Victoria Government Gazette

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GENERAL

TABLE OF PROVISIONS

Advertisers Please Note

As from 6 February 2020

The last Special Gazette was No. 54 dated 5 February 2020.

The last Periodical Gazette was No. 1 dated 29 May 2019.

How To Submit Copy

- See our webpage www.gazette.vic.gov.au
- or contact our office on 8523 4601
  between 8.30 am and 5.30 pm Monday to Friday

PRIVATE ADVERTISEMENTS

NOTICE OF DISSOLUTION OF PARTNERSHIP

Notice is hereby given in accordance with section 41 of the **Partnership Act 1958** (Vic.) that the partnership trading under the name of CK Lov Fresh Vegetables between Ching Kok Lov, Timothy Lov, Mengkong Sok and (allegedly) Huot Sok is dissolved with effect from 17 January 2020.

Re: ALFRED FREDERICK POLLITT, also known as Alfred Pollitt, late of 1 New Street, Hawthorn, Victoria, retired employment consultant, deceased.

Creditors, next-of-kin and others having claims in respect of the estate of the deceased, who died on 4 July 2019, are required by the trustee, Margaret Shaw, to send particulars to the trustee, care of the undermentioned solicitors, by a date not later than two months from the date of publication hereof, after which date the trustee may convey or distribute the assets, having regard only to the claims of which she has notice.

A. B. NATOLI PTY, solicitors,
24 Cotham Road, Kew 3101.

PETER GEORGE KUTASI, also known as Peter George Kahn, late of 1 Profita Avenue, Sydenham, Victoria, retired, deceased.

Creditors, next-of-kin and others having claims in respect of the estate of the deceased, who died on 29 June 2019, are required by Australian Unity Trustees Limited, ACN 162 061 556, of 15/271 Spring Street, Melbourne, Victoria, having been duly authorised by the administrator, Judith Gladstone, one of the siblings of the deceased, to send particulars to it by 6 April 2020, after which date it may convey or distribute the assets, having regard only to the claims of which it then has notice.

AUSTRALIAN UNITY TRUSTEES LEGAL SERVICES,
15/271 Spring Street, Melbourne, Victoria 3000.

Creditors, next-of-kin and other persons having claims against the estate of NICOL HUNTER, also known as Nicol Gibson Hunter, late of McGregor Gardens, 11 McGregor Road, Pakenham, Victoria, who died on 17 August 2019, are required by the executor, Scott Hunter, care of Casey Business Lawyers, 6/1–5 Purton Road, Pakenham, Victoria, to send particulars of their claims to him at the following address by 2 April 2020, after which date he may convey or distribute the estate, having regard only to the claims of which he then has notice. Probate was granted in Victoria on 2 October 2019.

CASEY BUSINESS LAWYERS,
PO Box 701, Berwick, Victoria 3806.

Creditors, next-of-kin and other persons having claims against the estate of MARY-CHRISTINE PENNY, also known as Mary Christine Penny, late of 11 Thomas Street, Eltham, Victoria, who died on 16 February 2019, are required by the executor, Christopher Brendan Penny, care of Casey Business Lawyers, 6/1–5 Purton Road, Pakenham, Victoria, to send particulars of their claims to him at the following address by 6 April 2020, after which date he may convey or distribute the estate, having regard only to the claims of which he then has notice. Probate was granted in Victoria on 23 August 2019.

CASEY BUSINESS LAWYERS,
PO Box 701, Berwick, Victoria 3806.

Re: Estate of WILLIAM KANE ORR, late of John Curtain Aged Care, 6 Cushing Avenue, Creswick, Victoria, retired, deceased.

Creditors, next-of-kin and all others having claims in respect of the estate of the deceased, who died on 6 August 2019, are required by the executor, James Kane Orr, to send particulars to him, care of the undersigned, by 5 April 2020 (60 days), after which date he may convey or distribute the assets, having regard to the claims of which he then has notice.

CINQUE OAKLEY BRYANT LAWYERS,
17 Dawson Street South, Ballarat, Victoria 3350.

Re: JEROME GODFREY BALDWIN, late of Unit 1, 135 Market Street, Sale, Victoria and previously of 15 Tallow Court, Sandstone Point, Queensland, fitter and turner, deceased.

Creditors, next-of-kin, and others having claims in respect of the Will/estate of the abovenamed deceased, who died on 21 March 2019, are required by the trustee, Stephen Baldwin, care of Clocktower Legal, 267 Raymond Street, Sale, Victoria 3850 (PO Box 531, Sale, Victoria 3850) to send particulars of their claims to him by 13 April 2020, after which date the trustee may convey or distribute the assets of the estate, having regard only to the claims of which he then has notice. Probate was granted in Victoria on 28 August 2019.

CLOCKTOWER LEGAL, solicitors,
267 Raymond Street, Sale, Victoria 3850.

Re: Estate of FRANCES DAWN BALFOUR, in the Will called and also known as Dawn Frances Balfour, late of 8 Neal Street, Gisborne, Victoria, business owner, deceased.

Creditors, next-of-kin and others having claims in respect of the estate of the deceased, who died on 9 September 2019, are required by the executor, Equity Trustees Wealth Services Limited, ACN 006 132 332, of Level 1, 575 Bourke Street, Melbourne, Victoria, to send particulars to it by 6 May 2020, after which date it may convey or distribute the assets, having regard only to the claims of which it then has notice.

DAVID DAVIS & ASSOCIATES, lawyers,
Suite 2, 733 High Street, Thornbury,
Victoria 3071.

Re: HALINA BILINSKI, late of 28 North Circular Road, Gladstone Park, Victoria, deceased.

Creditors, next-of-kin, and others having claims in respect of the estate of the deceased, who died on 13 October 2019, are required by the trustee, Richard Joseph Bilinski, to send particulars to the trustee, care of the undermentioned solicitors, within 60 days from the publication hereof, after which date the trustee may convey or distribute the assets, having regard only to the claims of which the trustee has notice.

DE MARCO LAWYERS,
794A Pascoe Vale Road, Glenroy 3046.

Re: MARGARET LILLIAN TAME, late of 10 Innovation Road, Doreen, Victoria, deceased.

Creditors, next-of-kin, and others having claims in respect of the estate of the deceased, who died on 20 October 2019, are required by the trustee, Janet Rita Lawrence, to send particulars to the trustee, care of the undermentioned solicitors, within 60 days from the publication hereof, after which date the trustee may convey or distribute the assets, having regard only to the claims of which the trustee has notice.

DE MARCO LAWYERS,
794A Pascoe Vale Road, Glenroy 3046.

Re: KYLEE JOAN WEBB, deceased.

Creditors, next-of-kin, and others having claims in respect of the estate of the deceased, who died on 27 November 2019, are required by the trustees, Robert Lindsay Webb and Joan Kathleen Webb, care of Featherbys Lawyers of 14 Ninth Avenue, Rosebud, Victoria, to send particulars to the trustees by 7 April 2020, after which date the trustees may convey or distribute the assets, having regard only to the claims of which the trustees have notice.

FEATHERBYS LAWYERS, solicitors,
14 Ninth Avenue, Rosebud 3939.

Re: MARIA TITO, late of Hartley Crescent, Greenvale, Victoria, factory worker, deceased.

Creditors, next-of-kin and all others having claims in respect of the estate of the said deceased, who died on 17 May 2019, are required by Carolina Govett, in the Will called Carolina Pizzo, the executor of the estate of the deceased, to send particulars of their claims to the said executor, care of the undermentioned legal practitioners, within two months from the date of publication of this notice, after which date the executor may convey or distribute the assets, having regard only to the claims of which she then has notice.

HARTLEYS LAWYERS,
461 Ballarat Road (PO Box 227), Sunshine,
Victoria 3020.

Trustee Act 1958

SECTION 33 NOTICE

Notice to Claimants

WILLIAM ERNEST WOODHOUSE, also known as Bill Ernest Woodhouse, late of Unit 2, 69 Edgar Road North, Glen Iris, Victoria 3146, teacher, deceased.

Creditors, next-of-kin and others having claims in respect of the estate of the deceased, who died on 1 February 2019, are required by Sylvia Amelia Sze, care of Hartwell Legal, of 8/1 Milton Parade, Malvern, Victoria 3144, the executor of the estate of the deceased, to send particulars of their claims by 6 April 2020, after which date the executor may convey or distribute the assets, having regard only to the claims of which she then has notice.

HARTWELL LEGAL,
8/1 Milton Parade, Malvern, Victoria 3144.

Estate MARCELLE FERNANDE MOREL, late of Benetas Gladeswood Lodge, 15 Waxman Parade, Brunswick West, Victoria, widow, deceased.

Creditors, next-of-kin and others having claims in respect of the estate of the deceased, who died on 10 October 2019, are required by Emmanuel Didas Abia Ivan Bossy, Saul Richard Yves Bossy and Howard David Bear, the trustees of the estate of the deceased, to send particulars of their claims to their undermentioned lawyer by 25 April 2020, after which date the trustees may convey or distribute the assets, having regard only to the claims of which the trustees have notice.

HOWARD BEAR – LEGAL CONSULTING SERVICES,
PO Box 8262, Camberwell North, Victoria 3124.

Re: GEORGE ALEXANDER MASON, late of 1 Holmby Road, Cheltenham, Victoria, retired, deceased.

Creditors, next-of-kin and others having claims in the respect of the estate of GEORGE ALEXANDER MASON, deceased, who died on 5 November 2019, are required by the trustees, Russell George Mason and Andrew John Mason, to send particulars of their claim to the undermentioned firm by a date not later than two months from the date of publication hereof, after which date the trustees will convey or distribute assets, having regard only to the claims of which they then have notice.

KINGSTON LAWYERS PTY LTD,
barristers and solicitors,
8 Station Road, Cheltenham, Victoria 3192.

Re: EDNA JOY MOLLOY, late of 2, 69 Albert Street, Mordialloc, Victoria, retired, deceased.

Creditors, next-of-kin and others having claims in the respect of the estate of EDNA JOY MOLLOY, deceased, who died on 3 October 2019, are required by the trustee, Trudie Eve Molloy, to send particulars of their claim to the undermentioned firm by a date not later than two months from the date of publication hereof, after which date the trustee will convey or distribute assets, having regard only to the claims of which she then has notice.

KINGSTON LAWYERS PTY LTD,
barristers and solicitors,
8 Station Road, Cheltenham, Victoria 3192.

LINDSAY ESMOND SUPPLE, late of 4849 Ararat–St Arnaud Road, Victoria 3477, retired farmer, deceased.

Creditors, next-of-kin and others having claims in respect of the Will of the abovenamed deceased, who died on 13 August 2019, are required by the executor, David Neil Supple, care of the undermentioned solicitor, to send particulars of their claims to him by 1 May 2020, after which date the executor may convey or distribute the assets, having regard only to the claims of which he then has notice.

MCL LEGAL,
78 Napier Street, St Arnaud, Victoria 3478.

Re: RONALD FREDRICK BROWN, deceased.

Creditors, next-of-kin, and others having claims in respect of the estate of the deceased, who died on 11 October 2019, are required by the trustees, Raymond Thomas Brown and Rex Francis Howes, to send particulars to their solicitors at the address below by 7 April 2020, after which date the trustees may convey or distribute the assets, having regard only to the claims of which the trustees have notice.

MST LAWYERS,
315 Ferntree Gully Road, Mount Waverley 3149.

GEOFFREY WILLIAM CARLAND, late of 2 Chapel Street, Nathalia 3638, retired, deceased.

Creditors, next-of-kin and others having claims in respect of the estate of the deceased, who died on 3 October 2019, are required by the executor, Mathew John Carland, to send particulars to him, care of the undermentioned solicitors, by the date not later than 60 days from the date of publication hereof, after which date the executor may convey or distribute the assets, having regard only to the claims of which he then has notice.

MARTIN J. HULL LAWYER,
49 Blake Street, Nathalia, Victoria 3638.

Creditors, next-of-kin and others having claims in respect of the estate of the late WILLIAM CECIL HOLLANDS, of Heritage Gardens, 325 Canterbury Road, Bayswater North, in the State of Victoria, retired, deceased, who died on 26 September 2019, are required by the executors, William Michael Hollands and Frances Louise Sarell, care of Morgan Legal Pty Ltd, Level 1, Suite 14, 40 Burgundy Street, Heidelberg, in the State of Victoria, to send particulars of their claim to them, care of the undermentioned lawyers, by 9 April 2020, after which date the said executors will distribute the assets of the deceased, having regard only to the claims of which they then shall have notice.

MORGAN LEGAL PTY LTD,
Level 1, Suite 14, 40 Burgundy Street,
Heidelberg in the State of Victoria 3084.

Re: BRADLEY DAVID SLEEMAN, late of 25 Farnells Road, Myers Flat, Victoria, crane operator, deceased.

Creditors, next-of-kin and others having claims in respect of the estate of the deceased, who died on 26 December 2018, are required by the administrator, Jennifer Amy Blake, to send particulars of their claim to the administrator, care of the undermentioned solicitors, by 13 April 2020, after which date she may convey or distribute the assets, having regard only to the claims of which she then has notice.

O'FARRELL ROBERTSON McMAHON,
Level 1, 35 Queen Street, Bendigo,
Victoria 3550.

Re: Estate of ROBERT GRAEME ENNIS, deceased, late of 13 Lewis Road, Wantirna, Victoria 3152.

Creditors, next-of-kin, and others having claims in respect of the estate of the deceased, who died 9 September 2019, are required by the executor of the estate, Joan Phyllis Ennis, to send particulars of their claims to her, care of the undermentioned solicitors, by 6 April 2020, after which date the executor may convey or distribute the assets, having regard only to the claims of which she then has notice.

PARKE LAWYERS,
8 Market Street, Ringwood, Victoria 3134.

Re: Estate of KEITH COLIN McKENZIE, deceased, late of Salford Park Lodge, 100 Harold Street, Wantirna, Victoria 3152.

Creditors, next-of-kin and others having claims in respect of the estate of the deceased, who died 23 July 2019, are required by the executors of the estate, Alan Stewart McKenzie and Philip Lachlan McKenzie, to send particulars of their claims to them, care of the undermentioned solicitors, by 6 April 2020, after which date the executors may convey or distribute the assets, having regard only to the claims of which they then have notice.

PARKE LAWYERS,
8 Market Street, Ringwood, Victoria 3134.

Re: Estate of MAUREEN MAY MORRIS, deceased, late of 5 Royal Road, South Croydon, Victoria 3136.

Creditors, next-of-kin and others having claims in respect of the estate of the deceased, who died 9 August 2019, are required by the executor of the estate, Dena Maree Crowden, to send particulars of their claims to her, care of the undermentioned solicitors, by 6 April 2020, after which date the executor may convey or distribute the assets, having regard only to the claims of which she then has notice.

PARKE LAWYERS,
8 Market Street, Ringwood, Victoria 3134.

Re: Estate of CARLISLE RUPERT PATRICK SNELLEKSZ, deceased, late of 69 Albert Street, Preston, Victoria 3072.

Creditors, next-of-kin and others having claims in respect of the estate of the deceased,

who died 5 October 2018, are required by the executor of the estate, Anastacia Florence Snelleksz, to send particulars of their claims to her, care of the undermentioned solicitors, by 6 April 2020, after which date the executor may convey or distribute the assets, having regard only to the claims of which she then has notice.

PARKE LAWYERS,
8 Market Street, Ringwood, Victoria 3134.

Creditors, next-of-kin and others having claims in respect to the estate of the late PINA FURLANI, late of Unit 12, 31 Warrs Road, Maribyrnong, pensioner, deceased, who died on 24 November 2019, are required to send particulars of such claims to the executor, care of the undermentioned solicitors, by 9 April 2020, after which date the executor will convey or distribute the assets, having regard only to the claims of which the executor then has notice.

PIETRZAK SOLICITORS,
832 High Street, Kew East, Victoria 3102.

Re: STELLA LOIS HILL, late of Waverley Valley Aged Care, 29–33 Chesterville Road, Glen Waverley, in the State of Victoria, pensioner.

Creditors, next-of-kin and others having claims in respect of the estate of the deceased, who died on 15 September 2019, are required by John William Hill, the trustee of the estate of the deceased, to send particulars of their claims to him, care of the undermentioned lawyers, by 7 April 2020, by which date the trustee may convey or distribute the assets, having regard only to the claims of which the trustee has notice.

RUSSO PELLICANO CARLEI, lawyers,
43 Atherton Road, Oakleigh, Victoria 3166.

Re: RAE LOH, late of Belfast House, Regent Street, Port Fairy, Victoria 3284, retired bookkeeper, deceased.

Creditors, next-of-kin, and others having claims in respect of the estate of the deceased, who died on 25 June 2019, are required by the executor and trustee, Lorna Mary Junck, to send particulars to her, care of the undermentioned solicitors, by 8 April 2020, after which date she may convey or distribute the assets, having regard only to the claims of which she then has notice.

TAITS LEGAL,
38 Bank Street, Port Fairy 3284.

Re: GEOFFREY HOPE HARVERSON, late of BlueCross Karinya Grove, 3 Aberdeen Road, Sandringham, Victoria 3191, retired carpenter, deceased.

Creditors, next-of-kin and others having claims in respect of the estate of the deceased, who died on 15 December 2019, are required by the executor, Kevin Stanley Tragear, to send particulars to him, care of the undermentioned solicitors, by 9 April 2020, after which date the executor may convey and distribute the assets, having regard only to the claims of which he then has notice.

TRAGEAR & HARRIS LAWYERS,
1/23 Melrose Street, Sandringham 3191.

ADVERTISEMENT OF AUCTION BY THE SHERIFF

On Thursday 12 March 2020 at 1.30 pm, at Level 1, 444 Swanston St, Carlton (unless process is stayed or satisfied), all the estate and interest (if any) of the person(s) named below, in the land described below, will be auctioned by the Sheriff:

Mary Awad, of 45 Marine Parade, Caroline Springs 3023, sole proprietor of an estate in fee simple in the land described on Certificate of Title Volume 11096 Folio 762, upon which is erected a house and known as 177 Tenterfield Drive, Burnside Heights, Victoria 3023.

The following recordings in the Register affect or may affect the land as at 15 January 2020:

- Registered Caveat (Dealing Number AM973430T)
- Registered Caveat (Dealing Number AQ727312R)
- Registered Caveat (Dealing Number AS589875R)
- Covenant (PS611292C)
- Covenant (AG679839Y)
- Section 173 **Planning and Environment Act 1987** Agreement [AB882668K].

The Sheriff is unable to provide access to these properties. Refer to the advertisement on realestate.com.au for further information.

Terms: 10% deposit on the fall of the hammer. Balance within 14 days unless as stated in particulars of sale in contract of sale. Payment is by cheque only.

Please visit the Sheriff's Office Victoria Real Estate Section website at www.justice.vic.gov.au/sheriffrealestate for an information sheet on Sheriff's Auctions, a contract of sale and further information. Alternately, you can contact the Sheriff's Office Victoria Real Estate Section at realestatesection@justice.vic.gov.au

SHERIFF OF VICTORIA

ADVERTISEMENT OF AUCTION BY THE SHERIFF

On Thursday 12 March 2020 at 1.30 pm, at Level 1, 444 Swanston Street, Carlton (unless process is stayed or satisfied), all the estate and interest (if any) of the person(s) named below, in the land described below, will be auctioned by the Sheriff:

Virak Ly, of 13 Delville Avenue, Mentone 3194, sole proprietor of an estate in fee simple in the land described on Certificate of Title Volume 08380 Folio 027 upon which is erected a house and known as 13 Morris Street, Robinvale. Victoria 3549.

The following recordings in the Register affect or may affect the land as at 29 November 2019:

- Registered Mortgage (Dealing Number AH148951K).

The Sheriff is unable to provide access to these properties. Refer to the advertisement on realestate.com.au for further information.

Please visit the Sheriff's Office Victoria Real Estate Section website at www.justice.vic.gov.au/sheriffrealestate for an information sheet on Sheriff's Auctions, a contract of sale and further information. Alternately, you can contact the Sheriff's Office Victoria Real Estate Section at realestatesection@justice.vic.gov.au

SHERIFF OF VICTORIA

ADVERTISEMENT OF AUCTION BY THE SHERIFF

On Thursday 19 March 2020 at 1.30 pm, at Level 1, 444 Swanston Street, Carlton (unless process is stayed or satisfied), all the estate and interest (if any) of Mohamad Baarini, the person named below, in the land described below, will be auctioned by the Sheriff:

Mohamad Baarini, of 72 Balaclava Avenue, Altona Meadows 3028, joint proprietor with Jamal Baarini, of an estate in fee simple in the land described on Certificate of Title Volume 10042 Folio 775 upon which is erected a house and known as 72 Balaclava Avenue, Altona Meadows 3028.

The following recordings in the Register affect or may affect the land as at 17 January 2020:

- Registered Mortgage (Dealing Number AM160925X),
- Interest of Jamal Baarini as the other joint proprietor, in equal, undivided share.

The Sheriff is unable to provide access to this property. Refer to the advertisement on realestate.com.au for further information.

Please visit the Sheriff's Office Victoria Real Estate Section website at www.justice.vic.gov.au/sheriffrealestate for an information sheet on Sheriff's Auctions, a contract of sale and further information. Alternately, you can contact the Sheriff's Office Victoria Real Estate Section at realestatesection@justice.vic.gov.au

SHERIFF OF VICTORIA

ADVERTISEMENT OF AUCTION BY THE SHERIFF

On Thursday 19 March 2020 at 1.30 pm, at Level 6, 446 Collins Street, Melbourne (unless process is stayed or satisfied), all the estate and interest (if any) of the person(s) named below, in the land described below, will be auctioned by the Sheriff:

Pisamai Yingkriengkrai of 4 Rickson Court Springvale South, Victoria 3172, sole proprietor of an estate in fee simple in the land described on Certificate of Title Volume 08899 Folio 272 upon which is erected a house with granny flat and known as 4 Rickson Court, Springvale South, Victoria 3172.

The following recordings in the Register affect or may affect the land as at 17 December 2019:

- Registered Mortgage (Dealing Number AN909407S)
- Registered Caveat (Dealing Number AR901655F).

The Sheriff is unable to provide access to these properties. Refer to the advertisement on realestate.com.au for further information.

Terms: 10% deposit on the fall of the hammer. Balance within 14 days unless as stated in particulars of sale in contract of sale. Payment is by cheque only.

Please visit the Sheriff's Office Victoria Real Estate Section website at www.justice.vic.gov.au/sheriffrealestate for an information sheet on Sheriff's Auctions, a contract of sale and further information. Alternately, you can contact the Sheriff's Office Victoria Real Estate Section at realestatesection@justice.vic.gov.au

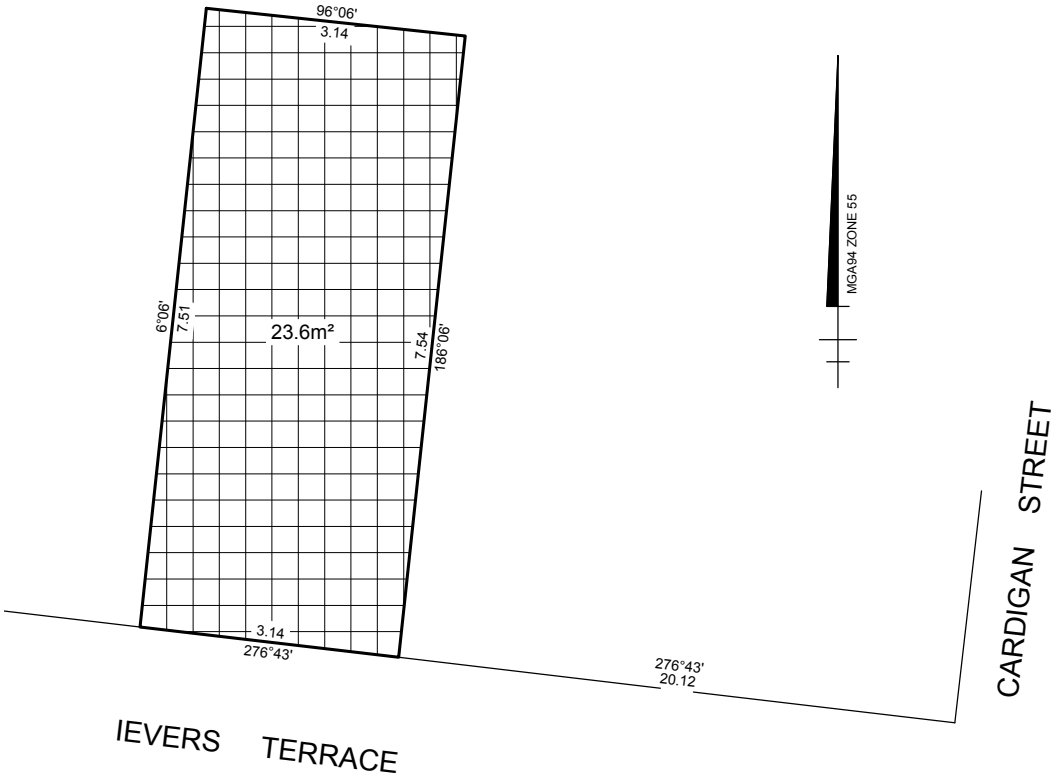
SHERIFF OF VICTORIA

GOVERNMENT AND OUTER BUDGET SECTOR AGENCIES NOTICES

MELBOURNE CITY COUNCIL

Road Discontinuance

Pursuant to section 206(1) and Clause 3 of Schedule 10 of the **Local Government Act 1989**, the Melbourne City Council (Council) declares the portion of road, shown cross-hatched on the plan hereunder, discontinued. The Council intends to sell the resulting land to the adjoining owner.



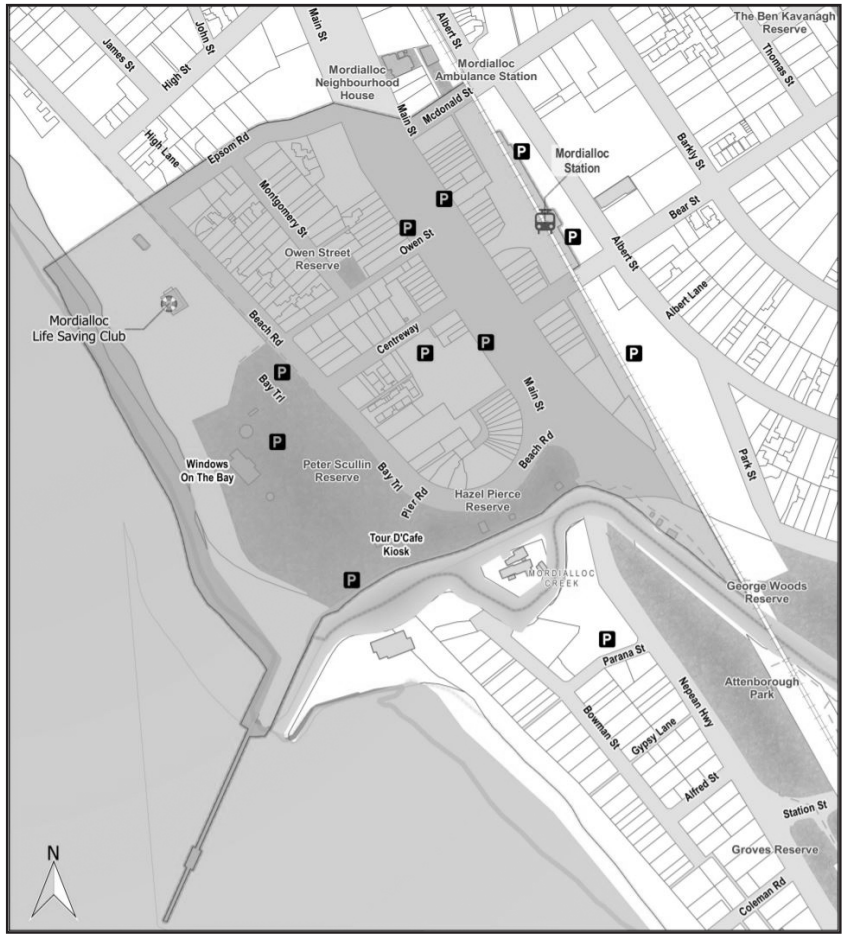
NOTE:
- ROAD TO BE DISCONTINUED SHOWN CROSS HATCHED

City of
KINGSTON

24-HOUR ALCOHOL-FREE ZONE IN MORDIALLOC

Notice is given that at its meeting on 28 January 2020, Council resolved to introduce a 24-hour alcohol-free zone in Mordialloc. The 24-hour alcohol-free zone will be introduced in the following location upon publication of this notice.

Epsom Road from the Mordialloc Foreshore, over Main Street and up McDonald Street to the rail line at Albert Street, then along the rail line to the Mordialloc Creek and from Mordialloc Creek to the Mordialloc Foreshore (inclusive of Foreshore Reserve).



JULIE REID
Chief Executive Officer

Planning and Environment Act 1987

CASEY PLANNING SCHEME

Notice of the Preparation of an Amendment to a Planning Scheme and Notice of an Application for Planning Permit Given Under Section 96C of the **Planning and Environment Act 1987**

Amendment C236case

Planning Permit Application PlnA00192/15

The land affected by the Amendment is 80S Linsell Boulevard, Cranbourne East. (Lot C, PS704181U).

The land affected by the application is 80S Linsell Boulevard, Cranbourne East. (Lot C, PS704181U).

The Amendment proposes to:

- rezone the land from Urban Floodway Zone to General Residential Zone – Schedule 1 by amending Planning Scheme Map 11ZN.
- amend the boundaries of the Land Subject to Inundation Overlay by amending Planning Scheme Map 11LSIO.

