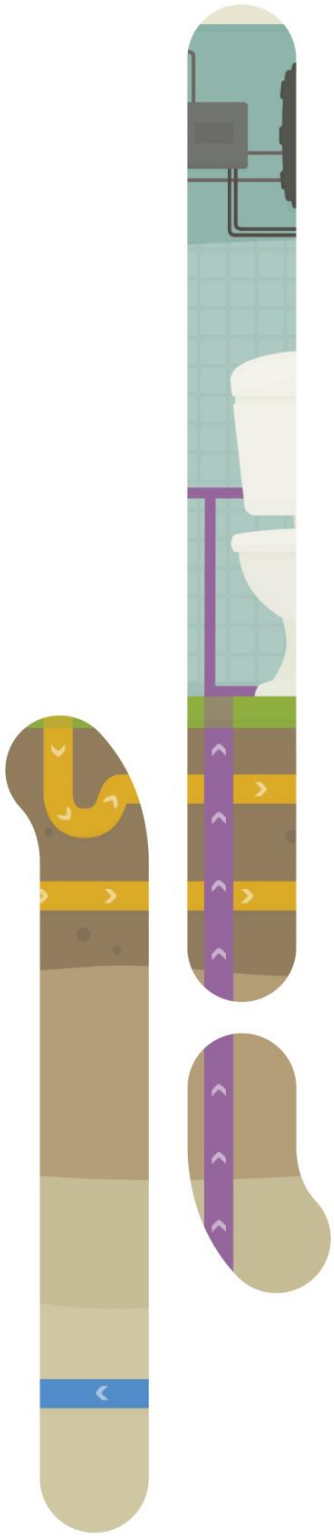
flow systems



Greater Macarthur Land Release Investigation

Submission on Preliminary Strategy & Action Plan

4 November 2015

Contents

Executive Summary

Flow Systems, as part of the Brookfield Utilities Group (BUG), welcomes the opportunity by the NSW Government and the Department of Planning & Environment to contribute to the vision for Greater Macarthur. This is a critical opportunity to showcase proven sustainable disruptive innovation that delivers faster land release, greater community value, lower carbon emissions, enhanced amenity, greening and greater liveability for such a strategically important community.

Sustainable infrastructure including recycled water, low carbon embedded energy heating and cooling networks, solar, trigeneration, electric vehicle (EV) charging stations and smart metering, are the future. They are delivering greater value in precincts worldwide and speeding up land release and housing starts due to flexible and modular installation and funding.

These new approaches bring with them new funding models, greater outcomes for communities – higher amenity, liveability, lower costs for water and energy bills, lower costs for developers and Governments. Their benefits stretch beyond the community – alleviating demand on precious State drinking water supplies, removing the need for wastewater infrastructure and the large effluent loads that travel the city often causing environmental contamination and ultimately being pumped out into our pristine oceans, barley treated.

Sustainable infrastructure offers new ways of staging planning and development, strategically and locally.

Consideration must be given to enabling alternative energy, water and mobility infrastructure as part of the strategic Greater Macarthur land release. Government has the opportunity to create a powerful innovation zone, leap-frogging other communities in its technology and community outcomes. Given the land has long been identified for urban release, dating back to the Macarthur Development Board and the three cities concept presented in the *Sydney Region Outline Plan 1968*- there is a strong imperative to ensure community outcomes are now Australian-leading.

The use of decentralised sustainable innovations can mitigate previous concerns about lack of infrastructure in Greater Macarthur and environmental issues relating to the Nepean River. Flow Systems and other licensed utility providers are in a position to assist the Government in addressing these constraints using sustainable multi-utility infrastructure solutions that can lower cost to the Government, developers and households.

Traditional water and energy utility solutions are clunky, promote capital inefficiency, and hinder optimised sustainable solutions. There are too many parties acting independently as silos that supply conventional *'one size fits all'* commercial frameworks. Developers are focused on overall capital cost, assuming Business-as-Usual (BAU) operating costs and timing. Energy and water infrastructure is not their speciality and they do not want the complexity or third party arrangement to complicate or slow down their build program. They chose the process for traditional infrastructure because it is proven and known – not because it delivers better outcomes or can be more cost effective.

Decentralised water and energy networks strongly compliment traditional systems – allowing centralised utilities to focus on efficiency improvements and renewal. New growth must be allocated to innovation and alternate solutions.

Land that has traditionally been expensive to service is now feasible with decentralised servicing. Sewer and water distribution are now no longer reliant on gravity – innovation provides other more flexible, affordable and sensible approaches that free up development staging opportunities.

It no longer makes commercial sense to invest in ageing water and energy solutions that are more than one hundred years old and promote perverse outcomes. New technology, new thinking and financing solutions are providing cost effective alternatives for water, energy, heating, cooling and mobility. The case for a shift to innovation is urgent, compelling and essential for Government and developers. We are seeing leadership from Urban Growth, local governments such as City of Sydney and Parramatta City Council – as they seek to enable world's best innovations, technologies and practices in infrastructure to transform their communities, make them more resilient and liveable. This leadership needs to be extended to the Macarthur land release strategy.

