



Midlands Irrigation District Overview Document

Key scheme facts

Volume

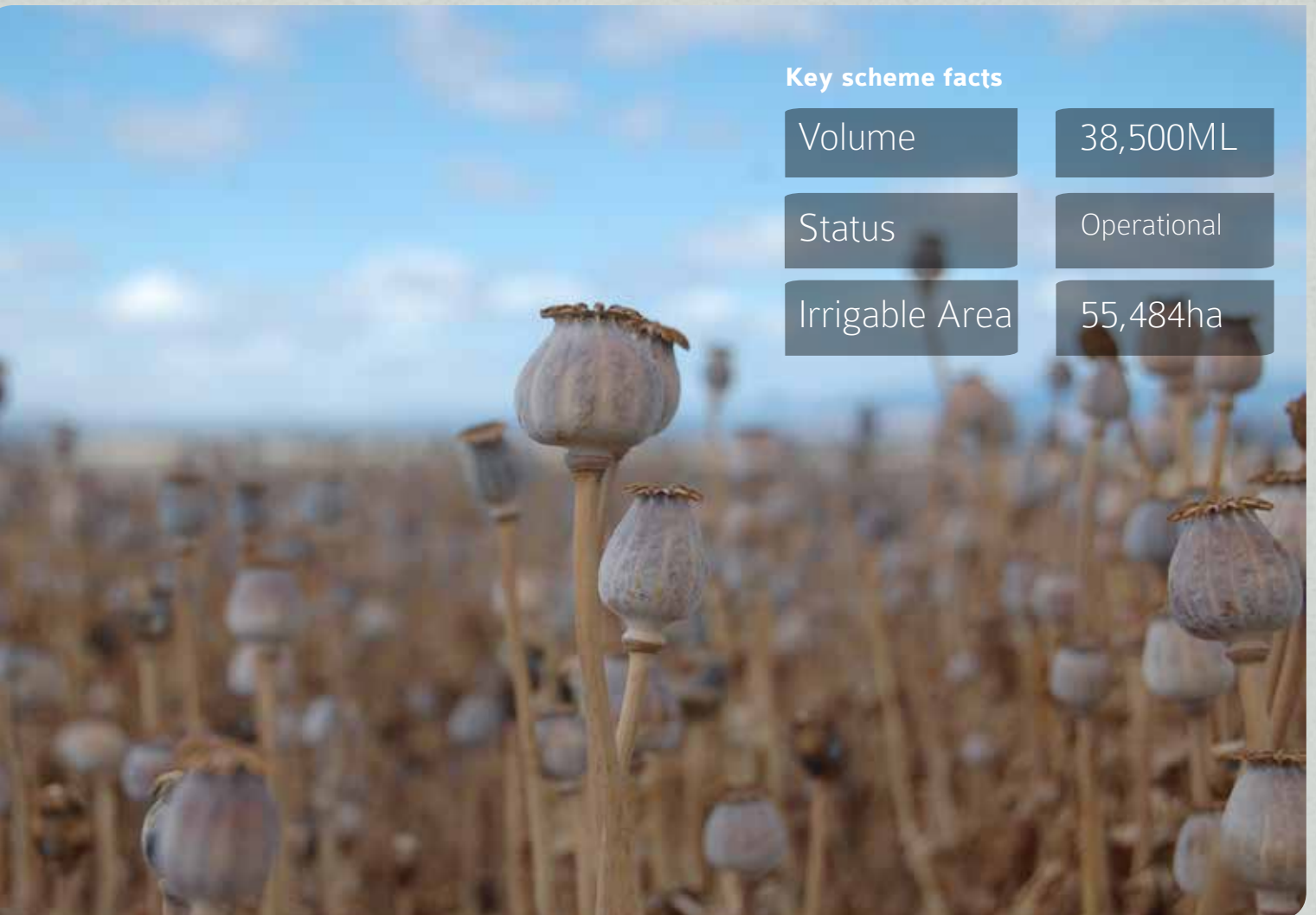
38,500ML

Status

Operational

Irrigable Area

55,484ha



This document has been prepared to provide a summary of important information relating to the irrigation district.

This document provides general information relating to:

- Tasmanian legislation, including the Water Management Act 1999 and the Irrigation Clauses Act 1973; and
- Irrigation Right, Delivery Right and Connection Agreement contracts relevant to the irrigation district.

Any Tasmanian legislation and contracts relevant to the irrigation district shall prevail over the general information provided in this document to the extent of any inconsistency.