The application is for a permit to:

- Staged multi-lot subdivision.
- Creation of restrictions.

The person who requested the Amendment is MLF Construction and Development Pty Ltd (formerly Ricktone Pty Ltd).

The applicant for the permit is MLF Construction and Development Pty Ltd (formerly Ricktone Pty Ltd).

You may inspect the Amendment, the explanatory report about the Amendment, the application, and any documents that support the Amendment and the application, including the proposed permit, free of charge, at the following locations: during office hours, at the office of the planning authority, City of Casey at: Municipal Offices, Bunjil Place, 2 Patrick Northeast Drive, Narre Warren; Customer Service Centre, Cranbourne Park Shopping Centre (opposite Post Office), Cranbourne; the Department of Environment, Land, Water and Planning website, www.delwp.vic.gov.au/public-inspection; and the City of Casey website, http://www.casey.vic.gov.au/building-planning/planning-documents-on-exhibition/planning-scheme-amendments-on-exhibition

Any person who may be affected by the Amendment or by the granting of the permit may make a submission to the planning authority about the Amendment and the application. Submissions must be made in writing giving the submitter's name and contact address, clearly stating the grounds on which the Amendment is supported or opposed and indicating what changes (if any) the submitter wishes to make.

Name and contact details of submitters are required for Council to consider submissions and to notify such persons of the opportunity to attend Council meetings and any public hearing held to consider submissions.

The closing date for submissions is 10 March 2020.

A submission must be sent to City of Casey, Team Leader Strategic Planning and Reform, Planning Scheme Amendment C236, PO Box 1000, Narre Warren, Victoria 3805; by email Planningscheme@casey.vic.gov.au; or in person at Municipal Offices, Bunjil Place, 2 Patrick Northeast Drive, Narre Warren; or Customer Service Centre, Cranbourne Park Shopping Centre (opposite Post Office), Cranbourne.

The planning authority must make a copy of every submission available at its office for any person to inspect, free of charge, for two months after the Amendment comes into operation or lapses.

The following panel hearing dates have been pre-set for this Amendment:

- directions hearing: week commencing 15 June 2020
- panel hearing: week commencing 13 July 2020.

Should you have any queries about this Amendment, please contact Council's Strategic Planning and Reform Team on (03) 9705 5200.

Dated 4 February 2020

DUNCAN TURNER
Manager Planning and Building

Planning and Environment Act 1987

GREATER DANDENONG PLANNING SCHEME

Notice of the Preparation of an Amendment

Amendment C223gdan

The City of Greater Dandenong is proposing to amend Planning Scheme Zone Map 1 by amending the boundaries of the Urban Floodway Zone (UFZ) and Industrial 1 Zone (INZ1)

which currently apply to 1626-1638 Centre Road, Springvale to align with the latest flood modelling completed by Melbourne Water. The extent of land being rezoned includes:

- 2,621m² of land currently zoned UFZ to IN1Z; and
- 1,410m² of land currently zoned IN1Z to UFZ.

This Amendment is known as Amendment C223gdan.

You may inspect the Amendment, any documents that support the Amendment and the explanatory report about the Amendment, free of charge, during office hours, at any of the City of Greater Dandenong Customer Service centres: Springvale Customer Service, 397–405 Springvale Road, Springvale; Dandenong Customer Service, 225 Lonsdale Street, Dandenong; Parkmore Customer Service, Parkmore Shopping Centre, 317 Cheltenham Road, Keysborough; or at the City of Greater Dandenong website, www.greaterdandenong.com and Department of Environment, Land, Water and Planning website, www.planning.vic.gov.au/public-inspection

Any person who may be affected by the Amendment may make a submission to the planning authority about the Amendment. Submissions must be made in writing, giving the submitter's name and contact address, clearly stating the grounds on which the Amendment is supported or opposed and indicating what changes (if any) the submitter wishes to make.

Name and contact details of submitters are required for council to consider submissions and to notify such persons of the opportunity to attend council meetings and any public hearing held to consider submissions.

The closing date for submissions is Friday 6 March 2020.

A submission must be sent to City of Greater Dandenong, Strategic Planning – Amendment C223gdan, PO Box 200, Dandenong, Victoria 3175, or emailed to council@cgd.vic.gov.au

The planning authority must make a copy of every submission available at its office for any person to inspect, free of charge, for two months after the Amendment comes into operation or lapses.

MR JODY BOSMAN
Director City Planning, Design and Amenity

Planning and Environment Act 1987

LATROBE PLANNING SCHEME

Notice of the Preparation of an Amendment

Amendment C119

The Latrobe City Council has prepared Amendment C119 to the Latrobe Planning Scheme.

The land affected by the Amendment is all land within the municipality, in particular areas identified for commercial development in Primary, Neighbourhood and Local Activity Centres.

The Amendment proposes to implements the key findings and recommendations of the draft *Latrobe City Council Retail Strategy 2019* by:

- amending Clause 21.01 *Introduction* to reference the small and district towns and correct minor wording anomalies;
- amending Clause 21.02 *Housing and settlement* to reference the revised Latrobe City Council Retail Hierarchy, insert the Latrobe City Retail Centre Hierarchy Map and Table, amend objectives and strategies for Activity Centres and correct minor wording anomalies;
- amending Clause 21.06 Built environment and heritage to support the upgrade of degraded commercial areas;
- amending Clause 21.09 *Local area growth plans* to reference the Latrobe City Council Retail Hierarchy, provide additional direction for commercial areas and correct minor wording anomalies;
- amending Clause 21.10 *Implementation* to identify further strategic work and identify the *Latrobe City Council Retail Strategy 2019* as a Reference Document;
- amending the Schedule to Clause 72.08 Background Documents to identify the *Latrobe City Council Retail Strategy 2019* as a Background Document.

You may inspect the Amendment, any documents that support the Amendment and the explanatory report about the Amendment, free of charge, at the following locations: during office hours, at the office of the planning authority, Latrobe City Council: 141 Commercial Road, Morwell, Victoria 3840; 34–38 Kay Street, Traralgon, Victoria 3844; 9–11 Philip Parade, Churchill, Victoria 3842;

and 1–29 George Street, Moe, Victoria 3825; or at the Department of Environment, Land, Water and Planning website, www.delwp.vic.gov.au/public-inspection

Any person who may be affected by the Amendment may make a submission to the planning authority about the Amendment. Submissions must be made in writing giving the submitter's name and contact address, clearly stating the grounds on which the Amendment is supported or opposed and indicating what changes (if any) the submitter wishes to make.

Name and contact details of submitters are required for Council to consider submissions and to notify such persons of the opportunity to attend Council meetings and any public hearing held to consider submissions. The closing date for submissions is 9 March 2020. A submission must be sent to the Latrobe City Council, Strategic Planning Department PO Box 264, Morwell, Victoria 3840.

The planning authority must make a copy of every submission available at its office for any person to inspect, free of charge, for two months after the Amendment comes into operation or lapses.

STEVEN PIASENTE
Chief Executive Officer

Creditors, next-of-kin and others having claims against the estate of any of the undermentioned deceased persons are required to send particulars of their claims to State Trustees Limited, ABN 68 064 593 148, of 1 McNab Avenue, Footscray, Victoria 3011, the personal representative, on or before 7 April 2020, after which date State Trustees Limited may convey or distribute the assets, having regard only to the claims of which State Trustees Limited then has notice.

GILLIES, Graeme George, late of 7 Morley Street, Glenroy, Victoria 3046, retired, deceased, who died on 23 November 2019.

KELIC, Matias, late of Boyne Russell House, 184–186 Victoria Street, Brunswick, Victoria 3056, retired, deceased, who died on 14 September 2019.

MURPHY, June, late of Unit 12, 36 Marcus Road, Dingley Village, Victoria 3172, retired, deceased, who died on 26 June 2019.

PERSHIN, Ludmilla Lucy, late of 80 Tennyson Street, Elwood, Victoria 3184, home duties, deceased, who died on 20 May 2019.

WHEELER, Gwendolyn Phyllis, late of Baptcare Strathalan Community, 50 Braid Hill Road, Macleod, Victoria 3085, deceased, who died on 20 September 2019.

Dated 28 January 2020

Creditors, next-of-kin and others having claims against the estate of any of the undermentioned deceased persons are required to send particulars of their claims to State Trustees Limited, ABN 68 064 593 148, of 1 McNab Avenue, Footscray, Victoria 3011, the personal representative, on or before 8 April 2020, after which date State Trustees Limited may convey or distribute the assets, having regard only to the claims of which State Trustees Limited then has notice.

BAYLEY, Mary Victoria, late of 22 Birdwood Street, Maribyrnong, Victoria 3032, retired, deceased, who died on 5 November 2019. Date of Grant 23 January 2020.

FARGHER, Barry Michael, late of TLC Aged Care, 33 Frank Street, Noble Park, Victoria 3174, deceased, who died on 6 September 2018.

HOPPER, Michael John Albert, late of Auburn House, 98–100 Camberwell Road, Hawthorn, Victoria 3122, deceased, who died on 8 December 2019.

HUNTER, Leslie James, late of Alan David Lodge, 382 Torquay Road, Grovedale, Victoria 3216, deceased, who died on 11 November 2019.

KIMPTON, Gladys Mary, late of Estia Aged Care Epping, 30 Epping Road, Epping, Victoria 3076, retired, deceased, who died on 17 July 2019.

MILNE, Garry Dale, late of 13 Rylie Lane, Maribyrnong, Victoria 3032, deceased, who died on 6 December 2019.

NEILL, Ralphe Adam, late of 97 St Vincent Street, Albert Park, Victoria 3206, deceased, who died on 11 November 2018.

SINGH, Patrick, late of No Fixed Address, deceased, who died on 29 September 2019.

Dated 29 January 2020

Creditors, next-of-kin and others having claims against the estate of any of the undermentioned deceased persons are required to send particulars of their claims to State Trustees Limited, ABN 68 064 593 148, of 1 McNab Avenue, Footscray, Victoria 3011, the personal representative, on or before 10 April 2020, after which date State Trustees Limited may convey or distribute the assets, having regard only to the claims of which State Trustees Limited then has notice.

ASTELL, Peter Charles, late of Estia Health Heidelberg West, 413–415 Waterdale Road, Heidelberg West, Victoria 3081, deceased, who died on 24 December 2018.

BRADY, Stephen John, late of 8 Garden Grove Drive, Mill Park, Victoria 3082, pensioner, deceased, who died on 18 September 2019.

BRICE, Robert Brinley, also known as Robert Brice, late of TLC Homewood Residential Aged Care, 8 Young Road, Hallam, Victoria 3803, retired, deceased, who died on 11 August 2019.

BZDZIUCH, Henry, late of 23 Thompson Street, Williamstown, Victoria 3016, deceased, who died on 10 February 2019. Date of Grant 12 June 2019.

CHIN, Ronald Thomas, late of Harmony Village, 20 Zurcas Lane, Shepparton, Victoria 3630, deceased, who died on 27 October 2018.

HELLIER, Christine Bernadette, late of Unit 1, 182 Cranbourne Road, Frankston, Victoria 3199, deceased, who died on 29 September 2019.

JAMES, Mabel Dorothy, late of 12 Nixon Court, Roxburgh Park, Victoria 3064, retired, deceased, who died on 20 September 2019.

SCOULLER, Helen Alice, late of Maddocks Gardens Nursing Home, 125 McKean Street, Bairnsdale, Victoria 3875, deceased, who died on 12 September 2019.

SWAIN, Dawn, late of Apartment 2, 2–46 Lansell Road, Toorak, Victoria 3142, retired, deceased, who died on 3 July 2019.

VANDENBERG, Peter, late of 1 Shearman Court, Keysborough, Victoria 3173, retired, deceased, who died on 6 September 2019.

Dated 31 January 2020

Creditors, next-of-kin and others having claims against the estate of any of the undermentioned deceased persons are required to send particulars of their claims to State Trustees Limited, ABN 68 064 593 148, of 1 McNab Avenue, Footscray, Victoria 3011, the personal representative, on or before 14 April 2020, after which date State Trustees Limited may convey or distribute the assets, having regard only to the claims of which State Trustees Limited then has notice.

BIERMAIER, Doris, late of Kingston Centre Allambee Nursing Home, 400 Warrigal Road, Cheltenham, Victoria 3192, deceased who died on 26 November 2019. Date of Grant 30 January 2020.

HUNTER, James, late of 24 Jeeralang Avenue, Newborough, Victoria 3825, pensioner, deceased, who died on 11 September 2019.

KRUG, Franziska, late of Room 126 Martin Luther Homes, 67 Mount View Road, The Basin, Victoria 3154, pensioner, deceased, who died on 4 December 2019.

QUINN, John Norman Robert, late of Unit 6, 7 Colin Street, Frankston, Victoria 3199, deceased, who died on 9 July 2019.

STANTON, Christopher Miller, late of Unit 7, 160 Railway Parade, Noble Park, Victoria 3174, deceased, who died on 5 July 2019.

WINSTONE, Joan Alma, late of Glenlyn Aged Care Facility, 34 Finchley Avenue, Glenroy, Victoria 3046, deceased, who died on 29 March 2019.

Dated 4 February 2020

Cemeteries and Crematoria Act 2003

SECTION 43(2)

Declaration that Cemetery Trust Fees are to be increased

I, Bryan Crampton, as Delegate of the Secretary to the Department of Health and Human Services for the purposes of section 43(2) of the **Cemeteries and Crematoria Act 2003**, declare that all cemetery trust fees of $50 or more will increase by 2.0 per cent in accordance with movements in the All Groups Consumer Price Index number (for Melbourne), as published by the Australian Bureau of Statistics.

This declaration will take effect on 1 July 2020.

Dated 30 January 2020

BRYAN CRAMPTON
Manager
Cemetery Sector Governance Support Program

Children, Youth and Families Act 2005

NOTICE SPECIFYING MAGISTRATE ASSIGNED TO THE NEIGHBOURHOOD JUSTICE DIVISION

Pursuant to section 520A(2) of the **Children, Youth and Families Act 2005**, I assign the following magistrate to the Neighbourhood Justice Division of the Children's Court of Victoria:

Carolyn Burnside

Dated 28 January 2020

JUDGE AMANDA CHAMBERS
President
Children's Court of Victoria

Geographic Place Names Act 1998

NOTICE OF REGISTRATION OF GEOGRAPHIC NAMES

The Registrar of Geographic Names hereby gives notice of the registration of the undermentioned place names.

Road Naming:

Change Request Number	Road Name	Locality	Naming Authority and Location
128089	Windsor Lane	Hastings	Mornington Peninsula Shire Council The road runs parallel to High Street between Victoria Street and Arthur Street.
128889	Trezise Street	Eldorado	Wangaratta Rural City Council (formerly known as Tresize Street) The road traverses east from Wangaratta – Eldorado Road.
128910	Kelly Lane	Aspendale	Kingston City Council The road runs between Ross Street and Birdwood Street.

Geographic Names Victoria
Land Use Victoria
2 Lonsdale Street
Melbourne 3000

CRAIG L. SANDY
Registrar of Geographic Names

Interpretation of Legislation Act 1984

NOTICE OF INCORPORATED MATTER IN THE
PUBLIC HEALTH AND WELLBEING REGULATIONS 2019

1 The Public Health and Wellbeing Regulations 2019 were made on 10 December 2019. These regulations incorporate by reference the 'Water quality guidelines for public aquatic facilities: Managing public health risks' that were made in July 2019 and published on 20 August 2019.

2 In accordance with the requirements of section 32(3)(a) of the **Interpretation of Legislation Act 1984**, a copy of these guidelines has been lodged with the Clerk of the Parliaments and will be laid before each House of Parliament.

3 In accordance with the requirements of section 32(3)(b) of the **Interpretation of Legislation Act 1984**, a copy of the guidelines is available for inspection during normal office hours by members of the public, without charge, at 50 Lonsdale Street, Melbourne. Requests to inspect the guidelines can be directed to the Department of Health and Human Service's Water Unit at water@dhhs.vic.gov.au. The guidelines are available for download from the Department of Health and Human Service's website https://www2.health.vic.gov.au/public-health/water/aquatic-facilities

WATER QUALITY GUIDELINES FOR PUBLIC AQUATIC FACILITIES
Managing public health risks

CONTENTS

CHAPTER 1: INTRODUCTION

1.1 Purpose

While public aquatic facilities are vital for maintaining and promoting active lifestyles for improved health and wellbeing, these facilities have been associated with outbreaks of illness. Aquatic facility users, especially children, can be affected by disease-causing microorganisms that are passed through contaminated pool water, contaminated surfaces or through person-to-person contact.

This guideline assists organisations and people who operate public aquatic facilities to reduce risks to public health. The focus of these guidelines is on water quality associated risks. Outside the scope are risks related to pool design (such as hydraulics), physical safety (for example slips and falls), drowning and sun protection. These guidelines also provide advice to local and state government environmental health officers to help fulfil their regulatory and advisory roles with respect to water quality.

1.2 Scope

The information and advice in these guidelines apply to all public aquatic facilities. Public aquatic facilities are those that are commonly used by the public. They include but are not limited to:

- public swimming pools and spa pools
- learn-to-swim pools
- school swimming pools
- aquatic facilities in gyms or fitness centres
- aquatic facilities associated with apartment blocks, retirement complexes and other strata title and body corporate developments
- aquatic facilities associated with holiday accommodation including holiday parks, hotels, holiday apartment complexes and motels
- water theme parks with installations such as water slides, wave simulators and ‘lazy river’ pools
- hydrotherapy pools
- domestic pools when used for commercial purposes (such as private learn-to-swim classes).

Specific information about interactive water features, also known as splash pads, spray parks and water play areas, is included in Appendix 1.

Although these guidelines may be useful to domestic swimming and spa pool owners, questions about water quality or maintaining these pools are best directed to a pool shop or pool contractor.

Organisations that manage natural bodies of water for recreational use should refer to the latest edition of the National Health and Medical Research Council’s *Guidelines for managing risks in recreational water* (refer to ‘Reference material’).

For operational matters not covered by these guidelines, public aquatic facility operators should refer to the Royal Life Saving Society Australia *Guidelines for safe pool operations* (refer to ‘Reference material’). This is the recognised guidance document for pool managers to safely operate aquatic facilities and includes guidance for facility design, risk management, safety equipment, first aid, asset management supervision.

1.3 Water quality risk management plans

All public aquatic facilities must have a water quality risk management plan in place to help minimise potential public health risks.

A water quality risk management plan must include:

- staff roles and responsibilities, competency or training requirements
- a description of the facility, its source water, and its treatment systems
- water quality targets and treatment objectives
- hazard identification and risk assessment

- identification of control measures
- operational and verification monitoring
- data recording and reporting
- incident response procedures.

Potential users of the aquatic facility including any vulnerable groups such as children, immuno-compromised, pregnant or elderly bathers should be considered in the risk assessment. For example, an aged care or hospital aquatic facility may implement additional controls such as increased frequency of verification sampling to verify water quality is within specification.

CHAPTER 2: PUBLIC HEALTH HAZARDS ASSOCIATED WITH PUBLIC AQUATIC FACILITIES

Key points

- Poorly managed public aquatic facilities can create ideal conditions for spreading disease.
- In public aquatic facilities, microbiological hazards pose the greatest risk to health because they can cause outbreaks of disease.
- Chemicals can pose a risk to the health of bathers and staff.

Public aquatic facilities are important for maintaining and promoting active lifestyles. Although using public aquatic facilities provides many health benefits, if aquatic facilities are not properly managed, the health of bathers may be put at risk. This is particularly relevant for vulnerable groups in our community such as young children, the elderly and people with low immunity.

Bathers can be affected by disease-causing microorganisms (pathogens) that are passed on through contaminated pool water, contaminated surfaces or person-to-person contact. Similarly, certain chemicals can put the health of bathers at risk. This chapter provides general guidance on the types of public health hazards that bathers can be exposed to in public aquatic facilities.

2.1 Microbiological hazards

Microbiological hazards that can cause illness in humans include viruses, bacteria and protozoa. In public aquatic facilities, microbiological hazards pose the greatest risk to public health because they can cause outbreaks of illness.

Microbiological hazards are typically introduced into aquatic facilities through the following sources:

- faecal matter – for example, from a contaminated water source, through faecal accidents or through shedding of faecal matter from bathers
- other contaminants – for example, shedding from human skin, mucus, vomit or other secretions, from animals, windblown matter, stormwater runoff or natural inhabitants of warm water environments that flourish if introduced into poorly disinfected aquatic facilities.

Table 1 lists common illnesses related to microbiological hazards in public aquatic facilities. Gastroenteritis and skin, wound and ear infections are the most common. Other conditions such as respiratory illnesses caused by *Legionella* are less common and are typically associated with poorly maintained spa pools. Illness caused by *Acanthamoeba,* atypical Mycobacterium, *Leptospira* and *Naegleria* from aquatic facilities are uncommon, with infrequent reports of illness in Australia or internationally.

Table 1: Illnesses associated with aquatic facilities

Type of illness	Group of causal microorganisms	Example causal microorganism	Example source of causal microorganism
Gastroenteritis	Virus	Norovirus	Faecal accidents Bather shedding Vomit accidents
Gastroenteritis	Virus	Hepatitis A	Faecal accidents Bather shedding Vomit accidents
Gastroenteritis	Virus	Adenovirus	Faecal accidents Bather shedding Vomit accidents
Gastroenteritis	Bacteria	Escherichia coli (E. coli)	Faecal accidents Bather shedding Vomit accidents

Type of illness	**Group of causal microorganisms**	**Example causal microorganism**	**Example source of causal microorganism**
Gastroenteritis	Bacteria	Shigella	Faecal accidents Bather shedding Vomit accidents
Gastroenteritis	Bacteria	Campylobacter	Faecal accidents Bather shedding Vomit accidents
Gastroenteritis	Protozoan parasite	Cryptosporidium	Faecal accidents Bather shedding Vomit accidents
Gastroenteritis	Protozoan parasite	Giardia	Faecal accidents Bather shedding Vomit accidents
Skin, wound and ear infections	Bacteria	Pseudomonas aeruginosa	Bather shedding in water or on wet surfaces
Skin, wound and ear infections	Bacteria	Staphylococcus aureus	Bather shedding in water or on wet surfaces
Skin, wound and ear infections	Virus	Molluscum contagiosum	Bather shedding in water, wet surfaces or swimming aids
Skin, wound and ear infections	Virus	Papillomavirus (plantar wart)	Bather shedding in water or wet surfaces, in particular on changing room floors and in showers
Skin, wound and ear infections	Virus	Varicella-zoster virus (chickenpox)	Direct contact with infectious fluid from an infectious person such as sharing a towel with an infectious person
Skin, wound and ear infections	Fungi	Tinea pedis (athlete's foot)	Bather shedding on floors in changing rooms, showers and facility decks
Eye and nose infections Respiratory infections	Virus	Adenovirus	Faecal accidents (and nasal and eye secretions)
Swimming pool granuloma Hypersensitivity Pneumonitis	Bacteria	Atypical mycobacterium	Bather shedding in water and on wet surfaces Aerosols from spas and water sprays
Legionellosis (Pontiac fever and Legionnaires' disease)	Bacteria	Legionella	Aerosols from spas and water sprays Inadequate disinfection Poorly maintained showers
Granulomatous amoebic encephalitis (GAE) Keratitis	Protozoan amoeba	Acanthamoeba	Aerosols from spas Bather shedding in water or on wet surfaces

Type of illness	Group of causal microorganisms	Example causal microorganism	Example source of causal microorganism
Wide ranging from flu-like symptoms to severe organ disease	Bacteria	Leptospira	Urine from infected animals
Primary amoebic meningoencephalitis (PAM)	Protozoan amoebae	Naegleria fowleri	Warm water environments that are inadequately disinfected Biofilm in pipes and other components in inadequately disinfected waters

Adapted from: NSW Department of Health 2013 – Public swimming pool and spa pool advisory document

The risk of passing on illness increases if the pool water is not properly managed. Of all the microbiological hazards listed in Table 1, *Cryptosporidium,* the cause of the illness cryptosporidiosis, is responsible for most outbreaks of illness associated with public aquatic facilities. *Cryptosporidium* causes diarrhoea that, in some cases, can last up to 30 days. *Cryptosporidium* is a problematic microbiological hazard in public aquatic facilities because *Cryptosporidium* oocysts are much more resistant to chlorine disinfection than other microbiological hazards. Also, a person affected by cryptosporidiosis can continue to have *Cryptosporidium* oocysts in their faeces for several weeks after the symptoms have gone. Therefore, an exclusion period of at least 14 days after all symptoms have ceased is recommended to prevent potential contamination of a public aquatic facility.

2.2 Chemical hazards

Chemical hazards can pose a risk to the health of bathers and staff. It is important that chemicals are used and stored according to the manufacturer's instructions. Personnel who handle chemicals should be appropriately trained and wear the correct personal protective equipment. Safety Data Sheets should be available on site for all chemicals used by a public aquatic facility.

Disinfection by-products can also pose health risks. Disinfection by-products are chemical compounds that form when disinfection chemicals react with contaminants from the skin, hair, sweat, saliva, urine and other organic matter. The most common disinfection by-products associated with public aquatic facilities are chloramines and trihalomethanes.

Disinfection by-products pose a risk not only to water quality but also to air quality in indoor facilities. To help ensure the health and comfort of bathers and staff, ventilation rates detailed in the *Building Code of Australia* (Council of Australian Governments 2016) and Australian Standard 1668.2 should be followed for all indoor facilities.

2.3 Environmental hazards

Although bathers are mostly responsible for introducing contamination, it can also be introduced from the surrounding environment and can vary seasonally. Environmental contamination can be a problem for outdoor aquatic facilities where matter such as dust, soil, sand, leaves and grass can easily enter the pool. Birds, bats and other animals can also contaminate the pool with their droppings.

2.4 Water supply

The best available water supply, ideally mains drinking water, should always be used to fill a pool. Roof-harvested rainwater could be used for pools provided it is introduced into the pool through the balance tank to allow sufficient treatment. Recycled water, including treated stormwater or sewage, is not suitable to use in swimming pools due to risks to human health from microbiological and chemical contaminants.

CHAPTER 3: VICTORIAN REGULATORY FRAMEWORK

Key points

- The Public Health and Wellbeing Regulations outline the regulatory requirements of all Victorian public aquatic facilities.
- Local government regulates aquatic facilities and conduct inspections to check compliance.

3.1 Legislative requirements

In Victoria, aquatic facilities are regulated by local government under the **Public Health and Wellbeing Act 2008** and the Public Health and Wellbeing Regulations. The Public Health and Wellbeing Act provides local government environmental health officers with powers to help them determine whether there is a public health risk at a public aquatic facility. The Public Health and Wellbeing Act also provides enforcement tools to address public health risk.

3.1.1 Public Health and Wellbeing Regulations

Part 6 of the Public Health and Wellbeing Regulations lists requirements for the 'responsible person' to ensure that any aquatic facility that the responsible person owns, manages or controls is maintained and tested in the manner set out in the regulations. These regulations include water quality, record keeping and infection response requirements. The regulations are available online through the Victorian legislation and parliamentary documents website, which is listed in the 'Reference material' section.

3.1.2 Victorian Building Authority

The Victorian Building Authority oversees the **Building Act 1993** and the Building Interim Regulations 2017, which prescribe requirements for designing, constructing and installing swimming pools and spas and their safety barriers. A building permit is required to ensure swimming pool construction complies with the Building Act, regulations, national construction code and relevant Australian Standards.

3.1.3 WorkSafe

WorkSafe governs occupational health and safety under the **Occupational Health and Safety Act 2004**. The occupational health and safety legislation has general provisions that apply to aquatic facilities to maintain a safe workplace and environment for bathers. WorkSafe's constructive compliance strategy uses a combination of incentives and deterrents to improve workplace health and safety. WorkSafe is also responsible for the **Dangerous Goods Act 1985**, which applies to aquatic facilities due to the handling and storage of dangerous chemicals such as chlorine.

3.1.4 Emergency Management Victoria

Emergency Management Victoria (EMV) supports the Emergency Management Commissioner to deliver statutory responsibilities under the **Emergency Management Act 2014**. EMV oversees government-funded Life Saving Victoria activity that relates to improving public swimming pool safety. EMV is responsible for developing a code of practice to address public pool safety and preventable deaths and injury and for providing public information about safety standards at individual pools.

3.2 Local government

Local government is responsible for ensuring that aquatic facilities within their local government area comply with the Public Health and Wellbeing Regulations. Local government inspect aquatic facilities and respond to complaints, incidents or outbreaks of illness linked to aquatic facilities.

Where required, local government may choose to use the powers in the **Public Health and Wellbeing Act 2008** to investigate and ensure compliance with the regulatory requirements.

3.3 Department of Health and Human Services

The Department of Health and Human Services is responsible for setting the regulatory framework and reviewing the legislative requirements relating to public health risks from aquatic facilities. The department develops guidance to help local governments administer the regulations

and to educate stakeholders including members of the public on ways to prevent water quality issues at aquatic facilities. The department works closely with the aquatics industry to identify opportunities to address potential risks to public health.

3.4 Australian Pesticides and Veterinary Medicines Authority registered products

Swimming pool and spa chemicals sold in Australia are regulated under the Australian Government's **Agricultural and Veterinary Chemicals Code Act 1994**. The Australian Pesticides and Veterinary Medicines Authority (APVMA) operates the national system that evaluates, registers and regulates agricultural and veterinary chemicals. This means that swimming pool and spa chemical products must be registered with the APVMA before they can be sold to the aquatics industry or to the public.

