

PFT Agriculture



**Submission to Department of Planning &
Environment**

**Draft Regional Water Strategy
Macquarie - Castlereagh
Part 1**

16 November 2022

Introduction:

PFT Agriculture is a family owned and operated perennial horticultural business sourcing water for irrigation from Summer Hill Creek (SHC) since 1980. Businesses operated by family members have been in continuous horticultural production since 1920. Irrigation water sourced from Summer Hill Creek is critical to maintain the business's sustainability – especially during dry periods.

In order to manage one of its key production risks, the [REDACTED] business acquired an irrigation water licence in 1980 and an additional licence in 2016. In addition, in winter 2017, PFT Agriculture constructed an additional storage dam for irrigation purposes, linked to the licence from SHC acquired in 2016. Further, during the extremely dry Spring of 2019 the business, at considerable expense, converted from under tree sprays to drip irrigation to reduce water consumption and better manage available water.

In addition to the operation of its fruit growing business, PFT Agriculture is also an active member of the Summer Hill Creekcure Inc (SHCC Inc) landcare group.

This submission commenting on the Draft Regional Water Strategy for the Macquarie – Castlereagh catchment will attempt to focus on matters specific to the PFT Agriculture business, although many of the issues raised are also common to those of SHCC Inc and other stakeholders downstream of Orange on Summer Hill Creek.

It should also be noted that PFT Agriculture was unaware of the first round consultation session held in Dubbo that formed the basis of the Draft Strategy document. Therefore it and Summer Hill Creekcure Inc have had no inputs to Strategy development so far.

PFT Agriculture ([REDACTED]) also attended the public forum relating to the draft Macquarie-Castlereagh Regional Water Strategy in Orange on Monday 14 November. We hope our comments made to the presenters have also been noted and will attempt to reiterate them in this submission.

Impact of Cumulative Extractions from the Summer Hill Creek System

Before making specific comments in relation to the Draft Regional Water Strategy – Macquarie Castlereagh, PFT Agriculture believes it is important to understand the extraction history of Summer Hill Creek system and the cumulative impacts they have created.

Whilst there are numerous farm dams in the Summer Hill Creek system upstream of the water storages operated by Orange City Council (OCC), the extraction history below purely relates to the water assets of OCC. Chronologically, the extractive assets operated by OCC are;

- 1890 Gosling Creek Reservoir constructed
- 1918 Orange sewage scheme & treatment plant also commissioned
- 1918 Regular discharge (return) of treated effluent to Blackmans Swamp/Summer Hill Creek commenced
- 1931 Spring Creek Reservoir completed
- 1947 Spring Creek Reservoir wall raised

- 1962 Suma Park Dam completed
- 1962 Gosling Creek Reservoir decommissioned – now used for recreational purposes
- 1998 Orange City Council commenced transfer of Orange’s treated effluent to Newcrest’s Cadia Mine in lieu of discharging (returning) to Blackmans Swamp Creek/ Summer Hill Creek system. This has resulted in a net loss of an estimated 7-10 ML/day from the SHC system to the Lachlan Valley catchment.
- 2009 Blackmans Swamp Creek Stormwater Harvesting Stage 1 commissioned, extracting water from the Blackman’s Swamp Creek above its confluence with Summer Hill Creek and transferring water to Suma Park Dam.
- 2009 Blackmans Swamp Creek (BSC) Stormwater Harvesting scheme’s 230 ML holding dam constructed on an un-named tributary of BSC.
- 2016 Suma Park Dam wall raised by one metre
- 2016 Storm Water Harvesting Stage 1 commissioned after Land Board Hearing – flow rules instituted for Summer Hill Creek downstream of Suma Park Dam following an NCAT determination
- 2021 An application submitted to NRAR by OCC for a proposed Storm Water Harvesting Stage 2 – also known as the East Orange Harvesting Wetland (EOHW).
- 2021 September 2021 – approximately 80 objections lodged with NRAR in relation to the OCC application.
- 2022 March 2022 – NRAR rejected the OCC application – SHCC Inc not advised until 19th September 2022 via a letter from DPIE CEO NSW Water Sector
- 2022 October 28th 2022 – OCC lodge application for proposed Storm Water Harvesting Stage 2 with DPE – no consultation with downstream stakeholders

The Unique Situation of the Orange Water Supply and its Impacts on the Summer Hill Creek System

In relation to every other major city within the state of NSW, Orange is perhaps unique in that it is not located on a riverine water source. It is situated at the highest altitude of all the regional cities in the State and is at the very top of the Macquarie Castlereagh catchment. The water assets operated by Orange are supplied from a very small catchment area. Therefore, by this definition, Orange has a very limited potential water supply and has an over-reliance on the Summer Hill Creek system to meet its water needs.

Also unique is the situation where OCC effectively controls all flows in Summer Hill Creek below the Suma Park Dam wall, except when it is spilling during wet periods. In the periods when Suma Park Dam is not spilling, the vast majority of flows in Summer Hill Creek emanate from Blackmans Swamp Creek. With the approval and implementation of the Storm Water Harvesting Stage 1 project, OCC effectively harvests and controls a significant portion of the BSC flows, with the exception of wet periods.

The potential approval of the proposed EOHW will result in OCC having additional physical ability to harvest and control a very large proportion of flows within the BSC system. This is particularly the case

during dry periods. The result is that SHC system and its stakeholders over the 60 downstream creek bed kilometres to the Macquarie River will be very much dependent on OCC honouring the intent of the current flow and operating rules associated with Stage 1 SWH if there is to be no adverse impact from the construction of the EOHW. The discussion in The PFT Agriculture Submission to NRAR (see Annexure) demonstrates that the proposed EOHW circumvents the intent and effect of the Stage 1 rules.

If the EOHW is not approved, OCC will not be able to control flows in BSC to the same extent. This means that the downstream environment and stakeholders at least have a chance of accessing beneficial volumes of water that currently “escape” Stage 1 SWH. The prospect of OCC being able to physically control flows to the extent proposed in the EOHW REF is daunting to the downstream community, especially given the track record of OCC interactions with downstream stakeholders in relation to the SHC and BSC systems. Previous actions have already demonstrated that OCC has no real regard for the interests and needs of the downstream community. Allowing OCC physical control of flows in SHC in dry periods to the extent of some of the proposed Actions will lead to significant detriment of the downstream environment (including a significant platypus population) and a lack of amenity in key park and heritage areas.

Of most concern to PFT Agriculture is that some of the proposed Actions in the Strategy Document will render the horticultural businesses operated by it and Mirramac unsustainable and unviable, with a considerable reduction in asset values and an inability to meet financial commitments. The proposed Actions will be a final nail in the coffin for these long standing enterprises when the next dry period occurs – these matters are discussed further on in this submission and its Annexure.

PFT Agriculture believes that the Summer Hill Creek system has already been over-exploited as a water source by the City of Orange. Proposals such as the EOHW may supply additional water to the residents of Orange, but this comes at great expense to the downstream community, especially during dry periods. The Draft Strategy document itself states that the proposed Actions relating to Storm Water Harvesting will only meet a small part of the long term water requirements for Orange.

The Strategy (in relation to securing the water needs of Orange) should focus on bigger picture options, namely;

- Increasing the storage capacity of Orange water supply
- Recycling of treated effluent for potable use
- Integration with Regional water security networks linked to large water sources

Comments - Draft Macquarie-Castlereagh Water Strategy

General Comment

It was pleasing to read Minister Anderson's foreword where he stated that "When managing water in NSW my view is **healthy rivers, healthy farms and healthy communities. Not one or the other.**" In his second last paragraph he said "**There is no 'one size fits all'**. **Water is for everyone**, and we are ensuring our water management policies support the future of the Macquarie-Castlereagh and all of NSW". Whilst these statements are extremely commendable, in relation to the Summer Hill Creek system, they are not reflected within the strategies stated in the actual draft document.

PFT Agriculture's concern with the draft strategy document relates to the upper catchment of the Macquarie Castlereagh system, particularly the Summer Hill Creek water source. In 1998 SHC was included in the "Highly Stressed" category of the NSW Stressed Rivers Report (DLWC), meaning that at that time, it was regarded as one of the **most stressed** water courses in NSW. As evidenced above, there has been a significant increase in cumulative extractions since that time, leading to a "death by a thousand cuts" scenario for the SHC system and its stakeholders.

The strategies identified in the Draft Strategy appear to further exacerbate the extraction levels from the SHC system rather than commit to realising the commitments made in Minister Anderson's Foreword.

Specific Comments

1. Snapshot – Key Environmental Assets - Page 8 - There is no reference to three key environmental assets in the Summer Hill Creek system – namely the Mullion Range State Park, the Ophir Reserve Heritage Area and the Giralang Nature Reserve.
2. Proposed Water Security Challenges and Priorities – Page 12 – The Vision and Objectives are all commendable. The Regional Challenges also seem to be well defined, as are the Priorities that are identified. However, PFT Agriculture takes issue with a number of the Actions identified for each of the Priorities
3. Stakeholder Engagement – page 21 – As stated above, PFT Agriculture was unaware of the first consultation session conducted in Dubbo, at which the issues raised in this submission would have been expressed.