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Contents

1.	Important information	1
2.	Scheme overview	3
3.	Legislative environment	5
4.	Tasmanian Irrigation.....	5
5.	Water entitlements	6
6.	Water trading	8
7.	Water charges	10
8.	Connections.....	13
9.	Farm Water Access Plans.....	13
10.	Ordering water	14
11.	Pressures	14
12.	Transmission losses	15

Annexures

Scheme Map

1. Important information

Item	Summary	Further Information
How much water can the scheme supply?	The scheme can supply 38,500 ML of water each year: 15,812 ML during a 150-day summer delivery period (Oct - Feb) and 22,688 ML during a 215-day winter delivery period (Mar - Sep).	Section 2
How can I access supply from the scheme?	Supply from the scheme is accessed through water entitlements. If you do not hold water entitlements, you may obtain them through water trading or purchasing them from Tasmanian Irrigation.	Sections 2, 5 & 6
What are water entitlements?	Water entitlements are either irrigation rights or delivery rights. Irrigation rights confer entitlements to have an allocation of water made available for delivery during each irrigation season. Delivery rights confer entitlements to a share of the capacity of the scheme to deliver water within a zone during the summer and/or winter delivery period of each irrigation season.	Section 5
What is the reliability of the irrigation rights?	Irrigation rights in the irrigation district have been assessed as having a reliability of at least 95 per cent based on the conditions applying at the time reliability was assessed and that the scheme continues to operate as it was originally designed. It should however be noted that the customer bears the risk of any reductions to reliability arising from climate changes or other natural causes.	Section 5
What is the term of water entitlements?	The term of water entitlements is set to match the term of the water supply agreement between Tasmanian Irrigation and Hydro Tasmania which underpins the irrigation district's supply. The initial term of the water supply agreement is 25-years, with up to three extensions: two 25-year extensions and a third being the lesser of 25 years and the unexpired period of Hydro Tasmania's special water licence under the Water Management Act 1999.	Section 5
Are there any eligibility requirements to holding water entitlements?	Tasmanian Irrigation may refuse to issue water entitlements, or approve a transfer of water entitlements, on the basis of credit worthiness. Aside from this, there are no specific limitations on who may hold water entitlements.	Section 6
Do water entitlements provide ownership over infrastructure?	The infrastructure of the irrigation district is owned by Tasmanian Irrigation on behalf of the Tasmanian Government. Water entitlements provide rights to a supply of water from the irrigation district.	Section 5

Item	Summary	Further Information
Are there costs associated with holding water entitlements?	Water entitlement holders are required to pay annual water charges made up of fixed charges levied on water entitlement holdings and variable charges levied on water supplied.	Section 7
Do I have to pay charges if I don't use water?	Fixed charges are payable on water entitlement holdings regardless of whether water is supplied. However, variable charges are only payable on water that is actually supplied.	Section 7
Is GST payable on water charges?	The supply of water is not currently subject to GST. Should the GST treatment of water change, GST may be collected in the future.	Section 7
Are water entitlements tradable?	Water entitlements can be held by anyone and are tradable within the irrigation district on a temporary or permanent basis. The extent of the tradability of water within the irrigation district is based on the zone nomination of delivery rights.	Section 6
Why does the scheme have zones?	Zones arise because of variations in pipeline diameters and other factors that limit the capacity of the scheme to deliver water to different parts of the irrigation district.	Sections 5 & 6
Is anything else required to use water?	In addition to holding water entitlements, to take water from the scheme you will require a property outlet or river off-take, a connection agreement and farm water access plan.	Sections 0 & 9
What is a connection agreement?	A connection agreement provides the link between water entitlements and land by specifying the location at and terms under which water can be taken from the scheme.	Section 0
What is a Farm Water Access Plan?	A Farm Water Access Plan is a management tool that identifies and manages environmental risks associated with the application of water. Its purpose is to demonstrate that the use of water is sustainable and complies with Australian and Tasmanian Government requirements.	Section 9

2. Scheme overview

The Midlands Irrigation District (“irrigation district”) commenced operations during the 2014-15 irrigation season.

The district services agricultural land around the townships of Campbell Town, Ross, Tunbridge, Woodbury, York Plains, Oatlands, Mt Seymour, Jericho and Kempton. Current production in the area includes poppies, cereals, canola, pasture seeds, lucerne, potatoes, and pasture for livestock finishing with potential for dairy conversions and perennial horticulture such as grapes on some sites, depending on the incidence of frost. The climate in the district is comparatively dry, with an average rainfall of approximately 500 mm spread relatively uniformly throughout the year.

The scheme has the capacity to supply 38,500 ML of water over two delivery periods: 15,812 ML during a 150-day summer delivery period (October – February) and 22,688 ML during a 215-day winter delivery period (March – September).

Water supplied in the irrigation district is sourced from Arthurs Lake – a water storage owned and operated by Hydro Tasmania. Water will flow under gravity into the Supply Line at the Arthurs Lake off-take, passing through a mini-hydro electric generator at Floods Creek and then taken into storage at Floods Creek Dam.

Water will be delivered throughout the district by distribution pipelines and a number of natural watercourses supplied by the pipelines. Water in the distribution pipelines will be pressurised at three sites: The Floods Creek Pump Station, Midlands Highway Pump Station and Mt Seymour Pump Station.