This chemical registration process is described via the link to the APVMA website shown in the 'Reference material' section of these guidelines. Aquatic facilities must only use chemical disinfectants registered by APVMA for their intended use in aquatic facilities.

3.5 Australian Standards

Several Australian Standards apply to public aquatic facilities. Where they are relevant for a particular facility, the most recently published Australian Standards should be complied with. A list of Australian Standards that apply to public aquatic facilities is provided in the 'Reference material' section of these guidelines.

CHAPTER 4: TREATMENT PROCESSES

Key points

- Aquatic facilities should adopt a multi-barrier approach to protect water quality which involves two or more types of treatment processes to reduce pathogen risk.
- At a minimum, treatment processes must include filtration combined with primary (chlorine- or bromine-based) disinfection.
- Secondary disinfection is recommended for all public aquatic facilities, particularly for high-risk facilities where there is a need for extra protection against *Cryptosporidium***.**

Public aquatic facilities must maintain suitable water quality to prevent the spread of illness. Facilities are expected to have effective treatment barriers in place to reduce harmful microorganisms including viruses, bacteria and protozoan parasites. All public aquatic facilities should adopt a multi-barrier approach which involves two or more types of treatment processes to address pathogen risk. Each barrier (treatment process) on its own may not be able to completely remove or prevent contamination, but together, the barriers work to provide greater assurance that the water will be safe for use. Treatment processes need to be operated, monitored and maintained in accordance with manufacturer's instructions to minimise variability in performance.

At a minimum, treatment processes must include filtration combined with primary (chlorine- or bromine-based) disinfection. For facilities categorised as high-risk, additional secondary disinfection such as ultraviolet (UV) disinfection or ozone is recommended to reduce *Cryptosporidium* risk.

4.1 Filtration

Key points

- Effective filtration improves the efficacy of disinfection and is an essential treatment step for protecting the health of public aquatic facility users.
- Filters capable of removing *Cryptosporidium* oocysts (4 microns in diameter) reduce the risk of cryptosporidiosis in bathers.
- New filtration systems should be designed to maximise the removal of *Cryptosporidium***.**

In basic terms, filtration is a process of separating solids from liquids. In a public aquatic facility, filtration is a treatment process that physically removes suspended particles from the water. Effective filtration is essential pre-treatment to effective disinfection.

Filters are often categorised according to their allowable operating flow rates. The flow rate is a measure of how much water flows through each square metre of the filter medium's surface area per hour and is expressed as cubic metres per hour per square metre ($m^3/hr/m^2$), also described as the filtration flux (flowrate per unit area). Generally, the slower the flow of water through the filter, the more efficiently it filters to remove particulates. Filters installed at an aquatic facility will have a maximum operational flowrate, based on the flux suitable for effective filtration.

New filtration systems should be designed to maximise the removal of *Cryptosporidium*. Filters capable of removing particles 4 microns in diameter (NHMRC, 2011) and achieving a filtrate turbidity of 0.2 NTU consistently will provide additional protection against *Cryptosporidium,* noting that new aquatic facilities should also employ a secondary disinfection system (see section 4.2.3).

'With chlorine-tolerant human pathogens like *Cryptosporidium* becoming increasingly common in aquatic venues, effective filtration is a crucial process in controlling waterborne disease transmission and protecting public health.'

– World Health Organization 2006

Where a public aquatic facility has several different pools or water attractions, each water body should ideally have its own filtration system. Independent filtration systems for each water body provides the potential to isolate water bodies at higher risk of contamination from lower risk pools, thereby allowing for some parts of the facility to remain open if only one water body becomes contaminated. This is particularly important if pools are used by young children who have not been toilet-trained.

Each filtration system should ideally have multiple filter units to allow backwashing of one filter whilst maintaining filtration of the recirculating pool water. This flexibility also enables a planned inspection and maintenance program, which is essential for filter efficiency.

Filtration types differ markedly in terms of the media, coagulant, process configuration and the operational conditions applied. Each filter type should be operated in accordance with the manufacturer's specified operating parameters including filtration rates and run times, head loss and backwash rates. The filter capacity should be based on maximum bather numbers, operating 24 hours per day.

The following processes make filtration more effective:

- Coagulation. Where the filtration system incorporates coagulation, the use of coagulants and flocculants, when used in accordance with manufacturer's instructions, can assist with the removal of fine, dissolved, colloidal or suspended material, and pathogens.
- Backwashing. Backwashing is the process of reversing the flow of water back through the filters to flush trapped material to waste. Backwashing should take place whenever the difference between the filter inlet pressure and the filter outlet pressure (differential pressure, or pressure drop) reaches a level identified by the manufacturer or based on a maximum filtration timeframe. Backwash water should always be sent to waste; the concentration of contaminants in backwash water makes it unsuitable for re-use (without advanced treatment).
- For media filters discard filtrate immediately following backwashing until the filtrate runs clear. This will help minimise breakthrough of particulates following backwashing.
- Cartridge filters must be removed and cleaned according to manufacturer's instructions.

To monitor the efficacy of the filtration system, the operational monitoring program should include monitoring of the coagulation dosing process, flowrate, filtration cycle including filter-to-waste times, triggers for backwashing and turbidity.

Turbidity should be monitored immediately post filtration. The recommended limits for turbidity are listed in Tables A2.1 and A2.2 in Appendix 2.

4.2 Disinfection

Key points

- Chlorine- and bromine-based disinfectants are the only chemical-based disinfectants acceptable for use in public aquatic facilities for primary disinfection.
- Recommended disinfectant residuals (concentrations) should be maintained at all times.
- Automatic dosing is recommended for all facilities for consistent and reliable dosing. Automatic dosing enables the operator to respond to variables, such as bather numbers and weather conditions, that can modify dosing requirements.
- Secondary disinfection should be designed to achieve a minimum of 3-$\log_{10}$, or 99.9 per cent, inactivation of *Cryptosporidium* oocysts as water passes through the disinfection system.
- Pool circulation systems should have adequate water turnover to ensure disinfected water is present in all parts of the aquatic facility.
- Operators of public aquatic facilities should implement proactive strategies to manage disinfection by-products.

Effectively disinfecting the water in a public aquatic facility is the best way to protect the health of bathers. Disinfection is the process of inactivating disease-causing microorganisms through either physical destruction (for example by ultraviolet light) or by adding specific disinfectant chemicals (for example ozone). Filtration of pool water is required to remove particles and allow the chemicals to directly contact the microorganisms; therefore, disinfection systems should be located post filtration and treat 100 per cent of the filtration flow.

Not all disinfectants available on the market are fit to use in a public aquatic facility. Ideally a disinfectant should:

- be able to inactivate all disease-causing microorganisms
- be fast-acting
- maintain lasting residual effectiveness
- be dosed easily, accurately and safely
- be non-toxic at levels required for effective disinfection
- not cause damage to infrastructure
- be able to be measured accurately and simply on site.

In practice, no single disinfectant is able to meet all of these criteria completely.

The most suitable type of disinfectant will depend on a range of factors including:

- indoor or outdoor situation
- the type of aquatic facility – such as general pool or specialised hydrotherapy
- the chemical characteristics of the water supply
- the number of people who use the facility
- circulation capacity and pool design
- chemical handling and safety issues
- supervision and maintenance requirements
- pool water temperatures.

4.2.1 Types of disinfectants

In these guidelines, disinfectants are categorised as either 'primary' or 'secondary' disinfectants. Primary disinfectants must not only be capable of killing hazardous microorganisms, but they must also persist in the water to provide ongoing disinfection. They provide the greatest overall level of disinfection and should therefore be used at all public aquatic facilities. As mentioned in Chapter 3, in Australia the APVMA assesses primary disinfectants for their effectiveness and safety.

At the time of publication, the only primary disinfectants registered by the APVMA and acceptable to use in public aquatic facilities are specific compounds that are chlorine- or bromine-based. These disinfectants are generally effective at inactivating viruses and bacteria that can cause disease. However, neither chlorine nor bromine is effective against *Cryptosporidium* at levels that are acceptable for general use when the pool is operational.

Secondary disinfectants generally boost or support primary disinfection and are recommended for all facilities, particularly for high risk-facilities (refer to Table A2.4 in Appendix 2) where there is a need for extra protection against *Cryptosporidium.* Commonly accepted secondary disinfection systems include ozone and UV disinfection systems.

4.2.2 Primary disinfectants

4.2.2.1 Chlorine-based disinfectants

[Refer to Table A2.1 in Appendix 2 for the chemical criteria for facilities using chlorine-based disinfectants.]

Chlorine is the most common primary disinfectant and is generally effective at inactivating viruses and bacteria that can cause disease. Chlorine is not effective against certain protozoa such as *Cryptosporidium* at levels that are acceptable for regular use.

Approved chlorine-based chemicals include:

- elemental chlorine gas
- liquid chlorine (sodium hypochlorite)
- granular chlorine (calcium and lithium hypochlorite)
- electrolytic generation of chlorine from saline salt (salt chlorination)
- stabilised chlorine granules/tablets (dichloroisocyanurate and trichloroisocyanurate).

The concentration of stock chlorine solutions can degrade quickly with improper storage. As with all chemicals, chlorine should be stored in accordance with the label instructions.

When chlorine is added to water it forms a mixture of hypochlorous acid (a strong disinfectant) and hypochlorite ions (a weaker disinfectant). Together, hypochlorous acid and hypochlorite ion make up what is known as 'free chlorine'.

The pH of the water will affect how much of the stronger disinfectant (hypochlorous acid) is formed. To ensure free chlorine remains effective, pH is recommended to be maintained within the range listed in Table A2.1 in Appendix 2. If the pH drops too low, it may affect bather comfort; if it becomes too high the free chlorine will lose most of its disinfection power.

Free chlorine can react with nitrogen-containing contaminants in the water, such as ammonia, to form 'combined chlorine' or 'chloramine'. Combined chlorine is unwanted because it is not only a poor disinfectant, but it can also cause skin irritation, eye irritation, corrosion and a strong and offensive chlorine smell.

When added together, free and combined chlorine is called 'total chlorine'. When evaluating total chlorine values, the combined chlorine value should not exceed the level stated in Table A2.1 in Appendix 2.

Chlorine demand

Chlorine demand reflects the amount of free chlorine that is lost or used up through reactions with microorganisms and other contaminants in the water; it is the difference between the amount of chlorine added to the water and the amount of free available chlorine or combined chlorine remaining at the end of a specified time period. Chlorine demand is often relative to the number of bathers but is ultimately related to the total amount of contaminants in the water (leaves, dirt, cosmetics, sunscreen etc.). The greater the chlorine demand, the greater the amount of chlorine that will need to be added to the water to ensure the minimum recommended free chlorine level is maintained at all times. Chlorine demand can be reduced by encouraging bathers to shower before they enter the water and designing public aquatic facilities such that environmental contamination is minimised.

Stabilised chlorine

In outdoor facilities sunlight breaks down chlorine, which can lead to significant losses of free chlorine. Stabilised chlorine (chlorine with cyanuric acid added to it) can be used to address this issue because cyanuric acid bonds loosely to the free chlorine to minimise the impact of UV light. It can be purchased as granules/tablets or can be formed by adding cyanuric acid to water containing free chlorine.

The decision to use stabilised chlorine in an outdoor aquatic facility and the level at which it is added should be balanced against the need for immediate remediation in the event of a diarrhoeal incident or *Cryptosporidium* contamination incident (refer to Appendix 6). Use of stabilised chlorine can affect the effectiveness of hyperchlorination procedures. For hyperchlorination to be undertaken, cyanuric acid concentration levels need to be dropped below 15 mg/L. This may involve partially draining the pool and adding fresh water.

The maximum level of cyanuric acid that is recommended to be added to an outdoor pool is detailed in Table A2.1 in Appendix 2. Cyanuric acid reduces the disinfection power of hypochlorous acid, therefore, the minimum free chlorine level should be maintained at the level listed in Table A2.1 in Appendix 2. Cyanuric should not be used in indoor pools.

4.2.2.2 Bromine-based disinfectants

[Refer to Table A2.2 in Appendix 2 for the chemical criteria for facilities using bromine-based primary disinfectants.]

Bromine is another primary disinfectant that works in a similar way to chlorine. Bromine-based chemicals include:

- bromo-chloro-dimethylhydantoin (BCDMH) tablets
- sodium bromide with an activator (hypochlorite or ozone).

Bromine is more stable at higher temperatures than chlorine but slightly less effective as a disinfectant, therefore the minimum concentrations must be higher. Bromine is commonly used in spa pools but, because it will decay in sunlight and cannot be stabilised, is rarely used in larger outdoor aquatic facilities.

The effectiveness of bromine is also affected by pH but to a lesser extent than for chlorine. To ensure bromine remains effective, pH should be maintained within the range detailed in Table A2.2 in Appendix 2.

Bather contact with brominated pool water can lead to skin issues such as itching and rashes. However, skin irritation is less likely to occur in properly maintained facilities where the right water balance is maintained and where regularly exchanging water prevents a build-up of disinfection by-products and other chemicals.

4.2.3 Secondary disinfectants

Secondary disinfection is recommended for all public aquatic facilities, particularly where there is a need for extra protection against *Cryptosporidium* (refer to Table A2.4 in Appendix 2).

4.2.3.1 Ultraviolet disinfection

UV disinfection has a higher energy than visible light but, because it has a shorter wavelength, it is invisible to the human eye. UV light is a powerful secondary disinfectant, particularly against bacteria and protozoa such as *Cryptosporidium*. The germicidal wavelength of UV light kills or inactivates these microorganisms by destroying their nucleic acid. However, because no lasting residual can be provided, UV light is not considered a primary disinfectant.

UV disinfection systems should be designed for full flow (not side stream) to achieve a minimum of 3-$\log_{10}$, or 99.9 per cent, inactivation of *Cryptosporidium* for interactive water features (splash pads, spray parks and water play areas) and a minimum of 2-$\log_{10}$, or 99 per cent, reduction for all other types of facility (Centers for Disease Control and Prevention 2018).

UV disinfection systems typically have one or more UV lamps installed in the pipework where the pool water circulates. The 'sleeves' that protect the UV lamps must be cleaned regularly so the lamps continue to emit the correct dose. The clarity and flow rate of the water can also impact the effectiveness of UV lamps, therefore the operational limits set by the manufacturer should be complied with. Some UV disinfection systems have self-cleaning lamp sleeves and provide for real-time monitoring of the dose rate.

The maximum and minimum levels required for chlorine and bromine remain the same when using UV disinfection. UV disinfection systems should be positioned before any chlorine or bromine dosing points because the UV light can reduce the concentration of disinfectant residual in the water.

4.2.3.2 Ozone

Ozone is a highly reactive gas that can be dissolved in water. When dissolved in water, it acts as a powerful disinfectant that can inactivate a range of disease-causing microorganisms. Ozone is not considered a primary disinfectant because no lasting residual can be provided.

Ozone is typically used with chlorine as a secondary disinfectant. It provides greater disinfection power and can inactivate *Cryptosporidium* oocysts. Ozone systems should be designed to achieve a 3-$\log_{10}$, or 99.9 per cent, reduction of *Cryptosporidium* for interactive water features (splash pads, spray parks and water play areas) and a minimum 2-$\log_{10}$, or 99 per cent, reduction for all other types of facility (Centers for Disease Control and Prevention 2018).

When ozone returns to its gaseous form, it can cause respiratory irritation. Therefore, where ozone is used as part of the water treatment system it must be removed from the water ('quenched') before the water is returned to the part of the facility where bathers are exposed. The treatment systems should include an activated carbon bed or ozone destructor for quenching ozone before the treated water is returned to the area where people are using the water.

The maximum and minimum levels required for chlorine should be maintained when using ozone. Ozone systems should be located before any chlorine dosing points because the activated carbon bed or ozone destructor will also remove any chlorine in the water.

Avoid the use of ozone with BCDMH because it may produce bromate, a harmful disinfection by-product.

4.2.3.3 Chlorine dioxide

Unlike chlorine-based disinfectants, chlorine dioxide is not a form of primary disinfection because it does not produce free chlorine. Chlorine dioxide is a powerful disinfectant however it is more complex to dose consistently compared with chlorine and bromine. Some public aquatic facilities may use chlorine dioxide as a supplementary 'shock treatment' to manage health risks associated with *Cryptosporidium* and *Giardia* or the build-up of biofilm. If the chlorine dioxide manufacturer has validated the treatment efficacy, some facilities may choose to use chlorine dioxide for managing chloramine concentrations or in response to faecal contamination incidents.

4.3 Automatic chemical dosing

Automatic dosing of chemical disinfectants is recommended for all public aquatic facilities. Automatic dosing systems can be programmed with a set range of values that ensure optimal disinfection. Automatic dosing systems will range in complexity but, at a minimum, all dosing systems should be operated to ensure chemicals are dosed within the operational set point range to ensure the appropriate disinfectant residual is maintained at all times. More advanced automatic dosing systems allow for 'proportional dosing' whereby the dose rate varies according to the magnitude of the deviation from the set point.

4.4 Disinfection by-products

Disinfection by-products are unwanted chemical compounds that form when disinfection chemicals react with organic matter including contaminants from skin, hair, sweat, saliva, urine and other organic matter. The most common disinfection by-products associated with public aquatic facilities are chloramines and trihalomethanes. Public health risks from disinfection by-products in aquatic facilities are likely to be low. By contrast, microbiological risks are significant if disinfection is inadequate. At no time should disinfection be compromised or reduced over concerns relating to disinfection by-products.

4.4.1 Chloramines

Chlorine reacts with certain nitrogen-containing compounds introduced by bathers (mostly urine and sweat) to form chloramines (also known as 'combined chlorine'). Chloramines can cause skin and eye irritation and have a strong smell that bathers often incorrectly associate with high levels of chlorine.

Chloramines can also affect air quality in indoor venues. As such, adequate ventilation is essential. Specific advice on controlling the air quality impacts of chloramines in indoor facilities is contained in the NSW Department of Health's (2013) fact sheet *Controlling chloramines in indoor swimming pools* (refer to 'Reference material').

Reducing the amount of nitrogen-containing compounds introduced into the water will help to reduce the rate at which chloramines are produced. Requiring bathers to shower with soap and rinse well before swimming or entering the water, and strongly encouraging regular toilet breaks, can help achieve this.

Chloramines can be controlled with secondary disinfection systems such as UV disinfection and ozone. Alternatively, breakpoint chlorination or oxidisers – such as hydrogen peroxide, chlorine dioxide and potassium monopersulphate – can be used. Breakpoint chlorination is a process where enough chlorine is added to a pool to oxidise chloramines in the water to ensure effective free chlorine residual is produced.

Chloramines can also be controlled in public aquatic facilities by regular shock dosing of chlorine to a concentration of at least 10 times the combined chlorine concentration. To prevent harm, shock dosing must only occur when the facility is closed. The facility should not be reopened until the total chlorine level is less than 10 mg/L. In instances where shock dosing does not remove or reduce chloramines, replacing a proportion of the facility's water with fresh water can reduce the level of chloramines present.

4.4.2 Brominated disinfection by-products

Bromine can react with certain organic chemicals to form brominated disinfection by-products. Reducing the amount of organic chemicals introduced into the water will help to reduce the rate at which brominated disinfection by-products are produced. Requiring bathers to shower with soap and rinse well before swimming or entering the water, and strongly encouraging regular toilet breaks, can help achieve this.

4.4.3 Trihalomethanes

Trihalomethanes are produced when chlorine- and bromine-based disinfectants react with organic matter that is introduced by bathers, the surrounding environment, or is present in the source water. While long term exposure to trihalomethanes may be hazardous to human health, in a well-managed aquatic facility they are unlikely to be a significant health risk.

'The risks from exposure to chlorination by-products in reasonably well managed swimming pools would be considered to be small and must be set against the benefits of aerobic exercise and the risks of infectious disease in the absence of disinfection.'

– World Health Organization 2006

Like chloramines and brominated disinfection by-products, the level of trihalomethanes can be minimised by getting bathers to shower using soap and rinsing thoroughly before they enter the water.

4.5 Treatment validation

Key points

- Investigate the applicability of pre-validated treatment systems when looking to install or upgrade treatment processes.
- Ask the manufacturer to provide evidence to demonstrate the efficacy of their treatment process.
- Manufacturers should ensure their treatment processes are validated to substantiate the ability for microorganisms to be reliably removed or reduced under the specific operating conditions applicable to the aquatic facility.

Treatment validation is an important consideration in designing new public aquatic facilities. Treatment manufacturers have a responsibility to demonstrate the efficacy of their treatment process to achieve specific water treatment objectives. The process should also be applied when upgrading facilities (expansions and retrofits) and when trialling new treatment systems.

Treatment validation – *(Can it work?)* – brings together the evidence of a treatment process' ability to remove the target disease-causing microorganisms with data from operational monitoring – *(Is it working?)*. Operational monitoring is used to prove that the system is performing reliably (for example, through disinfectant residual monitoring or membrane integrity testing) and that events or conditions that could lead to system failure are immediately detected. Prompt corrective action can then prevent substandard water reaching bathing areas. Treatment validation should also be confirmed by verification monitoring – *(Did it work?)*. The focus of routine, continuous and day-to-day monitoring activity should be on operational monitoring to control water quality rather than less frequent verification monitoring, the latter being used to confirm whether the treatment process has or has not worked well, often involving just monthly to quarterly monitoring (refer to Table A2.6 in Appendix 2).

4.6 Troubleshooting guide

Many variables can affect public aquatic facility treatment systems. Common issues have been summarised in the troubleshooting guide in Appendix 3. The information provided should be used as a guide only. There may be other causes that are not listed. Misdiagnosis or inappropriate action can worsen some problems to a point where the safety of bathers and staff is at risk. Only qualified or experienced staff should diagnose or undertake corrective actions. If you are unsure, it is best to seek professional advice.

CHAPTER 5: BATHER NUMBERS, WATER CIRCULATION AND TURNOVER TIMES

Key points

- All facilities should strike a realistic balance between the number of bathers it allows and the capacity of the facility and treatment plant.
- Effective water circulation ensures treated water reaches all areas of the facility and that polluted water is removed efficiently.
- Short turnover times, in combination with filters that can remove *Cryptosporidium* and/or secondary disinfection systems that can inactivate *Cryptosporidium,* provide the highest level of protection.

5.1 Bather numbers

Working out the maximum number of bathers that a facility can accommodate should consider a number of factors including the surface area of water in the facility, the water depth, the type of activity and the capability of the water treatment plant.

The maximum bather numbers for a facility should be recorded, and pool managers should ensure systems are in place so the maximum bather number is not exceeded.

Where entrance to the facility cannot be controlled, the issue of bather numbers should be addressed in the risk management plan.

The maximum bather numbers should be reviewed regularly to determine whether the treatment system can maintain water quality. If the maximum bather number is approached or exceeded, then operators may need to:

- implement strategies to reduce bather numbers (for example by sectioning off parts of the pool)
- increase the treatment plant capability
- further dilute the pool water with fresh water
- use additional treatment such as ozone or UV disinfection.

5.2 Water circulation

Efficient water circulation in a public aquatic facility is very important because it ensures contaminants are adequately removed as quickly as practicable and that treated water reaches all areas of the facility.

Ideally most of the pool water should be taken from the surface of the pool because it contains the highest concentration of contaminants. The remainder should be drawn from the bottom to remove grit and other matter that accumulates on the floor. Undertaking a dye test is a reliable way of assessing water circulation and should be conducted during commissioning of a new facility and repeated routinely following any changes to the filtration or hydraulic system as well as to ensure water circulation remains effective. A procedure for undertaking dye tests is detailed in the *Water Circulation Dye Test* (Centers for Disease Control and Prevention 2016).

5.3 Turnover times

Turnover time is the time taken for a quantity of water that is equal to the volume of water in the aquatic facility to pass through the filtration system.

Facilities with high bather numbers and low volumes of water (such as shallow wading pools and spas) require short turnover times, so that water is circulated through the treatment process more frequently. This is due to the potential for higher contaminant loads in the water. Facilities with low bather numbers and high volumes of water (such as diving pools) can use longer turnover times.

A shorter turnover time means there is less time between when contaminants are introduced into the water and when that water passes through the facility's water treatment plant. Using a secondary disinfection system or a filter that can remove *Cryptosporidium,* means the risk to bathers is reduced. This is the basis of the worldwide trend to decrease the turnover time for public aquatic facilities.

A public aquatic facility operator may have limited control over the turnover time for an existing water treatment system. However, when retrofitting or upgrading an existing pool, or constructing a new public aquatic facility, best practice turnover times should be adopted, and the inlets and outlets should be positioned so they provide the best water circulation and contaminant removal.

Recommended turnover times for different types of public aquatic facilities are detailed in Table A4.1 in Appendix 4.

CHAPTER 6: MANAGING WATER BALANCE

Key points

- Appropriately balanced water is essential for effective disinfection, bather comfort and protecting the aquatic facility's infrastructure.
- The most common method for checking the water balance is to use the Langelier Saturation Index, which takes account of the water's pH, total alkalinity, calcium hardness, total dissolved solids and temperature.

Water balance is about pool water chemistry and how different physicochemical parameters interact. These parameters include pH, total alkalinity, calcium hardness, total dissolved solids and temperature. Water that is not well balanced can affect disinfection, can be uncomfortable for swimmers and can result in scale forming or fittings corroding.

6.1 Langelier Saturation Index

The most common method for checking the balance of water is the Langelier Saturation Index (LSI). The LSI is a mathematical equation that relates to each of the parameters described below. This equation is described in detail in Appendix 5. The LSI should always be within the acceptable range (refer to Table A5.1 in Appendix 5).

6.1.1 pH

The pH of water is a measure of how acidic or alkaline the water is. The pH of water in all aquatic facilities should be maintained within the recommended range (refer to Table A2.1 (chlorinated facilities) and Table A2.2 (brominated facilities) in Appendix 2) to ensure effective disinfection and bather comfort.

If the pH is too high, it can be reduced by adding strong acids such as hydrochloric (muriatic) acid or sodium bisulphate (dry acid). Acid should always be diluted into water before being added slowly to the balance tank. Lowering the pH also lowers total alkalinity, so take care when adding acid to ensure the water stays in balance. Carbon dioxide can also be used to lower pH but, because it is a weak acid, the pH change will be slower than when using strong acids.

If the pH is too low, sodium carbonate (soda ash) can be used to raise it quickly. Sodium bicarbonate (bicarb soda) can be used to raise pH more slowly. Increasing the pH in this way also increases total alkalinity.

Automatic pH control is recommended for all public aquatic facilities and strongly recommended for high-risk facilities (refer to Table A2.4 in Appendix 2 for further information on aquatic facility risk categories).

6.1.2 Total alkalinity

Total alkalinity is a measure of the ability of water to withstand changes to pH (also referred to as its buffering capacity). Total alkalinity should be maintained within the recommended range (refer to Table A2.1 (chlorinated facilities) and Table A2.2 (brominated facilities) in Appendix 2).

If the total alkalinity is too low, the pH can change rapidly. If the total alkalinity is too high, it will be difficult to adjust the pH. Total alkalinity can be reduced by adding strong acids or raised by adding chemicals such as bicarb soda, though adding these chemicals will also affect pH.

6.1.3 Calcium hardness

Calcium hardness is the amount of calcium dissolved in the water. Balanced water should contain enough calcium so the water does not damage concrete surfaces or tile grout but not so much that it causes scale to form.

If calcium hardness needs to be raised, it can be increased by adding calcium chloride. If it needs to be reduced, it can be reduced by draining some water from the aquatic facility and introducing make-up water containing lower levels of calcium hardness.

6.1.4 Total dissolved solids

Total dissolved solids (TDS) describes the amount of salts and the small amounts of organic matter dissolved in water.

The level of TDS in water increases over time as bathers introduce contaminants or when water treatment chemicals are added. In general, TDS is managed by exchanging facility water with fresh make-up water. In a well-designed and well-operated aquatic facility, with regular backwash and routine exchange of water, TDS should not be a significant problem.

6.1.5 Temperature

The temperature of the water will affect its balance, although it is the least important of the water balance factors. Higher water temperatures can increase bacterial growth in the water, increase scaling and also affect the comfort of bathers. The temperature of any swimming or spa pool should not exceed 40°C.

It is important to consider how temperature may vary throughout the diurnal period and within the swimming or spa pool. Consideration should be given to when and where temperature is measured to ensure representative results. Locally warmer or cooler parts of the pool (e.g. near lamps or heaters or after cooler water has topped up the pool or heaters have been off for some time) should be considered when measuring water temperature. Samples should be taken, or temperature monitoring devices installed and monitored, to capture the warmest temperatures experienced in the pool during its use.

CHAPTER 7: MONITORING

Key points

- Operational monitoring should be the focus for monitoring activities.
- Automated operational monitoring is recommended for all public aquatic facilities and strongly recommended for high-risk facilities.

Monitoring public aquatic facilities helps ensure the water quality is maintained. There are two types of monitoring: operational and verification.

Operational monitoring involves monitoring the performance of treatment processes or physical variables like water temperature. This could involve manual and, or automated operational monitoring to ensure that they are operating within the operational limits. Operational monitoring provides pool operators with an opportunity to address water quality immediately. It should be the focus of monitoring activities.

Alternatively, verification monitoring usually involves sending a water sample to a laboratory to verify that the water quality criteria have been met.

7.1 Operational monitoring

Operational monitoring includes any automated or manual monitoring of chemical and physicochemical parameters (for example, concentration of primary disinfectant, pH and temperature) and is essential for all public aquatic facilities.

