30.53 28.26 24.68 Stor Required 2.53	20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00	20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: 0	(<i>III</i>) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9	(min) -1 1 2 3 5 Drainage Area Area (Ha) C -	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00 0.00 0.00	(L/s) 38.60 29.65 26.69 24.31 20.73 Stor Required 0.80	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00 overflows to: C	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9
<pre>/hour) 3.51 3.09 2.51 1.18 3.30 rflow 00 CB9 0.160 0.45</pre>	40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q _r (L	20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00	20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: 0 43.00	(<i>III</i>) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9	(min) -1 1 2 3 5	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00 0.00 0.150 0.45	(L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00	(L/s) 18.60 9.65 6.69 4.31 0.73 5ub-surface 0.00 overflows to: C 43.00	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9
<pre>/hour) 3.51 6.09 2.51 1.18 3.30 rflow .00 CB9 0.160 0.45</pre>	40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q _r (L 5-Year Ponding	20.00 20.00 20.00 20.00 20.00 20.00 20.00 20.00	20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: 0 43.00	(III) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9	(min) -1 1 2 3 5 Drainage Area Area (Ha) C =	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00 0.00 0.150 0.45	(L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80 Restricted Flow Q _r (L 2-Year Pondir	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00 /s)=	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00 overflows to: C 43.00	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9
<pre>/hour) 3.51 6.09 2.51 1.18 3.30 rflow .00 CB9 0.160 0.45 5yr</pre>	40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q _r (I 5-Year Ponding Peak Flow	20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00	20.73 13.24 10.53 8.26 4.68 Sub-surface 0.00 overflows to: (43.00	(III) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9 Volume	$\frac{(min)}{-1}$ $\frac{-1}{2}$ $\frac{3}{5}$ $\frac{Drainage Area}{Area (Ha)}$ $C = \frac{T_c}{1}$	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00 0.00 0.150 0.45 120.150 0.45	(L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80 Restricted Flow Qr (L 2-Year Pondin Peak Flow Qr (2-370-Qr (2-4))	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00 /s)= 1g Q _r	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00 overflows to: C 43.00 43.00	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9
<pre>/hour) 3.51 6.09 2.51 1.18 3.30 rflow .00 CB9 0.160 0.45 5yr (h.c.c.)</pre>	40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q _r (I 5-Year Ponding Peak Flow Q _p =2.78xCi _{5yr} A	20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00	$ \begin{array}{c} 1 \\ 20.73 \\ 13.24 \\ 10.53 \\ 8.26 \\ 4.68 \\ \end{array} $ Sub-surface 0.00 overflows to: 0 43.00 \\ 43.00 \\ \end{array}	(m ²) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9 Volume 5yr (m ²)	$\frac{(min)}{-1}$ $\frac{-1}{2}$ $\frac{3}{5}$ $\frac{Drainage Area}{Area (Ha)}$ $C = \frac{T_c}{Variable}$	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00 0.00 0.45 i _{2yr}	Charles p. 22.78xCi 2yr A (L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80 Restricted Flow Qr (L 2.Year Pondir Peak Flow Qp = 2.78xCi 2yr A	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00 /s)= 1g Q _r	(L/s) 18.60 9.65 6.69 4.31 0.73 5ub-surface 0.00 overflows to: C 43.00 43.00	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9 Volume 2yr (m ³)
<pre>/hour) 3.51 3.09 2.51 1.18 3.30 rflow 00 CB9 0.160 0.45 5yr /hour) </pre>	40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q _r (I 5-Year Ponding <i>Peak Flow</i> <i>Q_p</i> = 2.78xCi _{5yr} A (L/s)	20.00 20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00	$ \begin{array}{c} 1 \\ 20.73 \\ 13.24 \\ 10.53 \\ 8.26 \\ 4.68 \\ \end{array} $ Sub-surface 0.00 overflows to: ((<i>m</i> ²) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9 Volume 5yr (m ³)	$\frac{(min)}{(min)}$ $\frac{-1}{1}$ $\frac{2}{3}$ $\frac{3}{5}$ $\frac{Drainage Area}{Area (Ha)}$ $C =$ T_{c} $Variable$ (min)	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00 0.00 0.150 0.45 <i>i</i> _{2yr} (mm/hour)	C p = 2.78xCr 2yr A (L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80 Restricted Flow Qr (L 2.Year Pondir Peak Flow Q p = 2.78xCi 2yr A (L/s)	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00 /s)= 1g Q _r (L/s)	(L/s) 18.60 9.65 6.69 4.31 0.73 5ub-surface 0.00 overflows to: C 43.00 43.00 C C C C C C C C C C C C C	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9 Volume 2yr (m ³)
<pre>/hour) 3.51 3.51 3.09 2.51 1.18 3.30 rflow .00 CB9 0.160 0.45 5yr (hour) 2.34 </pre>	40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q _r (I 5-Year Ponding <i>Peak Flow</i> <i>Q_p</i> = 2.78xCi _{5yr} A (L/s) 80.53	20.00 20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00 -/s)= Q _r (L/s) 43.00	$\begin{array}{c} \textbf{L/s}\\ \hline 20.73\\ \hline 13.24\\ \hline 10.53\\ \hline 8.26\\ \hline 4.68\\ \hline \\ \textbf{Sub-surface}\\ 0.00\\ \hline \\ \textbf{overflows to: } (1)\\ \hline \\ \textbf{Q}_{p}\textbf{-}\textbf{Q}_{r}\\ \hline \\ \textbf{(L/s)}\\ \hline \\ 37.53\\ \hline \hline \end{array}$	(m ²) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9 Volume 5yr (m ³) -6.76	$ \begin{array}{c} (min) \\ \hline -1 \\ 1 \\ \hline 2 \\ 3 \\ \hline 5 \\ \hline \end{array} $ $ \begin{array}{c} Drainage Area \\ \hline Area (Ha) \\ C = \\ \hline T_c \\ Variable \\ (min) \\ \hline -3 \\ \hline \end{array} $	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00 0.00 0.45 0.45 <i>i</i> _{2yr} (mm/hour) 285.77	$a_p = 2.78 \times Gr_{2yr} A$ (L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80 Restricted Flow Q _r (L 2-Year Pondir Peak Flow $Q_p = 2.78 \times Gi_{2yr} A$ (L/s) 53.62	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00 /s)= 1g Q,r (L/s) 43.00 43.00	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00 overflows to: 43.00 43.00 (L/s) 10.62	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9 Volume 2yr (m ³) -1.91
<pre>/hour) 3.51 3.09 2.51 1.18 3.30 rflow 00 CB9 0.160 0.45 5yr /hour) 2.34 3.98 </pre>	40.73 33.24 30.53 28.26 24.68 Stor Required 2.53 Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{5yr} <i>A</i> (L/s) 80.53 53.44 40.15	20.00 20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00 (J.S)= Q _r (L/s) 43.00 43.00	$\begin{array}{c} \textbf{L/s}\\ \hline \textbf{20.73}\\ \hline \textbf{13.24}\\ \hline \textbf{10.53}\\ \hline \textbf{8.26}\\ \hline \textbf{4.68}\\ \hline \textbf{Sub-surface}\\ \hline \textbf{0.00}\\ \hline \textbf{overflows to: } (\textbf{0})\\ \hline \textbf{0}\\ \hline $	(m ²) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9 Volume 5yr (m ³) -6.76 -0.63 2.55	Drainage Area Area (Ha) C = T_c Variable (min) -3 -1	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00 0.00 0.150 0.45 i _{2yr} (mm/hour) 285.77 192.83 107.55	$a_p = 2.78 \times Gr_{2yr} A$ (L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80 Restricted Flow Q _r (L Peak Flow $Q_p = 2.78 \times Gi_{2yr} A$ (L/s) 53.62 36.18	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00 /s)= 1g Q _r (L/s) 43.00 43.00	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00 overflows to: C 43.00 43.00 (L/s) 10.62 -6.82	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9 Volume 2yr (m ³) -1.91 0.41
<pre>/hour) 3.51 3.09 2.51 1.18 3.30 rflow 00 CB9 0.160 0.45 5yr /hour) 2.34 3.98 0.48 0.48 0.45</pre>	$ \begin{array}{r} 40.73 \\ 33.24 \\ 30.53 \\ 28.26 \\ 24.68 \\ \end{array} $ Stor Required 2.53 \\ 253 \end{array} Restricted Flow Q _r (I 5-Year Ponding Peak Flow Q _p = 2.78xCi _{5yr} A (L/s) 80.53 53.44 46.13 40.70	20.00 20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00 -/s)= Q _r (L/s) 43.00 43.00	$\begin{array}{c} \textbf{L/s}\\ \hline 20.73\\ \hline 13.24\\ \hline 10.53\\ \hline 8.26\\ \hline 4.68\\ \hline \end{array}$	(m ²) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9 Volume 5yr (m ³) -6.76 -0.63 0.00	Drainage Area Area (Ha) C = T_c Variable (min) -3 -1 1 2 3 5	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00 0.00 0.45 <i>i</i> _{2yr} (mm/hour) 285.77 192.83 167.22 140.14	$a_p = 2.76 \times Gr_{2yr} A$ (L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80 Restricted Flow Q _r (L 2.78xCi _{2yr} A (L/s) 53.62 36.18 31.38	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00 /s)= 1g Q _r (L/s) 43.00 43.00 43.00	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00 overflows to: C 43.00 43.00 43.00 10.62 -6.82 -11.62	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9 Volume 2yr (m ³) -1.91 0.41 0.00
<pre>/hour) 3.51 3.09 2.51 1.18 3.30 rflow 00 CB9 0.160 0.45 5yr /hour) 2.34 3.51 3.00</pre>	$ \begin{array}{r} 40.73 \\ 33.24 \\ 30.53 \\ 28.26 \\ 24.68 \\ \end{array} $ Stor Required 2.53 \\ 2.53 \end{array} Restricted Flow Q _r (L 5-Year Ponding Peak Flow Q _p = 2.78xCi _{5yr} A (L/s) 80.53 53.44 46.13 40.73 22.24	20.00 20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00 -/s)= Q _r (L/s) 43.00 43.00 43.00	$\begin{array}{c} \textbf{L} \textbf{C} \textbf{C} \textbf{C} \textbf{C} \textbf{C} \textbf{C} \textbf{C} C$	(m ⁻) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9 Volume 5yr (m ³) -6.76 -0.63 0.00 -0.14 1.76	Image of the formula is the formul	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00 0.00 0.45 0.45 12yr (mm/hour) 285.77 192.83 167.22 148.14 121.46	$a_p = 2.78 \times Gr_{2yr} A$ (L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80 Restricted Flow Q _r (L 2-Year Pondir Peak Flow Q _p = 2.78 × Ci _{2yr} A (L/s) 53.62 36.18 31.38 27.80 20.70	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00 /s)= 1g Q _r (L/s) 43.00 43.00 43.00 43.00	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00 overflows to: 0 43.00 43.00 (L/s) 10.62 -6.82 -11.62 -15.20	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9 Volume 2yr (m ³) -1.91 0.41 0.00 -0.91 2.64
<i>hour</i> 3.51 6.09 2.51 1.18 3.30 rflow 00 CB9 0.160 0.45 5 yr (hour) 2.34 6.98 0.48 3.51 6.09	$\begin{array}{r} 40.73 \\ 33.24 \\ 30.53 \\ 28.26 \\ 24.68 \end{array}$ $\begin{array}{r} \textbf{Stor} \\ \textbf{Required} \\ 2.53 \end{array}$ $\begin{array}{r} \textbf{Restricted Flow } \textbf{Q}_r (\textbf{I} \\ \textbf{5-Year Ponding} \\ \textbf{Peak Flow} \\ \textbf{Q}_p = 2.78 \times Ci_{5yr} \textbf{A} \\ (L/s) \\ \hline \textbf{80.53} \\ 53.44 \\ 46.13 \\ 40.73 \\ 33.24 \end{array}$	20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00 (L/s) 43.00 43.00 43.00 43.00	$\begin{array}{c} \textbf{L/s}\\ \hline 20.73\\ \hline 13.24\\ \hline 10.53\\ \hline 8.26\\ \hline 4.68\\ \hline \\ \textbf{Sub-surface}\\ 0.00\\ \hline 0verflows to: (10)\\ \hline \\ \textbf{Q}_{p}\textbf{-}\textbf{Q}_{r}\\ \hline \\ \textbf{(L/s)}\\ \hline \\ 37.53\\ \hline 10.44\\ \hline \\ 3.13\\ \hline \\ \textbf{-}2.27\\ \hline \\ \textbf{-}9.76\\ \hline \end{array}$	(m ²) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9 Volume 5yr (m ³) -6.76 -0.63 0.00 -0.14 -1.76	Image (min) -1 1 2 3 5 Jorainage Area Area (Ha) C = T _c Variable (min) -3 -1 0 1 3	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00 0.00 0.00 0.150 0.45 12yr (mm/hour) 285.77 192.83 167.22 148.14 121.46	$a_p = 2.78 \times Gr_{2yr} A$ (L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80 Restricted Flow Q _r (L 2-Year Pondir Peak Flow $Q_p = 2.78 \times Ci_{2yr} A$ (L/s) 53.62 36.18 31.38 27.80 22.79	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00 /s)= 19 Q _r (L/s) 43.00 43.00 43.00 43.00	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00 overflows to: C 43.00 43.00 -0.62 -6.82 -11.62 -15.20 -20.21	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9 Volume 2yr (m ³) -1.91 0.41 0.00 -0.91 -3.64
<i>hour</i>) 3.51 3.09 2.51 1.18 3.30 rflow 00 <i>cB9</i> 0.160 0.45 <i>four</i>) 2.34 5.98 0.48 3.51 5.09	$ \begin{array}{r} 40.73 \\ 33.24 \\ 30.53 \\ 28.26 \\ 24.68 \\ \end{array} $ Stor Required 2.53 \\ 2.53 \end{array} Restricted Flow Q _r (I 5-Year Ponding Peak Flow Q _p = 2.78xCi _{5yr} A (L/s) 80.53 53.44 46.13 40.73 33.24 Stor	20.00 20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00 -/s)= Q _r (L/s) 43.00 43.00 43.00 43.00	$\begin{array}{c} \textbf{L-S}\\ 20.73\\ 13.24\\ 10.53\\ 8.26\\ 4.68\\ \hline \end{array}$	(<i>III</i>) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9 <i>Volume</i> <i>5yr</i> (<i>m</i> ³) -6.76 -0.63 0.00 -0.14 -1.76	$ \begin{array}{r} (min) \\ -1 \\ 1 \\ 2 \\ 3 \\ 5 \\ 5 \\ 5 \\ $	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00 0.00 0.45 <i>i</i> _{2yr} (mm/hour) 285.77 192.83 167.22 148.14 121.46	$a_p = 2.78 \times Gr_{2yr} A$ (L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80 Restricted Flow Q _r (L 2.78ar Pondir Peak Flow $Q_p = 2.78x Ci_{2yr} A$ (L/s) 53.62 36.18 31.38 27.80 22.79	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00 /s)= 1g Q _r (L/s) 43.00 43.00 43.00 43.00 97age (m ³)	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00 overflows to: 0 43.00 43.00 (L/s) 10.62 -6.82 -11.62 -15.20 -20.21	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9 Volume 2yr (m ³) -1.91 0.41 0.41 0.00 -0.91 -3.64
<pre>/hour) 3.51 6.09 2.51 1.18 3.30 rflow .00 CB9 0.160 0.45 5yr /hour) 2.34 3.51 3.09 rflow</pre>	$ \begin{array}{r} 40.73 \\ 33.24 \\ 30.53 \\ 28.26 \\ 24.68 \\ \end{array} $ Stor Required 2.53 \\ 2.53 \end{array} Restricted Flow Q _r (I 5-Year Ponding Peak Flow Q _p = 2.78xCi _{5yr} A (L/s) 80.53 53.44 46.13 40.73 33.24 \\ Stor Required	20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00 (L/s) 43.00 43.00 43.00 43.00 rage (m ³) Surface	$ \begin{array}{r} 1.2.5 \\ 20.73 \\ 13.24 \\ 10.53 \\ 8.26 \\ 4.68 \\ \hline Sub-surface \\ 0.00 \\ overflows to: 0 \\ \hline 43.00 \\ \hline 43.00 \\ \hline 43.00 \\ \hline 0.00 \\ 0verflows to: 0 \\ \hline 10.44 \\ 3.13 \\ -2.27 \\ -9.76 \\ \hline Sub-surface \\ Sub-surface \\ \hline Sub-surface \\ Sub-surface \\ \hline $	(m ²) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9 Volume 5yr (m ³) -6.76 -0.63 0.00 -0.14 -1.76 Balance	Image (min) -1 1 2 3 5 Jorainage Area Area (Ha) C = T _c Variable (min) -3 -1 0 1 3	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00 0.00 0.00 0.150 0.45 120 0.150 0.45	$a_p = 2.78 \times G_{2yr} A$ (L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80 Restricted Flow Q _r (L 2-Year Pondir Peak Flow $Q_p = 2.78 \times Ci_{2yr} A$ (L/s) 53.62 36.18 31.38 27.80 22.79 Sto Required	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00 /s)= Q, (L/s) 43.00 43.00 43.00 43.00 97age (m ³) Surface	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00 overflows to: C 43.00 43.00 -0.62 -11.62 -15.20 -20.21	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9 Volume 2yr (m ³) -1.91 0.41 0.00 -0.91 -3.64 Balance
<i>hour</i>) 3.51 3.09 2.51 1.18 3.30 rflow 00 CB9 0.160 0.45 <i>i</i> yr <i>hour</i>) 2.34 3.98 3.48 3.51 3.09 rflow 53	$ \begin{array}{r} 40.73 \\ 33.24 \\ 30.53 \\ 28.26 \\ 24.68 \\ \end{array} $ Stor Required 2.53 \\ 2.53 \end{array} Restricted Flow Q _r (I 5-Year Ponding Peak Flow Q _p = 2.78xCi _{5yr} A (L/s) 80.53 \\ 53.44 \\ 46.13 \\ 40.73 \\ 33.24 \\ \end{array} Stor Required 2.53	20.00 20.00 20.00 20.00 rage (m ³) Surface 0.00 <i>Cage</i> (m ³) 43.00 20 20 20 20 20 20 20 20 20	$ \begin{array}{r} 1.2.5 \\ 20.73 \\ 13.24 \\ 10.53 \\ 8.26 \\ 4.68 \\ \hline Sub-surface \\ 0.00 \\ overflows to: 0 \\ \hline 43.00 \\ \hline 43.00 \\ \hline 43.00 \\ \hline 0.00 \\ 37.53 \\ 10.44 \\ 3.13 \\ -2.27 \\ -9.76 \\ \hline Sub-surface \\ 0.00 \\ \hline Sub-surface \\ 0.00 \\ \hline Sub-surface \\ 0.00 \\ \hline Sub-surface \\ 0.00 \\ \hline Sub-surface \\ 0.00 \\ \end{array} $	(<i>III</i>) 1.24 2.38 2.53 2.48 1.97 Balance 2.53 CB9 Volume 5yr (<i>m</i> ³) -6.76 -0.63 0.00 -0.14 -1.76 Balance 0.00	$ \begin{array}{r} (min) \\ -1 \\ 1 \\ 2 \\ 3 \\ 5 \\ 5 \\ 5 \\ $	(mm/hour) 192.83 148.14 133.33 121.46 103.57 Overflow 0.00 0.00 <i>CB9</i> 0.150 0.45 <i>i</i> _{2yr} (mm/hour) 285.77 192.83 167.22 148.14 121.46 Overflow 0.00	$a_p = 2.78 \times Gr_{2yr} A$ (L/s) 38.60 29.65 26.69 24.31 20.73 Sto Required 0.80 Restricted Flow Q _r (L 2.78ar Pondir Peak Flow $Q_p = 2.78x Ci_{2yr} A$ (L/s) 53.62 36.18 31.38 27.80 22.79 Sto Required 0.00	(L/s) 20.00 20.00 20.00 20.00 20.00 prage (m ³) Surface 0.00 /s)= 1g Q _r (L/s) 43.00 43.00 43.00 43.00 9rage (m ³) Surface 10.83	(L/s) 18.60 9.65 6.69 4.31 0.73 Sub-surface 0.00 overflows to: 0 43.00 43.00 43.00 10.62 -6.82 -11.62 -15.20 -20.21	(m ³) -1.12 0.58 0.80 0.78 0.22 Balance 0.80 CB9 Volume 2yr (m ³) -1.91 0.41 0.41 0.41 0.41 0.41 0.91 -3.64 Balance 0.00