Key Issues relating to Priorities and Actions

Priority 1 and Actions 1.1-1.8 – Secure Water Supplies for Growing Regional Cities & Towns

Proposed Actions 1.1 and 1.2: These seem to be sound – albeit that stakeholders within the specific watershed should be able to have an input into the development of the decision making process and a say in the during extreme drought conditions.

Proposed Action 1.3:

The discussion around Priority 1 in the Draft Strategy appears to assume that the need to secure water for the benefit of urban municipalities and their customers trumps the needs of all other sectors of the community, especially those downstream of the municipality. In this Draft Strategy, Bathurst and Orange are specifically referred to. There is also reference to measures that are proposed to change the triggers for suspending irrigation access below dams. PFT Agriculture has limited knowledge of the situation facing irrigators below Chifley Dam. However, in relation to Suma Park Dam at Orange, we are one of two active irrigators who will be significantly adversely impacted by this proposal. In the case of PFT Agriculture, the consequences of the proposed Action 1.3 will be dire, for the following reasons

- the business will be affected to the extent that it will be rendered non-viable in dry times, which historically have been the periods when we are able to generate profits
- the business will be unable to generate income needed to sustain the capital intensive business into the future. The proposed Action 1.3 will effectively eliminate the ability of a family business to operate into the future – one that has operated for over 100 years on a continuous basis
- the business will be unable to meet financial commitments to its financiers
- the asset base of the business will be significantly adversely affected
- a licenced entitlement that has existed since 1980 will effectively be taken away
- recent long term (20+ year) capital expenditures on perennial orchard plantings will be rendered valueless. The decision to incur these expenditures was made validly, based on the water entitlement and availability conditions which existed at the time
- the business has deferred recent capital expenditures due to the approach being adopted by OCC in relation to the water supply entitlements of PFT Agriculture. The consequence of these forced decisions is that the business will not be sustainable in the long term.

The following points should be considered in relation to the proposed change of triggers for Suma Park Dam environmental flow rules;

- The current rules were developed following a protracted Land Board Hearing process in relation to the Orange City Council (OCC) application for approval of Storm Water Harvesting Stage 1, followed by a Determination from NCAT. These rules were agreed to by OCC and downstream objectors to achieve a resolution to a dispute over the construction of Stage 1 SWH. How is it possible that these rules can be proposed to be changed given the considerable expense and effort it took for this settlement to be developed? It does not seem fair or just that this scenario is even being contemplated by both OCC and the authorities that have developed this Draft Strategy. What gives authorities and local government the right to actively discriminate against and specifically target family owned businesses that have operated continuously for over 100 years? Given the process through which the current flow rules were derived, and the agreement to OCC to meet them
- Annexure 1 provides significant detailed background information in relation to the PFT Agriculture business.

- Actions taken by OCC since 1998 have led to a significant reduction in water security for irrigation licence holders sourcing water from Summer Hill Creek downstream of Orange. The proposed Action 1.3 is a further example of the bulldozer approach being adopted by OCC in its quest to obtain water supplies at the expense of all other sectors of the downstream community. Surely this is an unacceptable situation.

PFT Agriculture does not agree with concept raised in the paragraph titled “Operation of Suma Park and Winburndale dams – for reasons stated above.

Proposed Action 1.4: PFT Agriculture agrees with the concepts raised in the discussion of Action 1.4

Proposed Action 1.5:

Page 27 of the Draft Strategy refers to the current water security investments for Dubbo, Orange and Bathurst. Stage 2 of the Storm Water Harvesting Scheme is referred to as though it has been approved and ready to be constructed. PFT Agriculture understands that this is **not the case**. Rather, OCC have lodged an application with DPE for approval of the scheme – its application for the same scheme having been rejected by NRAR in March 2022 on the basis that it contravened the Water Sharing Plan for the Macquarie-Bogan Unregulated Rivers.

PFT Agriculture has been recently advised that there has now been an Amendment to the Water Sharing Plan which would allow the proposed Storm Water Harvesting Stage 2 to be constructed. This is also of great concern for the following reasons:

- There appears to have been a lack of due process where stakeholders have not been given the ability to make comment on the (proposed) Amendment
- The Macquarie Bogan Unregulated Rivers WSP is currently part way through a review process and the Amendment has been pushed through without being critically reviewed. There does not appear to have been any analysis of the impacts of the Proposed Amendment.
- The Amendment in effect prioritises the need for urban town water over all other water users without considering external impacts.

PFT Agriculture has been advised that the OCC application to DWE still has to undergo rigorous assessment, and that public submissions will be invited in relation to the application. The text of the Draft Water Strategy seems to be worded in a way that indicates that the proposal will be approved, which may mean that public consultation on the matter is irrelevant and that a decision has already been made at the highest levels of government and the appropriate Department(s).

The appearance of Storm Water Harvesting Stage 2 in the Draft Strategy as a “done deal” is a matter of extreme concern to the stakeholders of SHC. It would indicate an absence of due process and a failure to consult with the downstream community which will suffer significant adverse effects that do not appear to have been adequately assessed.

The opinions of PFT Agriculture in relation to the proposed Storm Water Harvesting Stage 2 are clearly expressed in its submission to NRAR, attached as an Addendum to this submission.

Advanced Water Treatment and Recycled Water Facilities. PFT Agriculture believes the concepts behind these proposals are good. PFT Agriculture does not agree with the statement that Recycled Water from Orange will **not** be available for potable use for the residents of Orange, but rather supplied only to the Newcrest Cadia mine. Recycled water should be made available for potable water for Orange residents and businesses, hence reducing the water supply infrastructure requirements of OCC. Recycled water should also be considered as a potential supplement for environmental flow requirements to the downstream community of Summer Hill Creek – this keeping a portion of water within the system from which it was extracted. The Strategy document should emphasise the need for early and rapid adoption of recycled water technologies to meet the water demand scenarios in the short to medium term, not relegate it to a 10+ year timeframe.

Proposed Action 1.6

PFT Agriculture supports the concepts of a new infrastructure dam in the Upper Macquarie (eg Ulmarrah dam at Dixons Long Point), as additional storage for Orange water supply is essential to meet the requirements of the future. This concept, however, requires detailed assessment above that provided in the Draft Strategy document

NOTE: Additional comment (Part 2) to be lodged by Friday 25 November 2022

ATTACHMENT: PFT Agriculture – Submission to Natural Resource Access Regulator – Re: Objection to Combined Water Supply Work and Water Use Approval Application Ref: A027231 by Orange City Council – Proposed East Orange Harvesting Wetland – September 2021

PFT Agriculture



Submission to Natural Resource Access Regulator

Licensing and Approvals

Re: Objection to Combined Water Supply Work and
Water Use Approval Application Ref: A027231 by
Orange City Council (OCC)

Proposed East Orange Harvesting Wetland

21 September 2021

Introduction:

PFT Agriculture is a family owned horticultural business sourcing water for irrigation from Summer Hill Creek. Irrigation water sourced from Summer Hill Creek is essential to maintain the business's sustainability – especially during dry periods. Additional details on the irrigation background and impacts to the PFT Agriculture business due to the current Stage 1 and the proposed Stage 2 SWH are contained in Annexure 1.

PFT Agriculture would like to confirm that it fully supports the issues raised and conclusions developed in the Submission to NRAR by the Summer Hill Creek Care Group (SHCCG). The SHCCG submission contains detailed review and analysis of the historical context of flows in SHC, the impacts of the current Stage 1 SWH, and the proposed EOHW (Stage 2).

While PFT Agriculture is a business dependent on Summer Hill Creek as an irrigation water source it is also an active member and participant in the SHCCG and shares the values and objectives that it represents.

This submission will attempt to focus on matters specific to the PFT Agriculture business, although many of them are common to those raised in the SHCCG submission.

Outcomes Sought by PFT Agriculture from the NRAR Review

Process:

That NRAR **does not approve** the application by Orange City Council for a Combined Water Supply Work and Water Use Approval Application Ref: A027231. The application by OCC is dated 3rd June 2021.

Submissions in Relation to Outcomes Sought:

1. Approval of the Proposed EOHW (Stage 2 SWH) is in Contravention of the Relevant Legislation and/or It's Intent

1.1 Water Sharing Plan for the Macquarie Bogan Unregulated Rivers Water Sources 2012

The proposed EOHW is in contravention of the above WSP, specifically Section 57, subsection 2 (u). Water sharing plans establish the rules for water sharing in the Macquarie–Castlereagh SDL resource units. Some of these give effect to NSW commitments to introduce active management of environmental flows. This view is further explored in the SHCCG submission to NRAR.

1.2 Water Management Act 2000 (NSW)

The Water Management Act 2000 promotes water management principles, and its the duty of anyone carrying out any function under the Act to meet these principles, which include:

- The water quality of all water sources should be protected and, wherever possible, enhanced.
- The cumulative impacts of water management licences and approvals and other activities on water sources and their dependent ecosystems, should be considered and minimised.
- Sharing of water from a water source must protect the water source and its dependent ecosystems.
- The impacts of water use on other water users should be avoided or minimised.

The works approval application by OCC appears to be at odds with these principles. Again, this is further expanded upon in the SHCCG submission to NRAR.