Facility operators need to test the water regularly to check that the water treatment systems are operating as expected. Automated operational monitoring provides for more frequent or even 'real time' monitoring and is therefore the better option for operational monitoring. Manual operational monitoring provides the next best method for determining whether the treatment systems are operating as they should.

7.1.1 Automated operational monitoring

Automated operational monitoring (sometimes called 'online monitoring') usually involves use of monitoring probes or instruments to provide real-time information about water quality parameters. These probes require periodic calibration against standard solutions or 'calibration standards'. Automated operational monitoring is needed when automatic dosing systems are used (such as automatic chlorine dosing) but may also be used to monitor other water quality parameters or treatment steps. Treatment processes should have on-line instrumentation to monitor their performance and trigger alarms and corrective actions to ensure that they are operating within specification and in accordance with the manufacturer's recommendations.

Online instrumentation for filtration systems may include coagulant dosing control, online filtrate turbidity, pressure differential and flowrate; for ultraviolet disinfection systems, ultraviolet transmissivity, flowrate, UV lamp age, UV lamp sensor; and for chlorination systems chlorine setpoint dose, chlorine residual monitoring, pH and temperature. Where automated operational monitoring is used, the results should be recorded electronically. The automated monitoring system should be configured to alert facility operators whenever operational parameters are not with acceptable limits.

Where automated operational monitoring is used, regular manual operational monitoring should also be used to confirm that the results from the automated systems are accurate. These samples should be taken from a location just before the monitoring probes.

7.1.2 Manual operational monitoring

Manual operational monitoring provides spot checks of chemical and physicochemical parameters. Manual samples should be taken from a location furthest from the inlets where bathers have not been present in the previous 60 seconds. Taking samples for ozone is an exception; these samples should be taken close to an inlet to confirm ozone is being removed or 'quenched'.

7.1.3 Test kits

All aquatic facilities should use appropriately calibrated photometers for manual operational monitoring. Domestic pool kits and test strips are not recommended for public aquatic facilities because they are not accurate.

7.1.4 Frequency of operational monitoring

All aquatic facilities should ensure disinfectant residual, pH and water balance (alkalinity, calcium hardness and TDS) are monitored regularly. Higher risk facilities should be monitored more frequently than lower risk facilities. Table A2.4 in Appendix 2 provides guidance on risk categories for public aquatic facilities. Table A2.5 in Appendix 2 provides recommended operational monitoring frequencies for each risk category.

7.2 Verification monitoring

Verification monitoring checks that the required water quality criteria have been met. Verification monitoring typically involves taking a water sample and sending it to an external laboratory for analysis.

Verification monitoring usually focuses on microbiological parameters but can also include certain chemical criteria that cannot be easily analysed by pool operators.

7.2.1 Microbiological parameters

Microbiological parameters that should be included in a verification monitoring program for aquatic facilities include heterotrophic colony count (HCC), *E coli* and *Pseudomonas aeruginosa.* Guideline values for each of these parameters are provided in Table A2.3 in Appendix 2.

7.2.1.1 Heterotrophic colony count

HCC, sometimes referred to as 'heterotrophic plate count' or 'total plate count', provides a basic indication of the microbiological quality of a water sample. HCC does not differentiate between harmless and potentially harmful bacteria; it provides a simple indication of the number of bacteria present in the water. However, it can also provide important information that can help determine whether the filtration and disinfection processes are operating effectively.

Elevated HCC results suggest disinfection systems are not operating as required and so the performance of the treatment processes should be checked. If a treatment deficiency is found, actions should be taken to correct it (refer to Appendix 6). If no treatment deficiencies are found, a resample should be taken to verify there are no ongoing issues. If ongoing issues are found, the treatment process and/or management of the aquatic facility may need to be improved, e.g. through enhancing cleaning, water chemistry, water turnover, reducing bather numbers or treatment upgrades.

7.2.1.2 Escherichia coli

E. coli is a bacterium found in large numbers in the faeces of warm-blooded mammals. Most strains of *E. coli* are harmless, but some can cause serious illness in humans. *E. coli* is typically used as an indicator of faecal contamination and its presence in water suggests that filtration and disinfection may not have been effective and therefore disease-causing microorganisms may also be present.

Where a laboratory does not analyse for *E. coli,* samples may be submitted for thermotolerant coliforms analysis because these are the next best indicator of faecal contamination. A non-compliant *E. coli* or thermotolerant coliforms result indicates deficiencies in disinfection and this should trigger an investigation into the performance of the treatment process. If a treatment deficiency is found, appropriate remedial actions will need to be taken (refer to Appendix 6) and a resample taken to verify the effectiveness of the remedial action. If no treatment deficiencies are found, a resample should be taken to verify there are no ongoing issues.

7.2.1.3 Pseudomonas aeruginosa

Pseudomonas aeruginosa is a bacterium that can cause a range of infections in humans. It can be introduced to the water from bathers or from the surrounding environment. *Pseudomonas* in the water can mean that disinfection systems are not operating as they should, and appropriate remedial actions will need to be taken (refer to Appendix 6).

7.2.2 Chemical parameters

Chemical parameters that should be included in a verification monitoring program for aquatic facilities include chloramines and ozone, if used. Guideline values for each of these parameters are provided in Table A2.1 in Appendix 2.

7.2.3 Frequency of verification monitoring

Verification monitoring should never be used as a substitute for operational monitoring. Higher risk facilities should undertake more frequent verification monitoring than lower risk facilities. Table A2.4 in Appendix 2 provides guidance on risk categories for public aquatic facilities. Table A2.6 provides recommended verification monitoring frequencies for microbiological parameters for each risk category and Table A2.7 provides verification monitoring frequencies for chemical parameters for each risk category.

The frequency of verification monitoring may be reduced via a risk assessment process. For example, where long-term monitoring (for example, monthly over a full calendar year of operation) shows a chemical parameter to be consistently compliant with the guideline level, frequency can be reduced to quarterly.

The frequency of verification monitoring may also have to be increased in some circumstances. For example, following any significant change in pool operations or treatment, during high use periods, following a change in chemical used, verification frequency for relevant parameters should be increased until evidence of a return to stable values is shown.

Frequent verification monitoring should also be undertaken at all public aquatic facilities when commissioning new water treatment equipment or when there is some uncertainty about the effectiveness of the water treatment processes in place.

7.2.4 Taking a verification sample

Verification samples should be taken from a location furthest from the water inlets where bathers have not been present in the last 60 seconds. When taking verification samples always take the following steps:

- Use an appropriate sample container and take care to remove the cap of the sample bottle with one hand.
- Immerse the bottle, neck down in the water to a depth of about 300 mm. At this point the container should be tilted to face horizontally away from the hand and then be moved horizontally until the container is full.
- Remove the sample container, replace the bottle lid and label before storing in an appropriate container (such as an esky or cooler). Ensure samples are maintained in the conditions and sample submission timeframes specified by the laboratory. Freezer bricks can be used to ensure the samples stay cool during transport and kept within the correct temperature range and the required holding period.
- Verification samples should be submitted to a laboratory that the National Association of Testing Authorities (NATA) has accredited to perform the requested analysis.
- Samples must be analysed within 24 hours of collection.

Microbiological sampling

Microbiological samples should only be taken using a sample container provided by the analytical laboratory. It is important that the analytical laboratory is aware that the sample is to be taken from an aquatic facility with disinfected water and provide the appropriate neutralising agent in the sample container. Neutralising agent in the sample bottles helps to ensure that the results of microbiological sampling are representative of the water quality. Samples should be maintained in the conditions and sample submission timeframes specified by the laboratory. Samples must be analysed within 24 hours of collection.

7.3 Record keeping

All aquatic facilities should maintain a record of operational and verification monitoring results for 12 months from the date of creation. Monitoring logs should be filled out when samples are analysed and then retained on site. An example of a monitoring log template is provided in Appendix 7.

Aquatic facilities should have arrangements in place to ensure that the laboratory undertaking the analysis immediately reports the results to the person (persons) responsible for managing and maintaining water quality. Results should be reviewed on receipt for compliance with the appropriate water quality requirements (refer to Appendix 2). Appropriate corrective actions should be undertaken in instances where non-compliant results are observed.

CHAPTER 8: HEALTHY SWIMMING

Five key messages for all pool bathers

- Do not swim if you have diarrhoea and do not swim for 14 days after symptoms have stopped.
- Shower and wash with soap, especially your bottom, before swimming.
- Wash your hands with soap after going to the toilet or changing a nappy.
- Change nappies in nappy change areas only.
- Avoid swallowing pool water.

Bather hygiene and aquatic facility design are important factors in keeping swimming pools clean and to prevent disease-causing microorganisms and environmental contaminants being introduced.

8.1 Exclusion periods following illness

Bathers can introduce large numbers of disease-causing microorganisms into the water. Disease-causing microorganisms come from the faeces of infected bathers. The period during which disease-causing microorganisms are excreted varies from person to person however, once pool water is contaminated with these microorganisms, disease can spread to other people, even when only small amounts of water are swallowed.

In the case of an infection with *Cryptosporidium,* an infected person typically excretes *Cryptosporidium* during the illness and up to 14 days after symptoms have resolved (two weeks after the diarrhoea has stopped). This is particularly concerning because sufferers, even those who are no longer symptomatic and have showered, may introduce a small amount of faecal matter into the water, causing contamination. Furthermore, *Cryptosporidium* is resistant to the levels of chlorine or bromine typically used for pool disinfection. This means it can survive in the water for long periods and potentially make others sick.

Signage should be displayed at every public access point advising bathers who have recently had a diarrhoeal illness to not swim for 14 days after symptoms stop. The signage should also advise parents to exclude their children for 14 days if their children have had a diarrhoeal illness. Staff who use a public aquatic facility as part of their job should also adhere to these exclusion periods, although these staff may still undertake tasks that don't involve being in the water.

Public aquatic facilities can encourage parents to prevent ill children from attending swim lessons by promoting exclusion periods and providing 'catch-up' swim lessons for children who have recently had a diarrhoeal illness. All facilities should offer learn-to-swim class structure fees to allow refunds or "catch-up" lessons if a child is sick with diarrhoea (and for 14 days after symptoms resolve) during the enrolment period.

8.2 Showering

Some people can become infected with disease-causing microorganisms without becoming ill; these are known as 'asymptomatic' infections. Although these people might not become ill, they will still have disease-causing microorganisms in their faeces. These people, like all other bathers, may have small amounts of faecal material on their bottom, which can transfer disease-causing microorganisms into the water. For this reason, it is important that all bathers shower and wash with soap before entering the water.

Pre-swim showering is a difficult requirement to enforce for many existing aquatic facilities. Bathers can be prompted to shower before using the facility via strategically placed signage at public access points, by providing soap dispensers in the shower facilities and ensuring change rooms are kept hygienic. Verbal reminders to encourage bathers to shower before using a public aquatic facility can help to change behaviour, reduce chlorine demand and reduce the rate at which disinfection by-products are created.

In the design of new aquatic facilities, showers should be easily accessible and strategically located. Consider designs that require bathers to enter the change rooms before they can enter the aquatic facility itself because this will encourage bathers to shower before entering the water.

8.3 Toileting and handwashing

To help minimise public health risks, it is important to encourage proper toileting behaviour among bathers. Parents and the guardians of children should be encouraged to ensure their young children use the toilet before entering a public aquatic facility as well as regular toilet breaks while at the facility. Toilets should include signs to encourage bathers to wash their hands with soap before returning to the water. Always provide enough soap for handwashing. In the design of new aquatic facilities, toilets should be easily accessible and positioned close to the swimming area(s).

8.4 Changing nappies

Nappy change areas should be provided in an easily-accessible location, kept clean, sanitised regularly, and always be supplied with soap for handwashing. Wash-down water from nappy change areas should not be allowed to flow to the pool or stormwater. Bins should be provided for dirty nappies and these should be emptied regularly.

Infant 'aqua nappies' and swim pants are commonly used but may give a false sense of security regarding faecal contamination. There is no evidence to suggest that they can prevent faecal material from leaking into the pool.

Regular nappy changing and frequent trips to the toilet can reduce the chance of a faecal accident. Staff should let patrons know that nappies can only be changed in nappy change areas rather than near the water's edge.

8.5 Avoid swallowing pool water

Many illnesses associated with public aquatic facilities occur after swallowing contaminated water, so all bathers should be discouraged from drinking pool water. Children should also be supervised and discouraged from 'whale spitting' because this can often lead to accidently swallowing water. If possible, locate drinking fountains at convenient locations within the aquatic facility, particularly near areas used for exercise.

8.6 Assistance animals

Assistance animals (such as guide dogs) can be permitted to enter a public aquatic facility but should not be permitted to enter the water.

8.7 Signage

Appropriate signage can help ensure bathers practise good hygiene. It is best to display signage at each public access point that says:

- If you currently have, or have had, diarrhoea you should not enter the water. You should not swim for 14 days after symptoms have stopped.
- Parents/guardians of children who have had diarrhoea in the past 14 days should ensure their children do not enter the water.
- Please shower, with your bathers removed, using soap and rinsing thoroughly before entering the water.
- Avoid swallowing the pool water.
- Parents/guardians should ensure young children use the toilet before entering the water and regularly while at this facility.
- Do not change nappies beside the pool or rinse off your child in the pool. Use the change room provided.
- Wash your hands thoroughly after using the toilet or changing nappies. Please use the soap provided.
- Do not urinate in the pool. This contaminates the pool water.
- Faecal accidents can happen. If you or your child doesn't quite make it to the toilet, please tell our staff immediately. Confidentiality will be respected.

Resource material, including posters, videos, postcards, colouring sheets and stickers that promote healthy swimming behaviours are available online. Refer to the Department of Health and Human Services' Healthy swimming resources in the 'Reference material' section.

8.8 Minimising the likelihood of environmental contamination

Environmental contamination can affect water quality in many ways. Public aquatic facilities should be designed to reduce the likelihood of environmental contaminants being introduced into the water.

For outdoor facilities, the surfaces around the facility should be sloped to direct stormwater away from the water body. Nearby trees should have overhanging branches removed. Any play equipment should be designed to discourage birds from roosting on it, and barriers (fences) are recommended to exclude animals.

For indoor aquatic facilities, environmental contamination is also a concern and is predominantly caused by bathers carrying microorganisms and organic matter into poolside wet areas. For a proactive approach to minimise environmental contamination, consider the following:

- Dirt traps – Matting should be placed at the entry and exit points to aquatic facilities to capture dirt and additional environmental contaminants carried in on footwear.
- Shoe removal points – Appropriately signed areas for shoe removal on entry to pool change areas and poolside wet areas can reduce contamination from the external environment. Although there is a need for staff to introduce culture change within aquatic facilities, introducing storage lockers for shoes and patrons' bags can help facilitate this change.

CHAPTER 9: INCIDENT RESPONSE

Key points

- Incidents that adversely affect water quality can occur at any public aquatic facility.
- Operators should have documented procedures for responding to incidents.
- Staff should be trained to respond to incidents appropriately.

9.1 Response procedures

Despite the best efforts of public aquatic facility operators, the water in an aquatic facility may become contaminated or a water treatment failure may occur. These incidents often present a real risk to the health of bathers and it is therefore necessary for the operator(s) to respond appropriately.

Operators should have documented and readily accessible procedures for responding to incidents and be trained to carry out these procedures.

Appendix 6 provides guidance on responding to a water quality incidents or treatment failures that may affect public health. These incident response procedures are primarily for larger aquatic facilities with large volumes of water. For smaller aquatic facilities, it may be easier to empty the affected water body, remove any accumulated contaminants retained in the filter, refill and re-establish the necessary water balance and disinfectant residual.

9.2 CT value

In incident response, it is important that all public aquatic facility operators are familiar with the concept of disinfection CT; a measure of disinfection effectiveness. CT is the concentration of the disinfectant residual multiplied by the contact time (expressed in minutes) at the point of residual measurement. It is expressed as milligrams (mg) of chlorine per litre (L) times the number of minutes for which this concentration of chlorine is maintained (e.g. 15 mg.min/L). CT values are used to determine what concentration of disinfectant residual and what length of time is required to inactivate a certain type of disease-causing microorganism. Variations in disinfection time for a range of pathogenic organisms are shown in Table 2.

Table 2: Disinfection times for selected disease-causing microorganisms in pools

Contaminant(1)	**Disinfection time**(2) **(1 mg/L chlorine at pH 7.5 and 25°C, without cyanuric acid)**
E. coli bacteria	< 1 minute
Hepatitis A virus	16 minutes
Giardia parasite	45 minutes
Cryptosporidium parasite	15,300 minutes (10.6 days)(3)

Source: Centers for Disease Control and Prevention 2016 – Disinfection and testing.

(1) Note that in practice only the Cryptosporidium value is relevant to most circumstances since that is the most resistant pathogen.

(2) Note that these disinfection times relate to the given pH, temperature and disinfectant concentration ranges, and are influenced by other factors such as turbidity and cyanuric acid. For instance, required contact times will increase as pH rises and decrease as temperature rises, and vice versa.

(3) During an incident response, as summarised in Appendix 6, for water without cyanuric acid, a CT of 15,300 mg.min/L is required to inactivate the infectious Cryptosporidium. This can be achieved by maintaining a free chlorine concentration of 20 mg/L for 13 hours (15,300 ÷ 20 = 765 minutes or ~13 hours), or 10 mg/L for 26 hours (15,300 ÷ 10 = 1,530 minutes or ~26 hours), or via alternative combinations of chlorine concentration and time that achieve the required CT. A higher value applies to water with cyanuric acid, as noted in Appendix 6. This requirement may not apply if a facility has a system that is validated to treat Cryptosporidium risk (for example, UV disinfection) and can be proven to have been operating within the validated parameters during and since the contamination event.

CHAPTER 10: OPERATOR TRAINING

Key points

- All staff involved in operating a public aquatic facility should undertake appropriate training for their role.
- Staff who operate high-risk facilities should undertake more extensive training.
- Managers of larger public aquatic facilities should consider obtaining industry accreditation.

Operators of public aquatic facilities should be committed to training and continuous professional development. Membership with a recognised industry body is encouraged.

The level of operator training should be proportionate to the risk of the facility. Operators of high-risk aquatic facilities should undertake more extensive training than those who operate lower risk facilities. It is strongly recommended that operators of high-risk facilities complete the relevant competency of either a Certificate III (course code CPP31218) or Certificate IV (course code CPP41312) in Swimming Pool and Spa Service, as offered by a registered training organisation.

The minimum standard for aquatic facilities would be for staff to undertake a short course offered by an industry body or registered training organisation. These typically cover the key water quality-oriented competencies of the Certificate III or IV.

Facility managers should ensure they have adequately trained staff who understand the treatment processes and know how to maintain water quality. Managers of public aquatic facilities, particularly managers of larger facilities such as aquatic centres and water parks, should also consider self-accrediting or obtaining formal accreditation under an industry-led accreditation framework for facility managers. This may involve completing qualifications specific to the role of managing a public aquatic facility and undertaking continuous professional development.

Operator training and competency in responding to water quality incidents should be incorporated into inspections of aquatic facilities as summarised in Appendix 8.

APPENDIX 1: INTERACTIVE WATER FEATURES (SPLASH PADS, SPRAY PARKS AND WATER PLAY AREAS)

Interactive water features (IWF) such as splash pads, spray parks and water play areas have been associated with a number of disease outbreaks in Australia. The information provided below will help operators of IWFs to minimise the risk to public health.

Risk management

All IWFs should have site-specific risk management plans.

Location

IWFs are often located within public open spaces such as parks so it is important to consider surrounding land uses and how other activities in the neighbouring area may affect the water quality of an IWF. For example, sand pits, garden beds and trees can increase the volume of physical contaminants (such as sand, dirt and leaf litter) entering the IWF. This may compromise the effectiveness of filtration and disinfection systems.

General site sanitation, including the availability of public infrastructure (such as toilet and shower facilities) may reduce physical and microbiological contamination of the IWF water system. Access to showers, toilets and baby change facilities encourage good hygiene practices among IWF users.

Where IWFs are located in areas where animals may be present (for example, near dog parks), providing bag dispensers can prompt owners to collect and dispose of animal faeces.

System design

Full system design plans (as installed) and operating manuals should be maintained so they can be reviewed by an environmental health officer as required.

The following factors should be considered when designing an IWF:

- the quality and availability of the source water
- containment structures and drainage including upstream interceptor drains to prevent stormwater runoff entering the IWF
- water circulation – recirculating water (subject to treatment and re-use) versus non-recirculating water (passes through the IWF only once)
- infrastructure – appropriately sized to achieve effective water circulation, turnover, filtration and disinfection targets
- materials and system components – fit for purpose (slip resistant, anti-entrapment) and able to withstand ongoing exposure to the surrounding environment including varying disinfection concentration levels (such as during periodic shock dosing)
- water flow – engineered to prevent both water stagnation and water pooling
- spray plume height and velocity – high spray plumes may expose more people due to the drift of water particles (aerosols), including people who may not be directly using the facility; low spray plumes may be more appealing to young children, resulting in accidental or intentional water consumption
- backflow prevention – this ensures water supply lines are protected from contamination. Any backflow device should be installed and commissioned to comply with the relevant plumbing and drainage legislation.

Recirculating systems

Water storage and circulation

Water should be stored and circulated to allow adequate water turnover and distribution of disinfectant throughout all parts of the system. Water tanks should be accessible for cleaning and inspection and be capable of complete draining. Storage capacity, including both the size and number of tanks required, must be sufficient to ensure an adequate residual of disinfectant is maintained within the system.

Water temperature is an important consideration when sizing water storage tanks. Small volumes of water will heat rapidly when exposed to external surfaces during IWF operation increasing the risk of microbiological growth. A water turnover rate of 30 minutes is recommended due to the relatively small volumes of water and high contaminant load associated with IWFs. A flow gauge should be fitted to the system to demonstrate an adequate flow rate within the IWF.

Treatment

Filtration: Filtration systems should be fitted to remove particulate matter (soils, leaves, etc.) and potential disease-causing microorganisms. The filtration system should run constantly while the IWF is open to users.

For new aquatic facilities, the filtration system should be designed and operated to remove *Cryptosporidium* oocysts 4 microns in diameter or smaller and continuously achieve filtrate turbidity of 0.2 NTU or less. Refer to Table A2.2 in Appendix 2.

Disinfection: Automatic dosing equipment and ongoing monitoring equipment should be fitted to control the level of disinfectant in the water. Refer to Table A2.1 in Appendix 2 for water quality parameters and targets. Using cyanuric acid is unlikely to be beneficial where the majority of the water is contained in a balance tank. In addition, using cyanuric acid in such instances may reduce the effectiveness of chlorine disinfection.

Secondary disinfection: Secondary disinfection is recommended, usually in the form of UV disinfection, for all IWFs. UV disinfection can inactivate *Cryptosporidium* oocysts and control combined chlorine while improving the water quality (including the odour from combined chlorine). A UV disinfection system should be installed in a location prior to the chlorine dosing point and run constantly while the IWF is open to effectively control the combined chlorine levels. Prioritise using validated equipment that is capable of delivering a UV dose required to achieve a minimum of 3-$\log_{10}$, or 99.9 per cent, inactivation of *Cryptosporidium* (Centers for Disease Control and Prevention 2018).

On-site monitoring

Daily on-site monitoring is essential for all IWFs and should include physically inspecting the site. This is important because IWFs are typically located in open public spaces and may be accessed after hours. On-site operational monitoring should be undertaken at all IWFs. This is important to gain an understanding of water quality and to verify the accuracy and reliability of any remote monitoring. The frequency of monitoring should be determined as part of the site-specific water quality risk management plan. Routine operational monitoring should include free chlorine, total chlorine, pH, alkalinity, cyanuric acid (if used) and water temperature. Refer to Table A2.1 in Appendix 2 for water quality parameter targets.

Records of physical inspection and on-site operational monitoring should be maintained and made available for compliance inspection.

Remote monitoring

To enable real-time, remote monitoring of free chlorine levels, pH and water temperature, IWF operators should install probes for free chlorine, pH and temperature.

The probes should be configured to allow automatic shutoff of the IWF when the free chlorine levels, pH levels or water temperature are out of specification.

If remote monitoring is used, the results should be reliable and accessible during operating hours and made available during compliance inspections.

Signage

Safety signage should be provided in a conspicuous location(s) and include:

- contact details for reporting issues/faults with the IWF
- advice to not swallow the water
- advice not to use the IWF if someone has diarrhoea, and for 14 days after symptoms have stopped

- advice for babies and toddlers to wear tight-fitting swim nappies
- the location of the nearest public toilets/change rooms
- advice that animals are prohibited from accessing the IWF.

Assistance animals

Assistance animals (such as guide dogs) can be permitted to enter an area with an IWF but should not be permitted to enter the IWF or drink the water.

Seasonal operation

For any IWF that are operated seasonally, to minimise water quality risks the IWF should be drained to remove any stagnant water prior to closing for the season. Prior to re-opening, the system should be cleaned and disinfected.

Operator skills and knowledge

The owner or operator of an IWF should take reasonable care to ensure the person(s) responsible for managing the IWF has the appropriate skills, knowledge and experience. Further information on operator training is provided in Chapter 10.

Non-recirculating systems

The following systems present a lower public health risk and therefore may not require treatment:

- use mains drinking water supply
- do not recirculate water.

APPENDIX 2: WATER QUALITY CRITERIA AND MONITORING FREQUENCIES

Table A2.1: Chemical criteria for facilities using chlorine-based disinfectants

Parameter	Situation	Criteria[1]
Free chlorine[2]	Any pool without cyanuric acid, other than a spa pool	Min. 1.0 mg/L
Free chlorine[2]	Outdoor pool with cyanuric acid	Min. 2.0 mg/L
Free chlorine[2]	Spa pool	Min. 3.0 mg/L
Free chlorine[2]	Interactive water feature	Min. 1.0 mg/L
Combined chlorine (chloramines)	Any pool or interactive water feature	Max. 1.0 mg/L, ideally < 0.2 mg/L
Total chlorine	Any pool or interactive water feature	Max. 10 mg/L
Turbidity (pool water)[3]	Any pool or interactive water feature	Max. 1 NTU[4], ideally < 0.5 NTU
pH	Any pool or interactive water feature	7.2–7.8
Total alkalinity	Any pool or interactive water feature	80–200 mg/L
Cyanuric acid	Outdoor pool only	Max. 50 mg/L, ideally ≤ 30 mg/L
Ozone[5]	Any pool or interactive water feature	Not detectable

(1) mg/L is equivalent to parts per million or ppm.

*(2) **Free chlorine** concentration should be increased when high bather numbers are anticipated to ensure concentrations are never less than the minimum.*

*(3) If **turbidity** is measured immediately post filtration, it should not exceed 0.2 NTU (DIN 19643 (2012-11))*

*(4) **NTU** – Nephelometric Turbidity Unit.*

*(5) Residual excess **ozone** is to be quenched before circulated water is returned to the pool.*

Table A2.2: Chemical criteria for facilities using bromine-based disinfectants

Parameter	Situation	Criteria[1]
Bromine[2]	Any pool, other than a spa pool	Min. 2.0 mg/L
Bromine[2]	Spa pool	Min. 6.0 mg/L
Bromine[2]	Any pool	Max. 8.0 mg/L
pH	Any pool	7.2–8.0
Sodium bromide	Bromine bank system	Max. 8.0 mg/L
Sodium bromide	Ozone[3]/bromide system	Max. 15 mg/L
Turbidity (pool water)[4]	Any pool	Max. 1 NTU[5], ideally < 0.5 NTU
Total alkalinity	Any pool	80–200 mg/L
Cyanuric acid	Any pool	None – no benefit

(1) mg/L is equivalent to parts per million or ppm.

*(2) **Bromine** concentration should be increased when high bather numbers are anticipated to ensure concentrations are never less than the minimum.*

*(3) **Ozone** quenching is not required in an ozone/bromide system.*

*(4) If **turbidity** is measured immediately post filtration, it should not exceed 0.2 NTU (DIN 19643 (2012-11)).*

*(5) **NTU** – Nephelometric Turbidity Unit.*

Table A2.3: Microbiological criteria for all facilities
Microbiological parameters

Parameter	Guideline value
Escherichia coli (or thermotolerant coliforms)	0 CFU(1)/100 mL or 0 MPN(2)/100 mL
Pseudomonas aeruginosa	0 CFU(1)/100 mL or 0 MPN(2)/100 mL
Heterotrophic colony count (HCC)	Less than 100 CFU/mL

(1) ***CFU*** *– Colony Forming Units*

(2) ***MPN*** *– Most Probable Number*

Table A2.4: Risk categories to inform monitoring frequencies

Low–medium risk facilities	High-risk facilities
Residential apartment pools	Spas
Diving pools	Interactive water features
Lap pools (i.e. 25 m and 50 m pools)*	Wading pools
Gym pools*	Learn-to-swim pools
Resort pools*	Program pools
Holiday park pools*	Hydrotherapy pools
Motel pools*	School pools
Theme park wave pools*	Water slides
	Shallow-depth interactive play pools
	Pools used by incontinent people
	Aged care facilities
	Retirement village pools
	Artificial lagoons with unrestricted access

Adapted from: NSW Department of Health 2013 – Public swimming pool and spa pool advisory document

* *Medium-risk facilities that may require increased monitoring consistent with high-risk facilities during peak seasonal use.*

In instances where a facility manager is operating a type of facility that is not included in Table A2.4, the manager should identify the type of facility that is most similar and monitor accordingly.

