CONCEPT SERVICES REPORT

30 Holland Court, Howrah Residential Subdivision

May 2021

Engineers & Planners

Engineers & Planners

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1	13.05.2021	For Development Approval	RWH		CJM		GLA	

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1. Introduction

1.1 Background

A residential subdivision is proposed at 30 Holland Court, Howrah. The purpose of this report is to provide supporting documentation on how the development will be serviced. It covers Water Supply, Sewerage, Roads, Stormwater, Power and Telecommunications infrastructure.

1.2 The Site

The site is orientated in a northerly direction and slopes steeply from its southern boundary at grades of approximately 18% to the northern boundary bordering Rokeby Road. The current access is through the western boundary, off the Holland Court cul-de-sac.

Apart from the Church of Christ building and the accompanying carpark the site is mostly bushland, with a small area of grass adjacent Rokeby Road.

1.3 The Proposal

The proposal is to develop 6 residential lots varying in size from 660m^2 to 3990m^2, and to retain the existing Howrah Church of Christ building and access on a reduced lot size. Also included in the proposal is a 780m^2 area of public open space located on the north western corner of the site which will link Holland Court to the walkway adjacent to Rokeby Road. Access to each lot will be provided off the Holland Court cul-de-sac with Lots 6 and 7 to have a shared access.

Refer Appendix A-Concept Layout Drawings.

2. Water Supply

2.1. Existing System

TasWater operates a reticulated water supply to the Howrah community. There is a DN100 AC main that runs along the northern boundary of the site, parallel with Rokeby Road and the current DN40 connection to the Church of Christ building is off this main.

A DN889 bulk water supply main and DN150 reticulation main are also located in the road reservation walkway corridor adjacent to Rokeby Road.

There is also an existing DN100 AC water main that terminates on the southern side of Holland Court at the start of the cul-de-sac.

2.2. Design Standards

The water infrastructure will be designed in accordance with TasWater's design standards for water supply.

2.3. Proposed Water Network

The existing main within Holland Court will need to be extended around the cul-de-sac with an OD63 HDPE loop main. Lots 1,2 and 4-7 will be serviced with 20mm connections from this extension.

The 40mm connection to the church will be upgraded to DN100 to supply a DN40 domestic water to the property and a DN100 fire service to the existing hydrant located on the northern side of the carpark. The existing supply to this hydrant is to be located and sealed off at its connection to the main.

Increased water demands for the development are shown in Table 1.

Table 1 - Increase in Water Demand for 30 Holland Court

Site	Lots	ET's	PSD (L/s)
30 Holland Court	6	6	1.3

3. Sewerage System

3.1. Existing System

There is a DN150 gravity sewer main running adjacent the northern site boundary. This main is gravity fed to the Howarah Sewage Pumping Station, before passing through the Wentworth Park Sewage Pumping Station and eventually being treated in the Rosny Sewage Treatment Plant.

The existing building connects into the DN150 main.

3.2. Design Standards

The sewerage infrastructure will be designed in accordance with TasWater's design standards for sewerage.

3.3. Proposed Sewerage System

It is proposed that a new sewer main commencing within the Holland Court cul-de-sac will provide DN100 connections for Lots 4-7. The main will then run adjacent the Lot 2-3 boundary within a 3m wide services easement (easement will be wholly contained within Lot 3), and at the northern site boundary a new manhole will be constructed over the existing DN150 main. Lots 1 and 2 have DN100 connections directly into the DN150 main downstream of the new manhole.

The connection to the existing building will remain unchanged.

It is assumed the downstream network has capacity for the small increase in flows. Refer Table 2.

Table 2 - Increase in Sewer Flow from 30 Holland Court

	Increase to Flow (L/s)
ADWF	0.03 l/s
PDWF	0.22 l/s
Design Flow	0.68 l/s

4. Roads and Access

4.1 Existing System

The site is serviced by Holland Court, which is a sealed urban road. There is an existing crossover and sealed access approximately 6m wide to the Howrah Church of Christ building.

4.2 Design Standards

The road infrastructure will be designed in accordance with Clarence City Council's design standards for urban roads and the IPWEA Standard Drawings.

4.3 Proposed Road Network

Access to each lot will be provided off the Holland Court cul-de-sac with Lots 6 and 7 to have a shared 3.6m wide access which will be widened to 5.5m for the first 6m inside the property to allow for vehicle passing. The existing access to the Church will be retained, with modifications as necessary to ensure that the extents of the driveway are retained within the

5.6m road frontage. The minimum width of the driveway being 5.5m. Lots 1, 2, 4 and 5 to have their own 3.6m wide driveway. All driveway crossovers to be constructed to IPWEA STD DRG. TSD-R09.