1.3 Basic Landholder Rights

Basic landholder rights in the downstream Summer Hill Creek are being increasingly eroded with Orange Council's continuing development of new water extraction works upstream, with more future diversion already in the longer term planning (Stage 3 Stormwater harvesting).

Downstream landholders are concerned the proposed increase in water extraction upstream will further erode their basic right and legal entitlement to access water for stock and domestic purposes. This also applies to the PFT Agriculture enterprise in a physical sense, as the flows that currently escape the Stage 1 SWH will now be largely captured, reducing the volumes that now serve to create "flushes" and form a component of the base flow regime in Summer Hill Creek.

The Murray Darling Basin Plan (MDBP) provides for a reduction in available water determinations when the long-term average annual extraction limit or the long-term average sustainable diversion limit are assessed to have been exceeded. The increased extraction from the SHC water source under this new water works application could cause or increase the risk of necessitating reductions to available water determinations for existing water entitlement holders. The MDBP provides that basic landholder rights and the total share components of all access licences may be changed under the Plan to manage the sharing of water within the limits of water availability.

There has been no assessment of the increased risk of forced reductions in available water determinations as a consequence of the proposed water works or whether there will be any impact on the long-term limits on extraction.

Basic domestic and stock rights allocation in the water source can also be considered as environmental water for much of the time as not all landholders take this water, or only take

when alternative sources such as harvestable rights dams are exhausted. Any reduction in available water determinations which might affect basic domestic and stock entitlements could therefore constitute a reduction in environmental water in the water source. New water works which propose to extract more water from the water source must be critically assessed, to ensure that domestic and stock rights and their incidental role as an environmental water component, is not eroded.

1.4 Water Resource Plan (WRP)

This is a set of new rules on how much water can be taken from the system, ensuring the sustainable diversion limit is not exceeded over time. The Macquarie–Castlereagh WRP area (SW11) forms part of the Murray–Darling Basin in central west NSW and covers all the surface water sources of the Macquarie, the Castlereagh and the Bogan rivers.

In assessing the WRP, the MDBA will consider the management arrangements NSW has put forward for accreditation to protect the water resources of the WRP area. Water for the environment must be protected in law to at least the same level as was in place prior to the commencement of the Basin Plan in 2012. The MDBA’s assessment will ensure the WRP does not reduce the net level of protection of water for the environment that was available at that time.

Although the Water Resource Plan is still being reviewed by the MDBA, it is incumbent on NSW water authorities to give consideration as to whether any new water works could have implications for NSW meeting commitments under the WRP.

1.5 Basin Plan 2012

NSW has obligations under Section 10.28 of the Basin Plan 2012; to ensure there is no net reduction in planned environmental water. Planned environmental water is considered all water not allocated to an entitlement, i.e. the volume of water above the long-term average annual extraction limit of the water source. The proposed water works will divert more water than current from the creek system by diverting 50% of BSC flows to a holding basin for extraction. This additional volume of extracted water will be transferred and impounded in Suma Park Dam and therefore represents a reduction in the water source’s currently remaining, available environmental water component.

In addition to the reduction in environmental water which is at odds with NSW obligation under the Basin Plan 2012, diverting 50% of BSC flow off-stream for extraction will result in a reduction in the magnitude and duration of freshes to the downstream SHC system and therefore must have an impact on this environment which can extend some distance downstream.

Modelling from Geolyse 2008 (REF for Stage 1 SWH demonstrates that flows from BSC can make up a high proportion of the flows to the downstream SHC system.

Further, the Murray Darling Basin Plan, Section **8.04, Overall environmental objectives**, states:

The overall environmental objectives for the water-dependent ecosystem of the Murray-Darling Basin are, within the context of a working Murray Darling Basin:

- to protect and restore water-dependent ecosystems of the Murray-Darling Basin; and
- to protect and restore the ecosystem functions of water-dependent ecosystems; and
- to ensure that water-dependent ecosystems are resilient to climate change and other risks and threats.

The proposed new Water Works will be detrimental towards achieving these environmental objectives under the Plan.

2. The Design and Potential Construction of the Proposed EOHW (Stage 2 SWH) is such that it Circumvents the Intent and Effect of the Current Flow and Operating Rules applicable to Stage 1 SWH

There are 3 ways in which the proposed EOHW circumvents the intent and effect of the Stage 1 Operating Rules;

- a. The Stage 1 harvesting weir has an unrestricted 300mm pipe in the base of the weir which protects flows up to the capacity of the pipe, depending on head height, from being impeded. These are in the range of 0 - 68 L/sec (5.88 ML/d), zero impedance, and 68 - 294 L/sec (0 - 25.4 ML/d), partial impedance due to a lag time with the weir pool filling up to provide the head pressure to increase the pipe discharge.
Stage 2 will divert 50% of all flow above 2 ML/day (23L/sec) further upstream of the Stage 1 weir into an off stream holding basin, thus circumventing this unrestricted pipe in the Stage 1 weir, i.e. the flow to the Stage 1 weir be halved upstream.
- b. The extraction pumps for Stage 1 do not start until the creek flow exceeds 1,000 L/sec (86.4 ML/d), allowing the initial part of the 'Fresh' to pass downstream, guaranteeing a "Fresh", albeit subsequently reduced by extraction once the 1,000 L/s is exceeded.
Stage 2 will already be diverting flow upstream (50%) when the creek flow exceeds 23 L/s or 2 ML/d. Most of this diverted flow will be captured in the Stage 2 wetland as only a small portion (about 10% of the inflow) can escape back to the creek. Gravity ensures most of this is retained in the air space in the holding basin. This circumvents the current full protection of the first 1,000 L/s runoff flow.
- c. The Stage 1 extraction pumps cut out when the creek flow into the Stage 1 harvesting weir drops below 600L/sec (51.84ML/d) and with the pumps extracting 450 L/s, reduces the downstream flow below 150L/s. This protects a good proportion of the cleaner water in the tail of the runoff event which helps transport and dilute the dirtier first flush of stormwater runoff. This is very important for preventing the build-up of pollutants in downstream pools.
The Stage 2 circumvents this by diverting half of all flows, including the tail of the runoff, into the holding basin upstream, thus halving the volume of the cleaner tail end flow.

3. *There are Substantial Inadequacies in the Review of Environmental Factors (REF) in Relation to the Proposed EOHW (Stage 2 SWH)*

3.1 The Entura Report

The Entura Report has been used as a basis for Development of Flow Rules for Stage 1 SWH, which in turn form a baseline for the Proposed Stage 2. There are significant issues in relation to the Entura Report, which have previously been raised in the Submission by PFT Agriculture to Orange City Council regarding the REF in support of the proposed EOHW. These issues are as follows;

The proposed EOHW operates against the principles purported in the Entura Environmental Flows Report upon which the Stage 1 SWH project was developed. Specifically these are;

- The EOHW will harvest flows from the base flow component above 2.0ML/day – there are considerable periods when the base flow component is above 2.0ML/day and any harvest of the base flow component is unacceptable. From actual stream data for BSC for the 2017-2020 years it can be argued that base flows are often considerably higher than 2.0ML/day.
- The EOHW will harvest considerable volumes of water from the “Fresh” component of stream flows in BSC, which again is against the principles upon which the Entura report was developed. “Fishes” from BSC have been essential in helping to maintain the environmental integrity of SHC in the 2017-20 period.
- With respect to the “fresh” events, advice provided by Entura seems to have been disregarded in the preparation of the REF; viz; Revision No: 0.4 ENTURA-3627D 9 August 2013 (page 26)

“The operation of future Blackmans Harvesting stages reduce the magnitude of medium/high flow events in summer and autumn as a higher proportion of water is harvested from Blackmans Swamp Creek than currently occurs, particularly for Blackmans Stage 3 (Figure 5.7 and Figure 5.8).”

- Similarly, with respect to the alleged benefits of additional spills from Suma Park dam, advice from Entura seems to also have been disregarded, viz; (reference above);

“Although transferring more water to Suma Park Dam increases the potential for spill, spill is generally less likely in summer and autumn (compared to winter and spring) and the small amount of increased spill that is generated by the operation of Blackmans Stage2 and 3 (Figure 5.3 and Figure 5.4) does not compensate for the harvesting of water from Blackmans Swamp Creek.”

- The times that fresh events occur are often in the drier periods from storm activity and these serve to restore connectivity in the system and create a flush event on a regular basis under the current Stage 1 SWH. The proposed EOHW will remove a large proportion of flows when it is most needed in the system. The Entura report clearly states that the raising of Suma Park Dam and the implementation of Stage 1 SWH in BSC will allow more effluent water to be available for flows in the SHC system and assumes this will be the case. This ignores the fact that in reality the vast majority of effluent flows are transferred to the Newcrest mine.

- In reference to Section 6.1.5.2 of the Entura Report there is no explanation as to how two single controlled releases (one in Summer and one in Autumn) are adequate to maintain water quality in SHC below Reach 1. These Summer and Autumn controlled releases are only triggered if a specified level of inflows occur above the dam. During droughts or dry periods there is less likelihood that the required inflow events will occur therefore they are not required to make these controlled releases, once in Summer and once in Autumn.
- There is further discussion of the Entura report in Annexure 2.