If a facility falls into multiple risk categories, the facility should be monitored as if it were the type of facility in the highest risk category. For example, if a gym pool is used for learn-to-swim classes, the facility should be categorised as high-risk.

Table A2.5: Recommended operational monitoring frequency

Parameter	Low-medium risk facilities	High-risk facilities
Free chlorine and combined chlorine; or bromine	• 1 daily sample, if automated monitoring is in place • Minimum 1 daily (recommended 3 daily samples), if no automated monitoring is in place	• 1 daily sample, if automated monitoring is in place • 5 daily samples, if no automated monitoring is in place
pH	Tested at the same time as for disinfectant residual (all facilities)	Tested at the same time as for disinfectant residual (all facilities)
Water balance (includes calcium hardness, total alkalinity TDS and temperature)	Weekly (all facilities)	Weekly (all facilities)
Turbidity	Daily (all facilities)	Daily (all facilities)
Cyanuric acid (if used)	Weekly (all facilities)	Weekly (all facilities)

Table A2.6: Recommended microbiological verification monitoring frequency

Parameter	Low-medium risk facilities	High-risk facilities
Escherichia coli (or thermotolerant coliforms)	Quarterly	Monthly
Pseudomonas aeruginosa	Quarterly	Monthly
Heterotrophic colony count (HCC)	Quarterly	Monthly

Note the frequency of monitoring should be increased if the bather numbers increase significantly. For example, during school holidays when bather numbers at public facilities increase significantly, medium-risk aquatic facilities should be monitored as if they were high-risk facilities.

Table A2.7: Recommended chemical verification monitoring frequency

Parameter	Low-medium risk facilities	High-risk facilities
Chloramines (combined chlorine)	Quarterly	Monthly
Ozone (if used)	Quarterly	Monthly

Note the frequency of monitoring should be increased if the bather numbers increase significantly. For example, during school holidays when bather numbers at public facilities increase significantly, medium-risk aquatic facilities should be monitored as if they were high-risk facilities.

APPENDIX 3: TROUBLESHOOTING GUIDE

The information in the following table should be used as a guide only. Where available, the troubleshooting guide provided by the manufacturer should be preferentially used? There may be other causes that are not listed. Misdiagnosis or inappropriate action can worsen some problems to a point where the safety of bathers and staff may be at risk. Only suitably qualified or experienced staff should diagnose or undertake corrective actions. If you are unsure, it is best to get professional advice.

Problem	**Possible reasons**	**Action**
pH too high	Mains water is alkaline (and hard)	Add more acid
pH too high	Alkaline disinfectant used	Consider changing to less alkaline disinfectant
pH too high	Alkaline disinfectant used	Adjust regularly/frequently/ automatically by acid dosing
pH too high	Alkaline disinfectant used	Check pH probe and control settings
pH too low	Mains water is acidic	Add more alkali (for example, sodium bicarbonate/ soda ash)
pH too low	Acidic disinfectant used	Check pH probe and control settings
pH too low	Acidic disinfectant used	Adjust regularly/frequently/ automatically by alkali dosing
pH fluctuations	Water is not buffered – alkalinity is too low	Check and raise alkalinity
pH fluctuations	Dosing erratic	Check dosing accuracy and frequency
pH difficult to change	Water too buffered – alkalinity too high	Check and lower alkalinity
Cloudy, dirty water	Bathing load too high	Reduce bathing load
Cloudy, dirty water	Filtration inadequate	Check filter, coagulant dosing, filtration rate, backwash
Cloudy, clean water	Hardness salts coming out of solution	Check and where necessary correct pH, alkalinity, hardness
Cloudy, clean water	Air introduced when dosing coagulant	Check on coagulant dosing; check air release on filters and for air leaks on the suction side of the pump
Cloudy, coloured water (outdoor pools mainly)	Algae – sunlight, poor hydraulics	Increase residual level, backwash consider using algicide as directed by the label when the pool is not in use
Slimy, coloured growth on pool walls, floor, black on grouting	Algae – sunlight, poor hydraulics	Without bathers, brush or vacuum off algae, increase disinfectant level, backwash, consider using algicide
Water has a bad taste or smell – irritates eyes and throat	High combined chlorine	Check combined chlorine levels and type; be prepared to dilute or correct free chlorine level
Water has a bad taste or smell – irritates eyes and throat	pH outside specification	Check and correct if necessary

Problem	Possible reasons	Action
Chlorine level difficult to maintain	Sunlight	Consider a stabiliser (cyanuric acid)
Chlorine level difficult to maintain	Chlorine product has deteriorated and lost strength	Check storage condition of chlorine, shelf life, and test strength of chlorine
Chlorine level difficult to maintain	Bather pollution	Reduce bathing load
Chlorine level difficult to maintain	Filter blocked, turnover reduced, hydraulics poor	Check filter, strainer, flow rate and valves
Filter blocked (pressure across the filter is too high)	Backwashing/cleaning too infrequent or scale blocking the filter	Check and improve backwash effectiveness; consider replacing filter media
Filter blocked (pressure across the filter is too high)	Incorrect coagulant dosing	Check coagulant dosing; inspect filter
Water clarity generally poor	Wrong filter or incorrect use	Check filtration media (backwashing, etc.)
Water clarity generally poor	Insufficient chlorine	Check and correct free chlorine residual
Water clarity generally poor	Incorrect or no coagulant	Check coagulant use
Hard scale on surfaces, fittings, pipes, etc.; water may feel harsh	Hardness salts coming out of solution	Check and where necessary correct pH, alkalinity, hardness
Cannot get test kit readings for free chlorine residual	Chlorine levels too high	Test a 5:1 diluted water sample
Cannot get test kit readings for free chlorine residual	Chlorine levels too low	Check chlorine dosing
Poor air quality (indoor)	Air circulation poor	Check air handling – introduce more fresh air
Poor air quality (indoor)	Combined chlorine too high	Restore recommended chlorine levels
Poor air quality (indoor)	Temperature too high	Reduce to recommended levels
Water has a salty taste	Dissolved solids too high	Dilute with mains water
Staining at water inlet	Irons salts coming out of solution	Check pH, water balance, coagulation

Adapted from: Pool Water Treatment Advisory Group 2017 – Swimming pool water – treatment and quality standards for pools and spas

APPENDIX 4: RECOMMENDED TURNOVER TIMES

Table A4.1: Recommended turnover times for different types of public aquatic facilities

Maximum turnover time	Pool type
30 min	Interactive water features, spas and hydrotherapy
1 hour	Waterslide, wading, spas and hydrotherapy
2 hours	Learn-to-swim, lazy river, program, wave, artificial lagoons with unrestricted access, pools used by incontinent people, spas and hydrotherapy
4 hours	School, 25 m and 50 m pools, spas and hydrotherapy
6 hours	Retirement village pools (not used for organised exercise activities), residential apartment, gym, resort, holiday park and motel
8 hours	Diving

Adapted from: Pool Water Treatment Advisory Group 2017 – Swimming pool water – treatment and quality standards for pools and spas and the Centers for Disease Control and Prevention 2018 – The model aquatic health code <https://www.cdc.gov/mahc/index.html>

APPENDIX 5: LANGELIER SATURATION INDEX

The most common method for determining the balance of water in a public aquatic facility is the Langelier Saturation Index (LSI).

The LSI should be between –0.5 and 0.5, with an ideal value of 0.

The LSI is calculated using the following equation:

LSI = pH + AF + CF + TF – 12.1

Where:

- *pH* is the measured pH of the pool water
- *AF* is a factor related to the total alkalinity of the water
- *CF* is a factor related to the calcium hardness of the water
- *TF* is a factor related to the water temperature
- 12.1 is an average correction factor for total dissolved solids (TDS).

The values for each of the factors above can be obtained from Table A5.1.

Table A5.1: Table of values for Langelier Saturation Index calculation

Measured value for total alkalinity (mg/L)	**Value to use for the AF**	**Measured value for calcium hardness (mg/L)**	**Value to use for the CF**	**Measured value for temperature (°C)**	**Value to use for the TF**
5	0.7	5	0.3	Plunge pools are typically > 10°C	Plunge pools are typically > 10°C
25	1.4	25	1	Plunge pools are typically > 10°C	Plunge pools are typically > 10°C
50	1.7	50	1.3	8	0.2
75	1.9	75	1.5	12	0.3
100	2.0	100	1.6	16	0.4
150	2.2	150	1.8	19	0.5
200	2.3	200	1.9	24	0.6
300	2.5	300	2.1	29	0.7
400	2.6	400	2.2	34	0.8
800	2.9	800	2.5	40	0.9
1,000	3.0	1,000	2.6	40°C is the maximum allowable spa temperature	40°C is the maximum allowable spa temperature

Bold text indicates ideal operational ranges. Where the LSI is negative, the water is corrosive and may damage pool fixtures and fittings. Where the LSI is positive, scale can form and interfere with normal operation.

Example calculation

Consider a pool with a pH of 7.4, total alkalinity of 100 mg/L, calcium hardness of 250 mg/L, at 29°C.

Reading from the table, the alkalinity factor is 2.0, the calcium hardness factor is 2.0, and the temperature factor is 0.7.

LSI = pH + AF + CF + TF – 12.1

LSI = 7.4 + 2.0 + 2.0 + 0.7 – 12.1

LSI = 0

This pool water is ideally balanced.

If the calcium hardness of the same pool was 1,000 mg/L, then the calcium hardness factor would increase to 2.6. In this case, the LSI would be +0.6 and scale is likely to form. If scale forms on heater elements and filter components, the pool will not operate efficiently.

Corrections to the Langelier Saturation Index

The LSI described above is applicable to most aquatic facilities. However, there are exceptions related to facilities with high TDS water and for operators of outdoor pools using cyanuric acid. These exceptions are discussed in detail in the *American national standard for water quality in public pools and spas* (American National Standards Institutes 2019). If the TDS of the water in an aquatic facility is greater than 1,500 mg/L, the factors in the American Standard should be used. Where outdoor aquatic facilities use cyanuric acid to stabilise chlorine, this will affect the alkalinity, and the correction factors stated in that document should be applied.

APPENDIX 6: INCIDENT RESPONSE

Diarrhoeal incident – public aquatic facilities that use chlorine *without cyanuric acid*

(Refer to Remedial steps for spas)

Diarrhoeal incidents pose a particularly high risk to the health of bathers. Immediately closing the affected water body(ies) and undertaking appropriate remediation is the only way to prevent the spread of disease.

Recommended remedial steps

1. Immediately close the affected water body and any other connected water body(ies) within the aquatic facility and ensure staff involved in the response have appropriate personal protective equipment.
2. Remove as much of the faecal material as possible using a bucket, scoop or another container that can be discarded or easily cleaned and disinfected. Dispose of the faecal material to the sewer. Do not use aquatic vacuum cleaners for removing faecal material unless the vacuum waste can be directly discharged to the sewer and the vacuum equipment can be adequately cleaned and disinfected.
3. Adjust the pH to 7.5 or lower.
4. Hyper-chlorinate the affected water body(ies) by dosing the water to achieve a free chlorine contact time (CT) inactivation value of 15,300 mg.min/L (for example, free chlorine of 20 mg/L for 13 hours or 10 mg/L for 26 hours or via alternative combinations of chlorine concentration and time that achieve the required CT).
5. Ensure filtration and any secondary disinfection systems operate for the whole decontamination process.
6. If the filtration system incorporates a coagulation step, ensure coagulant concentration is correct to enhance the filtration process.
7. After the required CT has been achieved, reduce total chlorine to below 10 mg/L. Sodium thiosulphate can be added to neutralise excess chlorine.
8. Backwash filter media or replace the filter element as appropriate. Precoat filter media should be replaced.
9. Ensure the water is balanced.
10. Hygienically clean, disinfect or dispose of materials, tools, equipment or surfaces that have come into contact with contaminated water.
11. Record the incident and remedial action taken.
12. Reopen the water body(ies).

Cryptosporidium and/or general suspected illness or possible outbreak

Where a state or local government environmental health officer suspects or confirms a public aquatic facility has been linked to illness, or an outbreak of illness, caused (including by *Cryptosporidium*), all water bodies in the facility should be disinfected as per the recommended remedial steps above. This requirement may not apply if a facility has a system that is validated to treat *Cryptosporidium* risk and it can be demonstrated to have been operating within the validated parameters during and since the contamination event. Note that *Cryptosporidium* has been singled out since it is the most common reported source of illness or outbreak associated with aquatic facilities in Australia.

Diarrhoeal incident – public aquatic facilities that use chlorine *with cyanuric acid*

(Refer to Remedial steps for spas)

Diarrhoeal incidents pose a particularly high risk to the health of pool users. Immediately closing the affected water body(ies) and undertaking appropriate remediation is the only way to prevent the spread of disease. Chlorine stabiliser (cyanuric acid) significantly slows the rate at which free chlorine inactivates or kills contaminants such as *Cryptosporidium*. It is therefore important to achieve a much higher free chlorine CT than is necessary in water bodies that do not use cyanuric acid.

Recommended remedial steps

1. Immediately close the affected water body and any other connected water body(ies) in the aquatic facility and ensure staff involved in the response have appropriate personal protective equipment.
2. Remove as much of the faecal material as possible using a bucket, scoop or another container that can be discarded or easily cleaned and disinfected. Dispose of the faecal material to the sewer. Do not use aquatic vacuum cleaners for removing faecal material unless the vacuum waste can be directly discharged to the sewer and the vacuum equipment can be adequately cleaned and disinfected.
3. Adjust the pH to 7.5 or lower.
4. Ensure cyanuric acid is 15 mg/L or less (this can be achieved by partially draining and adding fresh water without chlorine stabiliser to the affected water body).
5. Once the cyanuric acid concentration is 15 mg/L or less, use unstabilised chlorine to hyperchlorinate the affected water body(ies) by dosing the water to achieve a free chlorine CT inactivation value of 31,500 mg.min/L (for example, free chlorine of 20 mg/L for 28 hours or via alternative combinations of chlorine concentration and time that achieve the required CT).
6. Ensure filtration and any secondary additional disinfection systems operate for the whole decontamination process.
7. If the filtration system incorporates a coagulation step, ensure coagulant concentration is correct to enhance the filtration process.
8. After the required CT has been achieved, reduce total chlorine to below 10 mg/L. Sodium thiosulphate can be added to neutralise excess chlorine.
9. Backwash filter media or replace the filter element as appropriate. Precoat filter media should be replaced.
10. Ensure the water is balanced.
11. Hygienically clean, disinfect or dispose of materials, tools, equipment or surfaces that have come into contact with contaminated water.
12. Record the incident and remedial action taken.
13. Reopen the water body(ies).

***Cryptosporidium* and/or general suspected illness or possible outbreak**

Where a state or local government environmental health officer suspects or confirms a public aquatic facility has been linked illness, or an outbreak of illness (including *Cryptosporidium*), all water bodies in the facility should be disinfected as per the recommended remedial steps above. This requirement may not apply if a facility has a system that is validated to treat *Cryptosporidium* risk and it can be demonstrated to have been operating within the validated parameters during and since the contamination event. Note that *Cryptosporidium* has been singled out since it is the most common reported source of illness or outbreak associated with aquatic facilities in Australia.

Formed stool and vomit contamination – public aquatic facilities that use chlorine *with* or *without cyanuric acid*

(Refer to Remedial steps for spas)

Formed stool (faeces) and vomit contamination incidents pose a risk to the health of users. The only way to prevent the spread of disease is to immediately close the affected body(ies) and undertake appropriate remediation.

Recommended remedial steps

1. Immediately close the water body and any other connected water body within the aquatic facility and ensure staff involved in the response have appropriate personal protective equipment.

2. Remove the stool or as much of the vomit as possible using a bucket, scoop or another container that can be discarded or easily cleaned and disinfected. Dispose of the waste to the sewer. Do not use aquatic vacuum cleaners for removing the stool or vomit unless vacuum waste can be discharged to the sewer and the vacuum equipment can be adequately cleaned and disinfected. Ensure filtration and any secondary disinfection systems run until the end of the decontamination process.
3. For facilities that *do not use chlorine stabiliser* (cyanuric acid), raise the free chlorine concentration to a minimum of 2 mg/L and maintain that concentration for 25–30 minutes, making sure not to exceed a pH of 7.5.

   or

   For facilities that *use chlorine stabiliser* (cyanuric acid), raise the free chlorine concentration to a minimum of 2 mg/L and maintain that concentration for 50 minutes, making sure not to exceed a pH of 7.5.
4. If the filtration system incorporates a coagulation step, ensure coagulant concentration is correct to enhance the filtration process.
5. Backwash filter media or replace the filter element as appropriate. Precoat filter media should be replaced.
6. Ensure the water is balanced.
7. Hygienically clean, disinfect or dispose of materials, tools, equipment or surfaces that have come into contact with contaminated water.
8. Record the incident and remedial action taken.
9. Reopen the water body(ies).

Note that no remedial action is required for blood in the water provided an appropriate primary disinfectant residual is present.

Failure to meet microbiological parameters

If, during verification monitoring, there is a failure to meet microbiological parameters (for example, exceedances of the *Escherichia coli* or *Pseudomonas* guideline values) remediation of the affected water body(ies) should be undertaken.

Recommended remedial steps (other than for spas)

1. Immediately close the affected water body and any other connected water body within the aquatic facility.
2. For facilities *with or without stabilised chlorine*, raise the free chlorine concentration to a minimum of 2 mg/L and maintain that concentration for 25–30 minutes, making sure not to exceed a pH of 7.5.
3. If the filtration system incorporates a coagulation step, ensure coagulant concentration is correct to enhance the filtration process.
4. Backwash filter media or replace the filter element as appropriate. Precoat filter media should be replaced.
5. Ensure the water is balanced.
6. Hygienically clean, disinfect or dispose of materials, tools, equipment or surfaces that have come into contact with contaminated water.
7. Record the incident and remedial action taken.
8. Reopen the water body(ies).

Recommended remedial steps for spas

1. Empty all water from the spa (including balance tanks).
2. Scrub and rinse with tap water all surfaces known to have an acceptable water quality.

3. Spray all surfaces with a chlorine solution of one part bleach to 10 parts water. Note that the dilution factor is based on a bleach product containing 10–12.5 per cent sodium hypochlorite. Apply liberally and leave to soak for 10 minutes.
4. Rinse with tap water known to have an acceptable water quality.
5. Refill the spa.
6. Raise the primary disinfectant level to that recommended in Appendix 2 (3 mg/L for chlorine or 6 mg/L bromine) and maintain that concentration for 25–30 minutes, making sure not to exceed a pH of 7.5.
7. Backwash filter media, or replace the filter element as appropriate. Precoat filter media should be replaced.
8. Ensure the water is balanced and the concentration of disinfectant is acceptable.
9. Hygienically clean, disinfect or dispose of materials, tools, equipment or surfaces that have come into contact with contaminated water.
10. Record the incident and remedial action taken.
11. Reopen the spa.

In major contamination events it may be necessary to submit a sample of the water to show it is free of microbiological contamination before reopening. Public aquatic facility operators should contact a local government environmental health officer for advice.

Contamination of surfaces

Hard surfaces within a public aquatic facility may become contaminated with faeces, vomit or blood, or with water of poor quality that has been contaminated by such substances. In these instances, operators should follow the remediation measures below.

1. Restrict access to the affected area.
2. Remove all visible contamination with disposable cleaning products and dispose of appropriately.
3. Disinfect the affected area using a chlorine solution of one-part household bleach to 10 parts water. Note that the mentioned dilution factor is based on a bleach product containing 10–12.5 per cent sodium hypochlorite. Apply liberally and leave to soak for 10 minutes.
4. Hose the affected area, directing the water to a stormwater drainage point.
5. Record the incident and remedial action taken.
6. Reopen the affected area.

APPENDIX 7: EXAMPLE MONITORING LOG

<Name of your pool> Week beginning:

Day	Time	Tempera-ture °C	pH	Free chlorine DPD 1 mg/L	Total chlorine DPD 1+3 mg/L	Combined chlorine (total, free) mg/L	Total alkalinity mg/L	Calcium hardness mg/L	Total dissolved solids (TDS) mg/L	Number of bathers	Tester Initials	Corrective actions/reason
Monday	6.00 am											
Monday	10.00 am											
Monday	12.00 pm											
Monday	2.00 pm											
Monday	6.00 pm											
Tuesday	6.00 am											
Tuesday	10.00 am											
Tuesday	12.00 pm											
Tuesday	2.00 pm											
Tuesday	6.00 pm											
Wednesday	6.00 am											
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Saturday	10.00 am											
Saturday	12.00 pm											
Saturday	2.00 pm											
Saturday	6.00 pm											
Sunday	6.00 am											
Sunday	10.00 am											
Sunday	12.00 pm											
Sunday	2.00 pm											
Sunday	6.00 pm											
Incidents												
Cyanuric acid level (weekly) mg/L:												

APPENDIX 8: ENVIRONMENTAL HEALTH OFFICER INSPECTION CHECKLIST

Aquatic facility inspection checklist for environmental health officers

Purpose

This checklist is designed to guide local government environmental health officers (EHOs) in their assessment of how well aquatic facility treatment processes are maintained, compliance with the requirements outlined in the regulations and measures taken to prevent potential hazards from affecting visitors.

Summary

The following sections are included in this checklist:

Part 1: General information section including aquatic facility location and facility manager contact details, which are particularly required if inspection requires follow-up.

Part 2: Pool details section to identify pool setup and treatment processes in place for each pool. This information helps EHOs to highlight potential risks with the treatment system.

Part 3: Legislated requirements of aquatic facilities as listed in Part 6 of the regulations (requirement).

Part 4: Preventive risk management strategies including controls that assist with minimising public health risks.

Part 1: General information

EHO details

Name	
Date of inspection	
Council	

Aquatic facility details

Name	
Address	
Phone	
Email	
Name of facility manager	
Owner	
Type of facility	
Total number of pools	
Total number of spas	

Part 2: Pool details (optional)

Parameters to assist the EHO's understanding of how the pool system works. Please fill in, circling the responses that apply.

Pool characteristics

	Pool 1	**Pool 2**	**Pool 3**
Pool type / name			
Location	Indoor / Outdoor	Indoor / Outdoor	Indoor / Outdoor
Disinfection treatment processes	Chlorine Bromine Ozone UV Other:	Chlorine Bromine Ozone UV Other:	Chlorine Bromine Ozone UV Other:
Filtration system	Separate / Combined Age of system in years: Backwashed and cleaned? Y / N Backwash frequency: Are cartridge filters maintained according to the manufacturer's instructions? Y / N Is coagulation and flocculation used in this system? Y / N	Separate / Combined Age of system in years: Backwashed and cleaned? Y / N Backwash frequency: Are cartridge filters maintained according to the manufacturer's instructions? Y / N Is coagulation and flocculation used in this system? Y / N	Separate / Combined Age of system in years: Backwashed and cleaned? Y / N Backwash frequency: Are cartridge filters maintained according to the manufacturer's instructions? Y / N Is coagulation and flocculation used in this system? Y / N
Water circulation system (turnover rate)	2–4 hours < 2 hours > 4 hours Volume of water:	2–4 hours < 2 hours > 4 hours Volume of water:	2–4 hours < 2 hours > 4 hours Volume of water:
Chemical monitoring system	Manual Automatic chemical monitoring and dosing system Continuous Timer Frequency of calibration: Frequency of inspection by EHO or other third party:	Manual Automatic chemical monitoring and dosing system Continuous Timer Frequency of calibration: Frequency of inspection by EHO or other third party:	Manual Automatic chemical monitoring and dosing system Continuous Timer Frequency of calibration: Frequency of inspection by EHO or other third party:

Note: Additional copies of this page can be printed to enable assessments of more than three pools.

Part 3: Requirements outlined in the Public Health and Wellbeing Regulations 2009

These parameters are requirements outlined in the regulations.

Please record on-site testing results below.

Clarity of aquatic facility water

Regulation	Parameter	Pool 1	Pool 2	Pool 3
r. 38	Water clarity clear, with floor markings and lanes clearly visible	Y / N	Y / N	Y / N

Treatment – chlorine

Regulation	Parameter	Pool 1	Pool 2	Pool 3
r. 39	Free chlorine level: Swimming pool minimum 1 mg/L (where cyanuric acid not used) Swimming pool minimum 2 mg/L (where cyanuric acid used) Spa 3 mg/L	mg/L	mg/L	mg/L
r. 39	Total chlorine level (mg/L) Swimming pool – max 10 mg/L Spa – max 10 mg/L	mg/L	mg/L	mg/L
r. 39	pH: Chlorine treated swimming pool and spa pool between 7.2 and 7.8	pH:	pH:	pH:

Treatment – bromine

Regulation	Parameter	Pool 1	Pool 2	Pool 3
r. 39	Free bromine level: Swimming pool minimum 2 mg/L Spa pool minimum 6 mg/L	mg/L	mg/L	mg/L
r. 39	Total bromine: Swimming pool maximum 8 mg/L Spa pool maximum 8 mg/L	mg/L	mg/L	mg/L
r. 39	pH: Bromine treated swimming pool and spa pool between 7.2 and 8.0	pH:	pH:	pH:

Microbiological water sampling

The responsible person who owns, manages or controls the aquatic facility must ensure that when the aquatic facility is open for use, the microbiological standard of the water is maintained within the following parameters.

Regulation	Microbiological quality	Sample	Pool 1	Pool 2	Pool 3
r. 40 1a	Heterotrophic colony count (result should be less than 100 colony forming units/mL)	Number:			

Regulation	Microbiological quality	Sample	Pool 1	Pool 2	Pool 3
r. 40 1a	Heterotrophic colony count (result should be less than 100 colony forming units/mL)	Time:			
r. 40 1a	Heterotrophic colony count (result should be less than 100 colony forming units/mL)	Result: Pass or fail			
r. 40 1b	Coliform bacteria (should not be detected in 100 mL water)	Number:			
r. 40 1b	Coliform bacteria (should not be detected in 100 mL water)	Time:			
r. 40 1b	Coliform bacteria (should not be detected in 100 mL water)	Result: Pass or fail			
r. 40 1c	*Pseudomonas aeruginosa* (should not be detected in 100 mL water)	Number:			
r. 40 1c	*Pseudomonas aeruginosa* (should not be detected in 100 mL water)	Time:			
r. 40 1c	*Pseudomonas aeruginosa* (should not be detected in 100 mL water)	Result: Pass or fail			

Note: Before collecting water samples for microbiological testing, check the sampling instructions provided by the testing laboratory for sample collection, storage and preservation. Where possible samples should be sent to a NATA-accredited laboratory to be tested.

Water samples should be stored on ice and delivered to the relevant laboratory within the required temperature range and timeframe, ideally as soon as possible (where possible within six hours).

These parameters are requirements outlined in the regulations.

Please circle the appropriate results below.

Chemical testing

Regulation	Parameter	Pool 1	Pool 2	Pool 3
r. 41a i	Free chlorine and total chlorine (if chlorine used) – 4-hourly intervals	Y / N	Y / N	Y / N
r. 41a ii	Free bromine and total bromine (if bromine used) – 4-hourly intervals	Y / N	Y / N	Y / N
r. 41a iii	pH – 4-hourly intervals	Y / N	Y / N	Y / N
r. 41b	Total alkalinity – weekly intervals	Y / N	Y / N	Y / N
r. 41c	Cyanuric acid – monthly intervals	Y / N	Y / N	Y / N

Filtering

Regulation	Parameter	Pool 1	Pool 2	Pool 3
r. 42	Water in the aquatic facility is effectively filtered so that all extraneous matter is removed from the water	Y / N	Y / N	Y / N

Temperature

Regulation	Parameter	Pool 1	Pool 2	Pool 3
r. 43	Water in the aquatic facility does not exceed 40°C	Y / N	Y / N	Y / N

Cyanuric acid level

Regulation	Parameter	Pool 1	Pool 2	Pool 3
r. 44	Level of cyanuric acid in the water does not exceed 100 mg/L	Y / N	Y / N	Y / N

Total alkalinity level

Regulation	Parameter	Pool 1	Pool 2	Pool 3
r. 45	Total alkalinity level in the water in the aquatic facility is maintained above 60 mg/L	Y / N	Y / N	Y / N

Combined chlorine

Regulation	Parameter	Pool 1	Pool 2	Pool 3
r. 46a	At all times less than the free chlorine residual	Y / N	Y / N	Y / N
r. 46b	Measured to be less than 1 mg/L at least once in every 24 hours of operation	Y / N	Y / N	Y / N

Aquatic facility suspected or implicated as the source of infection of a *Legionella* outbreak

Regulation	Parameter	Pool 1	Pool 2	Pool 3
r. 47a	Water sample from the aquatic facility is promptly taken and delivered to a laboratory for testing	Y / N	Y / N	Y / N
r. 47b	Aquatic facility is disinfected in accordance with any reasonable directions given to that person by the Secretary	Y / N	Y / N	Y / N

Aquatic facility records detailing:

Regulation	Parameter	Pool 1	Pool 2	Pool 3
r. 48a i	All results of tests and monitoring required under r. 41	Y / N	Y / N	Y / N
r. 48a ii	All corrective activities undertaken in relation to the water in the aquatic facility	Y / N	Y / N	Y / N
r. 48b	Records are kept at the premises where the aquatic facility is located for 12 months from the date on which the record was made	Y / N	Y / N	Y / N

Part 4: Preventive risk management strategies

This section contains preventive risk management strategies that are beneficial for pool management. The following parameters help to minimise public health risks.