Figure 1 - Existing Holland Court cul-de-sac and site access.

5. Stormwater

5.1 Existing System

A large portion of the existing site is bush or grass land, with the only hardstand the church building, and the accompanying access road and carpark. The site falls from its southern boundary through to its northern boundary (adjacent Rokeby Road). A large open drain is formed along the toe of the highway batter conveying flows in a north westerly direction towards the Derwent River.

The existing carpark has kerb and channel along its northern edge, with two side entry pits collecting runoff. These feed into an outlet headwall approximately 20m down the bank that discharges onto the lawn and eventually makes its way into the large roadside overland flow path.

Figure 2 - Large table drain adjacent Rokeby Road, DN300 culvert under footpath to the right.

Figure 3 - Existing Kerb & Channel collecting carpark runoff, and the roadside overland flow path in background.

Figure 4 - Outlet headwall from carpark.

At the eastern end of the site, a culvert underneath the access road collects runoff from the area of the bushland catchment that is collected by a cut-off drain on the southern side of the Church access road. The culvert discharges into an open drain that directs flow towards the large roadside overland flow path.

Figure 5 - Culvert under access road adjacent Holland Court.

5.2 Design Standards

Drainage will be designed in accordance with Clarence City Council Design Standards, the Plumbing Code (AS 3500), and the relevant Planning Scheme requirements.

A 30% increase in rainfall intensity has been applied for this catchment in line with recent council requests to account for climate change.

5.3 Proposed Stormwater Drainage System

All site runoff will discharge into the existing roadside drain adjacent Rokeby Road and the northern site boundary.

The existing building and carpark runoff will collect within the existing infrastructure, but the outlet will be extended to discharge directly into the proposed stormwater detention basin.

Lots 1 and 2 will bypass the detention basin and discharge directly into the roadside drain.

Flows from Lots 4-7 will be collected in a new internal stormwater network via the new DN150 property connections which will discharge into the proposed stormwater detention basin. The access road culvert will remain, with a manhole placed over the downstream end to ensure flows are collected within the piped network.

Detention

Stormwater detention is required to ensure the volume of runoff from the post development site in a 5% AEP rainfall event is no greater than the pre-development runoff under the same meteorological conditions.

The area of public open space will remain unchanged, and as such does not require detention. Lots 1 and 2 will not be detained, due to their location downstream of the proposed detention basin. Runoff from these lots will be factored into detention calculations. Likewise, it is assumed that Lot 3 has no change in pre and post development flows.

Boyd's Formula has been used to determine a preliminary storage volume for planning purposes before a full detailed design of detention requirements is undertaken. Boyd's indicates a volume of 27m^3 will be required. This will be provided by the new detention basin to be constructed on the north-western corner of Lot 3, adjacent Lot 2.

Refer Appendix C – Stormwater Calculations

Treatment

Treatment for the development will be provided by a combination of the existing natural swale (Council owned roadside table drain), the detention basin and SPEL Stormsacks (or equivalent) to be located on grated pits within roadways. The effectiveness of this treatment train can be seen in Figure 7, which indicates the targets outlined by the State Stormwater Strategy 2010 are exceeded for both Total Suspended Solids and Total Phosphorus, whilst the Total Nitrogen reduction is short of the desired 45%. This is not uncommon for smaller treatment systems such as this one, as without the installation of large-scale treatment trains and devices, achieving the Nitrogen reduction target is usually considered unrealistic from a cost-benefit perspective.

Figure 6 - MUSIC Schematic

	Sources	Residual Load	% Reduction
Flow (ML/yr)	5.2	5.16	0.6
Total Suspended Solids (kg/yr)	1020	155	84.8
Total Phosphorus (kg/yr)	2.08	0.79	62
Total Nitrogen (kg/yr)	14.8	10.8	27.1
Gross Pollutants (kg/yr)	197	0	100