Drainage Area	CB18	3				Drainage Area	CB18	1				Drainage Area	CB18	3			
Area (Ha)	0.16	0				Area (Ha)	0.160					Area (Ha)	0.160	D			
C =	0.2	5 Restricted Flow Q _r (L/	s)=	15.00		C =	0.20	Restricted Flow Q _r (L	/s)=	15.00		C =	0.20) Restricted Flow Q_r (L/	s)=	15.00	
		100-Year Pond	ling	-				5-Year Ponding						2-Year Pondin	g		
T _c Variable	i _{100yr}	Peak Flow Q _p =2.78xCi _{100yr} A	Qr	Q _p -Q _r	Volume 100yr	T _c Variable	i _{5yr}	Peak Flow Q _p =2.78xCi _{5yr} A	Q,	Q _p -Q _r	Volume 5yr	T _c Variable	i _{2yr}	Peak Flow Q _p =2.78xCi _{2yr} A	Q,	Q _p - Q _r	Volume 2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)
3	286.05	31.81	15.00	16.81	3.03	-2	319.47	28.42	15.00	13.42	-1.61	-3	285.77	25.42	15.00	10.42	-1.88
5	242.70	26.99	15.00	11.99	3.60	0	230.48	20.50	15.00	5.50	0.00	-1	192.83	17.15	15.00	2.15	-0.13
6	226.01	25.13	15.00	10.13	3.65	1	203.51	18.10	15.00	3.10	0.19	0	167.22	14.88	15.00	-0.12	0.00
7	211.67	23.54	15.00	8.54	3.59	2	182.69	16.25	15.00	1.25	0.15	1	148.14	13.18	15.00	-1.82	-0.11
9	188.25	20.93	15.00	5.93	3.20	4	152.51	13.57	15.00	-1.43	-0.34	3	121.46	10.81	15.00	-4.19	-0.76

Overflow	Required	Surface	Sub-surface	Balance
42.19	45.84	13.76	46.33	0.00

Subsurface storage calculation

450mm subdrain @ 96m

Bottom of storage medium ave. grade width of S29 trench depth of S29 trench (below spill elev.) Volume of S29 trench Volume of clear stone 25mm clear stone per S29 Stoage within clear stone 15.30 m³ 98.00 m 1.00 m 1.01 m 96.96 m³ 81.66 m³ 0.38 void ratio 31.03 m³

		_		overflows to:	offsite					overflows to:	offsite						
Drainage Area	RA					Drainage Area	RA					Drainage Area	RA				
Area (Ha)	0.300	D				Area (Ha)	0.300)			_	Area (Ha)	0.300				
C =	1.00) Restricted Flow Q _r (L	/s)=	27.00		C =	0.90	Restricted Flow Q _r (L	_/s)=	27.00		C =	0.90	Restricted Flow Q _r (L	/s)=	27.00	
		100-Year Pone	ding					5-Year Ponding						2-Year Pondi	ng		
T _c Variable	i _{100yr}	Peak Flow Q _p =2.78xCi _{100yr} A	Q _r	Q _p -Q _r	Volume 100yr	T _c Variable	i _{5yr}	Peak Flow Q _p =2.78xCi _{5yr} A	Q _r	Q _p -Q _r	Volume 5yr	T _c Variable	i _{2yr}	Peak Flow Q _p =2.78xCi _{2yr} A	Q,	Q _p - Q _r	Volume 2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)
25	103.85	86.61	27.00	59.61	89.41	13	90.63	68.03	27.00	41.03	32.00	8	85.46	64.14	27.00	37.14	17.83
26	101.18	84.38	27.00	57.38	89.52	14	86.93	65.25	27.00	38.25	32.13	10	76.81	57.65	27.00	30.65	18.39
27	98.66	82.28	27.00	55.28	89.56	15	83.56	62.72	27.00	35.72	32.15	11	73.17	54.92	27.00	27.92	18.43
28	96.27	80.29	27.00	53.29	89.53	16	80.46	60.39	27.00	33.39	32.06	12	69.89	52.46	27.00	25.46	18.33
29	94.01	78.41	80.29 27.00 53.29 69.53 78.41 27.00 51.41 89.45				77.61	58.25	27.00	31.25	31.88	14	64.23	48.21	27.00	21.21	17.82

	5	Storage (m ³)				S	torage (m ³)				S	torage (m ³)		
Overflow	Required	Surface	Sub-surface	Balance	Overflo	w Required	Surface	Sub-surface	Balance	 Overflow	Required	Surface	Sub-surface	Balance
0.00	89.56	90.00	0.00	0.00	0.00	32.15	90.00	0.00	0.00	0.00	18.43	90.00	0.00	0.00

	Ste	orage (m ³)				S	torage (m ³)		
Overflow	Required	Surface	Sub-surface	Balance	Overflow	Required	Surface	Sub-surface	Balance
0.00	0.19	13.76	46.33	0.00	0.00	0.00	13.76	46.33	0.00