Pool amenities

Parameter	Yes/No	Comments
Is soap available at all handwash basins within the facility?		
Is soap available in all showers?		
Are the amenities clean?		
Is/Are the pool(s) clean?		
Is the area around the pool and the wet deck clean?		

Policies and management

Parameter	Yes/No	Comments
Is there a written faecal incident policy?		
Are staff trained in responding to faecal accidents?		
Is there a maximum bather number determined for each pool?		
Is the maximum bather number policy enforced?		
Is there a swim nappy policy?		
Are adequate nappy change facilities available? (Are handwashing facilities and bins also available to enable good hygiene practices?)		
Are nappy change facilities away from the pool concourse to minimise contamination risks?		
Is there a handwashing policy?		
Is there a pre-swim shower policy?		
Is the pre-swim shower policy actively encouraged by staff?		
Is the pool water suction cleaned? If so, how often?		
Is there a microbiological sampling program in place?		
How often is the pool water tested for microbiological quality?		
Name of water testing laboratory:		
Is healthy swimming signage on display?		

Record management

Parameter	Yes/No	Comments
Does the facility have a risk management plan in place?		
Pool operator manual available?		
Pool operator has received relevant training and competency assessment?		
Up to date pool operator training and competency		
Pool testing kit on premises?		
Type of testing kit?		
Are records kept of faecal accidents and responses?		
Are regular pool chemical testing results kept?		

Parameter	Yes/No	Comments
Are records kept of all corrective activities undertaken in relation to water at the aquatic facility?		
Are records kept at the aquatic facility premises for 12 months from the date on which the record was made?		
Aquatic facility chemical test records sighted and up to date?		
Aquatic facility microbiological test records sighted and up to date?		

Occupational health and safety

Parameter	Yes/No	Comments
Are safety data sheets (SDS) available for each chemical?		
Are chemicals stored appropriately and in an area inaccessible by the public?		
Are chemical containers labelled?		
Is the chemical storage area well ventilated and well lit?		
Is the poisons information number available (13 11 26)?		

Notes and further actions:

[Notes to be added here]

Any feedback on ways to improve this checklist can be emailed to the Water Unit <water@dhhs.vic.gov.au>

GLOSSARY

Term	Definition
Acid	A liquid or dry chemical used to lower the pH of pool water.
Acidic	Having a pH below 7.0.
Alkaline	Having a pH above 7.0.
Alkalinity	Refer to Total alkalinity.
Alkalinity factor	(AF) Used to calculate the Langelier Saturation Index of water.
Ammonia	A nitrogen-containing compound that combines with free chlorine to form chloramines or combined chlorine.
Backwash	The process of removing debris accumulated in a filter by reversing the flow of water through the filter.
Bather number	A measure of the number of bathers in an aquatic facility over a set time. This should be linked to the capacity of the treatment system and pool safety.
BCDMH	Bromo-chloro-dimethylhydantoin. A common bromine-based disinfectant.
Biofilm	Slime-like community of microorganisms usually attached to wet surfaces.
Breakpoint chlorination	The addition of sufficient chlorine to oxidise combined chlorine to the point where free chlorine makes up the total chlorine and chloramines are oxidised to below detectable levels.
Buffering capacity	The number of moles of strong acid or base needed to change the pH of a litre of buffer solution by one unit.
Calcium hardness	A measure of calcium salts dissolved in pool water. Calcium hardness factor (CF) is used to calculate Langelier Saturation Index.
Carbon dioxide	A common gas found in air at trace levels. When injected into pool water it forms mild carbonic acid to lower pH.
CFU	Colony-forming units. A measure of microorganisms per unit volume of water.
Chloramines	A group of disinfection by-products formed when free chlorine reacts with ammonia in urine, sweat or other nitrogen-containing compounds in water.
Chlorination	The application of chlorine products for disinfection.
Chlorine demand	The amount of chlorine that will be consumed by readily oxidisable impurities in pool water.
Chlorine dioxide	A secondary disinfectant. Chlorine dioxide is generally generated on site and then added to the water or generated in the water itself by adding specially formulated tablets to the water.
Chlorine gas	Gaseous form of chlorine containing 100 per cent available chlorine.
Clarity	Degree of transparency with which an object can be seen through a given depth of pool water.
Coagulants	Chemicals, sometimes referred to as flocculants, that help clump suspended particles together into a filterable size.
Colloidal	Items of small size that are suspended in solid, liquid or gas.

Term	Definition
Combined chlorine	A measure of the chloramines in water.
Cryptosporidium	A protozoan parasite that causes cryptosporidiosis. This is a diarrhoeal disease in healthy persons that can last one to two weeks. For those with some underlying health conditions it can result in severe dehydration, and in some cases death.
CT	Disinfection residual concentration (C, in mg/L), multiplied by contact time (T, in minutes) at the point of residual measurement; a measure of disinfection effectiveness.
Cyanuric acid	A stabiliser that can be added to an outdoor aquatic facility to reduce chlorine loss due to ultraviolet light from the sun.
Disinfectant	An oxidising agent that is added to water and is intended to inactivate disease-causing microorganisms.
Disinfectant residual	The measurable disinfectant present in water.
Filter	A vessel or device that removes suspended particles.
Flocculant	A substance used in treating water that promotes clumping of particles.
Flow rate	Rate of movement of water typically stated as litres/second (L/s) or cubic metres per hour (m^3/hr). A cubic metre is 1,000 litres.
Free chlorine	A measure of the chlorine that is available as hypochlorous acid and chlorite ion.
Hyperchlorination	The practice of dosing high amounts of chlorine-containing product to achieve a specific CT to inactivate disease-causing microorganisms.
Hypochlorous acid	Formed when any chlorine-containing product is dissolved in water. The most active oxidising form of chlorine.
Inlets	Points at which water from the aquatic facility's water treatment is introduced to the water body.
Isocyanuric acid	Refer to Cyanuric acid.
Langelier Saturation Index	Calculation based on various factors to determine the corrosive or scale-formation nature of water. Used to determine appropriate water balance.
Log reduction	A mathematical term referring in these guidelines to logarithms to the base 10, and a 10-fold (or 90 per cent) reduction in the quantitative value of a microbiological population. It is used in reference to physical-chemical treatment of water to remove and/or inactivate microorganisms such as bacteria, protozoa and viruses. For example, a 1-$\log_{10}$ reduction means the quantitative value of a microbiological population is reduced by 90 per cent or 10-fold reduction; 3-$\log_{10}$ = 99.9 per cent or 1,000-fold reduction; and so on).
Make-up water	Water used to replace water lost from an aquatic facility including backwash water, evaporation, splashing, water exchange and the water users carry out. Make-up water is typically introduced from municipal mains via an auto-level valve.
Micron	A micrometre – one millionth of a metre. Used to describe particle size.
Microorganism	Microscopic organism such as a virus, bacterium or protozoa.
Multi-barrier approach	Water quality risks can be prevented or reduced at multiple points of the treatment process, not just relying on a single barrier in the treatment system.

Term	Definition
NATA	National Association of Testing Authorities – the national accreditation body for Australian testing laboratories.
Nitrogen	An element present in ammonia, sweat, urine, fertilisers and a variety of personal care products. When introduced to pools, it readily reacts with chlorine to form chloramines.
Oocyst	A hardy, thick-walled spore. The infective stage in the life cycle of Cryptosporidium.
Outbreak	Two or more human cases of a communicable (infectious) disease related to a common exposure.
Outlets	Points at which water exits the water body? for treatment by the facility's water treatment plant.
Oxidation	The process by which disinfectants destroy contaminants and inactivate disease-causing microorganisms.
Ozone	A relatively unstable molecule containing three oxygen atoms. Ozone is created on-site by passing oxygen across a corona discharge (in the same manner as lightning creates ozone in a thunderstorm). It is one of the most powerful oxidants known. It has a very short life wanting to revert to atmospheric oxygen, hence it cannot be stored for later use. It is a light blue gas and can also be created using ultraviolet light. It is very hazardous, especially in poorly ventilated spaces.
Pathogens	Disease-causing microorganisms.
pH	A scale used to express the acidity or alkalinity of a solution on a scale of 0–14, with 7.0 being neutral. Values less than 7.0 are acidic and values greater than 7.0 are alkaline.
Photometer	An analytical tool that uses light intensity measurements to determine the concentration of a particular chemical.
Physicochemical	Relating to both physical and chemical properties of a substance.
Residual	Refer to *Disinfectant* residual.
Scale	The precipitate that forms on surfaces in contact with water when calcium hardness, pH or total alkalinity levels are too high.
Shock dosing	The practice of dosing high amounts of chlorine (sometimes in excess of 10 mg/L) into a public aquatic facility to reduce chloramines or to remove confirmed or suspected contamination.
Sodium bicarbonate	A white powder used to raise total alkalinity in pool water. Also known as bicarb soda.
Sodium bisulphate	A granular material used to lower pH and/or total alkalinity in water. Also known as dry acid.
Sodium carbonate	A white powder used to raise pH in water.
Sodium hypochlorite	A clear liquid form of chlorine. Commercially available in bulk delivered strengths of 10–12.5 per cent available chlorine. Also called liquid chlorine or bleach.
Source water	Water used to fill the aquatic facility and used as make-up water. Usually town water but could also include rainwater (provided it is introduced into the balance tank first).

Term	Definition
Stabiliser	Refer to *Cyanuric acid.*
Test kit	Equipment used to determine specific chemical residual and physical properties of water.
Total alkalinity	A measure of the pH buffering capacity of water.
Total chlorine	The sum of both free and combined chlorines.
Total dissolved solids	(TDS) A measure of the salts and small amounts of organic matter dissolved in water.
Trihalomethanes	Compounds formed by reaction between chlorine or bromine and certain organic compounds.
Turbidity	The cloudiness of water due to the presence of extremely fine particulate matter in suspension that interferes with light transmission.
Turnover time	The period of time required to circulate a volume of water, equal to the aquatic facility's capacity, through the treatment plant.
UV light	Ultraviolet light. Wavelengths of light shorter than visible light.
Water slide	A feature at an amusement park consisting of a large slippery slide, often with many curves and twists, leading to a pool, with water running along the slide into the pool.

REFERENCE MATERIAL

American National Standards Institute 2009, *American national standard for water quality in public pools and spas* <https://webstore.ansi.org/RecordDetail.aspx?sku=ANSI%2FAPSP+11a-2015&source=blog&_ga=2.240790723.1709618848.1526445829-329698978.1526445829>.

Australian Pesticides and Veterinary Medicines Authority 2018, *Demonstrating efficacy of pool and spa sanitisers* <https://apvma.gov.au/node/1039>.

Australian Pesticides and Veterinary Medicines Authority 2018, *Public Chemical Registration Information System Search (PUBCRIS Search)* <https://portal.apvma.gov.au/pubcris>.

Centers for Disease Control and Prevention, US Department of Health and Human Services 2018, *The model aquatic health code* <https://www.cdc.gov/mahc/index.html>.

Centers for Disease Control and Prevention 2016a, *Disinfection and testing* <https://www.cdc.gov/healthywater/swimming/residential/disinfection-testing.html>.

Centers for Disease Control and Prevention 2016b, *Hyperchlorination to kill Cryptosporidium when chlorine stabilizer is in water* <https://www.cdc.gov/healthywater/swimming/pdf/hyperchlorination-to-kill-crypto-when-chlorine-stabilizer-is-in-the-water.pdf>.

Centers for Disease Control and Prevention 2016c, *Water circulation dye test procedure* <https://www.cdc.gov/healthywater/pdf/swimming/pools/mahc/Water-Circulation-Dye-Test-Procedure.pdf>.

Council of Australian Governments 2016, *National Construction Code 2016, Building Code of Australia – Volume One,* COAG, Canberra.

Department of Health and Human Services 2018, *Healthy swimming resources* <https://www2.health.vic.gov.au/public-health/water/aquatic-facilities/healthy-swimming>, State Government of Victoria, Melbourne.

National Health and Medical Research Council 2011, *Australian drinking water guidelines* <https://www.nhmrc.gov.au/about-us/publications/australian-drinking-water-guidelines> 6 National Water Quality Management Strategy.

National Health and Medical Research Council 2008, *Guidelines for managing risks in recreational water* <https://www.nhmrc.gov.au/about-us/publications/guidelines-managing-risks-recreational-water>.

NSW Department of Health 2013, *Controlling chloramines in indoor swimming pools* <http://www.health.nsw.gov.au/environment/factsheets/Pages/chloramines.aspx>.

NSW Department of Health 2013, *Public swimming pool and spa pool advisory document* <http://www.health.nsw.gov.au/environment/Publications/swimming-pool-and-spa-advisory-doc.pdf>.

Pool Water Treatment Advisory Group 2017, *Swimming pool water – treatment and quality standards for pools and spas,* Micropress Printers, Southwold, UK.

Royal Life Saving Society Australia 2018, *Guidelines for safe pool operations* <https://www.royallifesaving.com.au/aquatic-centres/managers/guidelines-for-safe-aquatic-venues/guidelines-for-safe-pool-operations>.

Victorian legislation and parliamentary documents 2018 <http://www.legislation.vic.gov.au>.

World Health Organization 2006, *Guidelines for safe recreational environments Volume 2 Swimming pools and similar environments* <http://www.who.int/water_sanitation_health/publications/safe-recreational-water-guidelines-2/en/>.

Australian Standards

SAI Global has compiled a comprehensive list of Australian Standards that may be relevant to public aquatic facilities in its *Guide to Standards – pools and spas* <https://infostore.saiglobal.com/uploadedFiles/Content/Standards/Guide_to_Standards-Pools_and_Spas.pdf>.

Key Standards include:

HB 241-2002 *Water management for public swimming pools and spas*

AS 1668.2-2012 *The use of ventilation and airconditioning in buildings*

AS 1926.1-2012 *Swimming pool safety – safety barriers for swimming pools*

AS 1926.2-2007 (R2016) *Swimming pool safety – location of safety barriers for swimming pools*

AS 1926.3-2010 (R2016) *Swimming pool safety – water recirculation systems*

AS 2560.2.5-2007 *Sports lighting – specific applications – swimming pools*

AS 2610.1-2007 (R2016) *Public spas*

AS 2865-2009 *Confined spaces*

AS 3136-2001 *Approval and test specification – Electrical equipment for spa and swimming pools*

AS 3636-1989 (R2013) *Solar heating systems for swimming pools*

AS 3780-2008 *The storage and handling of corrosive substances*

AS 3979-2006 *Hydrotherapy pools*

AS/NZS 2416.1:2010 *Water safety signs and beach safety flags: Specifications for water safety signs used in workplaces and public areas* (ISO 20712-12008, MOD).

International Standard

DIN 19643 (2012-11) *Treatment of water of swimming pools and baths swimming pools.*

Land Acquisition and Compensation Act 1986

FORM 7

S. 21(a)
Reg. 16

Notice of Acquisition

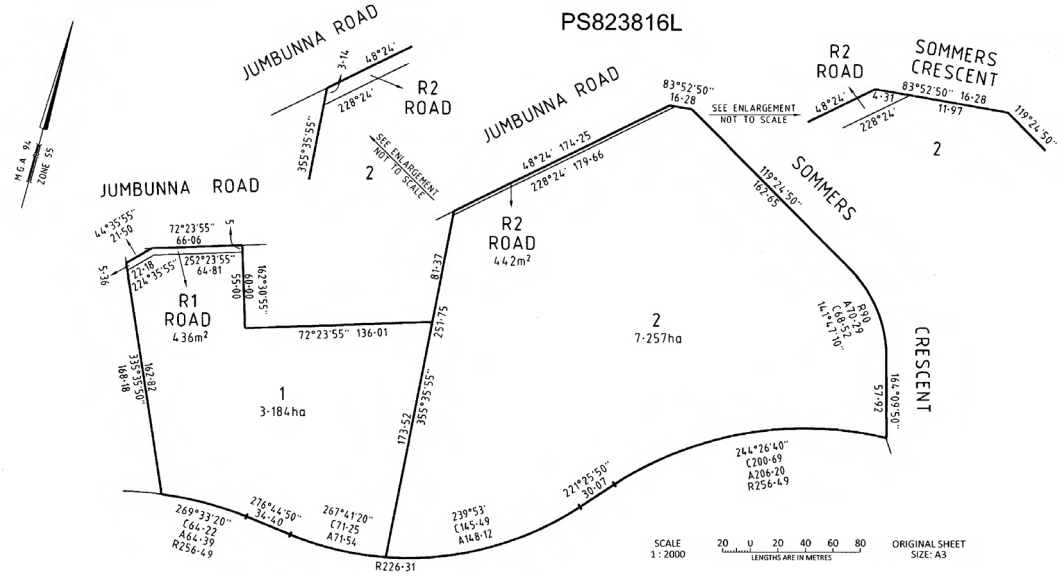
Compulsory Acquisition of Interest in Land

The South Gippsland Shire Council declares that by this notice it acquires the following interest:

(a) The land marked R1 on the plan below comprising 436 m2 being part of the land presently described in Certificate of Title Volume 9472 Folio 482 and being part of Lot 4 on LP135303; and

(b) The land marked R2 on the plan below comprising 442 m2 being part of the land described in Certificate of Title Volume 9472 Folio 481 and being part of Lot 2 on LP139824.

Interest acquired: the estate in fee simple of Kufner Textiles (Australia) Pty Ltd (ACN 006 494 873) as registered proprietor and all other interests.



Published with the authority of South Gippsland Shire Council.

For and on behalf of the South Gippsland Shire Council

Signed TONY PETERSEN

Name of authorised officer Tony Petersen – Manager Infrastructure Planning

Dated 6 February 2020

Major Transport Projects Facilitation Act 2009
(Section 193)

ROAD DECLARATION PART GRANGE ROAD, NOBLE PARK

I, Jacinta Allan MP, Minister for Public Transport, as Project Minister for the Caulfield to Dandenong Rail Upgrade Project, being a project to which the **Major Transport Projects Facilitation Act 2009** (other than Parts 3 and 8) applies, give notice pursuant to section 193(1) of that Act that I have declared the project area land described as parcels 21 and 23 in SP24007 and depicted in the Schedule to be an arterial road.

On the date this notice is published in the Government Gazette, the road is taken to be declared under section 14 of the **Road Management Act 2004** to be an arterial road.

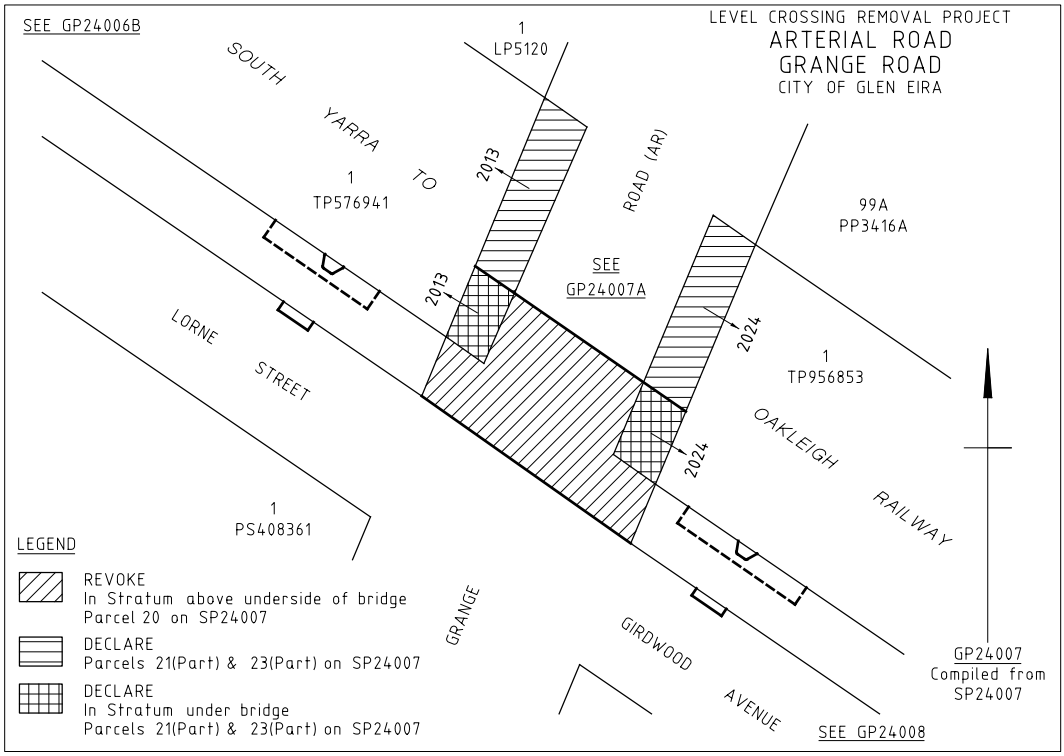
Dated 19 January 2020

Responsible Minister
HON. JACINTA ALLAN MP
Minister for Public Transport

SCHEDULE

ARTERIAL ROAD

The road identified by hatching on the plan numbered GP24007 is declared as described in the legend on the said plan.



Major Transport Projects Facilitation Act 2009
(Section 194)

ROAD REVOCATION PART GRANGE ROAD, NOBLE PARK

I, Jacinta Allan MP, Minister for Public Transport, as Project Minister for the Caulfield to Dandenong Rail Upgrade Project, being a project to which the **Major Transport Projects Facilitation Act 2009** (other than Parts 3 and 8) applies, give notice pursuant to section 194(1) of that Act that I have revoked the project area land described as parcel 20 in SP24007 and depicted in the Schedule from being an arterial road.

On the date this notice is published in the Government Gazette, the road is taken to be revoked under section 14 of the **Road Management Act 2004** to be a municipal road.

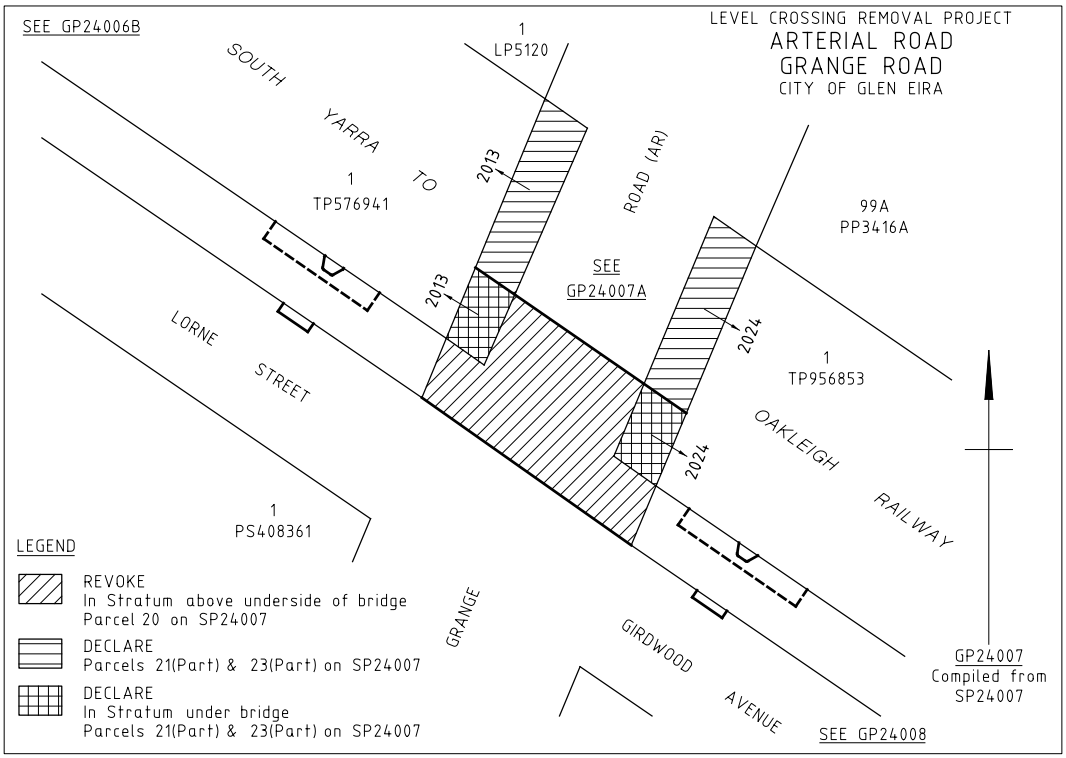
Dated 19 January 2020

Responsible Minister
HON. JACINTA ALLAN MP
Minister for Public Transport

SCHEDULE

ARTERIAL ROAD

The road identified by hatching on the plan numbered GP24007 is declared as described in the legend on the said plan.



Major Transport Projects Facilitation Act 2009

DECISION TO DISCONTINUE PART OF ROAD

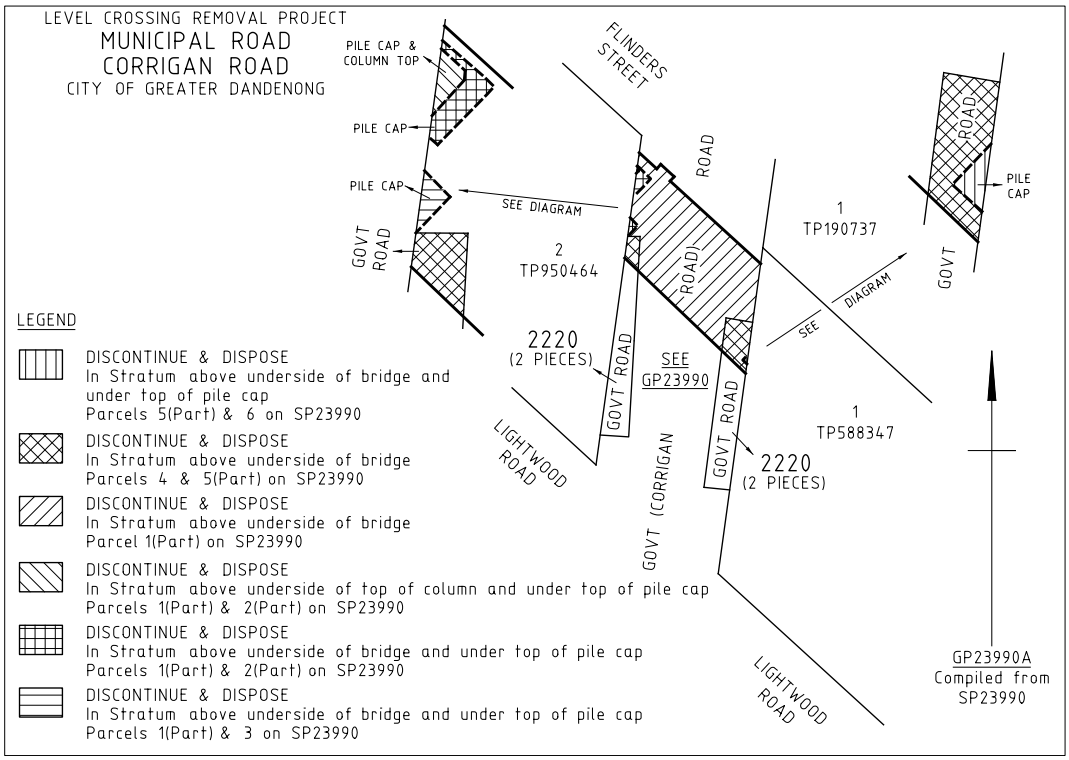
Portion of Corrigan Road, Noble Park

Under section 186 of the **Major Transport Projects Facilitation Act 2009** (Act), the Chief Executive, Level Crossing Removal Project, as delegate of the project authority for the Caulfield Dandenong Rail Upgrade Project (Project) determines that the parts of the road as shown cross-hatched on the attached plan GP23990A shall be discontinued from the date of publication in accordance with section 189 of the Act for the purposes of the Project.

The decision to discontinue the parts of the road identified on the plan takes effect upon publication of this notice under section 189(1) of the Act and the land is taken to be unalienated land of the Crown free and discharged from all trusts, limitations, reservations, restrictions, encumbrances, estates and interests.

Dated 28 January 2020

KEVIN DEVLIN
Chief Executive Officer
Level Crossing Removal Project



Major Transport Projects Facilitation Act 2009
(Section 15)

APPOINTMENT OF PROJECT PROPONENT

I, Jacinta Allan MP, Minister for Transport Infrastructure, as Project Minister for the Chelsea Level Crossing Removal Project, being a project to which the **Major Transport Projects Facilitation Act 2009** (other than Parts 3 and 8) applies ('the Act'), give notice pursuant to section 15 of the Act that I have appointed the Secretary to the Department of Transport to be the project proponent for the Chelsea Level Crossing Removal Project.

Dated 23 January 2020

Responsible Minister
HON. JACINTA ALLAN MP
Minister for Transport Infrastructure

Major Transport Projects Facilitation Act 2009
(Section 15)

APPOINTMENT OF PROJECT PROPONENT

I, Jacinta Allan MP, Minister for Transport Infrastructure, as Project Minister for the Glen Huntly Level Crossing Removal Project, being a project to which the **Major Transport Projects Facilitation Act 2009** (other than Parts 3 and 8) applies ('the Act'), give notice pursuant to section 15 of the Act that I have appointed the Secretary to the Department of Transport to be the project proponent for the Glen Huntly Level Crossing Removal Project.

Dated 23 January 2020

Responsible Minister
HON. JACINTA ALLAN MP
Minister for Transport Infrastructure

Major Transport Projects Facilitation Act 2009
(Section 15)

APPOINTMENT OF PROJECT PROPONENT

I, Jacinta Allan MP, Minister for Transport Infrastructure, as Project Minister for the Old Geelong Road, Hoppers Crossing, Level Crossing Removal Project, being a project to which the **Major Transport Projects Facilitation Act 2009** (other than Parts 3 and 8) applies ('the Act'), give notice pursuant to section 15 of the Act that I have appointed the Secretary to the Department of Transport to be the project proponent for the Old Geelong Road, Hoppers Crossing, Level Crossing Removal Project.