Figure 7 - MUSIC Results

6. Power

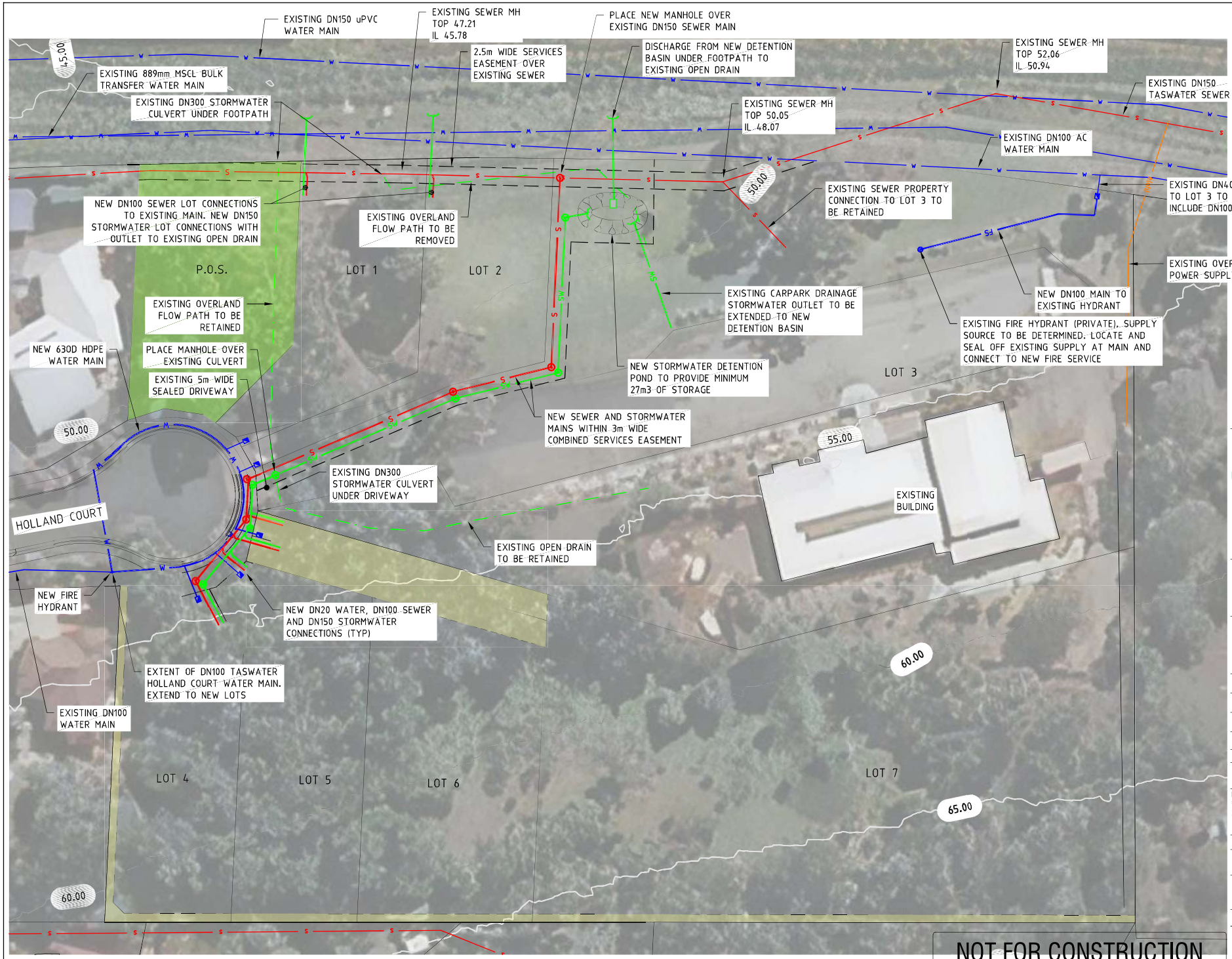
Electricity supply will be provided by extension of the existing TasNetworks system. Underground power will be provided to all new lots. The existing overhead connection to the Church on Lot 3 will be maintained.

7. Telecommunications

Telecommunications will be provided by extension of the existing NBN network within Holland Court to service each new lot. The existing connection to Lot 3 will be maintained but adjusted as necessary if found to be located outside of the new lot boundaries.

APPENDIX A

Concept Layout Drawings



NOT FOR CONSTRUCTION

REV	DATE	REMARK
P2	10.05.2021	LOT BOUNDARIES REVISED
P1	11.09.2020	ISSUED FOR CLIENT REVIEW

Engineers & Planners

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PROJECT
30 HOLLAND COURT HOWRAH - PROPOSED SUBDIVISION

TITLE
CONCEPT SERVICES PLAN

Accepted Chris Males (Discipline Head)	Date
Accepted Matt Clark (Team Leader)	Date
Approved Matt Clark (Group Manager)	Date

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SCALES @ A3	DESIGNED BY	DRAWN BY
1:500	CJM	RH
	PLOT DATE	13/05/2021

DO NOT SCALE. Use only figured dimensions. Locations of structure, fittings, services etc on this drawing are indicative only. CONTRACTOR to check Architects & other project drawings for co-ordination between structure, fabric, fixtures, fittings, services etc. CONTRACTOR to site check all dimensions and exact locations of all items. JMG accepts no responsibility for dimensional information scaled or digitally derived from this document.