A summary of the capacity of the scheme as at **December 2017** is contained in the table on the following page. For reference, a map illustrating the infrastructure of the irrigation district and the zones is contained at the end of this document.

Midlands Irrigation District: supply capacity (ML) and unsold water entitlements (ML)						
Zone	Summer supply	Unsold	Winter supply	Unsold	Total supply	Unsold
Zone 1 (Supply Line)	0	0	0	0	0	0
Zone 2 (Isis River Line)	1,849	0	2,651	825	4,500	825
Zone 3 (Macquarie River Line)	4,963	0	7,136	5,353	12,099	5,353
Zone 4 (Main Line - Floods Creek to Woodbury)	2,178	0	3,122	2,401	5,300	2,401
Zone 5 (Woodbury Line)	864	0	1,239	0	2,103	0
Zone 6 (Main Line - Woodbury to York Plains)	616	0	880	395	1,496	395
Zone 7 (Kittys Rivulet Line)	411	0	592	0	1,003	0
Zone 8 (Mt Seymour Line)	572	0	826	55	1,398	55
Zone 9 (Main Line - York Plains to Lake Dulverton)	448	0	428	243	876	243
Zone 10 (Lake Dulverton Spur)	7	0	219	0	226	0
Zone 11 (Jordan River Line)	3,904	10	5,595	0	9,499	10
Total	15,812	10	22,688	9,272	38,500	9,282

3. Legislative environment

In Australia, water is managed by each state and territory in accordance with the Inter-Governmental Agreement on a National Water Initiative. In Tasmania, water is governed by the *Water Management Act 1999* (“WMA”).

Under the WMA all water resources in Tasmania are vested in the Crown. The Minister for Primary Industries and Water may grant rights to take water under a system of water licences. Water licences are currently administered by the Department of Primary Industries, Parks, Water and Environment (“DPIPWE”).

Where an irrigation district is established, the rights arising under a water licence (or an agreement deriving from a water licence) may be broken into individual shares and issued as irrigation rights. Irrigation rights are administered by entities (such as Tasmanian Irrigation) who are responsible for operating irrigation districts.

Water licences and irrigation rights are statutory water entitlements. They are transferable and separable from land. The irrigation schemes owned, operated and developed by Tasmanian Irrigation use irrigation rights as the statutory basis for water entitlements.

4. Tasmanian Irrigation

As a State-Owned Company, Tasmanian Irrigation’s task is to develop, own and operate irrigation schemes in Tasmania. The strategic objectives of the company are to:

- Manage and deliver reliable water;
- Identify, develop and build irrigation schemes in partnership with the local community;
- Provide value to our irrigation partners;
- Support an active water market in Tasmania which ensures the maximum value is generated from Tasmania’s irrigation infrastructure and resources; and
- Fully realise the benefit of Tasmanian Irrigation’s schemes through increasing high value agricultural production.

With an increased level of operational responsibility, Tasmanian Irrigation continues to transition the focus of the organisation from a developer of irrigation schemes.

The availability of additional irrigation water through the development and operation of irrigation schemes will support Tasmanian farmers to move into higher value production. It will also drive growth and investment in Tasmania’s food and agricultural sectors and rural and regional communities.

5. Water entitlements

Water entitlements are either irrigation rights or delivery rights.

Irrigation rights

Irrigation rights in the irrigation district are issued under the *Irrigation Clauses Act 1973* (“ICA”) and are subject to the terms of the agreements titled “Irrigation Right: Midlands Irrigation District”.

Irrigation rights confer entitlements to have an allocation of water made available for delivery during each irrigation season. The entitlement arising under irrigation rights is defined as a volume and denominated in megalitre (ML) units.

The allocations made to irrigation rights for an irrigation season are calculated by multiplying:

- the entitlement held under irrigation rights on the opening day of the season; and
- the allocation percentage notified by Tasmanian Irrigation before the start of the season and any revision made to the allocation percentage during the season.

If revisions are made to the allocation percentage during a season, the resulting allocations will be made on the basis of the entitlement held under irrigation rights on the day the revision is notified.

Irrigation rights do not provide secure rights to have water delivered but do so when held in conjunction with delivery rights.

Reliability

Irrigation rights in the irrigation district have been assessed as having a reliability of at least 95 per cent based on the conditions applying at the time reliability was assessed and that the scheme continues to operate as it was originally designed.

It should however be noted that the customer bears the risk of any reductions to reliability arising from climate changes or other natural causes.

95% reliability means that over 100 years the annual allocation for each irrigation right will total at least 95% of the annual volume for that irrigation right.

Irrigation season

The irrigation season for the irrigation district opens on 1 October each year and closes on 30 September the following year. The allocations made to irrigation rights during an irrigation season are valid for use or trade during the whole of the season.