Dated 23 January 2020

Responsible Minister
HON. JACINTA ALLAN MP
Minister for Transport Infrastructure

Major Transport Projects Facilitation Act 2009
(Section 15)

APPOINTMENT OF PROJECT PROPONENT

I, Jacinta Allan MP, Minister for Transport Infrastructure, as Project Minister for the Manchester Road Level Crossing Removal Project, being a project to which the **Major Transport Projects Facilitation Act 2009** (other than Parts 3 and 8) applies ('the Act'), give notice pursuant to section 15 of the Act that I have appointed the Secretary to the Department of Transport to be the project proponent for the Manchester Road Level Crossing Removal Project.

Dated 23 January 2020

Responsible Minister
HON. JACINTA ALLAN MP
Minister for Transport Infrastructure

Major Transport Projects Facilitation Act 2009
(Section 15)

APPOINTMENT OF PROJECT PROPONENT

I, Jacinta Allan MP, Minister for Transport Infrastructure, as Project Minister for the Maroondah Highway Level Crossing Removal Project, being a project to which the **Major Transport Projects Facilitation Act 2009** (other than Parts 3 and 8) applies ('the Act'), give notice pursuant to section 15 of the Act that I have appointed the Secretary to the Department of Transport to be the project proponent for the Maroondah Highway Level Crossing Removal Project.

Dated 23 January 2020

Responsible Minister
HON. JACINTA ALLAN MP
Minister for Transport Infrastructure

Marine Safety Act 2010
Section 208(2)

NOTICE OF BOATING ACTIVITY EXCLUSION ZONE

I, Martina Cusack General Manager Water Storage Services Goulburn Murray Water, as the declared waterway manager for Lake Hume, hereby give notice under section 208(2) of the **Marine Safety Act 2010** that all persons and vessels not participating in the AFPGP 2020 Round 1 event on 15 and 16 February 2020 are prohibited from entering and remaining in the waters at Lake Hume, bounded by buoys, south of Bethanga Bridge and adjacent to the Lake Hume Resort.

The exclusion zone has effect from 7.00 am to 6.00 pm Saturday and Sunday 15 and 16 February 2020.

Dated 20 January 2020

MARTINA CUSACK
General Manager Water Storage Services
Goulburn Murray Water

Plant Biosecurity Act 2010

ORDER DECLARING RESTRICTED AREAS IN VICTORIA FOR THE CONTROL OF GREEN SNAIL

I, Jaclyn Symes, Minister for Agriculture, being of the reasonable belief that the exotic pest green snail (*Cantareus apertus* (Born)) is present in Victoria, make the following Order under section 32(1) of the **Plant Biosecurity Act 2010**, declaring areas described in clause 6 of this Order to be restricted areas.

1. Objectives

The objectives of this Order are –

(a) to declare restricted areas for the control of green snail in Victoria; and

(b) to specify the prohibitions, restrictions and requirements which are to operate in relation to the restricted areas.

2. Authorising provision

This Order is made under section 32(1) of the **Plant Biosecurity Act 2010** (the Act).

3. Commencement

This Order comes into operation on the day that it is published in the Government Gazette.

4. Revocation

The Order entitled Order declaring restricted areas in Victoria for the control of green snail made under section 32(1) of the **Plant Biosecurity Act 2010** and published in Victoria Government Gazette G10 on 7 March 2019 at pages 399–401, is revoked.

5. Definitions

In this Order –

host material means any host plant and any agricultural equipment, used package or earth material associated with the cultivation, harvesting, handling, transport or processing of host plants;

host plant means any plant or plant product, including any leafy vegetable, cutting, potted plant, turf, bare rooted plant, mature tree, cut flower, foliage, or hay, but excluding fruit and plants in tissue culture.

6. Declaration of restricted areas for the control of green snail

Each parcel of land described in Schedule 1 and Schedule 2 is declared to be a restricted area for the control of green snail.

7. Affected plants and materials

This Order affects host materials and host plants described in clause 5 of this Order.

8. Prohibitions, restrictions and requirements

(1) The removal of any host material from a restricted area described in Schedule 1 is prohibited.

(2) Subclause (1) does not apply to a person who removes any host material from the restricted area under and in accordance with a permit issued by an inspector and complies with any conditions set out in the permit.

(3) The removal of any host plant from a restricted area described in Schedule 2 is prohibited.

(4) Subclause (3) does not apply to a person who removes any host plant from the restricted area under and in accordance with a permit issued by an inspector and complies with any conditions set out in the permit.

9. Inspector may issue directions

An inspector is authorised to issue a direction to any owner or occupier of any land described in Schedule 1 –

(a) requiring the owner or occupier to –

(i) destroy any host plant, known or suspected, to be infested with green snail; or

(ii) destroy any host plant where this is considered necessary to control or prevent the spread of green snail; or

(iii) apply to any host material, or land on which any host material is being grown or propagated, any treatment for the purpose of controlling green snail, including chemicals registered, approved or permitted for the purpose of controlling green snail; or

(iv) clean used equipment; or

(b) prohibiting the planting or propagation of any host plant.

10. Expiry

This Order remains in force for a period of 12 months after the date that it is published in the Government Gazette.

Schedule 1

The parcels of land described by Property Title References: Lot 1 of LP85108; Lot 2 of LP97710; Lot 2 of LP146801P; Lot 2 of PS300771Y; Lots 8, 10 and 11 of PS706163L; Lots 1 and 2 of TP172348G; Lots 1, 2 and 3 of TP515135S; Lots 2 and 4 of TP79806W.

Schedule 2

The parcels of land described by Property Title References: Crown Allotments 83 and 88, Parish of Cobram; Lots 21 and 22 of LP2308; Lot 3 of LP16185; Lot 1 of LP92345; Lot 1 of LP123399; Lot 1 of LP125889; Lots 1 and 2 of LP139278; Lot 2 of LP140453; Lot 2 of LP140776; Lot 1 of LP142944; Lot 1 of LP206697Y; Lot 2 of LP206698W; Lot 2 of LP206791; Lot 1 of LP209522; Lot 1 of LP211203; Lot 3 of LP215193; Lot 1 of LP216470X; Lot 2 of LP217789G; PC358473; Lots 1 and 3 of PS300771Y; Lot 2 of PS309134; Lot 2 of PS326225; Lot 3 of PS327671; Lot 1 of PS349945; Lots 1 and 2 of PS441414; Lots 1, 2, 3 and 4 of PS446195T; Lots 1, 2, 3, 4, 5, 6, 7 and 9 of PS706163L; RES1 of PS706163L; Lot 2 of PS709354M; Lot 4 of TP107474; Lot 1 of TP189148; Lot 1 of TP194107; Lot 1 of TP212975J; Lot 1 of TP214440Q; Lot 1 of TP215641; Lot 1 of TP243174V; Lot 1 of TP338078; Lot 1 of TP580835T; Lot 1 of TP601180; Lot 1 of TP743019; Lots 1 and 3 of TP79806W; Lot 1 of TP827761; Lot 1 of TP828928; Lot 1 of TP862309V; Lot 1 of TP867948; Lot 1 of TP867950; Lot 1 of TP882666; Lots 1 and 2 of TP882806.

Notes

Section 33 of the Act provides that it is an offence for a person to cause or permit the movement of any plant, plant product, plant vector, used package, used equipment, earth material or beehive to which the declaration of the restricted area applies into, within or from that area or to contravene any prohibition, restriction or requirement specified in this order, unless authorised to do so by a permit issued by an Inspector and in accordance with that permit. A maximum penalty of 60 penalty units applies in the case of a natural person and 300 penalty units in the case of a body corporate.

Section 35(2) of the Act provides that an order under section 32 may authorise an inspector to issue directions to any person to do any of the things listed in section 35(1). Section 35(4) of the Act provides that a person must not contravene any direction of an inspector under section 35(2). A penalty of 60 penalty units applies.

Terms used in this Order that are defined in the Act have that meaning.

Dated 31 January 2020

JACLYN SYMES MP
Minister for Agriculture

Road Safety Act 1986

ORDER UNDER SECTION 98 EXTENDING PROVISIONS TO CAR PARK AREAS AT PRYOR STREET, ELTHAM

I, Fatima Mohamed, Executive Director Metro North West, as a delegate of the Minister for Roads and Road Safety under section 98 of the **Road Safety Act 1986** ('the Act'), by this Order extend the application of:

(a) Sections 17A, 59, 61, 61A, 64, 65, 65A, 77, and Parts 6AA and 7 of the Act; and

(b) The Road Safety Road Rules 2017; and

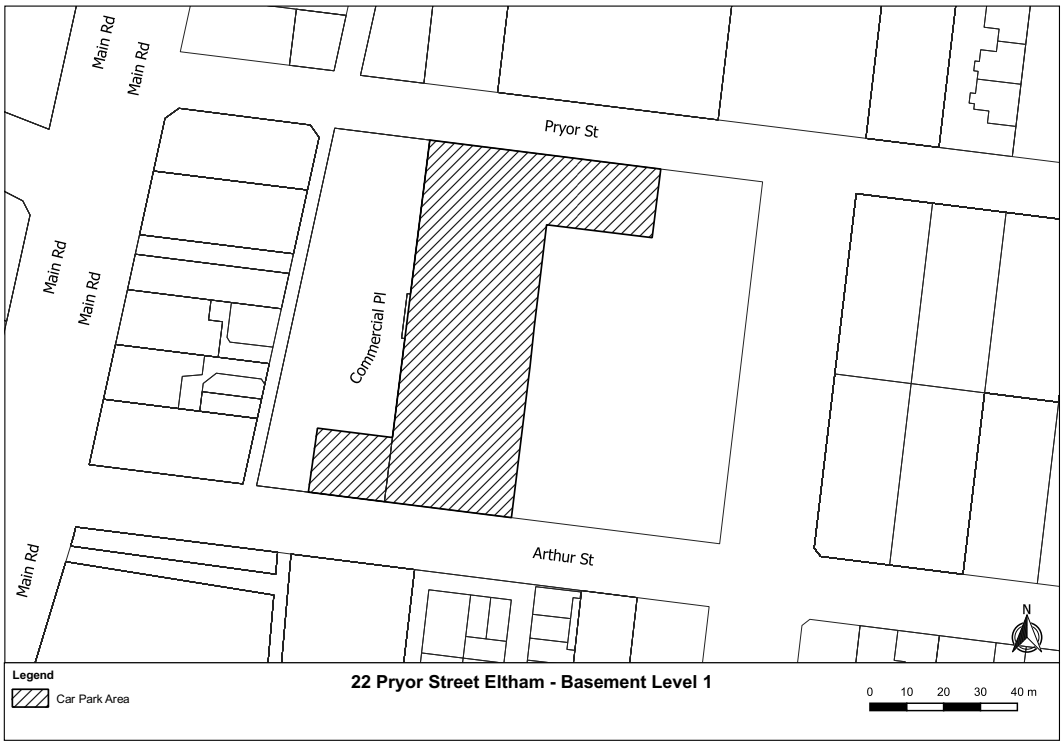
(c) Parts 6 and 8 and Schedule 6 of the Road Safety (General) Regulations 2019 –

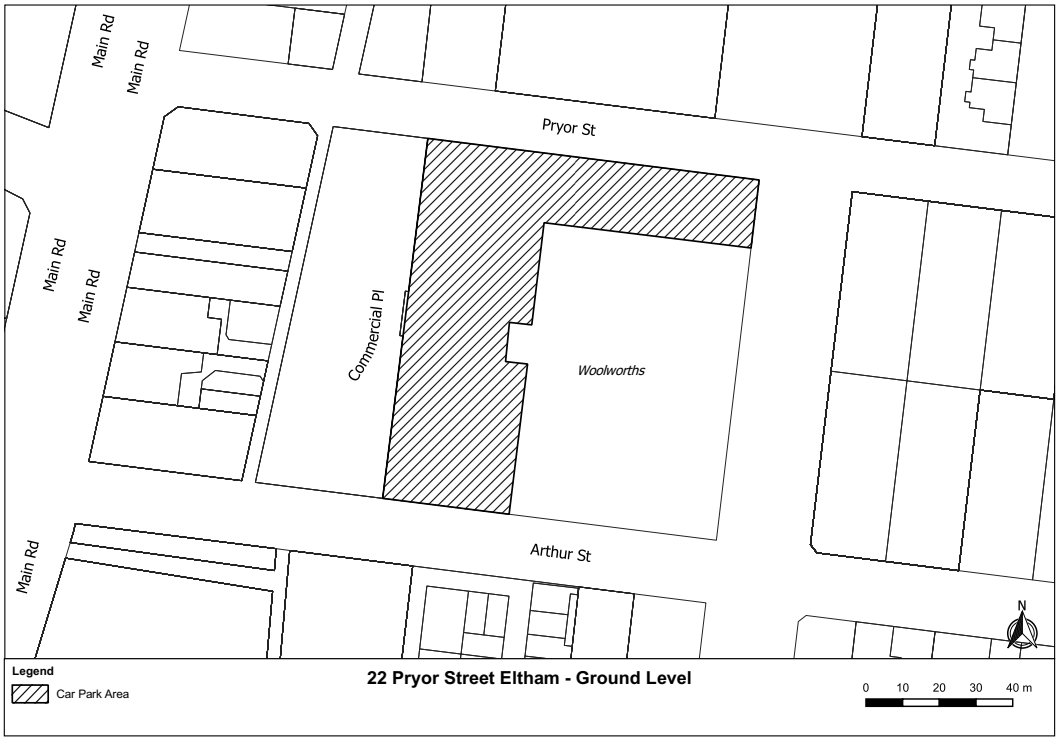
to the car parks at 1A Pryor St Eltham and at the basement and ground level of 22 Pryor Street, Eltham (the 'Car Parks'), particulars of which are shown on the attached plans.

In making this Order I am acting at the request of the Nillumbik Shire Council, which controls the Car Parks, and is an entity prescribed for the purposes of section 98 under regulation 80 of the Road Safety (General) Regulations 2019.

Dated 31 January 2020

FATIMA MOHAMED
Executive Director Metro North West
Department of Transport


Main Rd
Main Rd
Pryor St
Main Rd
Main Rd
Commercial Pl
Main Rd
Arthur St
N
Legend
Car Park Area
22 Pryor Street Eltham - Basement Level 1
0 10 20 30 40 m


Main Rd
Main Rd
Pryor St
Main Rd
Main Rd
Commercial Pl
Woolworths
Main Rd
Arthur St
N
Legend
Car Park Area
22 Pryor Street Eltham - Ground Level
0 10 20 30 40 m

Transport Accident Act 1986

MINISTERIAL DIRECTION UNDER SECTION 14 OF THE
TRANSPORT ACCIDENT ACT 1986

Waiver of Rights of Recovery Pursuant to Section 96(3) of **Transport Accident Act 1986**
Against Owners/Drivers of Unregistered Vehicles Used Under Direction of
Department of Environment, Land, Water and Planning in 2020 Victorian Bushfires

I, Jaala Pulford, Minister for Road Safety and TAC, under section 14(1)(b) of the **Transport Accident Act 1986** (the Act) direct the Transport Accident Commission (TAC) to waive its rights of recovery under section 96(3) of the Act from the owner or driver of an unindemnified vehicle which:

(a) negligently injured or caused the death of a person in a transport accident on a highway or road as defined in the **Road Safety Act 1986**; and

(b) was under the control or direction of the Department of Environment, Land, Water and Planning (DELWP) between 2 January 2020 and 31 March 2020; and

(c) being deployed in an emergency situation to protect life or property under regulation 268 of the Road Safety (Vehicles) Regulations 2009 in relation to the 2020 Victorian bushfires; and

(d) being deployed to clear roads and fallen trees or to conduct other works as necessary in the aftermath of the 2020 Victorian bushfires; and

(e) the vehicle is a Class 41, 43 or 45 vehicle as determined by VicRoads; and

(f) the vehicle was driven or operated by an appropriately licensed and trained operator; and

(g) the vehicle was deployed in the following Local Government Areas and Alpine Resorts as declared in the Declaration of a State of Disaster of 2 January 2020 as varied on 3 January 2020 and 9 January 2020:

a. Alpine Shire;
b. East Gippsland Shire;
c. Mansfield Shire;
d. Towong Shire;
e. Wangaratta Rural Shire;
f. Wellington Shire;
g. Mt Buller Alpine Resort;
h. Mount Hotham Alpine Resort;
i. Mount Stirling Alpine Resort; and
j. Falls Creek Alpine Resort.

HON. JAALA PULFORD MP
Minister for Road Safety and TAC

Water Act 1989

GOULBURN–MURRAY WATER CONNECTIONS PROJECT

Notice of Adoption of a Reconfiguration Plan

MV14 RP03

On 18 December 2019, the Connections Reconfiguration Committee, being a committee established by Goulburn–Murray Water under the **Water Act 1989**, determined to adopt Reconfiguration Plan MV14 RP03.

A copy of the Reconfiguration Plan map can be inspected, free of charge, at the Goulburn–Murray Water website at www.connectionsproject.com.au and free of charge, during office hours, at the offices of the Goulburn–Murray Water Connections Project, 55 Welsford Street, Shepparton.

FRANK FISSELER
Project Director
Connections Project
Goulburn–Murray Water

Water Act 1989

GOULBURN–MURRAY WATER CONNECTIONS PROJECT

Notice of Adoption of a Reconfiguration Plan

TO27 RP01

On 28 January 2020, the Connections Reconfiguration Committee, being a committee established by Goulburn–Murray Water under the **Water Act 1989**, determined to adopt Reconfiguration Plan TO27 RP01.

A copy of the Reconfiguration Plan map can be inspected, free of charge, at the Goulburn–Murray Water website at www.connectionsproject.com.au and free of charge, during office hours, at the offices of the Goulburn–Murray Water Connections Project, 55 Welsford Street, Shepparton.

FRANK FISSELER
Project Director
Connections Project
Goulburn–Murray Water

LOWER MURRAY WATER

Water Act 1989

NOTICE OF DECLARED SERVICED URBAN PROPERTIES

The abovementioned Corporation hereby declares that on and from 1 April 2020, the properties described below shall be deemed to be serviced under the provisions of section 144 of the **Water Act 1989**.

SUNRAYSIA URBAN DISTRICT – WATER

Property Identification	**Lot and Plan of Subdivision**
425B Ontario Avenue, Mildura	Lot A PS 826576
265 Morpung Avenue, Irymple	Lot 1 PS 311557

RED CLIFFS URBAN DISTRICT – WATER

Property Identification	**Lot and Plan of Subdivision**
Norris Court, Red Cliffs	Lots 1–5 PS 819449

SUNRAYSIA SEWERAGE DISTRICT – WASTEWATER

Property Identification	**Lot and Plan of Subdivision**
425B Ontario Avenue, Mildura	Lot A PS 826576

SWAN HILL URBAN DISTRICT – WATER

Property Identification	**Lot and Plan of Subdivision**
1–7 Annear Court, Swan Hill	Lots 1–7 PS 807520
44–50 Werril Street, Swan Hill	Lots 1–5 PS 726417
Wallowa Drive/Coobah Street/Bramble Drive, Swan Hill	Lots 372–390 PS 510325
205 Gray Street and Feldtmann Lane, Swan Hill	Lots 1–2 PS 820295

LAKE BOGA URBAN DISTRICT – WATER

Property Identification	**Lot and Plan of Subdivision**
85–93 Hayes Road South, Lake Boga	Lots 11–15 PS 740455

SWAN HILL SEWERAGE DISTRICT – WASTEWATER

Property Identification	**Lot and Plan of Subdivision**
1–7 Annear Court, Swan Hill	Lots 1–7 PS 807520
44–50 Werril Street, Swan Hill	Lots 1–5 PS 726417
Wallowa Drive/Coobah Street/Bramble Drive, Swan Hill	Lots 372–390 PS 510325

ANTHONY COUROUPIS
Managing Director

Water Act 1989

DECLARATION OF SERVICED PROPERTIES

For the purposes of section 144 of the **Water Act 1989** North East Water declares it has made provision for water and/or sewerage services to the following lots commencing 31 January 2020:

Potable Water and Sewerage

Lots 10–15, 30–36, 50 PS803186G, Country Club Heights Stage 3, Brewer Drive, Wodonga
Lots 17–23 PS808244S, Country Club Heights Stage 4, Otago Way, Wodonga
Lots 7–9, 16–18 PS802122Q, Nioka Estate Stage 2, Koop Street, Yarrawonga
Lots 10–15 PS802123N, Nioka Estate Stage 3, Thomas Street, Yarrawonga
Lots 7–9, 14–16 PS814544U, Cowan Park Stage 4, Mackay Street, Benalla
Lots 10, 12, 36–40 PS814545S, Cowan Park Stage 5, Weary Dunlop Drive, Benalla
Lots 201–217, 401–423 PS803194H, Baranduda Grove Stages 3 and 4, Wodonga–Yackandandah Road, Baranduda
Lots 2311–2327, 2242–2243, 2245–2246 PS805861H, White Box Rise Estate Stage 23A, Gratwick View and Keysor Way, Wodonga
Lots 1–7 PS814537R, Kaluna Estate Stage 1, Weir Street, Wangaratta
Lots 1007–1010 PS547281N/S64, Silverwoods Estate Stage 3D, Charter Way, Yarrawonga
Lots 16–30 PS801379F, Wattle Park Estate Stage 1, Liddell Drive, Wangaratta
Lots 2411–2427 PS811806G, White Box Rise Estate Stage 24A, Gratwick View and Lowerson Way, Wodonga
Lots 1–12 PS744204J, The Grange Estate, Channel Road, Yarrawonga
Lots 601–635 PS815866Q, Whenby Grange Stages 6.1 and 6.2, Harkin Avenue, Wodonga
Lots 45–51 PS649145D, Botts Road Estate Stage 2A, Rakali Drive, Yarrawonga
Lots 37–44, 52–68 PS716824K, Botts Road Estate Stage 2B, Rakali Drive, Yarrawonga
Lots 19–27 PS649130S, Botts Road Estate Stage 3, Rakali Drive, Yarrawonga
Lots 101–107 PS808250X, Beartooth Estate Stage 1, Gentle Road, Tangambalanga
Lots 301–317 PS815869J, Beartooth Estate Stage 3, Bogong Drive, Tangambalanga
Lots 254–262 PS803184L, Daintree Estate Stages 20.3 and 20.4, Coopers Road, Wodonga
Lots 54–67 PS739887E, Huon Park Stage 3, Archer Circuit, Wodonga
Lots 951–968 PS749364H, White Box Rise Stage 9F, Bisdee Court and Axford Boulevard, Wodonga
Lots 2110–2121, 2123–2126, 2130–2141, 2148 PS805842M, White Box Rise Estate Stage 21A, Dartnell Crescent, Wodonga
Lots 2244, 2501–2511 PS811825C, White Box Rise Estate Stage 25, Jeffries Rise, Wodonga
Lots 47–69 PS808870Q, Creek Mist Park Stage 1, Salisbury Street, Wangaratta
Lots 8–16 PS808862P, Old School Road Stage 2, Old School Road, Waldara
Lots 1–11 PS822863G, 21–27 Churchill Avenue, Bright
Lots 24–29, 37–49, 52–57 PS815877K, Country Club Heights Stages 5 and 6, Pacific Court, Wodonga
Lots 85–126 PS810066C, Kinchington Estate Stage 2, Hampshire Boulevard, Leneva
Lots 71–91 PS823621C, Kiewa Valley Estate Stage 3A, Huon–Kiewa Road, Tangambalanga
Lots 1–8 PS824194P, 12 Smith Street, Oxley
Lots 464–501 PS746753M, Riverside Estate Stage 13, Kenneth Watson Drive, Killara
Lots 1–22 PS822865C, 4–6 Morgan Road, Wangaratta
Lots 50–54, 62–67, 70–75, 79–86, 119–120, 150–151, 165–174, 177–185, 193–199, 235–236 PS811129Y, Baltimore Park Stages 6–8, Christensen Lane, Wangaratta
Lots 23–26 PS822868V, 100–110 Cowan Street Stage 1, Benalla
Lots 1–13 PS820603V, Federation Park Estate Stages 4 and 5, Cowan Street, Benalla
Lots 136–145 PS717353T, Alpine Views Estate Stage 6, Timberline Trail, Bandiana
Lots 701–730 PS547281N/S81, Silverwoods Estate Stage 7A, Murray Valley Highway, Yarrawonga
Lots 8–17 PS823225L, Kaluna Estate Stage 2, Sanctuary Court, Wangaratta

For more information, telephone North East Water on 1300 361 622.

Water Act 1989

WANNON WATER

Multiple Services

Declaration of Properties Provided with Water or Sewerage Services

Notice is hereby given pursuant to section 144 of the **Water Act 1989** that each property listed below has been declared a Serviced Property. The services available, locality and date from which the service was made available is shown under the relevant heading for the listed property.

Water and Sewer Services

Lots 1 and 2 PS 711453W
Warrnambool
6 January 2020

Lots 1 and 2 PS 708499P
Koroit
7 January 2020

Lots 1, 2 and 3 PS 823183A
Warrnambool
8 January 2020

Lots 1, 2, 3, 4, 5 and 6 PS 833677R
Hamilton
21 January 2020

Lots 24 and 25 PS 820637C
Warrnambool
28 January 2020

Lots 1 and 2 PS 821025F
Warrnambool
29 January 2020

ANDREW JEFFERS
Managing Director

Water Act 1989

WESTERN WATER – DECLARATION OF SERVICED PROPERTIES

Pursuant to section 144 of the **Water Act 1989**, Western Water declares the following land to be serviced property for the listed services on or from the Declaration Date/s listed below.

Lot/s	PS Number	Address	Commence Date	Services
A and B	PS814443B	5 Cornish Road, RIDDELLS CREEK	04/10/2019	**Water/Sewer**
1301–1331	PS817119U	Rosenthal Estate Stage 13, 100 Vineyard Road, SUNBURY	25/10/2019	**Water/Sewer**
1–3	PS814449N	1 Slattery Crescent, GISBORNE	30/10/2019	**Water/Sewer**
1601–1660	PS814004E	Thornhill Park Estate Stage 16, Harry Drive, THORNHILL PARK	11/10/2019	**Water/Sewer**
1–2	PS827508B	8–10 Moore Street, MADDINGLEY	30/10/2019	**Water/Sewer**

Lot/s	PS Number	Address	Commence Date	Services
2001–2043	PS817195C	Atherstone Estate Middle Park Stage 20, Greigs Road, STRATHTULLOH	25/10/2019	**Water/Recycled Water/Sewer**
2201–2232	PS820448F	Atherstone Estate Middle Park Stage 22, Greigs Road, STRATHTULLOH	29/10/2019	**Water/Recycled Water/Sewer**
2101–2138	PS820447H	Atherstone Estate Middle Park Stage 21, Greigs Road, STRATHTULLOH	29/10/2019	**Water/Recycled Water/Sewer**
2301–2336	PS820453N	Atherstone Estate Middle Park Stage 23, Greigs Road, STRATHTULLOH	29/10/2019	**Water/Recycled Water/Sewer**
1–2	PS824877J	50 High Street, WOODEND	19/11/2019	**Water/Sewer**
501–506, 508–511 and 522–534	PS725408Y	Underbank: River Edge – Stage 5A, 174 Mortons Road, PENTLAND HILLS	29/11/2019	**Water/Sewer**
601–627	PS725408Y	Underbank: River Edge – Stage 6, 174 Mortons Road, PENTLAND HILLS	29/11/2019	**Water/Sewer**
A, B	PS719225S	131 Brougham Road, MOUNT MACEDON	07/06/2019	**Water/Sewer**
1–2		7–9 Stephens Street, WOODEND	13/11/2019	**Water/Sewer**
1–2	PS831104D	7 Blaxland Drive, SUNBURY	20/01/2020	**Water/Sewer**
3901–3949	PS819192X	Woodlea Estate Stage 39, 1992–2106 Western Freeway, ROCKBANK	03/01/2020	**Water/Sewer**
1–2	PS812681U	43 Vallence Road, MADDINGLEY	03/01/2020	**Sewer**
401–478	PS721250F	Bridgefield Estate Stage 4, ROCKBANK	03/01/2020	**Water/Sewer**
401–435	PS816276H	Accolade Estate Stage 4, ROCKBANK	03/01/2020	**Water/Sewer**
501–536	PS816296B	Accolade Estate Stage 5, ROCKBANK	06/01/2020	**Water/Sewer**
101–112, 115–148	PS811180Y	Serenity Estate Stage 1, ROCKBANK	06/01/2020	**Water/Sewer**
3501–3521	PS812429F	Arnolds Creek Estate Stage 35, HARKNESS	06/01/2020	**Water/Sewer**
1901–1944	PS818679V	Stonehill Estate Stage 19, McCormacks Road, MADDINGLEY	10/01/2020	**Water/Sewer**

Lot/s	PS Number	Address	Commence Date	Services
101–133, 143–149, 154–166	PS816041M	Rockdale Stage 1B, 178–198 Paynes Road, THORNHILL PARK	13/01/2020	**Water/Sewer**
191–195, 222–225, 241	PS731412Y/ SE	Bellevue Tops Estate, 8 Halletts Way, BACCHUS MARSH	15/01/2020	**Water/Sewer**
201–252	PS811261	Orchard Green Stage 2, 116–178 Denny Place, MELTON SOUTH	16/01/2020	**Water/Sewer**
4001–4085	PS813252P	Mt Atkinson Estate Stage 4, Appalaclyan Street, TRUGANINA	17/01/2020	**Water/Sewer**
101–144	PS811220P	Attwell Estate Stage 1, 905–959 Taylors Road, DEANSIDE	17/01/2020	**Water/Sewer**
201–261	PS811221M	Attwell Estate Stage 2, 905–959 Taylors Road, DEANSIDE	20/01/2020	**Water/Sewer**
2101–2164	PS816908V	Thornhill Park Estate Stage 21, 210–234 Paynes Road, THORNHILL PARK	20/01/2020	**Water/Sewer**
2501–2526	2501–2526	Atherstone Estate Park Edge Stage 25, STRATHTULLOH	10/01/2020	**Water/Recycled Water/Sewer**

Water Act 1989

YARRA VALLEY WATER – DECLARATION OF SERVICED PROPERTIES FOR THE PURPOSE OF THE SUPPLY OF SEWERAGE SERVICES

Pursuant to section 144 of the **Water Act 1989**, Yarra Valley Water declares the following properties to be serviced by sewer from the Declaration Date listed below.