PLOT DETAILS J203057PH - CIV3D BASE.DWG

PROJECT NO. J203057PH

DWG NO.	REVISION
C01	P2

APPENDIX B

Sewer & Water Calculations

	WSA CALCULATIONS	CALCULATED VALUES	UNITS	COMMENTS
DESIGN FLOW	PDWF + GWI + RDI	0.6791129	L/s	
PDWF	d x ADWF	0.219275789	L/s	
d	0.01*(LOG(A))^4-0.19*(LOG(A))^3+1.4*(LOG(A))^2-4.66*LOG(A)+7.57	6.767771264		
A	Gross Area of Development	1.52	ha	Determine off plans
ADWF	ET*loading rate(450(new development) or 540(old development) L/ET/day)*0.000012	0.0324	L/s	
GWI	0.025 x A x Portion(wet)	0.0266	L/s	
$Portion_{wet}$	Portion of Network where GW > Pipe RL	0.7		TasWater Assumption
RDI	0.028 x Aeff x C x I	0.433237111	L/s	
A_{eff}	A x (Density/150)^0.5	0.42708313		Density < 150 EP/Ha
EP	3 x ET	18		
Density	EP/A	11.84210526		
C	Saspect + Naspect	1.4		
Saspect	Soil Aspect	0.8		TasWater Assumption
Naspect	Network Defects Aspect	0.6		TasWater Assumption
I	$I_{1,2}$ x $Factor_{size}$ x $Factor_{containment}$	25.87778898		
I(1,2)	1 hr duration rainfall intensity, ARI 2 years	13.3		Determined from BOM
Factor(size)	(40/A)^0.12	1.480559852		
Factor(containment)	0.77 x (10^(0.43X)) / (10^(0.14X^2))	1.314163975		
X	log(ARI)	0.698970004		
ARI	Annual Reccurence Interval	5		TasWater Assumption

Total ET	**6**

TasWater Supplement Equivalent Sewer Tenement Rates

Subdivison - New Lots < 2000m2	
Factor/dwelling	1
No. of Lots	6
ET	6

Total ET	6

TasWater Supplement Equivalent Water Tenement Rates

Subdivison - New Lots < 2000m2	
Factor/dwelling	1
No. of Lots	6
ET	6

Option 1)			
ET's < 100			
	Quantity	Units	Comments
Number of Units/Homes/Town Houses	6	-	
Probable Simultaneous Demand (PSD)	1.30	L/s	(AS/NZS 3500.1:2003 Table 3.2.3)

APPENDIX C

Stormwater Calculations

Metadata:

IFD Design Rainfall Intensity (mm/h)
Issued: 2-Apr-21

Requested coordinate:
Latitude -42.88724
Longitude 147.41717

Nearest grid cell:
Latitude 42.8875 (S)
Longitude 147.4125 (E)

		Rainfall mm/hr						
		Annual Exceedance Probability (% AEP)						
		1	2	3	4	5	6	7
		63.20%	50%	20%	10%	5%	2%	1%
Duration (min)	1	61.9	70.2	97.9	118	140	171	196
	2	53	59.6	80.7	95.4	110	128	142
	3	47	52.9	72.1	85.7	99.4	117	131
	4	42.4	47.9	65.8	78.7	91.8	109	123
	5	38.8	43.9	60.7	73	85.6	103	117
	10	28.1	31.9	44.9	54.5	64.7	79.6	92
	15	22.8	25.9	36.4	44.2	52.6	64.9	75.2
	17	21.3	24.2	34	41.3	49.1	60.5	70
	20	19.5	22.1	31	37.7	44.7	55	63.6
	23	18.1	20.5	28.7	34.8	41.2	50.6	58.3
	25	17.2	19.5	27.3	33.1	39.2	48	55.3
	30	15.6	17.6	24.6	29.7	35.1	42.8	49.1
	45	12.4	14.1	19.4	23.3	27.4	32.9	37.4
	60	10.6	12	16.5	19.7	22.9	27.3	30.8
	90	8.53	9.63	13.1	15.6	18	21.2	23.7
	120	7.33	8.27	11.2	13.3	15.3	17.9	19.9
	180	5.93	6.7	9.11	10.7	12.3	14.3	15.8
	270	4.8	5.44	7.43	8.73	9.97	11.6	12.8
	360	4.12	4.69	6.43	7.57	8.66	10.1	11.2
	540	3.3	3.78	5.24	6.2	7.12	8.37	9.31
	720	2.8	3.22	4.5	5.35	6.17	7.31	8.17
	1080	2.19	2.52	3.58	4.29	4.99	5.96	6.71
	1440	1.81	2.09	2.99	3.61	4.22	5.08	5.75
	1800	1.55	1.8	2.58	3.13	3.67	4.43	5.03
	2160	1.36	1.57	2.27	2.76	3.25	3.93	4.47
	2880	1.09	1.26	1.83	2.23	2.63	3.18	3.63
	4320	0.785	0.907	1.31	1.6	1.89	2.28	2.59
	5760	0.615	0.709	1.02	1.23	1.45	1.75	1.99
	7200	0.508	0.584	0.83	1	1.18	1.41	1.6
	8640	0.434	0.499	0.703	0.843	0.982	1.18	1.33
	10080	0.381	0.437	0.612	0.729	0.843	1.01	1.14