3.2 The Premise REF for EOHW

In the view of PFT Agriculture, there are a number of issues in relation to the Premise REF that lead it to draw conclusions that are not adequately supported, and therefore highly likely to be incorrect. Specifically these are;

- The proposed EOHW is yet another extraction from the BSC/SHC system that is cumulative in impact and akin to the scenario of “death by a thousand cuts”. The Premise REF does not appear to adequately address the issue of the cumulative impacts that additional extractions from BSC have on those already occurring in the BSC/SHC system.
- The proposed Stage 2 increases the take of flow by 108% over Stage 1 based on modelled flow data prepared by Premise. A summary of modelling conducted by Summer Hill Creek Care Group (SHCCG) indicates that actual extractions resulting from the EOHW will be greater than is suggested by Premise (refer to Table 2 of the SHCCG submission. The SHCCG analysis demonstrates that the Total Water Take above the Current Stage 1 can increase by as much as 270% for large events and regularly by around 150% for small and medium events.
- Total SWH extraction is modelled to be more than 25% of total annual average flows. Again, this additional projected extraction of approximately 1,000ML will occur at the times when it is needed most. The use of average flow data disguises this effect due to the effect of flows in very wet periods that add a large portion of the average annual volume.
- The Premise REF needs to examine the effect of the proposed EOHW for all specific events that have occurred since the commencement of operation of Stage 1 in order to clearly demonstrate the effect of the scheme on flows downstream of the current BSC harvesting weir. This is especially important for events occurring during drier periods.
- Flow data in the Premise REF is largely presented as Flow Duration Curves, which serve to create the appearance of minimal effects on low to moderate flows. An analysis of specific events as suggested above using hydrographs and tabular data presentation would present the effect on low to moderate flows quite differently. PFT Agriculture believes this would more accurately portray the significant effects of the proposed Stage 2 EOHW flows in SHC, particularly if done so with reference to drier periods.
- Figure 12 in the REF for the EOHW appears to indicate that low and moderate flows occur at flow rates up to approximately 5.0ML/day. PFT Agriculture contends that flow rates of this magnitude are low to very low, and that flow rates up to 5.0ML/day certainly cannot be considered as moderate flows.

- There is a lack of environmental monitoring data on which Premise has based its review.
- There is a total lack of any stream flow data for the part of Reach 2 downstream of Third Crossing and also Reach 3 of Summer Hill Creek. A history of credible actual stream data should be in existence for these reaches to determine a base case for stream flows so that potential adverse impacts can be identified and assessed.
- There is further discussion of the Premise REF in Annexure 3.

4. That OCC Fail to Recognise the Importance of “Escape” Flows from Stage 1 in Maintaining a Base Flow Regime in Summer Hill Creek

During communications with OCC both PFT Agriculture and SHCCG have raised the specific issue of the importance of the current flow regimes (controlled by the Operating Rules of SWH Stage 1) that ensure volumes of storm water reach downstream both at the beginning and end of an event. Both PFT Agriculture and SHCCG have also raised the point that they believe that Storm Water Harvesting should only occur from peak flows of an event.

The volumes that have “escaped” Stage 1 SWH during its operation have served to greatly assist in the delivery of a base flow regime to Summer Hill Creek. The attenuation effect of these “escape” flow volumes means that an event of short duration in Orange (as measured at the BSC gauging site 421051) can result in a positive effect on flow volumes at 3rd Crossing (as measured at 3Xing gauging site 421197) for a much longer period. This is demonstrated in Figures 4 and 5 of the SHCCG submission to NRAR which represent an event that occurred on 7th January 2020.

PFT Agriculture believes that OCC does not fully appreciate the positive impact these “escape” flows have had in maintaining the base flow regime since the beginning of operation of Stage 1 SWH.

Of great concern to PFT Agriculture is that if this is the case, OCC will have to release significant flows to SHC to meet the current flow rules. It is likely (if this is the case), that OCC will then apply to have the current flow rules amended to reduce the volume of water it has to release to satisfy them. This would be a disaster for the downstream environment and all downstream stakeholders.

PFT Agriculture acknowledges that the Operating and Flow Rules that apply for Stage 1 do provide a benefit in drier periods to the downstream environment and stakeholders (including licensed irrigators upstream of Third Crossing). In particular, this view applies to the rule requiring a base flow regime at Third Crossing of 1.75ML/day. However, the potential benefits of the rules are negated if they are modified or rescinded. It should be remembered that these rules arose from an extended negotiation during the Stage 1 SWH review process by an NCAT Tribunal and agreed to by OCC.

OCC has already demonstrated that it is quite prepared to request that the current flow rules be changed to lower figures in its submission to NRAR in 2019.

5. REF Failure to Fully Consider Downstream Impacts in Summer Hill Creek

- As mentioned in Section 3.2 above, there is a total lack of any stream flow data for the part of Reach 2 downstream of Third Crossing and also Reach 3 of Summer Hill Creek. A history of credible actual stream data should be in existence for these reaches to determine a base case for stream flows so that potential adverse impacts can be identified and assessed. Additional stream gauging should be conducted in these lower reaches to firstly provide a base line of data, and secondly so that the impacts of any future extractions can be assessed.
- The REF only considers potential environmental impacts in Blackmans Swamp Creek (BSC), and then contends that because it is not proposing to change the Operating and Flow Rules of Stage 1 SWH there is no adverse environmental impact downstream in Summer Hill Creek. This is erroneous for the reasons given in Sections 1 and 2 above. In addition, there is a lack of specific studies on the environmental attributes of Summer Hill Creek, particularly with reference to the flora and fauna of the downstream environment.
- Whilst the REF for Stage 1 purports the significance and importance of the platypus population in SHC, there have been no recent studies conducted to determine potential impacts since base line studies were conducted in 1995, 1997, 1998 and 1999 (refer to SHCCG submission to NRAR for details). The Stage 2 REF does not address this issue that is of considerable concern to the whole downstream community. Further, it does not address the potential impacts of the EOHW (Stage 2) on the platypus population. This is not acceptable.
- Further information on environmental issues are contained in Annexure 6.

6. Potential Impacts on the PFT Agriculture Business

An overview of the PFT Agriculture business is provided in Annexure 1.

Key issues arising from the proposed EOHW and its impact on the PFT Agriculture business are as follows;

- The proposed EOHW represents an additional transfer of risk in terms of water security. The EOHW is designed to increase the water security of the residents and businesses of Orange. However, this occurs at the expense of a decrease in the security of water supply for the downstream environment and stakeholders. Arguments supporting this contention are given in Sections 2, 3 and 4 above. Given that OCC physically controls such a large portion of flows in SHC, it effectively controls the irrigation water supplies for the PFT Agriculture and Mirramac orchard businesses. Is it fair that OCC chooses to benefit the businesses supplied by the town water supply system over the PFT Agriculture and Mirramac orchard businesses?

- A very real risk arises for the PFT Agriculture and Mirramac orchards in terms of their water security and access to licensed entitlements if the proposed EOHW is constructed (refer Section 2 above). There is also a risk to water security if OCC chooses to apply for an amendment of the current flow and operating rules that apply to Stage 1 SWH.
- Production and Financial Losses – refer to Annexure 1.
- Relationship Between the PFT Agriculture business and Downstream Stakeholders

If the outcomes of the current flow rules for SHC are altered, the PFT Agriculture and Mirramac orchard businesses face a moral dilemma in their relationship with downstream stakeholders and the environment. Even though our irrigation licence conditions state we are able to pump until there is no visible flow – we are put in a difficult position if we continue to pump during conditions of low flow when there will be little or no flows below the Third Crossing. This matter will not become an issue if there is no intended or actual changes to the rules.

7. Approval of the Proposed EOHW Will Result in OCC having Physical Control of the Vast Majority of In-Stream Flows in SHC.

Suma Park Dam acts to fully control flows in Summer Hill Creek above the dam wall, except when it is spilling during wet periods. In the periods when Suma Park Dam is not spilling, the vast majority of flows in Summer Hill Creek emanate from Blackmans Swamp Creek. With the exception of wet periods, the approval of the proposed EOHW will result in OCC also having physical control of a large proportion of flows within BSC. The net result is that SHC will be very much dependent on OCC honouring the intent of the current flow and operating rules associated with Stage 1 SWH if there is to be no adverse impact from the construction of the EOHW. The discussion in Submission Point 2 demonstrates that the proposed EOHW circumvents the intent and effect of the Stage 1 rules.

If the EOHW is not approved, OCC will not be able to control flows in BSC to the same extent. This means that the downstream environment and stakeholders at least have a chance of accessing beneficial volumes of water that currently “escape” Stage 1 SWH. The prospect of OCC being able to physically control flows to the extent proposed in the EOHW REF is daunting to the downstream community, especially given the history of OCC actions in relation to the SHC and BSC systems.

8. Need for an Independent Review of SHC by a Recognised Expert Body

The application by OCC for the EOHW is based around the REF prepared by the firm Premise whom OCC engaged.

The submissions of downstream objectors to the EOHW are based on data that it is believed has good integrity. However, organisations such as the SHCCG have a distinct lack of resources to carry out a review of the current data to the extent needed.