Delivery rights

Delivery rights in the irrigation district are subject to the terms of agreements titled “Zoned Flow Delivery Right: Midlands Irrigation District”.

Delivery rights confer entitlements to a share of the capacity of the scheme to deliver water within a zone during the summer delivery period (150 days) and/or winter delivery period (215 days) of each irrigation season. The entitlement arising under delivery rights is defined as a flow rate and denominated in megalitre per day (ML/day) units.

As the delivery capacity of the scheme is not subject to seasonal variation, the allocation made to delivery rights for each delivery period of a season will equal 100 per cent of the summer and/or winter entitlement held under delivery rights on the opening day of the season.

Delivery rights provide assurance that capacity is available to deliver water at a set rate, when and to where it is required. Flow rate entitlements give certainty over the timing of supply and introduce a tradable product through which irrigators can plan water deliveries, manage seasonal risks and maximise the benefit of their entitlements.

Zones

Delivery rights carry a zone nomination which relates to the zones of the scheme as shown on the map of the irrigation district at the end of this document.

Zones arise because of variations in pipeline diameters and other factors that limit the capacity of the scheme to deliver water to different parts of the irrigation district. Each zone originates from the supply source for the irrigation district (i.e. the Arthurs Lake offtake) and extends to the furthest downstream point of the zone as shown on the map.

For example, Zone 8 (the Mt Seymour Line) does not just include those parts of the scheme identified on the map as Zone 8 but also includes Zone 6, Zone 4 and Zone 1 because water must necessarily pass through these zones to reach Zone 8.

Term of water entitlements

The term of the water entitlements issued in the irrigation district is set to match the term of the water supply agreement between Tasmanian Irrigation and Hydro Tasmania which underpins the irrigation district's supply. The initial term of the water supply agreement is 25 years, with up to three extensions: two 25 year extensions and a third being the lesser of 25 years and the unexpired period of Hydro Tasmania's special water licence under the WMA.

Security interests

Security interests may be registered against irrigation rights and delivery rights on the water entitlements register maintained by Tasmanian Irrigation for the irrigation district.

If a security interest is recorded against an irrigation right and/or delivery right, a transfer exceeding 12 months will only be approved if consent to the transfer is given by the holder of the registered security interest.

A security interest will be recorded by Tasmanian Irrigation against an irrigation right and/or delivery right if:

- an application is made on the prescribed form;
- the security interest registration fee is paid; and
- either the registration is consented to by the holder of the irrigation right and/or delivery right or the security interest is verified to Tasmanian Irrigation's reasonable satisfaction.

6. Water trading

Irrigation rights and delivery rights are tradable within the irrigation district in accordance with the ICA and the Trading Rules for the irrigation district.

Trades are made by transferring volume between irrigation rights and flow rate between delivery rights. To take effect, a transfer must be approved by Tasmanian Irrigation and recorded in the water entitlements register for the irrigation district.

Trade types

There are two categories of trades – entitlement trades and allocation trades – and three types of transfers – permanent transfers, limited term transfers and short term transfers. Entitlement trades include permanent and limited term transfers, while allocation trades refer to short term transfers.

Entitlement trades are transfers of the volume and flow rate entitlements held under irrigation rights and delivery rights. A permanent transfer (sale) will result in an absolute change in the ownership of entitlements, while a limited term transfer (lease) will result in a change in ownership for a defined period of time.

Allocation trades refer to transfers of the volume and flow rate allocations that have been made to irrigation rights and delivery rights for a particular irrigation season. Because allocations are made on the first day of a season, short term transfers will necessarily take effect entirely within one season.

Tradability

The tradability of water within the irrigation district is regulated through the zone nomination of delivery rights. A transfer of flow rate will only be approved if:

- in the case of permanent transfers, the zone nomination of the transferor's delivery right is the same as the zone nomination of the transferee's delivery right;
- in the case of limited term or short term transfers, the zone nomination of the transferor's delivery right is the same as or compatible with the zone nomination of the transferee's delivery right; or
- Tasmanian Irrigation approves the transfer on the basis that it does not exceed the capacity limitations of the scheme taking account of all other delivery rights issued.

Conditions

Important additional conditions to Tasmanian Irrigation's approval of transfers include:

- that all money owing to Tasmanian Irrigation by the transferee and transferor is paid;
- that the sale price of the transfer is disclosed;
- in the case of transfers exceeding 12 months, that the transfer is consented to by the holders of any registered security interests;
- in the case of a permanent transfer, Tasmanian Irrigation is satisfied as to the credit worthiness of the transferee; and
- in the case of limited and short term transfers, the transferor remains liable for all money not paid by the transferee in relation to the transferred entitlement or allocation.

Tasmanian Water Trading Notice Board

To assist buyers and sellers of water entitlements establish connections, Tasmanian Irrigation has launched the Tasmanian Water Trading Notice Board. The Notice Board allows parties to advertise their interest in buying, selling or leasing water entitlements.