Time of Concentration - Sheet, Channel and Pipe								
Section	**Description**	**Method**					**Unit**	**Comment**
1	Sheet Flow	Hortons			H1	68.6	m	AHD at top of max flow path
					H2	56.1	m	AHD at bottom of max flow path
					dH	12.5	m	Change in height of flow path
					L	65	m	Max flow length
					Grade	19.23	%	Average grade of site
					Surface	Poorly grassed surface	-	Surface description
					N	0.035	-	Hortons surface roughness
					Time	**8.32**	min	Tcs=107*N*(L^.333)/(S%^.2)
2	Channel Flow	Kirpich			H1	56.1	m	AHD at top of max flow path
					H2	51.8	m	AHD at bottom of max flow path
					dH	4.3	m	Change in height of flow path
					L	88	m	Max flow length
					Slope	0.05	-	Average slope of channel
					Surface	Concrete/Asphalt	-	Surface description
					N	0.400	-	Surface roughness
					Time	**1.94**	min	Tch = 0.0195 * Lc^0.77*Sc^(-0.385)
3	Sheet Flow	Hortons			H1	51.8	m	AHD at top of max flow path
					H2	44.6	m	AHD at bottom of max flow path
					dH	7.2	m	Change in height of flow path
					L	92	m	Max flow length
					Grade	7.83	%	Average grade of site
					Surface	Average grassed surface	-	Surface description
					N	0.045	-	Hortons surface roughness
					Time	**14.38**	min	Tcs=107*N*(L^.333)/(S%^.2)

Time of Concentration - Selection for future use			
Total ToC	**25**	**min**	**Sheet, Channel & Pipe**

Total Site Area	15577	m^2
	1.5577	Ha

	Buildings/Roof	Roads	Gravel	Grass/Landscape
1	675	2040		12862
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

					Total
Sum	675	2040	0	12862	15577
Factor	1	1	0.8	0.4	N/A
Impervious Area	675	2040	0	5144.8	7859.8
				% Impervious	**50%**
Buildings/Roads Total	2715				

Time of Concentration			
C_1,10	25	mm	10% AEP, 60min Rainfall
A=	15577	m2	Insert Catchment Area
A=	0.01558	Km^2	Calculated in Km2
tc=	25	mins	Whole Number Tc

Impervious Area		
Existing Hardstand Area=	7859.8	m2
Total Area =	15577	m2
Fraction Impervious =	50%	

Runoff Coefficient		
Fraction impervious =	50%	
C1,10 =	0.100	*Formula - Refer ARR Book VIII*
C10 =	**0.50**	**Runoff Coefficient**

Frequency Conversion Factors -Refer AR&R 1987										
ARI (years)	1	2	5	10	20	40	50	60	80	100
Factor, F_y	0.8	0.85	0.95	1	1.05	1.1	1.15	1.17	1.19	1.2

Peak Catchment Flows For Varied 5% AEP Storm Durations		
AEP	**Duration (min)**	**Flow (m^3/s)**
5%	1	0.321
5%	2	0.252
5%	3	0.228
5%	4	0.210
5%	5	0.196
5%	10	0.148
5%	15	0.120
5%	20	0.102
5%	23	0.094
5%	25	0.090
5%	30	0.080
5%	45	0.063
5%	60	0.052

Peak Catchment Flows For Given AEP at T.O.C.				
	AEP	**$I_{tc,Y}$ (mm/h)**	**Flow (m^3/s)**	**Flow + 30% CC (m^3/s)**
1	63.20%	17.2	0.0300	0.039
2	50.00%	19.5	0.0362	0.047
3	20.00%	27.3	0.0566	0.074
4	10.00%	33.1	0.0722	0.094
5	5.00%	39.2	0.0898	0.117
6	2.00%	48.0	0.1204	0.157
7	1.00%	55.3	0.1447	0.188