It appears to PFT Agriculture that NRAR itself has very limited ability itself to access the resources necessary to address issues that it feels may arise from the proposed EOHW.

PFT Agriculture believes there is a distinct need for a truly independent expert review of the SHC system before any decisions regarding the proposed EOHW are made. This independent review should be administered by NRAR so that it receives the best information possible on which to make a decision regarding the proposed EOHW. PFT Agriculture believes that the completion of truly independent review should form part of the assessment process for the proposed EOHW, and be funded by the proponent (OCC). The administering body (NRAR) should specify the terms of reference for the independent review, particularly with respect to the outcomes expected from it.

Summer Hill Creek has currently high levels of extraction. The proposed EOHW is an additional extraction. The impact of this proposed additional extraction needs to be comprehensively reviewed, covering all reaches of SHC – not just those addressed in the REF documents for Stage 1 SWH and the proposed EOHW – Stage 2 SWH.

It should be noted that SHCCG requested OCC to analyse some specific events to compare and verify the results of the same events analysed by SHCCG. The request was refused on basis that OCC had already spent a considerable sum on expert advice Premise and they were not prepared to spend any additional funds.

9. Other Long Term Options Exist to Provide Water for the City of Orange

During various discussions with OCC the SHCCG has raised the fact that a number of alternative options exist to improve the water security of Orange.

Some of these are quite long term whilst others could be achieved relatively easily and quickly. OCC has acknowledged that these other options are possibilities to improve the water security of Orange.

Nevertheless OCC seems determined to progress with additional extractions from SHC. It seems to downstream stakeholders that OCC view extractions from the BSC and SHC systems as a “given” and that they have little regard for the high level of extraction already in existence. There also seems to be little regard for the downstream environment and stakeholders.

A number of alternative options to improve the water security of Orange are described in Annexure 5.

Inadequacies of the OCC Consultation Process suggested by NRAR in Relation to the Proposed EOHW:

Soon after it became aware of the intent of Orange City Council (OCC) to lodge an application to NRAR for the proposed East Orange Harvesting Wetland (EOHW) the Summer Hill Creek Care Group (SHCCG) via its representative [REDACTED] attempted to make contact with NRAR – these approaches will be recorded in the NRAR database. Following a number of unsuccessful attempts to organise a meeting with the appropriate NRAR person to discuss issues in relation to the EOHW, SHCCG received formal advice from NRAR via email to raise our issues directly with OCC and address them in that manner. SHCCG took this advice but the process proved to be a “sham” and was terminated on 15th September 2021 by OCC Director of Technical Services. SHCCG is now in a position where our only course of action is to submit our objection to the proposed East Orange Harvesting Wetlands to NRAR for its determination.

SHCCG has (in good faith), gone through a process with Orange City Council with the objective of achieving a win/win outcome. However, OCC refused to make any concessions in the intent or structure of the EOHW as part of a negotiation process. SHCCG are still of the belief that an acceptable outcome for all parties is possible to achieve, but that this should not result in a win/lose scenario.

A chronology of the interactions between SHCCG and OCC in relation to the proposed EOHW is being prepared for the information of NRAR. SHCCG believes it was paid ‘lip service’ during the discussions and that there was no genuine intent on the behalf of OCC to reach a true “win/win” outcome from the meeting process.

Through the preliminary information and meeting processes SHCCG put forward suggestions to attempt to identify some areas of agreement, however these issues were either ignored (ie; no comment), refuted or dismissed by OCC staff. On the other hand, OCC failed to put forward any proactive suggestions that might identify potential areas of agreement for discussion during the meeting process.

SHCCG believes the four meetings were actually a fact finding process for OCC. Meetings appear to have been convened purely to glean additional information from SHCCG so that OCC could be better equipped to prepare counter arguments to the potential issues in relation to SWH Stage 2 raised by the SHCCG.

During the initial face to face meeting on 4th August 2021, SHCCG advised it would be asking OCC for information to assist its understanding of the EOHW concept. This information request was forwarded to OCC on 5th August 2021. Follow-up emails were sent to OCC over the next three weeks enquiring on the status of this information request. It was not until 6th September 2021 that this

information was supplied to SHCCG, even though it appears as though most of it would be readily available to OCC staff or its consultants.

SHCCG also finds it interesting that in the initial MS Teams meeting the camera of the computer of the OCC DTS was not working. This made it difficult for SHCCG to visually confirm who was present at the MS Teams meeting.

SHCCG has serious concerns as to how the meeting process has been conducted. SHCCG is writing to the General Manager of OCC expressing our disappointment regarding the meeting process. This letter will be provided separately together with a chronology of events.

Orange City Council - Internal Information and Communication

OCC internal processes have not always allowed the fully transparent flow of information to Councillors so that they can make a fully informed decision.

At times Councillors have been provided information on a selective basis which serves to distort their understanding of particular situations.

An example of this is contained in a report to Council on the status of the EOHW project. It is stated that SHCCG requested a deferral of the proposed Meeting 3. Whilst this is correct, the report fails to mention that in the same email request to defer the Wednesday meeting it was suggested some communication later in the week and also asked OCC to provide details of a meeting process going forward. No response to this email was received from OCC.

Similarly, when questioned about the operation of the EOHW by an OCC Councillor during a Council meeting (via Zoom) on 27th July 2021, the answer referred to the flow rate (64ML/day) on that day (a period of significant rainfall and therefore substantial flows in BSC) to demonstrate that filling of the new EOHW would only take approximately half of a day. This flow rate is certainly not typical, especially during drier periods.

The NRAR Review Process :

As stated above, the SHCCG attempted to make contact with the appropriate NRAR personnel early in the process to raise its concerns regarding the EOHW Stage 2 Storm Water Harvesting project proposed by OCC. After a number of unsuccessful approaches to NRAR SHCCG was eventually informed it should follow a meeting process with OCC to resolve these issues. For reasons stated above the meeting process has failed to produce any agreed outcomes.

SHCCG would like to reiterate our original expression of interest in wanting to meet with NRAR to better expand on our key concerns and position with respect to the proposed EOHW SWH Stage 2.

Conclusion:

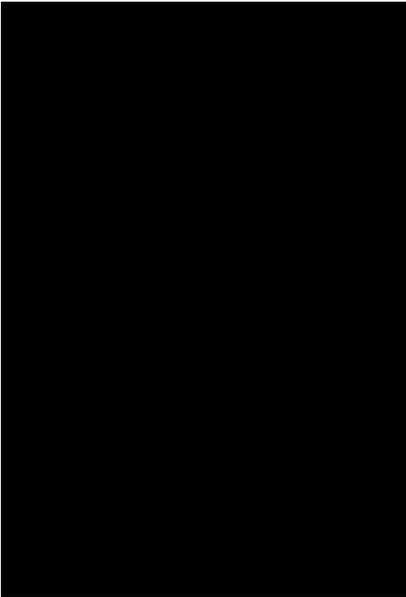
Key points raised in this submission to NRAR are as follows:

- The proposed EOHW is in contravention of the relevant legislation and/or its intent.
- The proposed EOHW seeks to circumvent the intent and effect of the Flow and Operating Rules pertinent to the current Stage 1 storm water harvesting.
- There are inherent flaws in the Entura Environmental Flows report prepared for OCC in relation to the project to raise Suma Park Dam wall. The REF for the EOHW relies largely on rules developed from this report, which means that conclusions derived in the REF may not be accurate. There is a strong argument that the Entura report and the EOHW REF should be audited and reviewed by a truly independent expert.
- There is no available actual flow data from the reaches of Summer Hill Creek below the Third Crossing. Gauging stations need to be installed in the lower reaches and operated for a considerable period of time to create a base data set before any further extractions are made from the BSC/SHC system. The creation of this data set will allow the potential impacts of the proposed EOHW to be accurately assessed.
- The proposed EOHW extracts water from base flows and medium flows/freshes as well as high flow events. This means the EOHW can potentially extract water from all the flow components within the system, which will lead to significant adverse environmental effects and potentially impact downstream water users. Under the current Stage 1 of SWH the low and medium/fresh flow events “escape” and are “out of bounds”.
- There is a significant transfer of risk in terms of water security – security for OCC, its residents and businesses is improved whilst it is significantly reduced for downstream stakeholders. There needs to be a win/win approach for the proposed EOHW rather than the win/lose scenario suggested by the REF, which could be regarded as somewhat discriminatory.
- There is the potential for a significant negative impact of the proposed EOHW on the ability of downstream irrigators to access licensed entitlements relative to the current situation. Horticultural irrigators have permanent plantings that require ongoing secure water sources.
- There are likely to be substantial adverse environmental impacts from the proposed EOHW – impacting the entire Summer Hill Creek below its junction with Blackmans Swamp Creek. No studies based on monitoring data have been conducted to quantify the extent of this negative impact.
- Whilst there have been recent incremental improvements to its water security situation, Orange really needs larger scale long term solutions to ensure its water security into the future. There are a number of possibilities to achieve this, without the need to make further extractions from the BSC/SHC system using the proposed East Orange Harvesting Wetland.

- For the above reasons, NRAR **SHOULD NOT APPROVE** the proposed EOHW.