С

overflows to: offsite

		5						1						-			
Drainage Area		3					RB					Drainage Area					
	0.22	0 0 Restricted Flow Q. (L/s	s)=	20.00		Area ($\square a$)	0.220	Restricted Flow Q. (I	/s)=	20.00	l	Area ($\square a$)	0.220	Bestricted Flow Q. (I	/s)=	20.00	
0 =	1.0		ling	20.00		0 =	0.90	5 Voor Donding	,0)-	20.00		0 =	0.90	2 Voor Dondi		20.00	
T		Pook Elow	iirig		Volumo	7		5-Teal Foliuling		1	Volumo	T		2-Teal Foliuli	ig		Volumo
I _c Variahle	i _{100yr}	$\rho = 2.78 \times Ci_{100}$	Q _r	$Q_p - Q_r$	100vr	l _c Variahle	i _{5yr}	$\rho = 2.78 \text{ yCi}_{-2} \Delta$	Q _r	$Q_p - Q_r$	5vr	I _c Variable	i _{2yr}	$\rho = 2.78 \text{ yCi}_{\circ} \text{ A}$	Qr	$Q_p - Q_r$	volume 2vr
(min)	(mm/bour)	$G_p = 2.70 \text{ CO}_{100yr} \text{ A}$	(I /s)	(I /s)	(m^3)	(min)	(mm/bour)	$G_p = 2.70 \times C1_{5yr} A$	(I /s)	(I /s)	(m^3)	(min)	(mm/hour)	$G_p = 2.70 \times C1_{2yr} A$	(I /s)	(I /s)	(m^3)
24	106.68	65.24	20.00	45.24	65.15	11	99.19	54.60	20.00	34.60	22.84	8	85.46	47.04	20.00	27.04	12.98
26	101.18	61.88	20.00	41.88	65.34	13	90.63	49.89	20.00	29.89	23.31	10	76.81	42.28	20.00	22.28	13.37
27	98.66	60.34	20.00	40.34	65.35	14	86.93	47.85	20.00	27.85	23.40	11	73.17	40.27	20.00	20.27	13.38
28	96.27	58.88	20.00	38.88	65.32	15	83.56	45.99	20.00	25.99	23.39	12	69.89	38.47	20.00	18.47	13.30
30	91.87	56.19	20.00	36.19	65.14	17	//.61	42.72	20.00	22.72	23.17	14	64.23	35.36	20.00	15.36	12.90
		Sto	orage (m ³)					Stor	ade (m ³)					Sto	rage (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	0.00	65.35	66.00	0.00	0.00		0.00	23.40	66.00	0.00	0.00		0.00	13.38	66.00	0.00	0.00
Dura fara ana Arra a	20	5				Dura fra a una di una a	50	1				Dura fra a una dava a	50	4			
Area (na)	0.05	0 0 Restricted Flow () (1/9	e)-	9 0 0		Area (na)	0.050	Bestricted Flow O (I	/s)_	8 00			0.050	D Restricted Flow O (I	/e)_	8 00	
0 =	1.0		S)-	8.00		0 =	0.90	F Voor Donding	/3)=	0.00		0 =	0.90	2 Veer Dendi		0.00	
Ŧ		Deels Flow	iing		Volume	7	-	5-Tear Ponding			Volume	T		2-Tear Ponuli	ig		Volume
I _c Variabla	i _{100yr}		Q _r	$Q_p - Q_r$	voiume	l _c Variabla	і _{5уг}	Peak Flow	Q,	$Q_p - Q_r$	voiume	I _c Variable	i _{2yr}		\boldsymbol{Q}_r	$Q_p - Q_r$	voiume
	(mm/bour)	$Q_p = 2.76 \times CI_{100yr} A$	(I_/c)	(1/c)	(m^3)	(min)	(mm/bour)	$Q_p = 2.76 \text{XCI}_{5yr} \text{A}$	(1 /c)	(1 (c)	(m^3)	(min)	(mm/bour)	$Q_p = 2.76 \times CI_{2yr} A$	(I /c)	(1 (c)	(m^3)
12	162 13	(L / S)	8.00	(L / S) 14 54	10.47	(<i>IIIII)</i> 5	141 18	17.66	8.00	9.66	2 90	(11111)	133.33	(<i>L/S)</i> 16.68	8.00	8.68	1 04
14	148.72	20.67	8.00	12.67	10.64	7	123.30	15.43	8.00	7.43	3.12	4	111.72	13.98	8.00	5.98	1.43
15	142.89	19.86	8.00	11.86	10.68	8	116.11	14.53	8.00	6.53	3.13	5	103.57	12.96	8.00	4.96	1.49
16	137.55	19.12	8.00	11.12	10.67	9	109.79	13.74	8.00	5.74	3.10	6	96.64	12.09	8.00	4.09	1.47
18	128.08	17.80	8.00	9.80	10.59	11	99.19	12.41	8.00	4.41	2.91	8	85.46	10.69	8.00	2.69	1.29
		St	orado (m ³)					Stor	$aae (m^3)$					Sto	$rade (m^3)$		
	Overflow	Bequired	Surface	Sub-surface	Balance		Overflow	Bequired	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	0.00	10.68	13.50	1.00	0.00		0.00	3.13	13.50	0.00	0.00		0.00	1.49	13.50	0.00	0.00
														_			
Drainage Area	RL)				Drainage Area	RD					Drainage Area	RD)			
Area (Ha)	0.05	0				Area (Ha)	0.050				1	Area (Ha)	0.050				
C =	1.0	0 Restricted Flow Q _r (L/s	S)=	8.00		C =	0.90	Restricted Flow Q _r (L	/S)=	8.00		C =	0.90) Restricted Flow Q _r (L	/S)=	8.00	
	-	100-Year Pond	ling				·	5-Year Ponding						2-Year Pondi	ng		
T _c	i 100vr	Peak Flow	Q,	$Q_{p}-Q_{r}$	Volume	T _c	i _{5vr}	Peak Flow	Q,	Q_{n} - Q_{r}	Volume	T _c	i ovr	Peak Flow	Q,	Q_{n} - Q_{r}	Volume
Variable	looyi	Q _p =2.78xCi _{100yr} A			100yr	Variable		$Q_p = 2.78 \times Ci_{5yr} A$		p i	5yr	Variable	297	$Q_p = 2.78 \times Ci_{2yr} A$		p i	2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m°)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m°)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m°)
12	162.13	22.54	8.00	14.54	10.47	5	141.18	17.66	8.00	9.66	2.90	2	133.33	16.68	8.00	8.68	1.04
15	142.89	19.86	8.00	11.86	10.64	8	116.11	14.53	8.00	6.53	3.12	5	103.57	12.96	8.00	4.96	1.49
16	137.55	19.12	8.00	11.12	10.67	9	109.79	13.74	8.00	5.74	3.10	6	96.64	12.09	8.00	4.09	1.47
18	128.08	17.80	8.00	9.80	10.59	11	99.19	12.41	8.00	4.41	2.91	8	85.46	10.69	8.00	2.69	1.29
		•	. 3.					•	. 3.					•	. 3.		
	Overflow	Sto		Cub ourfood	Palanaa		Overflow	Stor	age (m [°])	Sub ourfood	Palamaa		Overflow	Sto	surface	Cub ourfood	Palamaa
	0.00	10.68	11.25	1.00	0.00		0.00	3.13	11.25		0.00		0.00	1.49	11.25		0.00
					0.00					0.00	0.00					0.00	0.00
Drainage Area	EXTERNAL	-				Drainage Area	EXTERNAL					Drainage Area	EXTERNAL				
Area (Ha)	1.55	0				Area (Ha)	1.550					Area (Ha)	1.550				
C =	1.0	0 Restricted Flow Q _r (L/s	s)=	291.58		C =	0.80	Restricted Flow Q _r (L	/s)=	291.58		C =	0.80) Restricted Flow Q _r (L	/s)=	291.58	
		100-Year Pond	ling				1	5-Year Ponding		-				2-Year Pondii	ng		
T _c	i 100vr	Peak Flow	Q,	Q,-Q.	Volume	T _c	İ 5117	Peak Flow	Q,	QQ_	Volume	T _c	İnur	Peak Flow	Q,	Q _n -Q,	Volume
Variable	- 100yr	Q _p =2.78xCi _{100yr} A	I	p r	100yr	Variable	- әуі	$Q_p = 2.78 \times Ci_{5yr} A$	1	p r	5yr	Variable	- 2yı	$Q_p = 2.78 \times Ci_{2yr} A$		-p -r	2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m°)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m°)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m°)
9	188.25	811.19	291.58	519.61	280.59	2	182.69	629.76 525.72	291.58	338.18	40.58	0	167.22	576.45	291.58	284.87	0.00
12	162 13	698.63	291.00	407.05	290.70	5	141 18	486 67	291.50	195.09	58.53	3	121 46	409.02	291.58	127 13	20.10 22.88
13		000.00			2002.00	e e	101.57	450.54		101.00	50.00	4	111 72	205.12	201.50	02 55	22.45
	155.11	668.36	291.58	376.78	293.09	0	131.37	453.54	291.58	101.90	50.51	т	111.76	303.13	291.00	93.35	
15	155.11 142.89	668.36 615.73	291.58 291.58	376.78 324.15	293.89	8	116.11	453.54 400.26	291.58 291.58	108.68	52.17	6	96.64	333.13	291.58	41.55	14.96
15	155.11 142.89	668.36 615.73	291.58	376.78 324.15	293.89 291.74	8	116.11	453.54 400.26	291.58	108.68	52.17	6	96.64	333.13	291.58	93.55 41.55	14.96
15	155.11 142.89	668.36 615.73	291.58 291.58	376.78 324.15	293.69 291.74	8	116.11	453.54 400.26 Stora	291.58 291.58 age (m ³)	101.96 108.68	52.17	6	96.64	333.13 Sto	291.58 291.58	93.55 41.55	14.96

ge Area	RB	3				Drainage Area	RB]				Drainage Area	RB				
	0.220	0				Area (Ha)	0.220					Area (Ha)	0.220				
	1.00	0 Restricted Flow Q _r (L	_/S)=	20.00		C =	0.90	Restricted Flow Q _r (I	_/S)=	20.00		C =	0.90	Restricted Flow Q _r (L	/S)=	20.00	
T		100-Year Pon	laing		Volume			5-Year Ponding			Volume	T		2-Year Pondi	ıg	<u>г</u>	Volume
' _c riable	i _{100yr}	$Q_{\rm p} = 2.78 \text{ xCi} 400.44 \text{ A}$	Q,	Q _p - Q _r	100vr	Variable	i _{5yr}	Q _n =2.78xCi Δ	Q _r	Q _p -Q _r	5vr	<i>r_c</i> Variable	i _{2yr}	<i>Q</i> _n =2.78xCi 2 Δ	Qr	$Q_p - Q_r$	2vr
nin)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m^3)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m^3)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m^3)
24	106.68	65.24	20.00	45.24	65.15	11	99.19	54.60	20.00	34.60	22.84	8	85.46	47.04	20.00	27.04	12.98
26	101.18	61.88	20.00	41.88	65.34	13	90.63	49.89	20.00	29.89	23.31	10	76.81	42.28	20.00	22.28	13.37
27 28	98.66	60.34 58.88	20.00	40.34	65.35	14	86.93	47.85	20.00	27.85	23.40	11	73.17 69.89	40.27	20.00	20.27	<u>13.38</u> 13.30
30	91.87	56.19	20.00	36.19	65.14	17	77.61	42.72	20.00	22.72	23.17	14	64.23	35.36	20.00	15.36	12.90
			• · · · · · · · · · · · · · · · · · · ·					014									
	Overflow	S 	torage (m [°])	Sub-surface	Balance	-	Overflow	Stor Bequired	rage (m [°])	Sub-surface	Balanco		Overflow	Sto	Surface	Sub-surface	Balance
	0.00	65.35	66.00	0.00	0.00		0.00	23.40	66.00	0.00	0.00		0.00	13.38	66.00	0.00	0.00
NO 1400	BC	5				Drainaga Araa	DC	1				Drainaga Araa	BC	I			
je Area	0.050	<u>,</u>				Area (Ha)	0.050					Area (Ha)	0.050				
	1.00	0 Restricted Flow Q _r (L	_/s)=	8.00		C =	0.90	Restricted Flow Q _r (I	_/s)=	8.00		C =	0.90	Restricted Flow Qr (L	/s)=	8.00	
		100-Year Pon	ding					5-Year Ponding	-	Į			L	2-Year Pondi	ng		
T _c	;	Peak Flow		0.0	Volume	T _c		Peak Flow	0		Volume	T _c	;	Peak Flow	<u> </u>		Volume
riable	l 100yr	Q _p =2.78xCi _{100yr} A		ω _p -ω _r	100yr	Variable	¹ 5yr	Q _p =2.78xCi _{5yr} A	Q _r	Gr p - Gr r	5yr	Variable	l 2yr	Q _p =2.78xCi _{2yr} A	W _r	ω _p -ω _r	2yr
nin)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
12 14	162.13	22.54	8.00	14.54	10.47	5	141.18	17.66	8.00	9.66	2.90	2	133.33	16.68	8.00	8.68	1.04
15	142.89	19.86	8.00	11.86	10.64	8	116.11	14.53	8.00	6.53	3.12 3.13	5	103.57	12.96	8.00	4.96	1.49
16	137.55	19.12	8.00	11.12	10.67	9	109.79	13.74	8.00	5.74	3.10	6	96.64	12.09	8.00	4.09	1.47
18	128.08	17.80	8.00	9.80	10.59	11	99.19	12.41	8.00	4.41	2.91	8	85.46	10.69	8.00	2.69	1.29
		S	torage (m ³)					Stor	rage (m ³)					Sto	rage (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance	_	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	0.00	10.68	13.50	1.00	0.00		0.00	3.13	13.50	0.00	0.00		0.00	1.49	13.50	0.00	0.00
no Aroa	R	ก				Drainage Area	PD	1				Drainage Area	RD	I			
je Alea	0.050	0				Area (Ha)	0.050					Area (Ha)	0.050				
	1.00	0 Restricted Flow Q _r (L	_/s)=	8.00		C =	0.90	Restricted Flow Q _r (I	_/s)=	8.00		C =	0.90	Restricted Flow Q _r (L	/s)=	8.00	
		100-Year Pon	ding					5-Year Ponding						2-Year Pondi	ng		
T _c	i	Peak Flow	Q.	00	Volume	T _c	İca	Peak Flow	0	00	Volume	T _c	i	Peak Flow	0	00	Volume
riable	- 100yr	Q _p =2.78xCi _{100yr} A	α,		100yr	Variable	' Syr	Q _p =2.78xCi _{5yr} A	α,	$\alpha_{\rho} \alpha_{r}$	5yr	Variable	• 2yr	Q _p =2.78xCi _{2yr} A	۹ŗ		2yr
nin)	(<i>mm/hour</i>)	(L/s)	(L/s)	(L/s)	(<i>m[°]</i>)	(min)	(<i>mm/hour</i>)	(L/s)	(L/s)	(L/s)	(m°)	(min)	(<i>mm/hour</i>)	(L/s)	(L/s)	(L/s)	(m°)
12	162.13	22.54	8.00	14.54	10.47	5	123.30	17.00	8.00	9.66	2.90	4	133.33	13.98	8.00	5.98	1.04
15	142.89	19.86	8.00	11.86	10.68	8	116.11	14.53	8.00	6.53	3.13	5	103.57	12.96	8.00	4.96	1.49
16	137.55	19.12	8.00	11.12	10.67	9	109.79	13.74	8.00	5.74	3.10	6	96.64	12.09	8.00	4.09	1.47
18	128.08	17.80	8.00	9.80	10.59	11	99.19	12.41	8.00	4.41	2.91	8	85.46	10.69	8.00	2.69	1.29
		S	torage (m ³)					Stor	r age (m ³)					Sto	orage (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	0.00	10.68	11.25	1.00	0.00		0.00	3.13	11.25	0.00	0.00		0.00	1.49	11.25	0.00	0.00
ge Area	EXTERNAL					Drainage Area	EXTERNAL	1				Drainage Area	EXTERNAL				
<i>, , , , , , , , , ,</i>	1.550	0				Area (Ha)	1.550	1				Area (Ha)	1.550				
	1.00	0 Restricted Flow Q _r (L	_/S)=	291.58		C =	0.80	Restricted Flow Q _r (I	_/s)=	291.58		C =	0.80	Restricted Flow Qr (L	/s)=	291.58	
		100-Year Pon	ding					5-Year Ponding						2-Year Pondi	ng		
	Í 100.m	Peak Flow	Q.	QQ	Volume	T _c	Í 5.4	Peak Flow	Q.	QQ .	Volume	T _c	l aur	Peak Flow	Q.	QQ_	Volume
riable	- 100yr	Q _p =2.78xCi _{100yr} A		-p = r	100yr	Variable	- syr	$Q_p = 2.78 \times Ci_{5yr} A$	→ r	- <i>p</i> - <i>r</i>	5yr	Variable	- 2yr	$Q_p = 2.78 \times Ci_{2yr} A$	r 	- <i>p</i> - <i>r</i>	2yr
nin) a	(<i>mm/hour</i>)	(L/s)	(L/s)	(L/s)	(<i>m°</i>)	(<i>min</i>)	(<i>mm/hour</i>)	(L/s)	(L/s)	(L/s)	(<i>m°</i>)	(<i>min</i>)	(<i>mm/hour</i>)	(L/s)	(L/s)	(L/s)	(<i>mč</i>)
<u> </u>	169.91	732.13	291.58	440.55	200.59	4	152.51	525.73	291.58	234.15	40.56 56.19	2	133.33	459.62	291.58	<u> </u>	20.16
12	162.13	698.63	291.58	407.05	293.08	5	141.18	486.67	291.58	195.09	58.53	3	121.46	418.71	291.58	127.13	22.88
13	155.11	668.36	291.58	376.78	293.89	6	131.57	453.54	291.58	161.96	58.31	4	111.72	385.13	291.58	93.55	22.45
10	142.89	010.73	291.30	324.13	291.74	• •	110.11	400.20	291.00	100.00	JZ.17	0	90.04	333.13	231.30	41.00	14.90
		S	torage (m ³)					Stor	r age (m³)					Sto	orage (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	0 00	202 08	270.00	0.00	23.08		0.00	58 53	270 00	0.00	0.00		0.00	22.88	270 00	0.00	0.00