Time of Concentration - Sheet, Channel and Pipe								
Section	**Description**	**Method**					**Unit**	**Comment**
1	Sheet Flow	Hortons			H1	68.6	m	AHD at top of max flow path
					H2	56.1	m	AHD at bottom of max flow path
					dH	12.5	m	Change in height of flow path
					L	65	m	Max flow length
					Grade	19.23	%	Average grade of site
					Surface	Poorly grassed surface	-	Surface description
					N	0.035	-	Hortons surface roughness
					Time	**8.32**	min	Tcs=107*N*(L^.333)/(S%^.2)
2	Channel Flow	Kirpich			H1	56.1	m	AHD at top of max flow path
					H2	51.8	m	AHD at bottom of max flow path
					dH	4.3	m	Change in height of flow path
					L	88	m	Max flow length
					Slope	0.05	-	Average slope of channel
					Surface	Concrete/Asphalt	-	Surface description
					N	0.400	-	Surface roughness
					Time	**1.94**	min	Tch = 0.0195 * Lc^0.77*Sc^(-0.385)
3	Sheet Flow	Hortons			H1	51.8	m	AHD at top of max flow path
					H2	44.6	m	AHD at bottom of max flow path
					dH	7.2	m	Change in height of flow path
					L	92	m	Max flow length
					Grade	7.83	%	Average grade of site
					Surface	Average grassed surface	-	Surface description
					N	0.045	-	Hortons surface roughness
					Time	**14.38**	min	Tcs=107*N*(L^.333)/(S%^.2)

Time of Concentration - Selection for future use			
Total ToC	**25**	**min**	**Sheet, Channel & Pipe**

Total Site Area	15577	m^2
	1.5577	Ha

	Buildings/Roof	Roads	Gravel	Grass/Landscape	
1	675	2040		10232	Lot 3 (Church): Area = 6266m2, Existing Impervious Areas
2	415				Lot 1: Area = 692m2, Proposed to be 60% Developed
3	415				Lot 2: Area = 661m2, Proposed to be 60% Developed
4	1200				Lot 4, 5, 6: Area = 2973m2, Proposed to be 40% Developed
5	600				Lot 7: Area = 3984m2, Proposed to be 15% Developed
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

					Total
Sum	3305	2040	0	10232	15577
Factor	1	1	0.8	0.4	N/A
Impervious Area	3305	2040	0	4092.8	9437.8
				% Impervious	**61%**
Buildings/Roads Total	5345				

Time of Concentration			
C_1,10	25	mm	10% AEP, 60min Rainfall
A=	15577	m2	Insert Catchment Area
A=	0.01558	Km^2	Calculated in Km2
tc=	25	mins	Whole Number Tc

Impervious Area		
Existing Hardstand Area=	9437.8	m2
Total Area =	15577	m2
Fraction Impervious =	61%	

Runoff Coefficient		
Fraction impervious =	61%	
C1,10 =	0.100	*Formula - Refer ARR Book VIII*
C10 =	**0.58**	**Runoff Coefficient**

Frequency Conversion Factors -Refer AR&R 1987										
ARI (years)	1	2	5	10	20	40	60	80	50	100
Factor, F_y	0.8	0.85	0.95	1	1.05	1.2	1.17	1.19	1.15	1.2

Peak Catchment Flows For Varied 5% AEP Storm Durations		
AEP	**Duration (min)**	**Flow (m^3/s)**
5%	1	0.372
5%	2	0.292
5%	3	0.264
5%	4	0.244
5%	5	0.228
5%	8	0.190
5%	10	0.172
5%	15	0.140
5%	20	0.119
5%	23	0.110
5%	25	0.104
5%	30	0.093
5%	45	0.073
5%	60	0.061

Peak Catchment Flows For Given AEP at T.O.C.				
	AEP	**$I_{tc,Y}$ (mm/h)**	**Flow (m^3/s)**	**Flow + 30% CC (m^3/s)**
1	63.20%	17.2	0.0348	0.045
2	50.00%	19.5	0.0420	0.055
3	20.00%	27.3	0.0657	0.085
4	10.00%	33.1	0.0838	0.109
5	5.00%	39.2	0.1042	0.135
6	2.00%	48.0	0.1398	0.182
7	1.00%	55.3	0.1680	0.218