We trust this submission receives a comprehensive review by NRAR and that the issues raised in it are considered in the determination made by NRAR relating to the proposed EOHW by Orange City Council. Please do not hesitate to contact us if you have any questions regarding this submission.

Yours Faithfully



Dated: 21 September 2021

Annexure 1:

The PFT Agriculture Business - Irrigation Background and Impacts:

PFT Agriculture is a family owned and operated orchard business located at [REDACTED] [REDACTED] business produces apples and cherries – all of which are irrigated either with undertree microsprays (3.15 ha of cherries) or drip irrigation (the majority of the orchard area). Irrigation water is sourced from a combination of a groundwater bore and water from Summer Hill Creek via a pump and pipeline. In better rainfall years the two irrigation storage dams also benefit from runoff.

The PFT Agriculture business has an irrigation licence from Summer Hill Creek for a total of 73ML. In addition to this licence, the Mirramac Trust business operated by [REDACTED] [REDACTED] access irrigation water through a licence owned by [REDACTED] [REDACTED] of 138ML. Water for the PFT Agriculture business is pumped from Summer Hill Creek during the Winter and Spring period each year and is stored in an on-farm storage dam and then pumped out onto the orchard during the growing season. In drier periods water from the Summer Hill Creek water source is more important to the sustainability of the business as water from the bore aquifer declines – typical of underground aquifers in the Orange district.

The 138ML licence for Mirrabooka orchard has been in use since 1981. At the time the licence was issued, flows in SHC were in the order of 12-14ML/day all year round – a large portion of which emanated from treated effluent releases by OCC. The development and phasing in of the Newcrest Cadia gold mine led to OCC supplying it with virtually all the grey water from Orange, with the result that SHC dried up above Third Crossing in the first summer after the mine commenced operations. There was no direct consultation with licence holders prior to this action by OCC. Stage 1 Storm Water Harvesting has further compounded the effects of effluent diversion, with the result that SHC now experiences considerable periods of very low flows.

Most probably as a consequence of climate change, there has been a pronounced trend towards fewer runoff events combined ongoing decline of underground bore aquifers, which is leading to a situation where the orchard businesses are becoming increasingly reliant on the Summer Hill Creek water source to irrigate orchard plantings.

The orchards on both Mirrabooka and Stoneleigh have been in continuous operation for approximately 110 years. In the 2019-20 growing season the PFT Agriculture business was forced to sacrifice (no fruit picked at all) 1.87ha out of 7.14ha of Galaxy apples, a direct loss of 26.2% of area, plus significant yield loss and quality impacts on the remaining 5.27ha of the Galaxy apple variety. This was due to the inability to access adequate irrigation water due to very low to no-flow periods in SHC in the summer of 2019-20. The uncertainty of obtaining irrigation water from SHC arising from the OCC application to rescind the flow rules for Stage 1 SWH meant that decisions had to be made early in the season to prioritise varieties and blocks to be irrigated. Refer to the earlier submissions prepared by [REDACTED] for details on the duration of no-flow periods in SHC in this period.

It should be noted that the orchards are perennial plantings, and as such it is not possible to rapidly change from one horticultural product to another as is the case with annual crops. Additionally,

newer plantings of trees are based on intensive planting regimes with dwarfing rootstocks that are far less tolerant of dry conditions than traditional older production systems.

Further, it should be noted that PFT Agriculture has enquired of the relevant authorities as to whether it can increase the size of on-farm storage dams to improve water security in dry years. It has been advised that this is not possible.

Annexure 2:

The Entura Environmental Flows Report

The Entura report was commissioned as a part of the requirements for the approval of the raising of Suma Park Dam wall. There are a number of issues that arise from this report which is now being used as the basis of determining the required environmental flows in Summer Hill Creek for the proposed EOHW. Specifically these are:

- The Entura report uses the natural catchment scenario as the “base flow” regime pertinent to SHC. This is unrealistic in timeframe (probably at least 150 years ago before settlement in the Orange city area). It also serves to allow the dramatic flow reduction impact caused by the removal of treated effluent from the BSC/SHC system to be ignored. The treated effluent served as base flow regime for decades prior to the Newcrest mine commissioning and should be considered in the development of base flow regimes. The supply of treated effluent to the Newcrest mine is a net transfer out of the BSC/SHC system – amounting to approximately 85-90% of the water extracted from Suma Park Dam by OCC for potable water supply.
- The Entura report clearly states that the raising of Suma Park Dam and the implementation of Stage 1 SWH in BSC will allow more effluent water to be available for flows in the SHC system and assumes this will be the case. This ignores the fact that in reality the vast majority of effluent flows are transferred to the Newcrest mine.
- The minimum flow levels adopted in the Entura report were artificially constrained due to limits imposed on what OCC were prepared to allow for environmental flows. The 1.75ML/day is far less than the optimum base flow level of 15.0 ML/day referred to in the Entura report.
- The Entura report specifies that the 1.75ML/day flow regime is a level that should only exist for a short duration of 24 hours or so, after which long term environmental damage is likely to occur in the SHC system. Instead, this flow level is being used as a long term low flow level in the development of environmental flow rules, which is not the intent in the Entura report.
- The Entura report fails to consider the reaches of Summer Hill Creek below the Third Crossing and the environmental effects that have and will occur due to extraction of water from BSC by both Stage 1 and the proposed Stage 2 of SWH.

Annexure 3:

The East Orange Harvesting Wetland REF

There are a number of issues that arise in the REF prepared by the Premise consultancy firm in relation to impacts on downstream stakeholders. Specifically these are;

- Premise has been engaged by OCC to prepare the REF and it is therefore very unlikely that it is a truly independent review of the proposed EOHW and its potential impacts.
- The findings in the REF for EOHW in relation to downstream flow and environmental impacts are largely based on the Entura report findings, which are inherently flawed for the reasons given in the previous section of this submission.
- The storm water harvesting concepts for both Stages 1 and 2 are based to a large degree on the concept of extracting run-off from hard surfaces associated with urban development (ie a highly modified catchment) whilst the flow rules are based on pre-development conditions dating back over 150 years. This seems a very convenient yet highly inconsistent approach that does not really give an accurate picture of the impacts in more contemporary times (say the last 50 years).
- The REF uses long term and annual averages as a data format to describe a lot of the projected flow effects in the BSC/SHC systems. As previously mentioned, the use of averages disguises the true impact of proposed harvesting of low flow and “fresh” events in drier periods as data is skewed by large volumes associated with wet periods. Therefore, all individual events that have occurred since the commissioning of Stage 1 SWH should be analysed so that the impact of it can be analysed in relation to the timing of events and specific downstream impacts. The modelled impact of the proposed EOHW should then be overlaid on this data to demonstrate the true effects on harvested quantities and timing of flows. This would allow a far better review and assessment of effects on the downstream flow levels and environmental attributes of the SHC system.
- The REF in section 6.1.5.3 refers to the proposed EOHW leading to an increased spill regime from SPD. This is a moot point as the SHC system would be extremely wet at the time of spilling so there is no real benefit from extra spill regimes. It is more likely that climate change impacts and land use changes in the SPD catchment will lead to fewer spill events in the future. The reference to an average annual spill increase of 300ML/year is also somewhat misleading as a single spill event of 3,000ML in a wet year would average out to 300ML over a 10 year period, even though there were no other spill events for the next 10 years.
- Section 6.1.5.2 refers to low flow protection in SHC. The discussion in this section completely ignores the fact that the design of the EOHW will allow it to harvest from all flows greater than 2.0ML/day. Actual data from gauges in BSC demonstrates for the 2017-2020 period that there are significant periods of low flow greater than 2.0 ML/day. The base flow figure should be set no lower than the highest base flow figure that the current actual flow numbers suggest. An analysis of true base flow figures for the 2017-2020 period should be undertaken to determine this highest base flow figure.