If you would like to place an advertisement on the Notice Board or view advertisements that have been posted to the Notice Board by other parties, you can access the Notice Board via Tasmanian Irrigation's website at www.tasirrigation.com.au.

The Notice Board is a free service provided by Tasmanian Irrigation in support of the development of a water market in Tasmania.

7. Water charges

The on-going costs associated with the irrigation district and its related infrastructure are funded through annual water charges, which comprise of fixed charges that are levied on water entitlement holdings and variable charges that are levied on actual water supplied.

Each year, prior to the start of the irrigation season Tasmanian Irrigation determines water charges. Current year charges are contained in the annual pricing announcement which is available prior to the opening of the irrigation season. Please be aware that these charges are subject to change and are determined each year on the basis of costs applying at that time.

The supply of water is not currently subject to GST and accordingly Tasmanian Irrigation does not collect GST in respect of the water charges. Should the GST treatment of water change, GST may be collected in the future.

Water charges are further detailed in the **annual pricing announcement**, which can be found on our website. If you require a copy of the annual pricing announcement, please contact our office.

Fixed charges

Fixed charges include an operations and maintenance charge and asset renewal levy. These charges are levied on water entitlement holdings and are payable regardless of whether any water is supplied.

The operations and maintenance charge recovers the fixed costs associated with the irrigation district, including costs associated with employee entitlements, vehicles, plant and equipment, routine maintenance, telemetry, compliance, administration, finance and insurance.

The asset renewal levy provides for refurbishment and replacement of significant scheme assets and funds that may be made available in the unlikely event of a major scheme failure. Funds collected through the levy are set aside in an asset renewal reserve for the benefit of the irrigation district.

Variable charges

Variable charges are payable on water supplied during the respective delivery periods and vary across the scheme to reflect differences in the cost of supplying water to different parts of the irrigation district.

Variable charges recover the costs associated with purchasing water from Hydro Tasmania and pumping it through the pipeline distribution network. Revenue generated by the Midlands Power Station is deducted from these costs.

A breakdown of the charges for each area and descriptions of the parts of the scheme each charge is applicable to are provided below.

ex Arthurs Lake

The ex Arthurs Lake pricing area includes water extracted along the Supply Line between Arthurs Lake and the Midlands Power Station. The estimated variable charge is based solely on the Hydro Tasmania Water Price as there are no pumping costs incurred along this section of the scheme and no electricity is generated until water flows through Midlands Power Station.

ex Midlands Power Station

Hydro
Tasmania
Water Price

ex Midlands Power Station

The ex Midlands Power Station pricing area includes water extracted between the Midlands Power Station and Floods Creek Pump Station, including the Isis River Line and water supplied to the Macquarie River (via Floods Creek and the Blackman River). The estimated variable charge is based on the ex Arthurs Lake charge less revenue generated at Midlands Power Station.

ex Midlands Power Station	Hydro Tasmania Water Price	<i>less</i> Power Station Revenue
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ex Floods Creek Pump Station

The ex Floods Creek Pump Station pricing area includes water extracted between the Floods Creek Pump Station and Midland Highway Pump Station, including the Woodbury Line. The estimated variable charge is based on the ex Midlands Power Station charge and accounts for pumping costs incurred at Floods Creek Pump Station.

ex Floods Creek Pump Station	Hydro Tasmania Water Price	<i>less</i> Power Station Revenue	Pumping at Floods Creek
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ex Midlands Highway Pump Station

The ex Midland Highway Pump Station pricing area includes water extracted between the Midland Highway Pump Station and Mt Seymour Pump Station, including the Main Line between Woodbury and York Plains, Kittys Rivulet Line, that part of the Mt Seymour Line upstream (north) of the Mt Seymour Pump Station and the Jordan River Line. The estimated variable charge is based on the ex Floods Creek Pump Station charge and accounts for pumping costs incurred at the Midland Highway Pump Station.

ex Midlands Highway Pump Station	Hydro Tasmania Water Price	<i>less</i> Power Station Revenue	Pumping at Floods Creek	Pumping at Midlands Highway
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ex Mt Seymour Pump Station

The ex Mt Seymour Pump Station pricing area includes water extracted on that part of the Mt Seymour Line downstream (south) of the Mt Seymour Pump Station. The estimated variable charge is based on the ex Midland Highway Pump Station charge and accounts for pumping costs incurred at the Mt Seymour Pump Station.

ex Mt Seymour Pump Station	Hydro Tasmania Water Price	<i>less</i> Power Station Revenue	Pumping at Floods Creek	Pumping at Midlands Highway	Pumping at Mt Seymour
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Hydro Tasmania Water Price

Supply in the irrigation district is underpinned by a water supply agreement between Tasmanian Irrigation and Hydro Tasmania. The agreement recognises that water taken from Arthurs Lake would have otherwise been used to generate electricity at Poatina Power Station and Trevallyn Power Station. Accordingly, Tasmanian Irrigation is required to pay Hydro Tasmania for the water it takes from Arthurs Lake equal to an estimate of the value of revenue that would have been made by Hydro Tasmania if that water was used for power production. The estimated value of lost generation is based on the price of wholesale electricity, renewable energy certificates and incorporates an annual adjustment to avoid large upward fluctuations in the price during periods of extended drought.