Drainage Area	RB	3				Drainage Area	RB]				Drainage Area	RB				
Area (Ha)	0.220	0	()			Area (Ha)	0.220					Area (Ha)	0.220)			
C =	1.00	0 Restricted Flow Q _r (L	/S)=	20.00		C =	0.90	Restricted Flow Q _r (I	_/S)=	20.00		C =	0.90	Restricted Flow Q _r (I	_/S)=	20.00	
	1	100-Year Pon	ding	1	Malarra		1	5-Year Ponding		I	Maluma		1	2-Year Pondi	ng		Malarraa
I _c Variable	і _{100yr}	Peak Flow $0 = 2.78 \times Ci$	Q _r	$Q_p - Q_r$	Volume 100vr	l _c Variable	i _{5yr}	Peak Flow $0 = 2.78 \times Ci_{-} A$	Q,	$Q_p - Q_r$	voiume 5vr	l _c Variable	i _{2yr}	Peak Flow $0 = 2.78 \times Ci_{20}$	Q,	$Q_p - Q_r$	Volume 2vr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m^3)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
24	106.68	65.24	20.00	45.24	65.15	11	99.19	54.60	20.00	34.60	22.84	8	85.46	47.04	20.00	27.04	12.98
26	101.18	61.88	20.00	41.88	65.34	13	90.63	49.89	20.00	29.89	23.31	10	76.81	42.28	20.00	22.28	13.37
27	98.66 96.27	60.34 58.88	20.00	40.34	65.35 65.32	14	86.93 83.56	47.85	20.00	27.85	23.40	11	/3.1/	40.27	20.00	20.27	13.38 13.30
30	91.87	56.19	20.00	36.19	65.14	17	77.61	42.72	20.00	22.72	23.17	14	64.23	35.36	20.00	15.36	12.90
			9						. 0.						. 9.		
	Overflow	Boguirod	torage (m ³)	Sub ourfood	Polonoo		Overflow	Stor	tage (m ³)	Sub ourfood	Palanaa		Overflow	Boguirod	orage (m ³)	Sub ourfood	Palanaa
	0.00	65.35	66.00	0.00	0.00		0.00	23.40	66.00	0.00	0.00		0.00	13.38	66.00	0.00	0.00
	2.0							1						1			
Drainage Area						Drainage Area						Drainage Area					
	1.00	Restricted Flow Q, (L	/s)=	8.00		Area (⊓a) C –	0.050	Restricted Flow Q, (I	_/s)=	8 00			0.050) Restricted Flow Q, (I	_/s)=	8.00	
0 -	1.00	100-Year Pon	dina	0.00		0 -	0.00	5-Vear Ponding		0.00		0 -	0.50	2-Year Pondi	na	0.00	
Ta	I .	Peak Flow	unig		Volume	T _o		Peak Flow			Volume	To	Ι.	Peak Flow	ig .		Volume
Variable	İ _{100yr}	$Q_p = 2.78 \times Ci_{100 \text{vr}} A$	Q_r	$Q_p - Q_r$	100yr	Variable	i _{5yr}	$Q_p = 2.78 \times Ci_{5vr} A$	Q _r	Q _p -Q _r	5yr	Variable	i _{2yr}	$Q_p = 2.78 \times Ci_{2vr} A$	Q _r	Q _p -Q _r	2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
12	162.13	22.54	8.00	14.54	10.47	5	141.18	17.66	8.00	9.66	2.90	2	133.33	16.68	8.00	8.68	1.04
<u> </u>	148./2 142.89	20.67	8.00	12.67	10.64 10.68	/ 8	123.30	15.43 14.53	8.00 8.00	7.43 6.53	3.12 3 13	4	111.72	13.98	8.00	5.98 4.96	1.43 1 49
16	137.55	19.12	8.00	11.12	10.67	9	109.79	13.74	8.00	5.74	3.10	6	96.64	12.09	8.00	4.09	1.47
18	128.08	17.80	8.00	9.80	10.59	11	99.19	12.41	8.00	4.41	2.91	8	85.46	10.69	8.00	2.69	1.29
		C.	lorogo (m ³)					Stor	(m^3)					C+/	$rado (m^3)$		
	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	0.00	10.68	13.50	1.00	0.00		0.00	3.13	13.50	0.00	0.00		0.00	1.49	13.50	0.00	0.00
		-						-						-			
Drainage Area	RD					Drainage Area	RD					Drainage Area	RD				
Area (Ha)	0.050	0 Restricted Flow Q. (I	/s)=	8.00		Area (Ha)	0.050	Bestricted Flow Q. (I	/s)=	8 00		Area (Ha)	0.050) Bestricted Flow Q. (I	/s)=	8.00	
0 =	1.00	100-Vear Pon	dina	0.00		0 =	0.90	5-Vear Ponding		8.00		0 =	0.90	2-Vear Pondi	na	0.00	
Ta	<u> </u>	Peak Flow	unig		Volume	T _a		Peak Flow	_		Volume	T _a		Peak Flow	ig		Volume
Variable	i _{100yr}	$Q_p = 2.78 \times Ci_{100 \text{vr}} A$	Q _r	$Q_p - Q_r$	100yr	Variable	i _{5yr}	$Q_p = 2.78 \times Ci_{5 \times r} A$	Q,	Q _p -Q _r	5yr	Variable	i _{2yr}	$Q_p = 2.78 \times Ci_{2vr} A$	Q _r	$Q_p - Q_r$	2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
12	162.13	22.54	8.00	14.54	10.47	5	141.18	17.66	8.00	9.66	2.90	2	133.33	16.68	8.00	8.68	1.04
14	148.72	20.67	8.00	12.67	10.64	7	123.30	15.43	8.00	7.43	3.12	4	111.72	13.98	8.00	5.98	1.43 1 49
16	137.55	19.12	8.00	11.12	10.67	9	109.79	13.74	8.00	5.74	3.10	6	96.64	12.09	8.00	4.09	1.47
18	128.08	17.80	8.00	9.80	10.59	11	99.19	12.41	8.00	4.41	2.91	8	85.46	10.69	8.00	2.69	1.29
		C	be ver e (³)					Cto	 (³)					C1/			
	Overflow	Bequired	Surface	Sub-surface	Balance		Overflow	Bequired	Surface	Sub-surface	Balance		Overflow	Bequired	Surface	Sub-surface	Balance
	0.00	10.68	11.25	1.00	0.00		0.00	3.13	11.25	0.00	0.00		0.00	1.49	11.25	0.00	0.00
- ·		-						•						-			
	EXTERNAL	-					EXTERNAL						EXTERNAL				
Area (\square a)	1.55	0 Restricted Flow Q. (L	/s)=	291 58		Area (\square a)	1.550	Bestricted Flow Q. (I	/s)=	291 58		Area (Ha)	0.80	Bestricted Flow Q. (I	/s)=	291 58	
0 -	1.00	100-Vear Pon	dina	231.00		0 -	0.00	5-Vear Ponding	_, ; ; ,	231.30		0 -	0.00	2-Vear Pondi		231.30	
τ		Peak Flow	ung		Volume	T		Deak Flow		I	Volume	Т		2-Teal Fond	lig		Volume
Variable	і _{100yr}	$Q_{p} = 2.78 \times Ci_{100 \text{ yr}} A$	\boldsymbol{Q}_r	$Q_p - Q_r$	100vr	Variable	i _{5yr}	$Q_{p} = 2.78 \times Ci_{5 \times r} A$	Q,	$Q_p - Q_r$	5vr	Variable	i _{2yr}	$Q_n = 2.78 \times Ci_{2vr} A$	Q _r	$Q_p - Q_r$	2vr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
9	188.25	811.19	291.58	519.61	280.59	2	182.69	629.76	291.58	338.18	40.58	0	167.22	576.45	291.58	284.87	0.00
11	169.91	732.13	291.58	440.55	290.76	4	152.51	525.73	291.58	234.15	56.19	2	133.33	459.62	291.58	168.04	20.16
1.7	100.10	<u>~~~</u> ~~					14118	48b b/		145.04	58.53	3	12146	418/1	<u></u>	1.1.1.1.1.1	77 XX
13	162.13	698.63 668.36	291.58	407.05 376.78	293.00	6	131 57	453 54	291.50	161.96	58.31	<u>د</u>	111 72	385.13	291 58	93 55	22.00
13 15	162.13 155.11 142.89	698.63 668.36 615.73	291.58 291.58 291.58	407.05 376.78 324.15	293.08 293.89 291.74	6 8	131.57 116.11	453.54	291.58 291.58 291.58	161.96 108.68	58.31 52.17	6	<u>111.72</u> <u>96.64</u>	385.13 333.13	291.58 291.58	93.55 41.55	22.45 14.96
13 15	162.13 155.11 142.89	698.63 668.36 615.73	291.58 291.58 291.58	376.78 324.15	293.89 291.74	6 8	131.57 116.11	453.54 400.26	291.58 291.58 291.58	161.96 108.68	58.31 52.17	4 6	111.72 96.64	385.13 333.13	291.58 291.58	93.55 41.55	22.45 14.96
<u>13</u> 15	162.13 155.11 142.89	698.63 668.36 615.73	291.58 291.58 291.58 torage (m ³)	407.05 376.78 324.15	293.08 293.89 291.74	6 8	131.57 116.11	453.54 400.26	291.58 291.58 291.58	161.96 108.68	58.31 52.17	4 6	111.72 96.64	385.13 333.13	291.58 291.58 291.58	93.55 41.55	22.45 14.96

Drainage Area	RD					Drainage A
Area (Ha)	0.050					Area (Ha)
C =	1.00	Restricted Flow Q _r (L/	s)=	8.00		C =
		100-Year Pond	ling			
T _c Variable	i _{100yr}	Peak Flow Q _p =2.78xCi _{100yr} A	Q,	Q _p -Q _r	Volume 100yr	T _c Varia
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m°)	(mir
12	162.13	22.54	8.00	14.54	10.47	5
14	148.72	20.67	8.00	12.67	10.64	7
15	142.89	19.86	8.00	11.86	10.68	8
16	137.55	19.12	8.00	11.12	10.67	9
18	128.08	17.80	8.00	9.80	10.59	11