- Section 3.2.4.3 refers to the phases involved in the operation of the proposed EOHW . There is no information as to how the amount of 2.0ML/day has been derived and how it can be justified given the actual stream data obtained in the past few years. Refer to the paragraph above regarding base flow regimes that are currently in existence. There should be absolutely no extractions from base flows and moderate flows/freshes that help retain some environmental integrity in the system as it currently exists.
- The use of Flow Duration Curves does not allow quantification of the impacts of individual events to be assessed. Hydrographs that demonstrate the impacts of specific events in the late spring, summer and early autumn periods of each year will allow far better analysis of the impacts of the current SWH1 and proposed EOHW at these times. Again, the timing of flow and extraction events have a critical effect on downstream flow and environmental effects. The REF does not take this into account.
- The REF does not demonstrate the proportions and/or quantities that are modelled to be extracted by the proposed EOHW for individual events – this should be done for the data available for the 2017-2020 period
- Section 6.1.5.2 of the REF (Environmental Flow Releases to SHC) refers to the conclusions of the Entura report. The conclusions drawn in the Entura report have inherent flaws as referred to previously. Due to the construction of Suma Park Dam the only base flow during dry periods in SHC Reach 1 is from releases as specified in the licence conditions for the dam. In reality, in dry periods the vast majority of base flows in SHC emanate from BSC. In wetter periods this contribution is proportionately less due to inflows from downstream tributaries of SHC. To state that the proposed EOHW on BSC will have no effect on baseflows in SHC is therefore incorrect and misleading.
- In further reference to Section 6.1.5.2, the actual flow levels observed in SHC at the Third Crossing gauge do not support the Entura contention that stormwater harvesting would mean that flows of less than 1.75ML/day will occur less frequently. In the recent 2019-2020 summer there was a no-flow period of approximately 23 days. Given that Entura stated in its report that flows less than 1.75ML/day will cause significant environmental damage if they occur for more than 24 hours, the adverse impact of no-flow and lengthy low flow periods in SHC must be adverse to the environment and downstream stakeholders. The REF does not contain any analysis of the impacts of proposed and existing SWH on the SHC environment. Conveniently it also pays no consideration to effects downstream of Third Crossing, even though the SHC system continues to the junction with the Macquarie River.
- Also in reference to section 6.1.5.2 there is no explanation as to how two single controlled releases (one in Summer and one in Autumn) are adequate to maintain water quality in SHC below Reach 1. Current flows out of BSC that are not captured by the Stage 1 SWH serve the important purpose of creating flushes that to a large degree have helped maintain some environmental attributes, particularly in Reaches 2 and 3 of SHC. Additional extraction from the proposed EOHW will largely take away the benefits of these flush events, with a more pronounced effect in dry periods.

Annexure 4:

PFT Agriculture Ability to Access Irrigation Licenced Entitlements:

- The [REDACTED] by PFT Agriculture is a permanent horticultural planting of approximately 20 planted hectares. Irrigation water from Summer Hill Creek is critical for not only current production, but also to keep trees alive for years of production into the future. Lack of water will not only lead to short term production decline and financial impact, but also on the trees which may result in long term impacts on production or even tree death. The business will not recover if trees were to die from lack of water. Modern high density apple trellis systems are planted at around 2,900 trees/ha on dwarfing rootstocks and require irrigation each second day (and daily in peak demand periods). They do not tolerate dry conditions. The replacement cost for high density apple trellis systems is in the vicinity of \$150,000/ha. Considerable investment has been made in recent years on the basis of a secure irrigation water supply from the Summer Hill Creek water system.
- Under the current flow rules that apply to Summer Hill Creek there rules that require the maintenance of a minimum of 1.75ML/day at Third Crossing whilst the combined water storage capacity of OCC is at 25% or greater. The PFT Agriculture business agreed to the current rules after a protracted and expensive Land Board Hearing process. The Environmental flow rules were formed on the basis of recommendations from a report prepared by the consultancy firm Entura, which was compromised in its recommendations due to constraints put in place by Orange City Council. PFT Agriculture believes that the proposed EOHW provides an opportunity to review and revise upwards the flow volumes associated with the rules that currently exist. This particularly relates to the impacts from SWH on the reaches of Summer Hill Creek below the Third Crossing.
- The proposed EOHW leads to a significant transfer of risk in terms of security of water supply for irrigation for both the PFT Agriculture and Mirramac Trust orchard businesses, whilst the OCC and its residents gain a secure yield increase of 600 ML/annum. This is an unreasonable situation where downstream stakeholders are significantly disadvantaged in terms of water security. It could be argued that the EOHW proposal is quite discriminatory whereby a large portion of the population and a large mining entity are advantaged at the expense of a minority of downstream stakeholders and the environment. The rationale for this assertion is:
 1. The portion of “natural” flush events that escape the current Stage 1 SWH serve to provide quite reasonable top ups to flows in SHC and maintain connectivity in the system. The EOHW proposes from portions of flows that are currently untouched. Risk is increased because less water is available to achieve these top-up scenarios.
 2. The SHC system becomes more reliant on artificial flows which are totally controlled by OCC. There is a significant risk associated with this scenario versus the current situation.
- The proposed rule changes also place the PFT Agriculture business in a moral dilemma in its relationship with downstream land holders – we are put in a difficult position if we continue to pump during conditions of low flow when there will be little or no flows below the Third Crossing.

Annexure 5:

Other Options for Orange Water Security

The real issue relating to water security for the city of Orange is the need for long term larger scale water sources that will meet the growing needs of the city into the future. Orange City Council has significant growth aspirations for the city, which will lead to a substantial increase in the demand for water. The proposed EOHW on Blackmans Swamp Creek are forecast to lead to an increase of secure yield of 600ML per annum. There needs to be a bigger picture approach to improving water security that results in a significant step change in the volume and security of water supply. Extracting from an already highly stressed BSC/SHC system via the proposed EOHW is not the answer to this situation.

There are a number of other options that are available to improve the security of its water supply. The proposed EOHW is another cumulative extraction from the BSC/SHC system that is already classified as Highly Stressed (refer to submission on the EOHW by Mr Denis Marsh). To propose to extract an additional 1,000 or more ML from the BSC/SHC system is ill-considered when other options exist that will provide a real step change in available secure yield for the city of Orange. These possible options are (but not limited to) the following;

- Recycling of water (only one extra treatment step required to make water potable). At the current time OCC chooses to supply the Newcrest Cadia Gold Mine approximately 85-90% of the water pumped from Suma Park Dam into the OCC Potable Water Treatment plant each day. This arises as the actual consumption of water within the city of Orange amounts to only 10-15% of the water extracted from Suma Park Dam. The remaining 85-90% of water extracted from Suma Park Dam ends up as “grey water” at the Orange Waste Water Treatment Plant. From there, the vast majority of grey water is treated to within one step of being suitable for human use, and then transferred to the Newcrest mine at Cadia. A change of focus by OCC (through the introduction of one extra treatment step) can be made to recycle the current water supplied to Newcrest and return it to Suma Park Dam and the environment.
- Use evaporative covers on the Suma Park Dam storage on the area of dam surface above the dam wall when dam levels fall to around 50%. This is the deepest area of the Suma Park Dam and use of covers to minimise evaporative losses would be very effective when dam levels get to around 50%. There would be an effect on the visual amenity of the dam, but saving of a scarce water resource may necessitate this move.
- Integration of the Orange City water supply into a regional network based on the major water resource of Wyangala Dam. The recently announced raising of the Wyangala Dam wall means that this option is a realistic solution for regional water security.
- Integration of the Orange Water supply into the proposed water pipeline from Lithgow to Blayney for the proposed Kings Plains gold mine. There may be the possibility to add a second pipeline for Orange in the same corridor whilst constructing the pipeline for the gold mine.

Annexure 6:

Environmental Impacts of the Proposed EOHW:

- Summer Hill Creek (prior to the raising of Suma Park Dam and implementation of Storm Water Harvesting) was classified as one of the most highly stressed water systems in NSW. More information on this status is contained in the submission to NRAR objecting to the proposed EOHW, prepared on behalf of SHCCG by [REDACTED].
- Summer Hill Creek is one of the few locations within the state that is home to a relatively high population of platypus – a species already under a significant degree of threat. The proposed rule changes by OCC will further exacerbate the pressure on this platypus population. There does not appear to be any monitoring data available to determine possible effects on the platypus population.
- There is no environmentally based evidence/data to support the proposed EOHW – in fact quite the reverse with a substantial body of work that clearly demonstrates that the SHC system is in a very high state of stress with significant over-extraction. OCC through the Premise REF for the EOHW has provided no information at all to show that the proposed harvesting wetland will not have an adverse environmental effect. It would be expected that significant extractions by the EOHW during periods of low and moderate flow will have a very serious adverse environmental impact. Reference in the REF that the proposed EOHW does not make any changes to the environmental flow rules developed by Entura does not and cannot mean there are no adverse environmental impacts.

PFT Agriculture



**Submission to Department of Planning &
Environment**

Draft Regional Water Strategy

Macquarie - Castlereagh

Part 2

**(forms part of submission lodged Friday 18
November)**

16 November 2022

Opening Statement in Relation to this Part 2 Submission

PFT Agriculture wishes to acknowledge the opportunity to provide further comment on the Draft Regional Water Strategy for the Macquarie Castlereagh system. It is appreciated.

This issues raised in this Part 2 submission should be considered in addition to the Part 1 Submission of PFT Agriculture (also attached).

PFT Agriculture is concerned that this Draft Strategy consultation and review process is **inherently flawed** with respect to our particular issues raised in Part 1, and also by others in the Macquarie Castlereagh facing a similar situation.

Our key issues in relation to the consultation and review of the Draft Strategy are based on the governance and due process in relation to two specific issues;

1. A recent Amendment to the Macquarie Bogan Unregulated Rivers Water Sharing Plan Section 57 subsection 2 regarding “the construction and use of a new in-river dam” – ie. the addition of subsection 3
2. The development of the Draft Strategy in relation to Storm Harvesting – there are very concerning statements contained in the Draft Strategy (page 130), specifically that the SWH analysis “*assumed reduced environmental releases from Orange’s Suma Park Dam in drought*”, and secondly stating that “*These water harvesting schemes are already approved or underway*”.

The statements quoted above indicate that decisions regarding SWH Stage 2 have already been made, meaning that this review and comment process is irrelevant and a waste of time with respect to the proposed Storm Water Harvesting projects in Orange and Bathurst.