Service Type	Date Sewer Provided	Address
Pressure	43859	10 BARAK DRIVE, YARRA JUNCTION 3797
Pressure	43859	20 BARAK DRIVE, YARRA JUNCTION 3797
Pressure	43859	20 BLEACHES LANE, YARRA JUNCTION 3797
Pressure	43859	15 TARRANGO ROAD, YARRA JUNCTION 3797
Pressure	43859	13 BARAK DRIVE, YARRA JUNCTION 3797
Pressure	43859	15 BARAK DRIVE, YARRA JUNCTION 3797
Pressure	43859	16 BARAK DRIVE, YARRA JUNCTION 3797
Pressure	43859	18 BARAK DRIVE, YARRA JUNCTION 3797
Pressure	43859	22 BARAK DRIVE, YARRA JUNCTION 3797

Service Type	Date Sewer Provided	Address
Pressure	43859	24 BARAK DRIVE, YARRA JUNCTION 3797
Pressure	43859	26 BARAK DRIVE, YARRA JUNCTION 3797
Pressure	43859	28 BARAK DRIVE, YARRA JUNCTION 3797
Pressure	43859	30 BARAK DRIVE, YARRA JUNCTION 3797
Pressure	43859	32 BARAK DRIVE, YARRA JUNCTION 3797
Pressure	43859	34 BARAK DRIVE, YARRA JUNCTION 3797
Pressure	43859	35 BARAK DRIVE, YARRA JUNCTION 3797
Pressure	43859	36 BARAK DRIVE, YARRA JUNCTION 3797
Pressure	43859	1 BLEACHES LANE, YARRA JUNCTION 3797
Pressure	43859	11 BLEACHES LANE, YARRA JUNCTION 3797
Pressure	43859	13 BLEACHES LANE, YARRA JUNCTION 3797
Pressure	43859	15 BLEACHES LANE, YARRA JUNCTION 3797
Pressure	43859	17 BLEACHES LANE, YARRA JUNCTION 3797
Pressure	43859	19 BLEACHES LANE, YARRA JUNCTION 3797
Pressure	43859	21 BLEACHES LANE, YARRA JUNCTION 3797
Pressure	43859	3 BLEACHES LANE, YARRA JUNCTION 3797
Pressure	43859	5 BLEACHES LANE, YARRA JUNCTION 3797
Pressure	43859	7 BLEACHES LANE, YARRA JUNCTION 3797
Pressure	43859	9 BLEACHES LANE, YARRA JUNCTION 3797
Pressure	43859	10 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	11 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	12 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	13 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	14 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	15 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	16 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	17 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	18 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	19 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	20 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	21 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	22 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	4 COLEMAN STREET, YARRA JUNCTION 3797

Service Type	Date Sewer Provided	Address
Pressure	43859	5 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	6 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	7 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	8 COLEMAN STREET, YARRA JUNCTION 3797
Pressure	43859	9 COLEMAN STREET, YARRA JUNCTION 3797
Gravity	43859	38 CRESCENT ROAD, YARRA JUNCTION 3797
Pressure	43859	10 HOLMES ROAD YARRA JUNCTION 3797
Pressure	43859	15 HOLMES ROAD, YARRA JUNCTION 3797
Pressure	43859	5 HOLMES ROAD, YARRA JUNCTION 3797
Pressure	43859	2 KEITH STREET, YARRA JUNCTION 3797
Pressure	43859	33 TARRANGO ROAD, YARRA JUNCTION 3797
Pressure	43859	35 TARRANGO ROAD, YARRA JUNCTION 3797
Pressure	43859	37 TARRANGO ROAD, YARRA JUNCTION 3797
Pressure	43859	39 TARRANGO ROAD, YARRA JUNCTION 3797
Pressure	43859	41 TARRANGO ROAD, YARRA JUNCTION 3797
Pressure	43859	43 TARRANGO ROAD, YARRA JUNCTION 3797
Pressure	43859	47 TARRANGO ROAD, YARRA JUNCTION 3797
Pressure	43859	55 TARRANGO ROAD, YARRA JUNCTION 3797
Pressure	43859	1 VICTORIA STREET, YARRA JUNCTION 3797
Pressure	43859	11 VICTORIA STREET, YARRA JUNCTION 3797
Pressure	43859	11A VICTORIA STREET, YARRA JUNCTION 3797
Pressure	43859	13 VICTORIA STREET, YARRA JUNCTION 3797
Pressure	43859	13A VICTORIA STREET, YARRA JUNCTION 3797
Pressure	43859	15 VICTORIA STREET, YARRA JUNCTION 3797
Pressure	43859	17 VICTORIA STREET, YARRA JUNCTION 3797
Pressure	43859	1A VICTORIA STREET, YARRA JUNCTION 3797
Pressure	43859	25 VICTORIA STREET, LAUNCHING PLACE 3139
Pressure	43859	27 VICTORIA STREET, LAUNCHING PLACE 3139
Pressure	43859	3 VICTORIA STREET, YARRA JUNCTION 3797
Pressure	43859	3A VICTORIA STREET, YARRA JUNCTION 3797
Pressure	43859	5 VICTORIA STREET, YARRA JUNCTION 3797
Pressure	43859	7 VICTORIA STREET, YARRA JUNCTION 3797
Pressure	43859	7A VICTORIA STREET, YARRA JUNCTION 3797

Service Type	Date Sewer Provided	Address
Pressure	43859	9 VICTORIA STREET, YARRA JUNCTION 3797
Pressure	43859	9A VICTORIA STREET, YARRA JUNCTION 3797
Pressure	43859	2350 WARBURTON HIGHWAY, YARRA JUNCTION 3797
Pressure	43859	1 WITNISH STREET, YARRA JUNCTION 3797
Pressure	43859	2 WITNISH STREET, YARRA JUNCTION 3797
Pressure	43859	3 WITNISH STREET, YARRA JUNCTION 3797
Pressure	43859	4 WITNISH STREET, YARRA JUNCTION 3797
Pressure	43859	8 WITNISH STREET, YARRA JUNCTION 3797

In the interests of public health and the preservation of the environment, please arrange for your property to be connected to sewer as soon as possible. This work can be arranged through a licensed plumber. If you have any questions, please call 1300 651 511.

For more information visit www.yvw.com.au

WILDLIFE REGULATIONS 2013

Notice of Approved Wildlife Event

I, Bruce Theodore, Senior Permissions Officer as delegate of the Secretary to the Department of Environment, Land, Water and Planning (DELWP), give notice under regulation 39A of the Wildlife Regulations 2013 of my approval for the following wildlife events, at which the holder of a category of wildlife licence specified may display, buy, sell, acquire, receive, keep, or possess wildlife in accordance with that licence, subject to the following conditions:

Date	23 to 24 May 2020
Event	Hunt Expo
Place	Melbourne Showgrounds, Epsom Road, Ascot Vale, Victoria 3032
Organisation	HuntEx Int Pty Ltd
Category of Wildlife Licence	Wildlife Basic Licence Wildlife Advanced Licence Wildlife Specimen Licence Wildlife Dealer Licence Wildlife Demonstrator Licence Wildlife Displayer Licence Wildlife Taxidermist Licence
Conditions	1. Eligible wildlife licence holders must meet and comply with the rules stipulated by HuntEx Int Pty Ltd which are published at www.huntexpo.com.au/visit/ 2. Eligible wildlife licence holders may only participate in the event with dead wildlife (game) specimens that have been lawfully taxidermied or processed. 3. This approval is only valid when the event organiser maintains current and appropriate public liability insurance for not less than $10 million for the specified events. Proof of this insurance must be provided upon request by any authorised officer of the Department of Environment, Land, Water and Planning. 4. The direction of any authorised officer of the Department of Environment, Land, Water and Planning, in relation to this approval, must be followed.

Planning and Environment Act 1987

BAYSIDE PLANNING SCHEME

Notice of Approval of Amendment

Amendment C161bayspt2

The Minister for Planning has approved Amendment C161bayspt2 to the Bayside Planning Scheme.

The Amendment comes into operation on the date this notice is published in the Victoria Government Gazette.

The Amendment corrects the extent of the Heritage Overlay HO662 applying to 1A Murphy Street, Brighton.

A copy of the Amendment can be inspected, free of charge, at the Department of Environment, Land, Water and Planning website at www.planning.vic.gov.au/public-inspection and free of charge, during office hours, at the offices of the Bayside City Council, 76 Royal Avenue, Sandringham.

ADAM HENSON
Acting Director
State Planning Services
Department of Environment, Land, Water and Planning

Planning and Environment Act 1987

BOROONDARA PLANNING SCHEME

Notice of Approval of Amendment

Amendment C312boro

The Minister for Planning has approved Amendment C312boro to the Boroondara Planning Scheme.

The Amendment comes into operation on the date this notice is published in the Victoria Government Gazette.

The Amendment applies the Specific Controls Overlay to various properties listed under the schedule to Clause 51.01 (Specific Sites and Exclusions) and other related consequential changes, as part of the Smart Planning Program to improve the transparency of site specific controls. The changes improve the clarity and format of the planning scheme by implementing the reforms introduced by VC148.

A copy of the Amendment can be inspected, free of charge, at the Department of Environment, Land, Water and Planning website at www.planning.vic.gov.au/public-inspection and free of charge, during office hours, at the offices of the Boroondara City Council, Inglesby Road, Camberwell 3124.

ADAM HENSON
Acting Director
State Planning Services
Department of Environment, Land, Water and Planning

Planning and Environment Act 1987

HOBSONS BAY PLANNING SCHEME

Notice of Approval of Amendment

Amendment C113hbay

The Minister for Planning has approved Amendment C113hbay to the Hobsons Bay Planning Scheme.

The Amendment comes into operation on the date this notice is published in the Victoria Government Gazette.

The Amendment corrects a number of zoning, overlay and text anomalies to ensure the ongoing accuracy of the Hobsons Bay Planning Scheme.

A copy of the Amendment can be inspected, free of charge, at the Department of Environment, Land, Water and Planning website at www.planning.vic.gov.au/public-inspection and free of charge, during office hours, at the offices of the Hobsons Bay City Council, 115 Civic Parade, Altona, Victoria 3018.

ADAM HENSON
Acting Director
State Planning Services
Department of Environment, Land, Water and Planning

Planning and Environment Act 1987

MELTON PLANNING SCHEME

Notice of Approval of Amendment

Amendment C201melt

The Minister for Planning has approved Amendment C201melt to the Melton Planning Scheme.

The Amendment comes into operation on the date this notice is published in the Victoria Government Gazette.

The Amendment implements the final *Mt Atkinson and Tarneit Plains Infrastructure Contributions Plan, January 2020* and makes other associated changes to the Melton Planning Scheme.

A copy of the Amendment can be inspected, free of charge, at the Department of Environment, Land, Water and Planning website at www.planning.vic.gov.au/public-inspection and free of charge, during office hours, at the offices of the Melton City Council, 232 High Street, Melton.

ADAM HENSON
Acting Director
State Planning Services
Department of Environment, Land, Water and Planning

Planning and Environment Act 1987

MELTON PLANNING SCHEME

Notice of Approval of Amendment

Amendment C217melt

The Minister for Planning has approved Amendment C217melt to the Melton Planning Scheme.

The Amendment comes into operation on the date this notice is published in the Victoria Government Gazette.

The Amendment updates and makes minor corrections to the incorporated *Mt Atkinson and Tarneit Plains Precinct Structure Plan, June 2017* to ensure consistency with final *Mt Atkinson and Tarneit Plains Infrastructure Contributions Plan, January 2020.*

A copy of the Amendment can be inspected, free of charge, at the Department of Environment, Land, Water and Planning website at www.planning.vic.gov.au/public-inspection and free of charge, during office hours, at the offices of the Melton City Council, 232 High Street, Melton.

ADAM HENSON
Acting Director
State Planning Services
Department of Environment, Land, Water and Planning

Planning and Environment Act 1987

MILDURA PLANNING SCHEME

Notice of Approval of Amendment

Amendment C102mild

The Minister for Planning has approved Amendment C102mild to the Mildura Planning Scheme.

The Amendment comes into operation on the date this notice is published in the Victoria Government Gazette.

The Amendment rezones the affected land from Public Use Zone – Transport (PUZ4) to Industrial 1 Zone (IN1Z) and Public Use Zone – Service and Utility (PUZ1) and applies the Design and Development Overlay – Schedule 4 (DDO4 – Industrial Areas) to land in the IN1Z.

A copy of the Amendment can be inspected, free of charge, at the Department of Environment, Land, Water and Planning website at www.planning.vic.gov.au/public-inspection and free of charge, during office hours, at the offices of the Mildura Rural City Council, 76 Deakin Avenue, Mildura.

ADAM HENSON
Acting Director
State Planning Services
Department of Environment, Land, Water and Planning

Planning and Environment Act 1987

NILLUMBIK PLANNING SCHEME

Notice of Approval of Amendment

Amendment C117nillpt1

The Minister for Planning has approved Amendment C117nillpt1 to the Nillumbik Planning Scheme.

The Amendment comes into operation on the date this notice is published in the Victoria Government Gazette.

The Amendment rezones the following sites to the Public Park and Recreation Zone:

20A Henry Street, Eltham; 12 The Eyrie, Eltham; 26 Renshaw Drive, Eltham; 34 Glen Park Road, Eltham North; 120 Arthur Street, Eltham; 17A Ruskin Court, Eltham; 60 David Hockney Drive, Diamond Creek; 14 Ripon Close, Diamond Creek; 4 Raglan Court, Research; Land between 32 and 36 Raglan Road, Research; 46 Symon Crescent, Greensborough; 8–9 Cosham Court, Greensborough; Part of 32–34 Civic Drive, Greensborough; 36–44 and 44B Civic Drive, Greensborough.

A copy of the Amendment can be inspected, free of charge, at the Department of Environment, Land, Water and Planning website at www.planning.vic.gov.au/public-inspection and free of charge, during office hours, at the offices of the Nillumbik Shire Council, Civic Drive, Greensborough.

ADAM HENSON
Acting Director
State Planning Services
Department of Environment, Land, Water and Planning

Planning and Environment Act 1987

NILLUMBIK PLANNING SCHEME

Notice of Approval of Amendment

Amendment C124nill

The Minister for Planning has approved Amendment C124nill to the Nillumbik Planning Scheme.

The Amendment comes into operation on the date this notice is published in the Victoria Government Gazette.

The Amendment corrects mapping errors in the application of the heritage overlay and significant landscape overlay, deletes expired local policies, updates associated cross references in the Municipal Strategic Statement and corrects errors in the schedule to the heritage overlay.

A copy of the Amendment can be inspected, free of charge, at the Department of Environment, Land, Water and Planning website at www.planning.vic.gov.au/public-inspection and free of charge, during office hours, at the offices of the Nillumbik Shire Council, Civic Drive, Greensborough.

ADAM HENSON
Acting Director
State Planning Services
Department of Environment, Land, Water and Planning

Planning and Environment Act 1987

SURF COAST PLANNING SCHEME

Notice of Approval of Amendment

Amendment C128surf

The Minister for Planning has approved Amendment C128surf to the Surf Coast Planning Scheme.

The Amendment comes into operation on the date this notice is published in the Victoria Government Gazette.

The Amendment makes changes to the Surf Coast Planning Scheme to correct miscellaneous mapping and ordinance items.

A copy of the Amendment can be inspected, free of charge, at the Department of Environment, Land, Water and Planning website at www.planning.vic.gov.au/public-inspection and free of charge, during office hours, at the offices of the Surf Coast Shire Council, 1 Merrijig Drive, Torquay.

ADAM HENSON
Acting Director
State Planning Services
Department of Environment, Land, Water and Planning

ORDERS IN COUNCIL

Crown Land (Reserves) Act 1978

NOTICE OF INTENTION TO REVOKE TEMPORARY RESERVATIONS

Order in Council

The Governor in Council under section 10 of the **Crown Land (Reserves) Act 1978** gives notice of intention to revoke the following temporary reservations:

BANNOCKBURN – The temporary reservation by Order in Council of 3 October, 1967 of an area of 1012 square metres of land in the Township of Bannockburn, Parish of Wabdallah as a site for Public purposes (Police purposes), revoked as to part by Order in Council of 21 March, 1995 (now described as Crown Allotment 2A, Section 6), so far as the balance remaining containing 349 square metres. – (Rs 08875)

PORT MELBOURNE – The temporary reservation by Order in Council of 6 February, 1951 of an area of 4047 square metres of land in Section 67D, City of Port Melbourne, Parish of Melbourne South as a site for a Municipal Depot, revoked as to part by Order in Council of 30 October, 2007 (now described as Crown Allotment 5D, Section 67D), so far as the balance remaining containing 7947 square metres. – (Rs 06627)

RUSHWORTH – The temporary reservation by Order in Council of 11 March, 1872 of an area of 1.821 hectares, more or less, of land in the Township of Rushworth, Parish of Moora as a site for Police purposes, revoked as to part by various Orders and now described as Crown Allotment 5B, Section 1, Township of Rushworth **so far only as** the portion containing 1420 square metres being Crown Allotment 2008, Township of Rushworth, Parish of Moora as shown on Original Plan No. OP125116 lodged in the Central Plan Office. – (Rs 9894)

This Order comes into effect on the date it is published in the Government Gazette.

Dated 4 February 2020

Responsible Minister

HON LILY D'AMBROSIO MP
Minister for Energy, Environment and Climate Change

CLAIRE CHISHOLM
Clerk of the Executive Council

Crown Land (Reserves) Act 1978

REVOCATION OF TEMPORARY RESERVATION

Order in Council

The Governor in Council under section 10 of the **Crown Land (Reserves) Act 1978** revokes the following temporary reservation:

DAYLESFORD – The temporary reservation by Order in Council of 25 November, 1861 of an area of 2.372 hectares, more or less, of land in the Township of Daylesford, Parish of Wombat as a site for Police purposes, revoked as to part by various Orders in Council, so far as the balance remaining shown as Crown Allotments 2040 [area 2046 square metres] and 2041 [area 280 square metres], Township of Daylesford, Parish of Wombat on Original Plan No. OP124859 lodged in the Central Plan Office. – (Rs 05887)

This Order comes into effect on the date it is published in the Government Gazette.

Dated 4 February 2020

Responsible Minister

HON LILY D'AMBROSIO MP
Minister for Energy, Environment and Climate Change

CLAIRE CHISHOLM
Clerk of the Executive Council

Crown Land (Reserves) Act 1978

TEMPORARY RESERVATION OF CROWN LANDS

Order in Council

The Governor in Council under section 4(1) of the **Crown Land (Reserves) Act 1978** temporarily reserves the following Crown lands which are required for the purposes mentioned:–

MUNICIPAL DISTRICT OF THE ALPINE SHIRE COUNCIL

BRIGHT – Public Recreation; being Crown Allotment 2096 (area 2163 square metres, more or less), Parish of Bright as shown on Plan No. LEGL./18-278 and Crown Allotments 2067 (area 1.7 hectares, more or less), 2068 (area 2.8 hectares, more or less), 2069 (area 4858 square metres, more or less) and 2070 (area 2.5 hectares, more or less), Parish of Bright as shown on Plan No. LEGL./15-209; Both plans lodged in the Central Plan Office. – (2020202)

MUNICIPAL DISTRICT OF THE
GREATER DANDENONG CITY COUNCIL

DANDENONG – Public purposes; area 4430 square metres, being Crown Allotment 1A, Section 31, Township of Dandenong, Parish of Eumemmerring as shown on Original Plan No. CP100959 lodged in the Central Plan Office. – (2023353)

MUNICIPAL DISTRICT OF THE
HEPBURN SHIRE COUNCIL

DAYLESFORD – Conservation of an area of historic interest; area 280 square metres being Crown Allotment 2041, Township of Daylesford, Parish of Wombat as shown on Original Plan No. OP124859 lodged in the Central Plan Office. – (Rs 14278)

MUNICIPAL DISTRICT OF THE
CAMPASPE SHIRE COUNCIL

ECHUCA – Public purposes; area 594 square metres being Crown Allotment 21A, Section 42A, Township of Echuca, Parish of Echuca North as shown on Original Plan No. CP112261 lodged in the Central Plan Office. – (Rs 06175)

This Order comes into effect on the date it is published in the Government Gazette.

Dated 4 February 2020

Responsible Minister

HON LILY D'AMBROSIO MP
Minister for Energy, Environment and Climate Change

CLAIRE CHISHOLM
Clerk of the Executive Council

Land Act 1958

CLOSURE OF UNUSED ROADS

Order in Council

The Governor in Council under section 349 of the **Land Act 1958** and with the concurrence in writing of the municipalities in which the roads are situated and the owner/s of land adjoining the roads closes the following unused roads:

MUNICIPAL DISTRICT OF THE
SOUTH GIPPSLAND SHIRE COUNCIL

JEETHO – The road in the Parish of Jeetho being Crown Allotment 2017 [area 2.373 hectares], as shown on Original Plan No. OP124767 lodged in the Central Plan Office. – (15/09883)

YANAKIE – The road in the Parish of Yanakie being Crown Allotment 2013 [area 1.154 hectares], as shown on Original Plan No. OP125062 lodged in the Central Plan Office. – (15/09114)

This Order comes into effect on the date it is published in the Government Gazette.

Dated 4 February 2020

Responsible Minister

HON LILY D'AMBROSIO MP
Minister for Energy, Environment and Climate Change

CLAIRE CHISHOLM
Clerk of the Executive Council

Land Act 1958

CLOSURE OF UNUSED ROADS

Order in Council

The Governor in Council under section 349 of the **Land Act 1958** and with the concurrence in writing of the municipality in which the road is situated and the owner of the land adjoining the road closes the following unused road:

MUNICIPAL DISTRICT OF THE
BASS COAST SHIRE COUNCIL

JEETHO WEST – The road in the Parish of Jeetho West being Crown Allotment 2032 as shown on Original Plan No. OP124746 lodged in the Central Plan Office.

WOOLAMAI – The road in the Parish of Woolamai being Crown Allotment 106J as shown on Original Plan No. OP124768 lodged in the Central Plan Office.

WOOLAMAI – The road in the Parish of Woolamai being Crown Allotment 2057 as shown on Original Plan No. OP124793 lodged in the Central Plan Office.

MUNICIPAL DISTRICT OF THE
SOUTH GIPPSLAND SHIRE COUNCIL

JEETHO WEST – The road in the Parish of Jeetho West being Crown Allotment 2035 as shown on Original Plan No. OP124748 lodged in the Central Plan Office.

File ref: 2000841

This Order is effective from the date it is published in the Government Gazette.

Dated 4 February 2020

Responsible Minister

HON LILY D'AMBROSIO MP
Minister for Energy, Environment and Climate Change

CLAIRE CHISHOLM
Clerk of the Executive Council

Education and Training Reform Act 2006

VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY FEES ORDER

Order in Council

1. The Governor in Council makes this Order under sections 2.5.5(1)(b) and 5.10.3 of the Act.
2. This Order comes into full force and effect on the day it is made and ceases to have any force or effect when it is repealed.
3. For the purposes of sections 2.5.5(1)(b) and 5.10.3(1) of the Act, the Governor in Council, by this Order –
   (a) fixes each amount specified in the Schedule for a service provided by the Authority as the maximum amount which the Authority may charge for that service; and
   (b) repeals the previous Order.
4. In this Order –

   Act means the **Education and Training Reform Act 2006**;

   Authority means the Victorian Curriculum and Assessment Authority;

   previous Order means the Order in Council fixing fees for services which may be charged by the Authority, as made by the Governor in Council on 30 January 2019 and published in Government Gazette G5 on 31 January 2019; and

   Schedule means the Schedule to this Order.

Dated 4 February 2020

Responsible Minister

THE HON. JAMES MERLINO MP
Minister for Education

CLAIRE CHISHOLM
Clerk of the Executive Council

Education and Training Reform Act 2006

VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY FEES ORDER

SCHEDULE

Service	**Amount (in $AUD)**
Examinations outside Victoria	
Interstate service fee (for each examination period)	89.90
Overseas service fee (for each examination period)	267.10
Examinations for interstate or overseas accrediting authorities	58 per hour of time spent by VCAA in preparing and facilitating an examination + up to 307.50 to cover the costs of freight
Inspection of Scripts	
Per Examination	25.55

Replacement certificates and Statement of Results	
Search fee and Replacement Certificate	32.20
24-hour priority fee (additional)	28.55*
Replacement Statement of Results	40.90
24-hour priority fee (additional)	28.55*
Certified copies	
Certified copy of a VCE student's results	17.20
Equivalent qualifications	
Assessment and issue of an equivalent qualification statement	32.20
48-hour priority fee (additional)	28.55*
Request for data	205 per hour of time spent by VCAA in processing the request
Full-fee paying overseas students	
VCE Units 1 and 2 only – three or fewer units	74.10
VCE Units 1 and 2 only – four or more units	222.05
VCE Units 1 and 2 and one Unit 3 and Unit 4 sequence	311.25
Two or more VCE Units 3 and 4 sequence	458.10
Late VCE and VCAL results amendments	
Enrolment changes per unit	9.75
Each VCE Unit 3 and 4 sequence	19.60
Late fee per student for an application received by VCAA after 27 April 2020 for an amendment to 2019 units 1 and 2 results	40.90
Late fee for the amendment of any pre-1 January 2019 VCE and VCAL student enrolment or completion result	153.95
Extension of time for VASS	158.20
Changes to enrolment/withdrawals after the final enrolment date	
Per VCE or VCAL Unit	9.75
Per complete VCE or VCAL student enrolment	96.75
Extension of time for VASS	158.20
IB/GAT administrative fee	74.10
Verification of qualifications	
Per application	33.55
Quarterly subscription fee	335.75

Licence fee for interstate delivery of VCE and VCAL	
Up to 25 students undertaking VCE and/or VCAL	1302.35
26 students to 50 students undertaking VCE and/or VCAL	2604.80
51 students to 75 students undertaking VCE and/or VCAL	3907.15
76 students or more undertaking VCE and/or VCAL	5209.55
Interstate student administration fee	
Units 1 and 2 only – up to three units	74.10 per student
Units 1 and 2 only – four or more units	222.05 per student
One Unit 3 and Unit 4 sequence with any number of Units 1 and 2	311.25 per student
Two or more Unit 3 and 4 sequences	458.10 per student

Note:
All fees and charges are GST-free unless they appear with *

Wildlife Act 1975

REVOCATION OF THE DECLARATION OF COMMON WOMBATS TO BE UNPROTECTED WILDLIFE

Order in Council

The Governor in Council under section 7A(1) of the **Wildlife Act 1975** revokes the Declaration of Common Wombats to be Unprotected Wildlife, made on 27 May 1997 and published in Government Gazette No. G 22 on 5 June 1997.

The revocation comes into effect on the date this Order in Council is published in the Government Gazette.

Dated 4 February 2020

Responsible Ministers:

THE HON LILY D'AMBROSIO MP
Minister for Energy, Environment and Climate Change

JACLYN SYMES MP
Minister for Agriculture

CLAIRE CHISHOLM
Clerk of the Executive Council

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SUBORDINATE LEGISLATION ACT 1994 NOTICE THAT STATUTORY RULES ARE OBTAINABLE

Notice is hereby given under section 17(3) of the **Subordinate Legislation Act 1994** that the following Statutory Rules were first obtainable from TIMG Bookshop, Level 10, 575 Bourke Street, Melbourne 3000, on the date specified:

1. *Statutory Rule*: Livestock Disease Control Amendment Regulations 2020
   Authorising Act: Livestock Disease Control Act 1994
   Date first obtainable: 29 January 2020
   Code A
2. *Statutory Rule*: Conservation, Forests and Lands (Infringement Notice) Amendment (Wildlife (Marine Mammals)) Regulations 2020
   Authorising Act: Conservation, Forests and Lands Act 1987
   Date first obtainable: 29 January 2020
   Code A
3. *Statutory Rule*: Conservation, Forests and Lands (Fisheries Infringement Notices) Regulations 2020
   Authorising Act: Conservation, Forests and Lands Act 1987
   Date first obtainable: 29 January 2020
   Code D
4. *Statutory Rule*: Public Health and Wellbeing Amendment (Coronavirus) Regulations 2020
   Authorising Act: Public Health and Wellbeing Act 2008
   Date first obtainable: 29 January 2020
   Code A
5. *Statutory Rule*: Public Health and Wellbeing Amendment Regulations 2020
   Authorising Act: Public Health and Wellbeing Act 2008
   Date first obtainable: 4 February 2020
   Code A

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