8. Connections

The water entitlements issued in the irrigation district are separate from land.

To access water from the irrigation district, a connection to a pipeline of the scheme or an off-take from a watercourse used by the scheme to deliver water needs to be in place and associated with water entitlements through a connection agreement.

Connection agreements specify the location at which water may be accessed from the scheme, and contain the terms and conditions of taking supply through a property outlet or river off-take.

An important condition of connection agreements is that water taken from the irrigation district may only be used on land that is covered by a Farm Water Access Plan (see section 9 below).

To discuss connection requirements, please contact Tasmanian Irrigation.

9. Farm Water Access Plans

A Farm Water Access Plan must be in place for every property that receives water from the irrigation district.

Farm Water Access Plans are management tools demonstrating that the use of water is sustainable and complies with Australian and Tasmanian Government requirements. The plans are completed in accordance with soil, water and biodiversity modules and specify management actions where environmental risks associated with irrigation are identified.

Farm Water Access Plans are completed by pre-qualified consultants authorised by the Minister for Primary Industries and Water. To keep costs to a minimum, Tasmanian Irrigation is able to assist with the preparation of maps and baseline information required to complete farm water access plans and can arrange for tendering work to the pre-qualified consultants.

As an indication of the cost of preparing a Farm Water Access Plan, the net cost to landholders to date has generally been \$2,200 (inc. GST) or less. This figure is provided as a reference only. The actual cost to prepare a Farm Water Access Plan may be higher and will be determined at the time a quote is sought from a pre-qualified consultant.

Amongst other things, the factors affecting the price of Farm Water Access Plans include:

- the size of the area to be assessed;
- existing land capability data for the area to be assessed; and
- the likelihood of threatened species, ecological communities or other matters of environmental significance occurring in or near the area to be assessed.

Tasmanian Irrigation is required to conduct random annual audits of Farm Water Access Plans each year to ensure compliance.

10. Ordering water

To receive water from the irrigation district you must place a water order.

Water orders can be completed and submitted electronically via Tasmanian Irrigation's website at www.tasirrigation.com.au. Alternatively, water order forms can be downloaded from the website, completed in hard copy and either emailed or faxed.

Ordering water is an important requirement in the irrigation district. Failure to order water may lead to compliance actions.

11. Pressures

Tasmanian Irrigation guarantees a minimum pressure of 5m head (equivalent to 49kPa or 7psi) at each property outlet connected to a pipeline of the scheme.

However, the actual pressure experienced at a property outlet may be higher depending on the proximity of the outlet to a pump station or pressure reducing valve and the relative height of the outlet. It can also vary depending on where and how much water is being taken elsewhere in the scheme.

To assist irrigators to understand the range of pressures that may be experienced at an outlet, Tasmanian Irrigation can provide information on the range of pressures that are likely to be experienced at different points along the pipeline alignment.

The provision of information on pressures is given on the basis of the scheme as it is currently designed and will not in any way limit the ability of Tasmanian Irrigation to make changes to the scheme or create an obligation on Tasmanian Irrigation to warrant those pressures.

The only obligation that Tasmanian Irrigation will assume in relation to pressure is an obligation to supply a minimum pressure of not less than 5 m head (7 psi) at each property outlet connected to a pipeline of the scheme.

Information on pressure estimates can be provided by Tasmanian Irrigation on request.

12. Transmission losses

Where water from the irrigation district is delivered using a watercourse, transmission losses will be incurred from the point at which it is released into the watercourse to the point at which it is extracted. These losses will be deducted from the amount of water that can be taken by an irrigator receiving water from the irrigation district via a watercourse.

Transmission loss rates will be determined by Tasmanian Irrigation and DPIPW Transmission loss rates under a watercourse authority via conveyance management plan (CMP) using the best available information on the conveyance efficiency and performance of a watercourse. In the future this information will be generated by the schemes infrastructure.

Tasmanian Irrigation has undertaken a number of studies of the watercourses used to deliver water. Summary results of these studies are presented in the tables below. The transmission loss rates were applied for the 2014/15 irrigation season and is currently under review as part of the watercourse authority conditions.