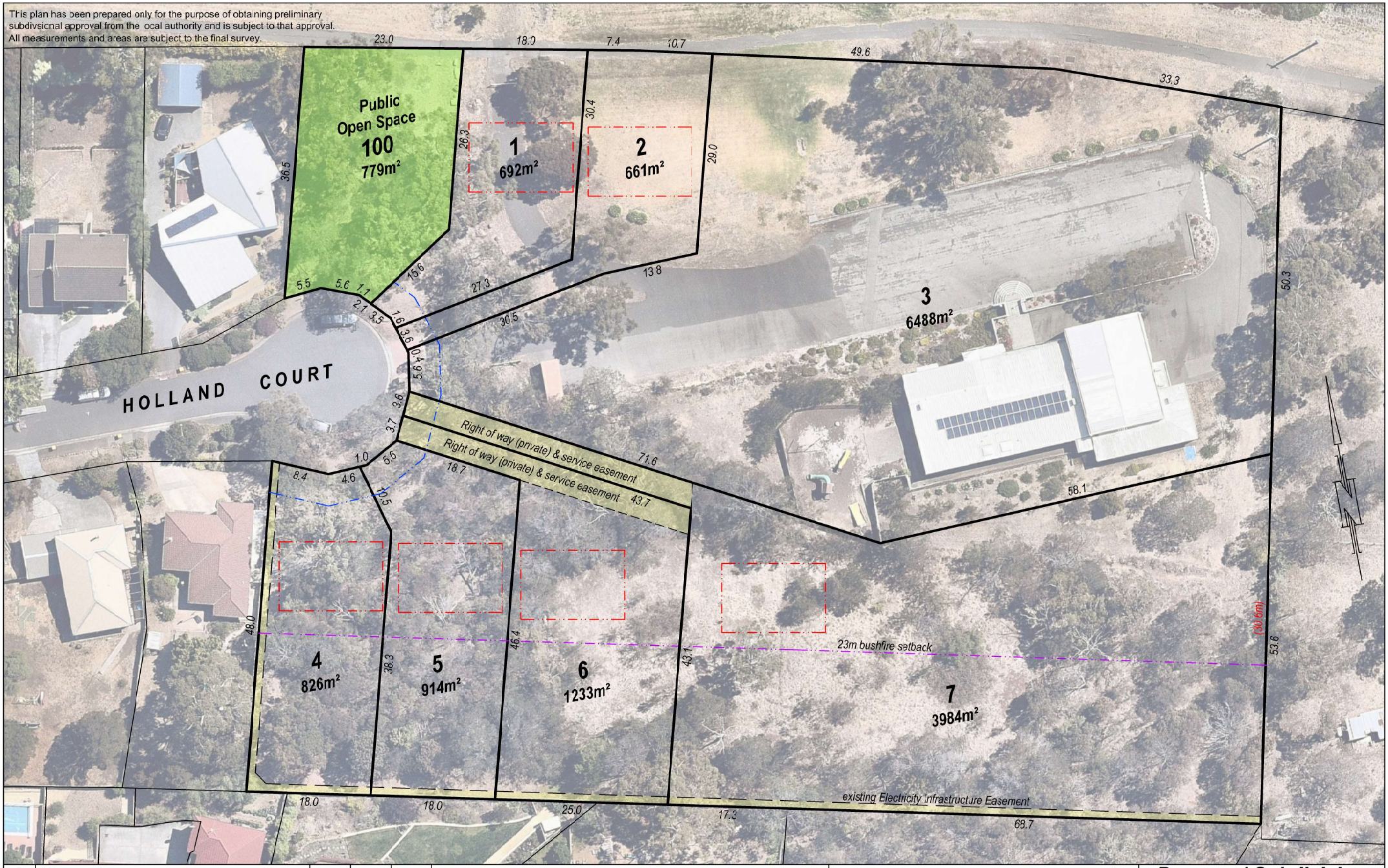
Catchment & Flow Details			Comments
Catchment Area =	1.558	Ha	
10 Year Runoff Coefficient =	0.58	-	
20 Year Effective Catchment Area =	0.96	Ha	
Restricted Outflow Requirement =	0.1167	m^3/s	Site Runoff for the 5% AEP PreD, TOC storm duration rainfall event. Calculated in PreD SW Calculations spreadsheet.

Detention Calculation			NO Climate Change				30% Climate Change			
Storm Duration	5% AEP	5% AEP + 30% CC	Q_i	Q_o	V_1	S_{max}	Q_i	Q_o	V_1	S_{max}
(min)	Intensity (mm/hr)	Intensity (mm/hr)	(m3/s)	(m3/s)	(m3)	(m3)	(m3/s)	(m3/s)	(m3)	(m3)
25	39.20	50.6	0.104	0.117	156.20	-18.86	0.134	0.117	201.50	26.44
30	35.10	45.3	0.093	0.117	167.84	-42.23	0.120	0.117	216.51	6.44
45	27.40	35.3	0.073	0.117	196.53	-118.57	0.094	0.117	253.52	-61.58
60	22.90	29.5	0.061	0.117	219.00	-201.13	0.078	0.117	282.51	-137.62

APPENDIX D

Subdivision Plan

This plan has been prepared only for the purpose of obtaining preliminary subdivsicnal approval from the ocal authority and is subject to that approval. All measurements and areas are subject to the final survey.