Drainage Area	BB	1				Drainage Area	BB	1				Drainage Area	RR	1			
Area (Ha)	0.220					Area (Ha)	0.220					Area (Ha)	0.220				
C =	1.00) Restricted Flow Q _r (L/	/s)=	20.00		C =	0.90	Restricted Flow Q _r (_/s)=	20.00		C =	0.90	Restricted Flow Q _r (L	_/s)=	20.00	
		100-Year Pond	ding					5-Year Ponding						2-Year Pondi	ng	-	
T _c	i _{100vr}	Peak Flow	Q,	Q_{p} - Q_{r}	Volume	T _c	i _{5vr}	Peak Flow	Q,	$Q_{\mu}-Q_{r}$	Volume	T _c	i _{2vr}	Peak Flow	Q,	Q_{n} - Q_{r}	Volume
Variable	100y1	$Q_p = 2.78 \times Ci_{100 \text{yr}} A$			100yr	Variable	Syr	$Q_p = 2.78 \times Ci_{5yr} A$			5yr	Variable	;	$Q_p = 2.78 \times Ci_{2yr} A$			2yr
(<i>min</i>)	(<i>mm/hour</i>)	(L/s)	(L/s)	(L/s)	(<i>m</i> ²)	(min)	(<i>mm/hour</i>)	(L/s)	(L/s)	(L/s)	(m^2)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(<i>m</i> ²)
24	106.68	61.88	20.00	45.24	65.15	13	99.19	54.60 49.89	20.00	34.60 29.89	22.84	10	76.81	47.04	20.00	27.04	12.98
27	98.66	60.34	20.00	40.34	65.35	14	86.93	47.85	20.00	27.85	23.40	11	73.17	40.27	20.00	20.27	13.38
28	96.27	58.88	20.00	38.88	65.32	15	83.56	45.99	20.00	25.99	23.39	12	69.89	38.47	20.00	18.47	13.30
30	91.87	56.19	20.00	36.19	65.14	17	77.61	42.72	20.00	22.72	23.17	14	64.23	35.36	20.00	15.36	12.90
		St	orage (m ³)					Sto	r age (m ³)					Sto	orage (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
	0.00	65.35	66.00	0.00	0.00		0.00	23.40	66.00	0.00	0.00		0.00	13.38	66.00	0.00	0.00
Drainage Area	RC	1				Drainage Area	RC	1				Drainage Area	RC	1			
Area (Ha)	0.050)			_	Area (Ha)	0.050				_	Area (Ha)	0.050				
C =	1.00) Restricted Flow Q _r (L/	/s)=	8.00		C =	0.90	Restricted Flow Q _r (_/s)=	8.00		C =	0.90	Restricted Flow Q _r (L	_/s)=	8.00	
		100-Year Pond	ding					5-Year Ponding						2-Year Pondi	ng		
T _c	i	Peak Flow	0	0-0	Volume	T _c	i -	Peak Flow	Q	0-0	Volume	T _c	i.	Peak Flow	0	0-0	Volume
Variable	" 100yr	Q _p =2.78xCi _{100yr} A	u _r		100yr	Variable	' 5yr	Q _p =2.78xCi _{5yr} A	œ _r		5yr	Variable	₽ 2yr	Q _p =2.78xCi _{2yr} A	œ _r		2yr
(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m³)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ³)
12	162.13	22.54	8.00	14.54	10.47	5	141.18	17.66	8.00	9.66	2.90	2	133.33	16.68	8.00	8.68	1.04
14	148.72	20.67	8.00	12.67	10.64 10.68	8	123.30	15.43	8.00	7.43 6.53	3.12 3.13	5	103.57	12.98	8.00	5.98	1.43 1.49
16	137.55	19.12	8.00	11.12	10.67	9	109.79	13.74	8.00	5.74	3.10	6	96.64	12.09	8.00	4.09	1.47
18	128.08	17.80	8.00	9.80	10.59	11	99.19	12.41	8.00	4.41	2.91	8	85.46	10.69	8.00	2.69	1.29
		01						Cha	······································					04			
	Overflow		Surface	Sub-surface	Balance	-	Overflow	Stol Required	rage (m ⁻)	Sub-surface	Balance		Overflow		Surface	Sub-surface	Balance
	0.00	10.68	13.50	1.00	0.00		0.00	3.13	13.50	0.00	0.00		0.00	1.49	13.50	0.00	0.00
		_						-						-			
Drainage Area	RD					Drainage Area	RD					Drainage Area	RD				
Area (Ha)	0.050		/ >			Area (Ha)	0.050				1	Area (Ha)	0.050				
C =	1.00	Restricted Flow Q _r (L/	/S)=	8.00		C =	0.90	Restricted Flow Q _r (_/S)=	8.00		C =	0.90	Restricted Flow Q _r (I	_/S)=	8.00	
_		100-Year Pond	ding		· · · ·	_		5-Year Ponding				_		2-Year Pondi	ng		
T _c	i _{100yr}	Peak Flow	Q,	$Q_p - Q_r$	Volume	T _c	i _{5yr}	Peak Flow	Q,	$Q_p - Q_r$	Volume	T _c	i _{2yr}	Peak Flow	Q,	$Q_p - Q_r$	Volume
variable (min)	(mm/bour)	$Q_p = 2.78 \times CI_{100yr} A$	(1 /0)	(1 (0)	$\frac{100yr}{(m^3)}$	variable (min)	(mm/bour)	$Q_p = 2.78 \times CI_{5yr} A$	(1 /0)	(1/0)	(m^3)	variable (min)	(mm/hour)	$Q_p = 2.78 \times CI_{2yr} A$	(1 /0)		2yr
12	162 13	(L/S)	8.00	14 54	10.47	5	141 18	17.66	8 00	9.66	2.90	2	133.33	16.68	8.00	(L/S) 8.68	1.04
14	148.72	20.67	8.00	12.67	10.64	7	123.30	15.43	8.00	7.43	3.12	4	111.72	13.98	8.00	5.98	1.43
15	142.89	19.86	8.00	11.86	10.68	8	116.11	14.53	8.00	6.53	3.13	5	103.57	12.96	8.00	4.96	1.49
16	137.55	19.12	8.00	11.12	10.67	9	109.79	13.74	8.00	5.74	3.10	6	96.64	12.09	8.00	4.09	1.47
18	128.08	17.80	8.00	9.80	10.59		99.19	12.41	8.00	4.41	2.91	8	85.46	10.69	8.00	2.69	1.29
		St	orage (m ³)					Sto	r age (m ³)					Sto	orage (m ³)		
	Overflow	Required	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance
Drainago Aroa	EYTERNAL	1				Drainago Aroa	EYTERNAL	1				Drainago Aroa	EYTEDNAI	1			
Area (Ha)	1.550)				Area (Ha)	1.550	-				Area (Ha)	1.550				
C =	1.00	Restricted Flow Q _r (L/	/s)=	291.58		C =	0.80	Restricted Flow Q _r (_/s)=	291.58		C =	0.80	Restricted Flow Qr (I	_/s)=	291.58	
		100-Year Pond	dina					5-Year Ponding					1	2-Year Pondi	na		
Te		Peak Flow	g		Volume	Tc		Peak Flow			Volume	Ta		Peak Flow			Volume
Variable	I _{100yr}	Q _p =2.78xCi _{100vr} A	Qr	$Q_p - Q_r$	100yr	Variable	I _{5yr}	Q _p =2.78xCi _{5vr} A	Q,	Q _p -Q _r	5yr	Variable	l _{2yr}	Q _p =2.78xCi _{2vr} A	Q,	Q _p -Q _r	2yr
(min)	(mm/hour)	(L/s)	<u>(L</u> /s)	(L/s)	(m ³)	(min)	(mm/hour)	<u>(L</u> /s)	(L/s)	(L/s)	(m ³)	(min)	(mm/hour)	<u>(L</u> /s)	<u>(L</u> /s)	(L/s)	(m ³)
9	188.25	811.19	291.58	519.61	280.59	2	182.69	629.76	291.58	338.18	40.58	0	167.22	576.45	291.58	284.87	0.00
11	169.91	732.13	291.58	440.55	290.76	4	152.51	525.73	291.58	234.15	56.19	2	133.33	459.62	291.58	168.04	20.16
12	162.13	698.63	291.58	407.05	293.08 293.80	5	141.18	486.67 453.57	291.58	195.09 161.06	58.53	3	121.46 111 72	418./1	291.58 201.59	127.13 93 55	22.88
15	142.89	615.73	291.58	324.15	291.74	8	116.11	400.26	291.58	108.68	52.17	6	96.64	333.13	291.58	41.55	14.96
-	•	· 1			-	a	·							•			
		St	orage (m ³)					Sto	(m ³)					Sto	$rado (m^3)$		
			J J J J J J J J J J		_ ·	-		0.0	rage (m.)								