Isis River: estimated transmission loss rates						
Zone	Loss Estimate	Reach Length	Estimated Loss During Summer Operating Conditions	Typical summer flow inclusive of irrigation release (ML/day)	Estimated Loss During Winter Operating Conditions	Typical winter flow inclusive of irrigation release (ML/day)
Release Point – Auburn	Moderate to High	7.5 km	1% per km ± 0.7% per km	10.84	0.7% per km ± 0.3% per km	12.01
Auburn – Isis Rd	High	9.25 km	1% per km ± 0.5% per km	10.19	0.5% per km ± 0.3% per km	14.07
Isis Rd – Macquarie Confluence	Moderate	12.05 km	0.5% per km ± 0.3% per km	9.50	0.1% per km ± 0.2% per km	16.90

Macquarie River (via Floods Creek & Blackman River): estimated transmission loss rates

Winter Losses

Flow (ML/day)	Reach 1 - Floods Ck Dam to Tunbridge		Reach 2 - Tunbridge to Macquarie River		Floods Creek Dam to Macquarie River
	Percentage Loss Estimate	Estimated Percentage Loss/km	Percentage Loss Estimate	Estimated Percentage Loss/km	Total Percentage Loss Estimate
5	7.5	0.64	7.52	0.73	15.02
10	7.25	0.62	7.18	0.69	14.43
20	6.7	0.57	6.78	0.65	13.48
30	6.15	0.53	6.37	0.62	12.52
40	5.65	0.48	5.90	0.57	11.55
50	4.95	0.42	5.29	0.51	10.24
60	4.3	0.37	4.74	0.46	9.04
63	4.1	0.35	4.40	0.42	8.50