Whilst senior DPE staff have advised PFT Agriculture that the application to DPE for Stage 2 SWH will undergo a full assessment process, the statements in the Draft Strategy document are in contradiction of this advice. PFT Agriculture therefore contends that the Draft Strategy consultation and review process is a “sham” in relation to proposed Action 1.5 proposed Storm Water Harvesting projects for Orange and Bathurst.

Agricultural businesses downstream of Orange and Bathurst water supply infrastructures have made **long term business investment and operational decisions** based on the conditions existing at the time in relation to water availability. Proposed policy changes in relation to environmental flow rules **transfer increased water security risk onto agricultural businesses**, whilst decreasing the risk for urban businesses. Increased water supply risk has a **significant negative impact on the income and asset values of agricultural businesses** whilst ensuring the ability of mining and urban businesses to maintain or improve these values.

Comments in Relation to Proposed Actions (continued from Part 1)

Proposed Action 1.5:

We take issue with the contention that the proposed Storm Water harvesting “schemes need to be progressed” (page 57, second last paragraph). In the case of the Orange water supply, there are a **range of other water supply options** that exist rather than taking an additional extraction from the Summer Hill Creek system. There is no consideration of the **cumulative effects of over-extraction** from the Summer Hill Creek system.

The Draft Strategy appears to completely **overlook the need for baseline data** to be gathered over an adequate timeframe so that a “base scenario” exists against which the impacts of proposed Actions can be assessed. The old adage “If you can’t measure it - you can’t fix it” applies. We are not aware of the existence of environmental data relating to Summer Hill Creek to allow this base line scenario to be developed. Given that this data **does not exist** it should be developed before there is any consideration of any proposals to extract additional water from the Summer Hill Creek system.

Proposed Action 1.6

In addition to the comments provided in Part 1, PFT Agriculture makes the following comments in relation to Proposed Action 1.6;

It is stated that Stormwater Harvesting schemes alone will not prevent towns from running out of water in extreme drought scenarios. This is true – a bigger picture approach is the only way to truly improve the water security of Orange and Bathurst. PFT Agriculture have raised this point many times with OCC, yet it attempts to take more and more water from an already over extracted water source. The incremental improvement in water security for Orange derived from the proposed Stage 2 SWH comes at great cost to the environment and downstream stakeholders – particularly the perennial horticultural plantings operated by PFT Agriculture and Mirramac.

PFT Agriculture has little knowledge of the situation in other areas, but in the Orange area there are a number of other actions that can be taken to improve water security that will actually potentially improve environmental outcomes whilst meeting the water needs of Orange more effectively. These include;

- the use of recycled water as a potable water source
- the proposed new Ulmarrah Dam at Dixons Point, and
- increasing the volume of water accessed each year from the Wambuul/Macquarie river
- potentially accessing some of the water from the proposed use of flood mitigation storage in Burrendong Dam (proposed Action 2.3) to assist with water supply needs for Orange and Bathurst in addition to lower Macquarie requirements.

Comment on Proposed Action 4.6

In reference to page 105 of operational rules for tributary flows in the regulated Macquarie River – in the proposed investigation into operational and water sharing plan rules is stated there is a need “*to specifically consider solutions that do not impact upon the reliability of general security licences*”. Surely the same principles should apply to the upper catchment irrigators, rather than the proposed actions (Action 1.5) that will decrease their water security.

Comments in Relation to Section 5 – When will the actions be implemented?

Many of the proposed actions in the Draft Strategy have not been assessed for potential effects on the environment and downstream stakeholders. PFT Agriculture believes that no additional diversions of water or change to operating rules should occur unless a comprehensive set of data is developed over a period of years to develop a “base-line scenario” against which proposed and actual impacts can be assessed.

Page 109 – Prioritisation of Proposed Actions – PFT Agriculture believes that the proposed Orange SWH Stage 2 should not be prioritised into the 3-5 year timeframe, but rather this period be used to develop a baseline data set upon which future impacts can be assessed, both quantitatively and qualitatively.

Comments in relation to Attachment 1: Summary of the options assessment

Table 6. Assessment of long list of options – page 114

Long list option 4: This relates to improving town water security in the upper Macquarie Regulated River system – note there has been no Rapid environmental assessment conducted. The degradation of flows for the environment, as well as the provision of water for basic riparian rights, stock and domestic purposes, and impacts on long standing licenced irrigators with a history of responsible water use deserves to be assessed. A comprehensive review of these issues is what is required – **the absence of a rapid environmental assessment is not acceptable**. For this reason, the proposed Orange Storm Water Harvesting Stage 2 that forms a part of Proposed Action 1.5 **should be removed from the Short List**.

Long list option 7: A rapid environmental assessment has been conducted, and classified as “No/little change”. PFT Agriculture refutes this classification in relation to the proposed Orange Storm Water Harvesting Stage 2. There will in fact be potentially large environmental impacts. The basic riparian rights of downstream landholders will be decreased, and the inability of long established horticultural businesses to access irrigation entitlements in dry periods will render them unviable and unsustainable. For this reason, the proposed Orange Storm Water Harvesting Stage 2 **that forms a part of Proposed Action 1.5 should be removed from the Short List**.

Comments in relation to Attachment 2: Assessment of options that impact supply, demand or allocation of water

In reference to Options for the upper Macquarie Valley - Storm Water Harvesting schemes –

PFT Agriculture repeats and reinforces the comments made earlier in this Part 2 submission and also in its Part 1 submission. The proposed Orange Storm Water Harvesting Stage 2 should be removed as an option for the reasons identified. Again, the absence of a detailed assessment is unacceptable.

It is also unacceptable that there is an assumption that current environmental flow rules are changed in drought periods in combination with the proposed Stage 2 SWH. The combination of these two strategies will have a highly detrimental effect on the Summer Hill Creek system downstream of Orange, as well as landholders relying on basic riparian rights, and long standing irrigators with perennial plantings who are reliant on that water source in dry periods to remain viable and sustainable.

PFT Agriculture refers to earlier comments in relation to the statement that *“These water harvesting schemes are already approved or underway”*.

Orange City Council has a number of other options to improve water security that would potentially improve environmental outcomes rather than worsen them. It is apparent that Orange City Council is targeting the “low hanging fruit” in a short term water grab, rather than seeking more sustainable solutions with positive outcomes for downstream stakeholders. These more sustainable options (eg recycling of water) should be prioritised over the proposed Orange Storm Water Harvesting Stage 2.

Orange City Council should consider if it can’t meet its water needs in drought without destroying the environment and taking stock, domestic and irrigation supplies from farmers it may have **reached its limit in terms of growth.**

Additional Comments for Consideration

Due to a lack of time, PFT provides additional summarised comments below to also be considered as part of this submission to the Draft Regional Water Strategy for the Macquarie-Castlereagh.

- The premise which forms the basis of this Draft Regional Water Strategy is economic growth – perhaps this is questionable given resource constraints, and recent demographic studies regarding national and global population trends. Sustainability should be the fundamental premise, rather than economic growth. Cities located in higher catchment reaches perhaps should re-focus on sustainability rather than unfettered growth. Have cities such as Orange and Bathurst they reached their limitations to be sustainable?
- Actions regarding proposed suspension of environmental flow regimes are **unfairly retrospective** in nature, prioritising urban requirements for households and businesses over those of downstream stakeholders who have a right to a share of water in dry periods to meet their requirements. The environment of Summer Hill Creek needs a basic minimum environmental flow.
- Allowing local Councils to have control of environmental flows from water utility dams is akin to “putting a mouse in charge of the cheese factory” – a very real conflict of interests exists in terms of meeting environmental flow requirements. An independent external entity should be in charge of managing the flow rules relating to the environment and downstream stakeholders. Any change to these flow rules should not be subject to “triggers”, but administered by this external entity in association with the Water Minister. Changes should only occur in the rarest circumstances of extreme drought, and only after significant consultation.
- Regional cities should adopt responsible practices in the implementation of water restriction on townships by being “pro-active” and not “reactive” – that is; institute water restrictions earlier during dry periods. Nobody wants to see any township run out of water, but there appears to be no onus on Councils to responsibly manage their water – the Draft Strategy seems to be more about local water utilities taking more water extractions. There needs to be a more holistic approach, where there is a process to ensure Councils act responsibly – have they reached their growth limitations, explored recycling of water etc.
- Agricultural industries, farms, landholders deserve basic water security as well as urban residents and business.
- With respect to the proposed Action 1.5 recycling of water – there is an arrangement whereby the City of Orange supplies treated effluent via a pipeline to the Newcrest Cadia gold mine – why can’t a portion of this diversion be returned to the Blackmans Swamp/Summer Hill Creek system as a permanent release downstream to assist in meeting the needs of downstream stakeholders and the environment? There are significantly less losses in permanent lower flow transfer situations compared to larger pulse releases when water is needed downstream.
- Whilst there are substantial references to the Macquarie marshes in the lower Macquarie there are no references to important ecological assets in the upper Macquarie. For example, the Draft Regional Water Strategy makes no mention of important conservation areas in the Summer Hill Creek catchment – ie Mullion Range, Ophir Reserve, Girralang Reserve.