		-						1						1				
ea 🛛	RE	3				Drainage Area	RB					Drainage Area	RB					
	0.22	0 0 Restricted Flow O (I	(2)	00.00		Area (Ha)	0.220	Postriated Flow O (I	(0)	00.00		Area (Ha)	0.220	Restricted Flow O (I	(0)	00.00		
	1.0		L/S)=	20.00		C =	0.90		_/5/=	20.00		C =	0.90		_/5)=	20.00		
		100-Year Por	nding					5-Year Ponding						2-Year Pondi	ng			
	і _{100vr}	Peak Flow	Q,	$Q_p - Q_r$	Volume		i _{5vr}	Peak Flow	Q,	$Q_p - Q_r$	Volume	<i>T_c</i>	i _{2vr}	Peak Flow	Q,	$Q_p - Q_r$	Volume	
	, , , , , , , , , , , , , , , , , , ,	$Q_p = 2.78 \times CI_{100yr} A$			100yr	Variable	, , , , , , , , , , , , , , , , , , ,	$Q_p = 2.78 \times CI_{5yr} A$			5yr	Variable	, , , , , , , , , , , , , , , , , , ,	$Q_p = 2.78 \times CI_{2yr} A$			2yr	
	(mm/hour)	(L/s)	(L/s)	(L/s)	(<i>m²</i>)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ⁻)	(min)	(mm/hour)	(L/s)	(L/s)	(L/s)	(m ²)	
	106.68	65.24	20.00	45.24	65.15	11	99.19	54.60	20.00	34.60	22.84	8	85.46	47.04	20.00	27.04	12.98	
	98.66	60.34	20.00	41.00	<u> </u>	13	86.93	49.09	20.00	29.09	23.31 23.40	10	73.17	42.20	20.00	22.20	13.37 13.38	
	96.27	58.88	20.00	38.88	65.32	15	83.56	45.99	20.00	25.99	23.39	12	69.89	38.47	20.00	18.47	13.30	
	91.87	56.19	20.00	36.19	65.14	17	77.61	42.72	20.00	22.72	23.17	14	64.23	35.36	20.00	15.36	12.90	
-		S	torage (m ³)			-		Stor	age (m³)					Sto	orage (m ³)			
	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance	
	0.00	65.35	66.00	0.00	0.00		0.00	23.40	66.00	0.00	0.00		0.00	13.38	66.00	0.00	0.00	
a	RC					Drainage Area	RC	1				Drainage Area	RC	1				
	0.05	0				Area (Ha)	0.050					Area (Ha)	0.050					
	1.0	0 Restricted Flow Q _r (I	L/s)=	8.00		C =	0.90	Restricted Flow Q _r (L	/s)=	8.00		C =	0.90	Restricted Flow Q _r (L	_/s)=	8.00		
		100-Year Por	ndina					5-Year Ponding						2-Year Pondi	na			
		Peak Flow			Volume	Τ.		Peak Flow			Volume	T.		Peak Flow	.9		Volume	
	i _{100yr}	$Q_{p} = 2.78 \times Ci$	Q _r	$Q_p - Q_r$	100vr	, c Variable	i _{5yr}	$Q_{n} = 2.78 \times Ci_{n} \Delta$	Q,	Q _p -Q _r	5vr	' c Variable	i _{2yr}	$Q_{n} = 2.78 \times Ci_{n} \Delta$	Q _r	$Q_p - Q_r$	2vr	
	(mm/hour)	(1/c)	([/e)	([_/s]	(m^3)	(min)	(mm/hour)	(L/c)	(L/s)	(L/s)	(m^3)	(min)	(mm/hour)	(L/e)	(L/s)	(L/s)	(m^3)	
	162.13	22.54	8.00	14.54	10.47	5	141.18	17.66	8.00	9.66	2.90	2	133.33	16.68	8.00	8.68	1.04	
	148.72	20.67	8.00	12.67	10.64	7	123.30	15.43	8.00	7.43	3.12	4	111.72	13.98	8.00	5.98	1.43	
	142.89	19.86	8.00	11.86	10.68	8	116.11	14.53	8.00	6.53	3.13	5	103.57	12.96	8.00	4.96	1.49	
	137.55	19.12	8.00	11.12	10.67	9	109.79	13.74	8.00	5.74	3.10	6	96.64	12.09	8.00	4.09	1.47	
	128.08	17.80	8.00	9.80	10.59	11	99.19	12.41	8.00	4.41	2.91	8	85.46	10.69	8.00	2.69	1.29	
		G	torage (m ³)					Stor	200 (m ³)					St	$rade (m^3)$			
-	Overflow	Bequired	Surface	Sub-surface	Balance	-	Overflow	Required	Surface	Sub-surface	Balance		Overflow	Required	Surface	Sub-surface	Balance	
	0.00	10.68	13 50	1 00	0.00		0.00		10.50		Duluitoo		0.00	1.40	00.50			
			13.30	1.00	0.00		0.00	3.13	13.50	0.00	0.00		0.00	1.49	13.50	0.00	0.00	
		_	15.50	1.00	0.00		0.00	3.13	13.50	0.00	0.00		0.00	1.49	13.50	0.00	0.00	
a	RL	2	13.30	1.00	0.00	Drainage Area	0.00 RD	3.13	13.50	0.00	0.00	Drainage Area	0.00 RD	1.49	13.50	0.00	0.00	
a	RL 0.05	0	13.30	1.00	0.00	Drainage Area Area (Ha)	0.00 RD 0.050	3.13	13.50	0.00	0.00	Drainage Area Area (Ha)	0.00 RD 0.050	1.49	13.50	0.00	0.00	
ea	RL 0.05 1.0	0 0 Restricted Flow Q _r (I	L/S)=	8.00	0.00	Drainage Area Area (Ha) C =	0.00 RD 0.050 0.90	3.13 Restricted Flow Q _r (L	13.50 _/s)=	0.00 8.00	0.00	Drainage Area Area (Ha) C =	0.00 RD 0.050 0.90	1.49 Restricted Flow Q _r (L	13.50 _/s)=	0.00 8.00	0.00	
	RL 0.05 1.0	0 0 Restricted Flow Q _r (I 100-Year Por	L/s)=	8.00	0.00	Drainage Area Area (Ha) C =	0.00 RD 0.050 0.90	3.13 Restricted Flow Q _r (L 5-Year Ponding	13.50 ./s)=	0.00	0.00	Drainage Area Area (Ha) C =	0.00 RD 0.050 0.90	Restricted Flow Q _r (L 2-Year Pondi	13.50 /s)=	0.00	0.00	
ea	RL 0.05 1.0	0 0 Restricted Flow Q _r (I 100-Year Por Peak Flow	L/s)=	8.00 8.00	Volume	Drainage Area Area (Ha) C = T _c	0.00 RD 0.050 0.90	3.13 Restricted Flow Q _r (L 5-Year Ponding Peak Flow	13.50 /s)=	0.00 8.00	0.00 Volume	Drainage Area Area (Ha) C = T _c	0.00 RD 0.050 0.90	1.49 Restricted Flow Q _r (L 2-Year Pondin Peak Flow	13.50 /s)= ng Q_	0.00 8.00	0.00 Volume	
	RL 0.05 1.0 i _{100yr}	2 0 0 Restricted Flow Q _r (1 100-Year Por Peak Flow Q _p =2.78xCi _{100yr} A	L/s)= nding Q _r	8.00 <i>Q_p-Q_r</i>	Volume 100yr	Drainage Area Area (Ha) C = T _c Variable	0.00 RD 0.050 0.90	3.13 Restricted Flow Q_r (I 5-Year Ponding <i>Peak Flow</i> $Q_p = 2.78 x Ci_{5yr} A$	13.50 _/s)= 	0.00 8.00 Q _p - Q _r	0.00 Volume 5yr	Drainage Area Area (Ha) C = T _c Variable	0.00 RD 0.050 0.90 <i>i</i> _{2yr}	1.49 Restricted Flow Q_r (L 2-Year Pondi <i>Peak Flow</i> $Q_p = 2.78xCi_{2yr} A$	13.50 _/s)= ng 	0.00 8.00 Q _p - Q _r	0.00 Volume 2yr	
	<i>RL</i> 0.05 1.0 i _{100yr} (<i>mm/hour</i>)	$\begin{array}{c} \textbf{D} \\ 0 \\ 0 \\ \hline \textbf{Restricted Flow } \textbf{Q}_r (l) \\ \hline \textbf{100-Year Por} \\ \hline \textbf{Peak Flow} \\ \textbf{Q}_p = 2.78 \times Ci_{100yr} \textbf{A} \\ \hline \textbf{(L/s)} \end{array}$	L/S)= ding Q _r (L/S)	8.00 Q _p - Q _r (L/s)	0.00 Volume 100yr (m ³)	Drainage Area Area (Ha) C = T _c Variable (min)	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour)	3.13 Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s)	13.50 /s)= Q _r (L/s)	0.00 8.00 Q _p - Q _r (L/s)	0.00 Volume 5yr (m ³)	Drainage Area Area (Ha) C = T _c Variable (min)	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour)	1.49 Restricted Flow Q_r (L 2-Year Pondi Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	(13.50)	0.00 8.00 Q _p -Q _r (L/s)	0.00 Volume 2yr (m ³)	
	<i>RL</i> 0.05 1.0 <i>i</i> _{100yr} (<i>mm/hour</i>) 162.13	2 0 0 Restricted Flow Q _r (1 100-Year Por Peak Flow Q _p =2.78xCi _{100yr} A (L/s) 22.54	L/s)= ding <i>Q_r</i> <i>(L/s)</i> 8.00	8.00 Q _p - Q _r (L/s) 14.54	<i>Volume</i> 100yr (m ³) 10.47	Drainage Area Area (Ha) C = T _c Variable (min) 5	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18	3.13 Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s) 17.66	13.50 /s)= <i>Q</i> _r <u>(L/s)</u> 8.00	0.00 8.00 Q _p - Q _r (L/s) 9.66	0.00 Volume 5yr (m ³) 2.90	Drainage Area Area (Ha) C = T _c Variable (min) 2	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 1111 70	1.49 Restricted Flow Q_r (L 2-Year Pondi Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s) 16.68	$(J_{s}) =$ Q _r (L/s) 8.00	0.00 8.00 Q _p - Q _r (L/s) 8.68	0.00 Volume 2yr (m ³) 1.04	
	<i>RL</i> 0.05 1.0 <i>i</i> _{100yr} (<i>mm/hour</i>) 162.13 148.72 142.89	2 0 0 Restricted Flow Q _r (1 100-Year Por Peak Flow Q _p =2.78xCi 100yr A (L/s) 22.54 20.67 19.86	L/S)= ding Q _r (L/S) 8.00 8.00 8.00	8.00 Q _p - Q _r (L/s) 14.54 12.67 11.86	<i>Volume</i> <i>100yr</i> <i>(m³)</i> 10.47 10.64 10.68	Drainage Area Area (Ha) C = T _c Variable (min) 5 7 8	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11	3.13 Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 17.66 15.43 14.53	13.50 /s)= Q _r (L/s) 8.00 8.00 8.00	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53	0.00 Volume 5yr (m ³) 2.90 3.12 3.13	Drainage Area Area (Ha) C = T _c Variable (min) 2 4	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57	1.49 Restricted Flow Q_r (L 2-Year Pondin Peak Flow $Q_p = 2.78 \times Ci_{2yr} A$ (L/s) 16.68 13.98 12.96	13.50 J(s) = Q_r (L/s) 8.00 8.00 8.00	0.00 8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96	0.00 Volume 2yr (m ³) 1.04 1.43 1.49	
	<i>RL</i> 0.05 1.0 <i>i</i> _{100yr} (<i>mm/hour</i>) 162.13 148.72 142.89 137.55	$\begin{array}{c} \textbf{D} \\ 0 \\ 0 \\ \hline \textbf{Restricted Flow } \textbf{Q}_r (\textbf{I}) \\ \hline \textbf{100-Year Por} \\ \hline \textbf{Peak Flow} \\ \textbf{Q}_p = 2.78 x Ci_{100yr} \textbf{A} \\ \hline \textbf{(L/s)} \\ \hline 22.54 \\ \hline 20.67 \\ \hline 19.86 \\ \hline 19.12 \\ \end{array}$	L/s)= Dding Q _r (L/s) 8.00 8.00 8.00 8.00 8.00	8.00 Q _p - Q _r (L/s) 14.54 12.67 11.86 11.12	<i>Volume</i> <i>100yr</i> <i>(m³)</i> 10.47 10.64 10.68 10.67	Drainage Area Area (Ha) C = T _c Variable (min) 5 7 8 9	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79	3.13 Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p</i> =2.78xCi _{5yr} A (L/s) 17.66 15.43 14.53 13.74	/s)= Q _r <u>(L/s)</u> 8.00 8.00 8.00 8.00 8.00	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74	0.00 Volume 5yr (m ³) 2.90 3.12 3.13 3.10	Drainage Area Area (Ha) C = T_c Variable (min) 2 4 5 6	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57 96.64	1.49 Restricted Flow Q _r (L 2-Year Pondi Peak Flow Q _p =2.78xCi _{2yr} A (L/s) 16.68 13.98 12.96 12.09	J(s) = ng Q _r (L/s) 8.00 8.00 8.00 8.00 8.00 8.00	0.00 8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.09	0.00 Volume 2yr (m ³) 1.04 1.43 1.43 1.49 1.47	
	<i>RL</i> 0.05 1.0 <i>i</i> _{100yr} (<i>mm/hour</i>) 162.13 148.72 142.89 137.55 128.08	0 0 0 100-Year Por Peak Flow Q _p =2.78xCi 100yr A (L/s) 22.54 20.67 19.86 19.12 17.80	L/S)= ding Qr (L/S) 8.00 8.00 8.00 8.00 8.00 8.00 8.00	8.00 Q _p - Q _r (L/s) 14.54 12.67 11.86 11.12 9.80	Volume 100yr (m³) 10.47 10.64 10.67 10.59	Drainage Area Area (Ha) C = T_c Variable (min) 5 7 8 9 11	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19	3.13 Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{5yr} <i>A</i> <i>(L/s)</i> 17.66 15.43 14.53 13.74 12.41	(L/s)	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41	0.00 Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91	Drainage Area Area (Ha) C = T _c Variable (min) 2 4 5 6 8	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57 96.64 85.46	1.49 Restricted Flow Q _r (L 2-Year Pondin <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{2yr} <i>A</i> <i>(L/s)</i> 16.68 13.98 12.96 12.09 10.69	(L/s) = Q _r (L/s) 8.00 8.00 8.00 8.00 8.00 8.00	0.00 8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.09 2.69	0.00 Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29	
	<i>RL</i> 0.05 1.0 <i>i</i> _{100yr} (<i>mm/hour</i>) 162.13 148.72 142.89 137.55 128.08	$\begin{array}{c} \textbf{D} \\ 0 \\ 0 \\ \hline \textbf{Restricted Flow } \textbf{Q}_r (l) \\ \hline \textbf{100-Year Por} \\ \hline \textbf{Peak Flow} \\ \textbf{Q}_p = 2.78 \times Ci_{100yr} \textbf{A} \\ \hline \textbf{(L/s)} \\ \hline 22.54 \\ \hline 20.67 \\ \hline 19.86 \\ \hline 19.12 \\ \hline 17.80 \\ \end{array}$	L/s)= ding Q _r (L/s) 8.00 8.00 8.00 8.00 8.00	8.00 Q _p - Q _r (L/s) 14.54 12.67 11.86 11.12 9.80	Volume 100yr (m ³) 10.47 10.64 10.68 10.67 10.59	Drainage Area Area (Ha) C = T _c Variable (min) 5 7 8 9 11	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19	3.13 Restricted Flow Q_r (I 5-Year Ponding <i>Peak Flow</i> $Q_p = 2.78xCi_{5yr}A$ (L/s) 17.66 15.43 14.53 13.74 12.41	/s)= Q _r <u>(L/s)</u> 8.00 8.00 8.00 8.00 8.00 2.00	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41	0.00 Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91	Trainage Area Area (Ha) C = T _c Variable (min) 2 4 5 6 8	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57 96.64 85.46	1.49 Restricted Flow Q _r (L 2-Year Pondin Peak Flow Q _p =2.78xCi _{2yr} A (L/s) 16.68 13.98 12.96 12.09 10.69	$(J_{s}) =$ Q_{r} (L/s) 8.00	0.00 8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.96 4.09 2.69	0.00 Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29	