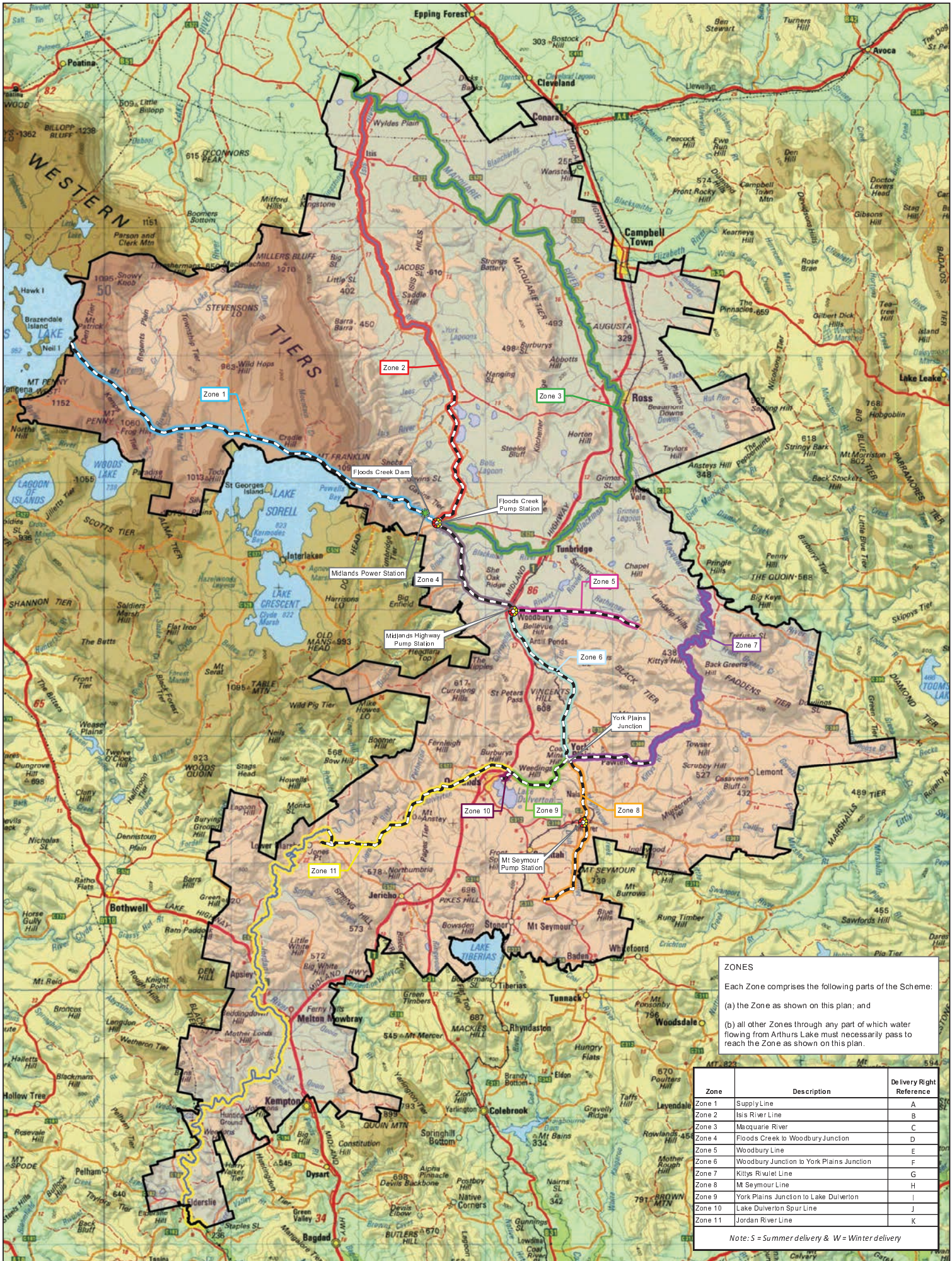
Summer Losses

Flow (ML/day)	Reach 1 - Floods Ck Dam to Tunbridge		Reach 2 - Tunbridge to Macquarie River		Floods Creek Dam to Macquarie River
	Percentage Loss Estimate	Estimated Percentage Loss/km	Percentage Loss Estimate	Estimated Percentage Loss/km	Total Percentage Loss Estimate
5	10.85	0.93	11.52	1.11	22.37
10	10.6	0.91	10.98	1.06	21.58
20	10.1	0.86	10.16	0.98	20.26
30	9.7	0.83	9.42	0.91	19.12
40	9.2	0.79	8.67	0.84	17.87
50	8.65	0.74	7.79	0.75	16.44
60	8.05	0.69	6.98	0.67	15.03
63	7.95	0.68	6.71	0.65	14.66

* Loss rates will be determined as part of an operating agreement with the Elizabeth Macquarie Irrigation Trust.
In 2014-15 these are expected to be nil.

Kittys Rivulet: estimated transmission loss rates						
Zone	Loss Estimate	Reach Length	Estimated Loss During Summer Operating Conditions	Typical summer flow inclusive of irrigation release (ML/day)	Estimated Loss During Winter Operating Conditions	Typical winter flow inclusive of irrigation release (ML/day)
Release Point – Trappers Hut Creek Confluence	Moderate to High	5.2 km	1% per km ± 0.5% per km	7.50	0.7% per km ± 0.4% per km	8.50
Trappers Hut Creek Confluence – Kittys Corner	Moderate	6.8 km	0.5% per km ± 0.3% per km	10.56	0.3% per km ± 0.2% per km	13.70
Kittys Corner – Macquarie Confluence	Low to Moderate	11.6 km	0.4% per km ± 0.2% per km	14.04	0.2% per km ± 0.1% per km	19.32

Jordan River: estimated transmission loss rates						
Zone	Loss Estimate	Reach Length	Estimated Loss During Summer Operating Conditions	Typical summer flow inclusive of irrigation release (ML/day)	Estimated Loss During Winter Operating Conditions	Typical winter flow inclusive of irrigation release (ML/day)
Release Point – Lynwood	Low to Moderate	4.6 km	0.4% per km ± 0.2% per km	14.65	0.3% per km ± 0.2% per km	16.30
Lynwood – Munros Hill	Moderate	11.5 km	0.5% per km ± 0.3% per km	14.41	0.3% per km ± 0.2% per km	16.59
Munros Hill – Green Ponds Rivulet Confluence	Low to Moderate	18.3 km	0.4% per km ± 0.2% per km	12.40	0.2% per km ± 0.1% per km	14.02
Green Ponds Rivulet Confluence – Sand Hill	Moderate	18.7 km	0.5% per km ± 0.3% per km	9.95	0.2% per km ± 0.2% per km	13.52
Sand Hill– Elderslie	High	3.8 km	1% per km ± 0.5% per km	7.10	0.4% per km ± 0.3% per km	11.51



ZONES

Each Zone comprises the following parts of the Scheme:

(a) the Zone as shown on this plan; and

(b) all other Zones through any part of which water flowing from Arthur's Lake must necessarily pass to reach the Zone as shown on this plan.

Zone	Description	Delivery Right Reference
Zone 1	Supply Line	A
Zone 2	Isis River Line	B
Zone 3	Macquarie River	C
Zone 4	Floods Creek to Woodbury Junction	D
Zone 5	Woodbury Line	E
Zone 6	Woodbury Junction to York Plains Junction	F
Zone 7	Kittys Rivulet Line	G
Zone 8	Mt Seymour Line	H
Zone 9	York Plains Junction to Lake Duverton	I
Zone 10	Lake Duverton Spur Line	J
Zone 11	Jordan River Line	K

Note: S = Summer delivery & W = Winter delivery

Midlands Water Scheme - Zones

Legend Pump stations Midlands Power Station Pipeline alignment MWS participating rivers		Zones Zone 1 Zone 2 Zone 3 Zone 4 Zone 5 Zone 6 Zone 7 Zone 8 Zone 9 Zone 10 Zone 11		MWS Irrigation District		North Map Scale 1:265,000 When printed at A3 0 1 2 3 4 Kilometres		Base image by TASMAR, © State of Tasmania Base data from the LUST, © State of Tasmania Map Updated by FB Tasmanian Irrigation Pty Ltd Date: 10/07/2014		 Map No: MWS-M0100-003 Version: 003	
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