REV	AMENDMENTS	DRAWN	DATE	APPR
E				
D	public open space added, changes to lots 1 & 2	AB	14-4-2021	AB
C	boundary changes between lots 7 & 8	AB	15-12-20	AB
B	modified lot layout - 8 lot version	AB	7-12-2020	AB
A	larger balance lot	AB	16-7-2020	AB

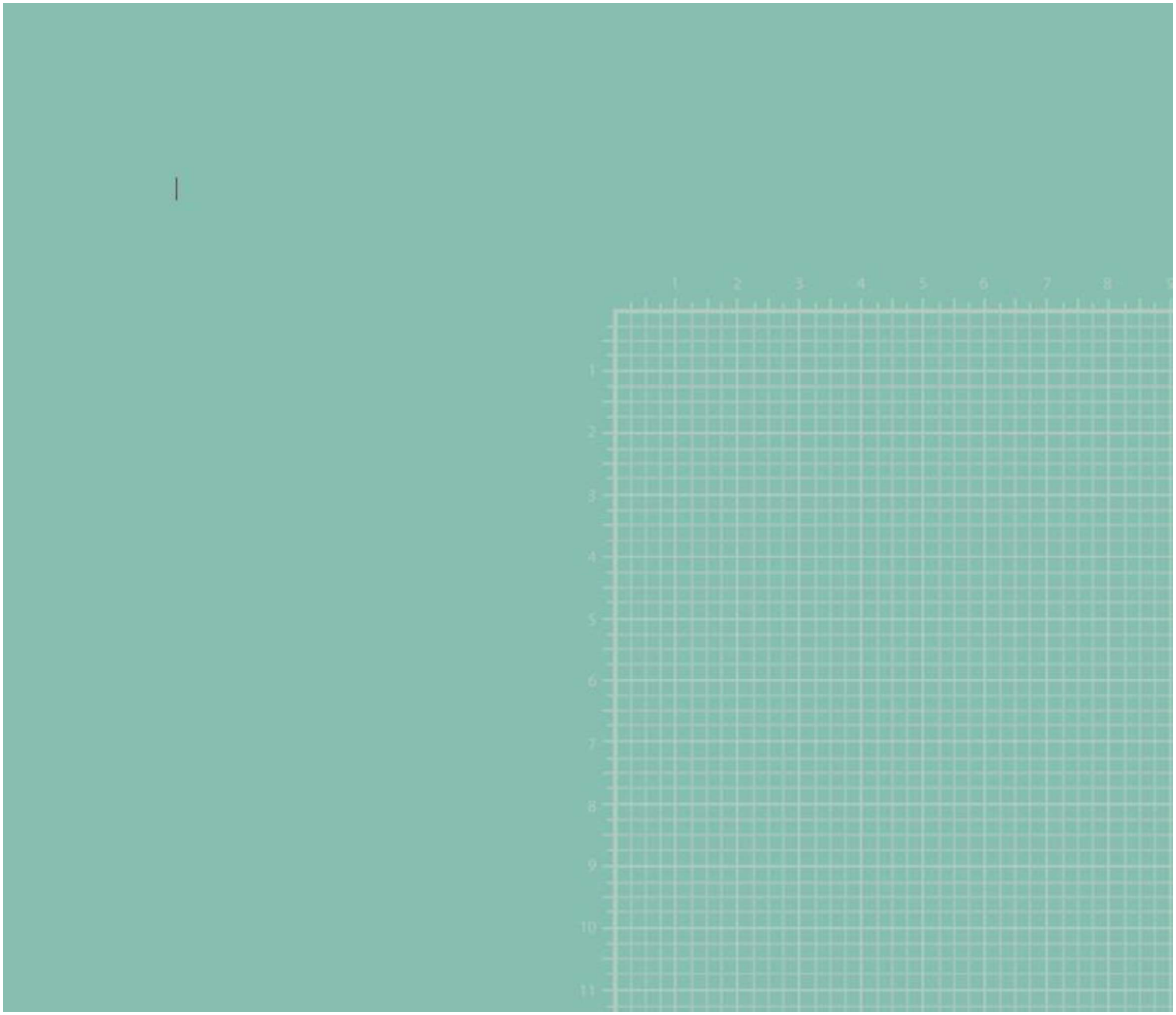
ROGERSON & BIRCH SURVEYORS

UNIT 1, 2 KENNEDY DRIVE
CAMBRIDGE 7170
PHONE: (03)6248 5893
EMAIL: admin@rbsurveyors.com
WEB: www.rbsurveyors.com

OWNER: CHURCHES OF CHRIST
TITLE REFERENCE: C.T.35660/1
LOCATION: 30 HOLLAND COURT
HOWRAH

Proposed Subdivision

Date: 14-4-2021
Reference: HOW/CC01 12572-02
Scale: 1:500 (A3)
Municipality: CLARENCE



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