	<i>RL</i> 0.05 1.0 <i>i</i> _{100yr} (<i>mm/hour</i>) 162.13 148.72 142.89 137.55 128.08	2 0 0 0 100-Year Por Peak Flow Q _p =2.78xCi 100yr A (L/s) 22.54 20.67 19.86 19.12 17.80 S	L/s)= ding Q _r (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.00	8.00 Q _p - Q _r (L/s) 14.54 12.67 11.86 11.12 9.80	Volume 100yr (m ³) 10.47 10.64 10.68 10.67 10.59	Drainage Area Area (Ha) C = T_c Variable (min) 5 7 8 9 11	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19	3.13 Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p</i> =2.78xCi _{5yr} A (L/s) 17.66 15.43 14.53 13.74 12.41 Stor	/s)= Q _r (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 8.00	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41	0.00 Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91	Drainage Area Area (Ha) C = T _c Variable (min) 2 4 5 6 8	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57 96.64 85.46	1.49 Restricted Flow Q _r (L 2-Year Pondin Peak Flow Q _p =2.78xCi _{2yr} A (L/s) 16.68 13.98 12.96 12.09 10.69 Sto	f(s) = ng Q _r (L/s) 8.00 8.00 8.00 8.00 8.00 0 a (m ³)	0.00 8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.09 2.69	0.00 Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29	
	<i>RL</i> 0.05 1.0 <i>i</i> _{100yr} (<i>mm/hour)</i> 162.13 148.72 142.89 137.55 128.08 Overflow 0.00	$\begin{array}{c} \textbf{D} \\ 0 \\ 0 \\ \hline \textbf{Restricted Flow } \textbf{Q}_r (\textbf{I}) \\ \hline \textbf{100-Year Por} \\ \hline \textbf{Peak Flow} \\ \textbf{Q}_p = 2.78 \times Ci_{100yr} \textbf{A} \\ \hline \textbf{(L/s)} \\ \hline 22.54 \\ \hline 20.67 \\ \hline 19.86 \\ \hline 19.12 \\ \hline 17.80 \\ \hline \textbf{S} \\ \hline \textbf{Required} \\ 10.69 \\ \end{array}$	L/s)= nding Q _r (L/s) 8.00	8.00 Q _p - Q _r (L/s) 14.54 12.67 11.86 11.12 9.80 Sub-surface 1.00	Volume 100yr (m ³) 10.47 10.64 10.68 10.67 10.59 Balance	Drainage Area Area (Ha) C = T_c Variable (min) 5 7 8 9 11	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00	3.13 Restricted Flow Q _r (I 5-Year Ponding <i>Peak Flow</i> <i>Q_p</i> =2.78xCi _{5yr} A (L/s) 17.66 15.43 14.53 13.74 12.41 Stor Required 2.12	/s)= <i>Q</i> _r <i>(L/s)</i> 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.00 11.25	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 4.41	0.00 Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00	Drainage Area Area (Ha) C = T _c Variable (min) 2 4 5 6 8	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00	1.49 Restricted Flow Q _r (L 2-Year Pondin <i>Peak Flow</i> <i>Q_p</i> =2.78xCi _{2yr} A (L/s) 16.68 13.98 12.96 12.09 10.69 Stop Required 1.49	13.50 /s)= Q , (L/s) 8.00 8.00 8.00 8.00 8.00 00 8.00 00 00 00 00 00 00 00 00 00	0.00 8.00 <i>Q_p-Q_r</i> (<i>L/s</i>) 8.68 5.98 4.96 4.96 4.09 2.69 5.09 0.00	0.00 Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00	
	0.05 1.0 i100yr (mm/hour) 162.13 148.72 142.89 137.55 128.08 Overflow 0.00	2 0 0 0 100-Year Por Peak Flow Q _p =2.78xCi 100yr A (L/s) 22.54 20.67 19.86 19.12 17.80 S Required 10.68	L/s)= ding Q, (L/s) 8.00	8.00 Q _p - Q _r (L/s) 14.54 12.67 11.86 11.12 9.80 Sub-surface 1.00	Volume 100yr (m³) 10.47 10.64 10.67 10.59	Drainage Area Area (Ha) C = T_c Variable (min) 5 7 8 9 11	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00	3.13 Restricted Flow Q _r (L 5-Year Ponding <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{5yr} <i>A</i> <i>(L/s)</i> 17.66 15.43 14.53 13.74 12.41 Stor Required 3.13	/s)=	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00	0.00 Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00	Drainage Area Area (Ha) C = T _c Variable (min) 2 4 5 6 8	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00	1.49 Restricted Flow Q _r (L 2-Year Pondin <i>Peak Flow</i> <i>Q_p =2.78xCi</i> _{2yr} <i>A</i> <i>(L/s)</i> 16.68 13.98 12.96 12.09 10.69 Sto Required 1.49	13.50 /s)= ng Q, (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.0	0.00 8.00 <i>Q_p-Q_r</i> (<i>L/s</i>) 8.68 5.98 4.96 4.09 2.69 Sub-surface 0.00	0.00 Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00	
	Image: Provide state st	$\begin{array}{c} \textbf{D} \\ 0 \\ 0 \\ \hline \textbf{Restricted Flow } \textbf{Q}_r (\textbf{I} \\ \hline \textbf{100-Year Por} \\ \hline \textbf{Peak Flow} \\ \textbf{Q}_p = 2.78 x Ci_{100yr} \textbf{A} \\ \hline \textbf{(L/s)} \\ \hline 22.54 \\ \hline 20.67 \\ \hline 19.86 \\ \hline 19.12 \\ \hline 17.80 \\ \hline \textbf{S} \\ \hline \textbf{Required} \\ 10.68 \\ \hline \end{array}$	L/s)= nding Q _r (L/s) 8.00	8.00 Q _p - Q _r (L/s) 14.54 12.67 11.86 11.12 9.80 Sub-surface 1.00	Volume 100yr (m³) 10.47 10.64 10.67 10.59	Drainage Area Area (Ha) C = T_c Variable (min) 5 7 8 9 11	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL	3.13 Restricted Flow Q _r (I 5-Year Ponding <i>Peak Flow</i> <i>Q_p</i> =2.78xCi _{5yr} A (L/s) 17.66 15.43 14.53 13.74 12.41 Stor Required 3.13	/s)= Qr (L/s) 8.00	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 4.41 Sub-surface 0.00	0.00 Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00	Drainage Area Area (Ha) C = T _c Variable (min) 2 4 5 6 8	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL	1.49 Restricted Flow Q _r (L 2-Year Pondin <i>Peak Flow</i> <i>Q_p</i> = 2.78xCi _{2yr} A (L/s) 16.68 13.98 12.96 12.09 10.69 Sto Required 1.49	13.50 /s)= Q , (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 8.00 9.00 8.00 11.25	0.00 8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.96 4.09 2.69 Sub-surface 0.00	0.00 Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00	
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	Image: RL 0.05 1.0 i 100yr (mm/hour) 162.13 148.72 142.89 137.55 128.08 Overflow 0.00 EXTERNAL 1.55 1.0	2 0 0 0 100-Year Por 100-Year Por Peak Flow Q _p =2.78xCi 100yr A (L/s) 22.54 20.67 19.86 19.12 17.80 S Required 10.68 0 0 Restricted Flow Q _r (I	L/s)= nding Q _r (L/s) 8.00 8.0	8.00 Q _p - Q _r (L/s) 14.54 12.67 11.86 11.12 9.80 Sub-surface 1.00	Volume 100yr (m ³) 10.47 10.64 10.68 10.67 10.59 Balance 0.00	Drainage Area Area (Ha) C = T _c Variable (min) 5 7 8 9 11 Drainage Area Area (Ha) C =	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80	3.13 Restricted Flow Q _r (I 5-Year Ponding <i>Peak Flow</i> <i>Q_p</i> = 2.78xCi _{5yr} A (L/s) 17.66 15.43 14.53 13.74 12.41 Stor Required 3.13 Restricted Flow Q _r (I	/s)= Q _r <u>(L/s)</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u>	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00	0.00 Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00	Drainage Area Area (Ha) C = T _c Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C =	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80	1.49 Restricted Flow Q _r (L 2-Year Pondin <i>Peak Flow</i> <i>Q_p</i> = 2.78xCi _{2yr} A (L/s) 16.68 13.98 12.96 12.09 10.69 Sto Required 1.49 Restricted Flow Q _r (L	13.50 /s)= Q , (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 0rage (m ³) Surface 11.25	0.00 8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.96 4.09 2.69 Sub-surface 0.00	0.00 Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00	
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	0.05 0.05 1.0 i100yr (mm/hour) 162.13 148.72 142.89 137.55 128.08 Overflow 0.00 EXTERNAL 1.55 1.0	2 0 0 0 100-Year Por 100-Year Por Peak Flow Q _p =2.78xCi 100yr A (L/s) 22.54 20.67 19.86 19.12 17.80 S Required 10.68 10.68 100-Year Por Peak Flow	L/s)= ding Q _r (L/s) 8.00	8.00 Q _p - Q _r (L/s) 14.54 12.67 11.86 11.12 9.80 Sub-surface 1.00 291.58	Volume 100yr (m ³) 10.47 10.64 10.68 10.67 10.59 Balance 0.00	Drainage AreaArea (Ha) $C =$ T_c Variable(min)578911Drainage AreaArea (Ha) $C =$ T_c	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80	3.13 Restricted Flow Q _r (I 5-Year Ponding <i>Peak Flow</i> <i>Q_p</i> = 2.78xCi _{5yr} A (L/s) 17.66 15.43 14.53 13.74 12.41 Stor Required 3.13 Restricted Flow Q _r (I 5-Year Ponding <i>Peak Flow</i>	/s)= Q _r <u>(L/s)</u> 8.00 8.00 8.00 8.00 8.00 8.00 11.25 /s)=	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58	0.00 Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume	Drainage Area Area (Ha) C = T _c Variable (min) 2 4 5 6 8 Drainage Area Area (Ha) C = T _c	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80	1.49 Restricted Flow Q _r (L 2-Year Pondin <i>Peak Flow</i> <i>Q_p</i> = 2.78xCi _{2yr} A (L/s) 16.68 13.98 12.96 12.09 10.69 Sto Required 1.49 Restricted Flow Q _r (L 2-Year Pondin <i>Peak Flow</i>	13.50 /s)= Q , (L/s) 8.00 8.00 8.00 8.00 8.00 0rage (m ³) Surface 11.25 /s)= ng	0.00 8.00 <i>Q_p-Q_r (L/s) 8.68 5.98 4.96 4.09 2.69 Sub-surface 0.00 291.58</i>	0.00 Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume	
	Image: state index inde	0 Restricted Flow Q_r (I 100-Year Por Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s) 22.54 20.67 19.86 19.12 17.80 S Required 10.68 0 0 0 0 100-Year Por Peak Flow $Q_p = 2.78xCi_{100yr}A$	L/s)= ding Q _r (L/s) 8.00	8.00 Q _p - Q _r (L/s) 14.54 12.67 11.86 11.12 9.80 Sub-surface 1.00 291.58 Q _p - Q _r	Volume 100yr (m ³) 10.47 10.64 10.68 10.67 10.59 Balance 0.00 Volume 100yr	Drainage AreaArea (Ha)C = T_c Variable(min)578911Drainage AreaArea (Ha)C = T_c Variable	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80 0.80	3.13 Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 17.66 15.43 14.53 13.74 12.41 Stor Required 3.13 Restricted Flow Q_r (L 5-Year Ponding Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$	13.50 Qr Qr (L/s) 8.00 9 9 /s)= Qr	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58	0.00 Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume 5yr	Drainage AreaArea (Ha)C = T_c Variable(min)24568 Drainage AreaArea (Ha)C = T_c Variable	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80 <i>i</i> _{2yr}	1.49 Restricted Flow Q _r (L 2-Year Pondin <i>Peak Flow</i> <i>Q_p</i> =2.78xCi _{2yr} A (L/s) 16.68 13.98 12.96 12.09 10.69 Sto Required 1.49 Restricted Flow Q _r (L 2-Year Pondin <i>Peak Flow</i> <i>Q_p</i> =2.78xCi _{2yr} A	13.50 J(s) = Q_r (L/s) 8.00 9 9 9 9 9 9 9 9	0.00 8.00 <i>Q_p-Q_r (L/s) 8.68 5.98 4.96 4.09 2.69 Sub-surface 0.00 291.58 </i>	0.00 Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr	
	RL 0.05 1.0 i 100yr (mm/hour) 162.13 148.72 142.89 137.55 128.08 Overflow 0.00 EXTERNAL 1.55 1.0 i 100yr (mm/hour) (mm/hour)	0 0 0 0 100-Year Por Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s) 22.54 20.67 19.86 19.12 17.80 S Required 10.68 Loss Ci 100 Pr 0 Restricted Flow Q _r (I 100-Year Por Peak Flow Q _p = 2.78xCi 100yr A (L/s)	$L/s) = \frac{Q_r}{(L/s)}$ $\frac{Q_r}{(L/s)}$ $\frac{8.00}{8.00}$ 8.0	8.00 Q _p - Q _r (L/s) 14.54 12.67 11.86 11.12 9.80 Sub-surface 1.00 291.58 Q _p - Q _r (L/s)	Volume 100yr (m ³) 10.47 10.64 10.68 10.67 10.59 Balance 0.00 Volume 100yr (m ³)	Drainage AreaArea (Ha) $C =$ T_c Variable(min)578911Drainage AreaArea (Ha) $C =$ T_c Variable(min)	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80 0.80	3.13 Restricted Flow Q_r (I 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s) 17.66 17.66 15.43 14.53 13.74 12.41 Stor Required 3.13 Restricted Flow Q_r (I 5-Year Ponding Peak Flow Q_p = 2.78xCi 5yr A (L/s)	/s)= Q _r <u>(L/s)</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.00</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u> <u>8.0</u>	0.00 8.00 Q _p - 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	RL 0.05 1.0 <i>i</i> _{100yr} (mm/hour) 162.13 148.72 142.89 137.55 128.08 Overflow 0.00 EXTERNAL 1.55 1.0 <i>i</i> _{100yr} <i>i</i> _{100yr} (mm/hour) 188.25	$\begin{array}{c} \hline \textbf{D} \\ 0 \\ 0 \\ \hline \textbf{Restricted Flow } \textbf{Q}_r (l) \\ \hline \textbf{100-Year Por} \\ \hline \textbf{Peak Flow} \\ \textbf{Q}_p = 2.78 \times Ci_{100yr} \textbf{A} \\ (L/s) \\ \hline 22.54 \\ 20.67 \\ \hline 19.86 \\ \hline 19.12 \\ \hline 17.80 \\ \hline \textbf{S} \\ \hline \textbf{Required} \\ 10.68 \\ \hline \textbf{O} \\ 0 \\ \hline \textbf{Restricted Flow } \textbf{Q}_r (l) \\ \hline \textbf{100-Year Por} \\ \hline \textbf{Peak Flow} \\ \textbf{Q}_p = 2.78 \times Ci_{100yr} \textbf{A} \\ (L/s) \\ \hline \textbf{B} \\ \textbf{11.19} \\ \hline \end{array}$	L/s)= nding Q _r (L/s) 8.00 8.0	8.00 $Q_{p}-Q_{r}$ (L/s) 14.54 12.67 11.86 11.12 9.80 Sub-surface 1.00 291.58 $Q_{p}-Q_{r}$ (L/s) 519.61	Volume 100yr (m ³) 10.47 10.64 10.68 10.67 10.59 Balance 0.00 Balance 0.00	Drainage AreaArea (Ha) $C =$ T_c Variable (min)57891111Drainage AreaArea (Ha) $C =$ T_c Variable (min) $C =$	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80 <i>i</i> _{5yr} (mm/hour) 182.69	3.13 Restricted Flow Q_r (L Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s) 17.66 15.43 14.53 13.74 12.41 Stor Required 3.13 Restricted Flow Q_r (L Stor Stor Required 3.13 Restricted Flow Q_r (L Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s) 629.76	/s)= Q _r (L/s) 8.00 8	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58 Q _p - Q _r (L/s) 338.18	0.00 Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume 5yr (m ³) 40.58	Drainage AreaArea (Ha)C = T_c Variable (min)24566888Drainage AreaArea (Ha)C = $C =$ T_c Variable (min)00	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80 <i>i</i> _{2yr} (mm/hour) 167.22	1.49 Restricted Flow Q_r (L Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s) 16.68 13.98 12.09 10.69 Stor Required 1.49 Required 1.49 Restricted Flow Q_r (L Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s) 576.45	$(J_{s}) =$ Q_{r} (L/s) R_{s}	0.00 8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.09 2.69 Sub-surface 0.00 Sub-surface 0.00 Q _p - Q _r (L/s) 284.87	0.00 Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr (m ³) 0.00	
	RL 0.05 1.0 i 100yr (mm/hour) 162.13 148.72 142.89 137.55 128.08 Overflow 0.00 EXTERNAL 1.55 1.0 i 100yr (mm/hour) 188.25 169.91	$\begin{array}{c} \hline \textbf{D} \\ 0 \\ \hline \textbf{Restricted Flow } \textbf{Q}_r (\textbf{I}) \\ \hline \textbf{100-Year Por} \\ \hline \textbf{Peak Flow} \\ \textbf{Q}_p = 2.78 \times Ci_{100yr} \textbf{A} \\ (L/s) \\ \hline \textbf{22.54} \\ \hline \textbf{20.67} \\ \hline \textbf{19.86} \\ \hline \textbf{19.12} \\ \hline \textbf{19.12} \\ \hline \textbf{17.80} \\ \hline \textbf{S} \\ \hline \textbf{Required} \\ \hline \textbf{10.68} \\ \hline \textbf{S} \\ \hline \textbf{Required} \\ \hline \textbf{10.68} \\ \hline \textbf{G} \\ \hline \textbf{O} \\ \hline \textbf{Restricted Flow } \textbf{Q}_r (\textbf{I}) \\ \hline \textbf{100-Year Por} \\ \hline \textbf{Peak Flow} \\ \textbf{Q}_p = 2.78 \times Ci_{100yr} \textbf{A} \\ (L/s) \\ \hline \textbf{811.19} \\ \hline \textbf{732.13} \\ \hline \end{array}$	L/s)= ding Q, (L/s) 8.00	8.00 $Q_{p}-Q_{r}$ (L/s) 14.54 12.67 11.86 11.12 9.80 Sub-surface 1.00 291.58 291.58 Q_{p}-Q_{r} (L/s) 519.61 440.55	Volume 100yr (m ³) 10.47 10.64 10.68 10.67 10.59 Balance 0.00 Volume 100yr (m ³) 280.59 290.76	Drainage AreaArea (Ha)C = T_c Variable (min) 5 7 8 9 11 11Drainage AreaArea (Ha)C = $C =$ T_c Variable (min) 2 4	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80 <i>i</i> _{5yr} (mm/hour) 182.69 152.51	3.13 Restricted Flow Q_r (L Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 17.66 15.43 14.53 13.74 12.41 Stor Required 3.13 Restricted Flow Q_r (L Stor Stor Required 3.13 Restricted Flow Q_r (L Peak Flow $Q_p = 2.78 \times Ci_{5yr} A$ (L/s) 629.76 525.73	/s)= Q _r (L/s) 8.00 8	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58 Q _p - Q _r (L/s) 338.18 234.15	0.00 Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume 5yr (m ³) 40.58 56.19	Drainage AreaArea (Ha)C = T_c Variable(min)24568 Drainage AreaArea (Ha)C = T_c Variable(min)02	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80 <i>i</i> _{2yr} (mm/hour) 167.22 133.33	1.49 Restricted Flow Q_r (L Peak Flow $Q_p = 2.78 \times Ci_{2yr} A$ (L/s) 16.68 13.98 12.96 12.09 10.69 Stor Required 1.49 Required 1.49 Restricted Flow Q_r (L Peak Flow $Q_p = 2.78 \times Ci_{2yr} A$ (L/s) 576.45 459.62	13.50 /s)= Q _r (L/s) 8.00 8.00 8.00 8.00 8.00 0rage (m ³) Surface 11.25 /s)= ng Q _r (L/s) 291.58 291.58	0.00 8.00 $\boldsymbol{Q}_p - \boldsymbol{Q}_r$ (L/s) 8.68 5.98 4.96 4.09 2.69 0.00	0.00 Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Balance 0.00 Volume 2yr (m ³) 0.00 20.16	
	RL 0.05 1.0 i 100yr (mm/hour) 162.13 148.72 142.89 137.55 128.08 Overflow 0.00 EXTERNAL 1.55 1.00 i 100yr (mm/hour) 188.25 169.91 162.13	$\begin{array}{c} \textbf{D} \\ 0 \\ 0 \\ \hline 0 \\ \hline \textbf{Restricted Flow } \textbf{Q}_r (\textbf{I} \\ \hline \textbf{100-Year Por} \\ \hline \textbf{Peak Flow} \\ \textbf{Q}_p = 2.78 x Ci_{100yr} \textbf{A} \\ (L/s) \\ \hline 22.54 \\ \hline 20.67 \\ \hline 19.86 \\ \hline 19.12 \\ \hline 17.80 \\ \hline \hline \textbf{S} \\ \hline \textbf{Required} \\ 10.68 \\ \hline \textbf{S} \\ \hline \textbf{Required} \\ 10.68 \\ \hline \textbf{O} \\ 0 \\ \hline \textbf{Restricted Flow } \textbf{Q}_r (\textbf{I} \\ \hline \textbf{100-Year Por} \\ \hline \textbf{Peak Flow} \\ \textbf{Q}_p = 2.78 x Ci_{100yr} \textbf{A} \\ (L/s) \\ \hline \textbf{811.19} \\ \hline 732.13 \\ \hline \textbf{698.63} \\ \hline \textbf{O} \\ \textbf{O} \\ \hline \end{array}$	L/s)= ding Q _r (L/s) 8.00	8.00 $ \begin{array}{c} $	Volume 100yr (m ³) 10.47 10.64 10.68 10.67 10.59 Balance 0.00 Volume 100yr (m ³) 280.59 290.76 293.08 293.08	Drainage AreaArea (Ha) $C =$ T_c Variable (min)57891111Drainage AreaArea (Ha) $C =$ T_c Variable (min)245	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80 <i>i</i> _{5yr} (mm/hour) 182.69 152.51 141.18 104.55	3.13 Restricted Flow Q _r (I 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s) 17.66 15.43 14.53 13.74 12.41 Stor Required 3.13 Restricted Flow Q _r (I Stor Restricted Flow Q_r (I Stor Restricted Flow Q_r (I Stor Restricted Flow Q_r (I Stor Stor Stor Stor Stor Stor Stor Stor Stor Stor Stor Stor Stor Stor Stor Stor Stor <	/s)= Q _r (L/s) 8.00 8	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58 Q _p - Q _r (L/s) 338.18 234.15 195.09 104.00	0.00 Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume 5yr (m ³) 40.58 56.19 58.53 50.01	Drainage AreaArea (Ha)C = T_c Variable (min)24566888Drainage AreaArea (Ha)C = $C =$ T_c Variable (min)0233	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 EXTERNAL 1.550 0.80 <i>i</i> _{2yr} (mm/hour) 167.22 133.33 121.46	1.49 Restricted Flow Q_r (L Peak Flow $Q_p = 2.78xCi_{2yr} A$ (L/s) 16.68 13.98 12.96 12.09 10.69 Store Required 1.49 Restricted Flow Q_r (L Peak Flow $Q_p = 2.78xCi_{2yr} A$ (L/s) 576.45 459.62 418.71 0.0011	13.50 /s)= Q , (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 0rage (m ³) Surface 11.25 /s)= ng Q , (L/s) 291.58 291.58 291.58 291.58	0.00 8.00 Q _p - Q _r (L/s) 8.68 5.98 4.96 4.96 4.09 2.69 Sub-surface 0.00 Sub-surface 0.00 Sub-surface 0.00 C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C C	0.00 Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr (m ³) 0.00 20.16 22.88 0.01	
	RL 0.05 1.0 i100yr (mm/hour) 162.13 148.72 142.89 137.55 128.08 Overflow 0.00 EXTERNAL 1.55 1.00 i100yr (mm/hour) 188.25 169.91 162.13 155.11 142.89	$\begin{array}{c} \textbf{D} \\ 0 \\ 0 \\ \hline \textbf{Restricted Flow } \textbf{Q}_r (\textbf{I} \\ \hline \textbf{100-Year Por} \\ \hline \textbf{Peak Flow} \\ \textbf{Q}_p = 2.78 \times Ci_{100yr} \textbf{A} \\ (L/s) \\ \hline \textbf{22.54} \\ 20.67 \\ \hline \textbf{19.86} \\ \hline \textbf{19.12} \\ \hline \textbf{19.12} \\ \hline \textbf{17.80} \\ \hline \textbf{S} \\ \hline \textbf{Required} \\ 10.68 \\ \hline \textbf{G} \\ \hline \textbf{O} \\ \hline \textbf{Restricted Flow } \textbf{Q}_r (\textbf{I} \\ \hline \textbf{100-Year Por} \\ \hline \textbf{Peak Flow} \\ \textbf{Q}_p = 2.78 \times Ci_{100yr} \textbf{A} \\ (L/s) \\ \hline \textbf{811.19} \\ \hline \textbf{732.13} \\ \hline \textbf{698.63} \\ \hline \textbf{68.36} \\ \hline \textbf{615.73} \\ \hline \end{array}$	L/s)= ding Q, (L/s) 8.00	8.00 $R_{p}-Q_{r}$ (L/s) 14.54 12.67 11.86 11.12 9.80 $Sub-surface$ 1.00 291.58 $Q_{p}-Q_{r}$ (L/s) 519.61 440.55 407.05 376.78 324.15	Volume 100yr (m ³) 10.47 10.64 10.68 10.67 10.59 Balance 0.00 Volume 100yr (m ³) 280.59 290.76 293.08 293.89 291.74	Drainage AreaArea (Ha) $C =$ T_c Variable (min)57891111Drainage AreaArea (Ha) $C =$ T_c Variable (min) $C =$ 4 5 6 8	0.00 RD 0.050 0.90 <i>i</i> _{5yr} (mm/hour) 141.18 123.30 116.11 109.79 99.19 Overflow 0.00 EXTERNAL 1.550 0.80 <i>i</i> _{5yr} (mm/hour) 182.69 152.51 141.18 131.57 116.11	3.13 Restricted Flow Q_r (I 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s) 17.66 15.43 14.53 13.74 12.41 Stor Required 3.13 Restricted Flow Q_r (I 5-Year Ponding Peak Flow $Q_p = 2.78xCi_{5yr}A$ (L/s) 629.76 525.73 486.67 453.54 400.26	/s)= Q _r (L/s) 8.00 8	0.00 8.00 Q _p - Q _r (L/s) 9.66 7.43 6.53 5.74 4.41 Sub-surface 0.00 291.58 Q _p - Q _r (L/s) 338.18 234.15 195.09 161.96 108.68	0.00 Volume 5yr (m ³) 2.90 3.12 3.13 3.10 2.91 Balance 0.00 Volume 5yr (m ³) 40.58 56.19 58.53 58.31 52.17	Drainage AreaArea (Ha)C = T_c Variable(min)24568 Drainage AreaArea (Ha)C = T_c Variable(min)0234	0.00 RD 0.050 0.90 <i>i</i> _{2yr} (mm/hour) 133.33 111.72 103.57 96.64 85.46 Overflow 0.00 <i>EXTERNAL</i> 1.550 0.80 <i>i</i> _{2yr} (mm/hour) 167.22 133.33 121.46 111.72 96.64	1.49 Restricted Flow Q_r (L Peak Flow $Q_p = 2.78 \times Ci_{2yr} A$ (L/s) 16.68 13.98 12.96 12.09 10.69 Stor Required 1.49 Restricted Flow Q_r (L Peak Flow $Q_p = 2.78 \times Ci_{2yr} A$ (L/s) 576.45 459.62 418.71 333 13	13.50 /s)= Q _r (L/s) 8.00 8.00 8.00 8.00 8.00 8.00 0rage (m ³) Surface 11.25 /s)= ng Q _r (L/s) 291.58 291.58 291.58 291.58 291.58	0.00 8.00 Qp-Qr (L/s) 8.68 5.98 4.96 4.09 2.69 0.00 Sub-surface 0.00 291.58 Qp-Qr (L/s) 284.87 168.04 127.13 93.55 41.55	0.00 Volume 2yr (m ³) 1.04 1.43 1.49 1.47 1.29 Balance 0.00 Volume 2yr (m ³) 0.00 20.16 22.88 22.45 14.96	
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