Priority Precinct Identification

The exhibited documents show an investigation area bounded by Menangle Road on the west, whereas the Priority Precinct boundary is the Nepean River – the land between the River and Menangle Road comprises the Moreton Park land and the Station Street Menangle land.

The land between Menangle Road and the river (Moreton Park) has previously been considered for rezoning by the JRPP in 2013-14. The JRPP rejected the Gateway proposal because the land needed to be considered in the wider context of the region. With the passing of time that opportunity for wider consideration can now be applied.

The Station Street, Menangle proposal also falls outside the proposed Priority Precinct boundary. Flow Systems considers that Menangle must be included within the Menangle Park/Mount Gilead Priority Precinct planning boundary. It is understood that development for employment and/or residential lands will require additional transport linkages. These could be considered as part of the forthcoming M9 strategy for linking with the Hume Highway and through Greater Macarthur to the Illawarra.

Utility servicing of Menangle can be considered as an adjunct to the servicing of Menangle Park/Gilead.

The establishment of local sustainable water, energy and mobility servicing can enable greater community ownership, control and self sufficiency. It can substantially reduce costs to Government, developers, households and businesses.

Utility Infrastructure Strategy

Menangle/Mt. Gilead Priority Precinct.

P5 of the Preliminary Strategy and Action Plan (PS&AP) tabulates the Infrastructure requirements. P 23-25 of the Land Use and Infrastructure Analysis (LU&IA) document outline existing and planned infrastructure capacity.

It is apparent that the Department has consulted only with incumbent utility providers, and that Business-as-Usual (BAU) models of infrastructure provision have been considered. This is totally unsatisfactory when considering the strategic planning for 21st Century developments. It is now clear that alternative, locally based utilities are the economic and environmentally sustainable future in urban development. Provision must be made in the planning process to consider alternate infrastructure solutions. Consultation must take place with low carbon water and energy providers – not just centralised traditional energy and water utilities.

BASIX will drive, under BAU, the requirement for the installation of rainwater tanks – a cost impost on new homeowners. The installation of a decentralised recycled water network will generate up to 70 per cent of daily non-potable water needs for the community, far exceeding rainwater harvesting and usage.

The local provision of utility services has already been demonstrated at a precinct and town scale in NSW, at Pitt Town in the north-west, at Central Park in Sydney, and Huntlee in the Hunter Valley. These local networks remove the need for all wastewater infrastructure – instead harvesting 100 per cent of local wastewater for reuse in the community.

Transporting wastewater tens of kilometres across cities to pump the barely treated sewerage into our pristine oceans, right beside our most valuable tourist and community assets like – Bondi Beach, Coogee and Manly – should now be a thing of the past. Local recycled water centres that reuse 100 per cent of wastewater purifying every drop to the highest Australian standards for up to 70 per cent of daily non-drinking household usage are commercially viable, superior and available solutions to governments and developers.

There is really no excuse for BAU. In the case of Macarthur, it is unacceptable to contemplate (as per P 24, LU&IA), the pumping of sewer 70 km from Greater Macarthur to Malabar for coastal disposal.

Drinking water supply also requires augmentation, bulk supply is available both from the Macarthur Water Filtration Plant and existing reservoirs. By adopting a decentralised sewer system (see below), recycled water reticulated through the precinct will lower by up to 50 per cent the drinking water demand on the Sydney Water system, thereby deferring capital expenditure and making additional potable water available for other sites, for example, the expanded Menangle development area.

Sewage treatment has already been demonstrated to be locally managed at Bingara Gorge within the Wilton Precinct. Superior models are available to that installed at Bingara Gorge, meeting the high environmental outcomes required for water quality in the Nepean River, as well as being efficient and effectively managed at a local level.

Flow Systems proposes a local utility be established to collect and treat sewer in decentralised plants throughout the precinct. Each plant could handle the sewage of between 2,500 and 7,500 dwellings, returning recycled water to dwellings for non-potable uses and for irrigating parks and open spaces – for up to 70 per cent of daily non-potable needs.

A Flow pressure sewer system and recycled water scheme has multiple benefits over and above the expensive and capital intensive traditional pumping and gravity sewer proposal as tabulated. Included in those benefits is the low construction impact of a shallow pressure sewer main laid in road verges compared to potentially deep gravity sewers, disruptively carving through gullies.

Electricity supply should be grouped with Gas and considered together as Energy. The table (P 5, PS&AP) is silent on gas, however both the major Sydney gas supply mains, and coal seam gas are proximate to the locality. The availability of gas presents an opportunity for further local generation of electricity, which is already occurring with the two existing power stations.

The local generation can be supplemented with solar PV generation and battery storage, thereby allowing for the Precinct to be not reliant on the electricity grid. This would defer the capital investment required by Endeavour Energy for new zone sub-stations and the augmentation of the Bulk Supply Point, and and underpin this new growth area with sustainable infrastructure.

BUG would like the opportunity to investigate and demonstrate the potential for off-grid energy provision, thereby achieving considerably higher sustainable outcomes for the Precinct than is currently indicated in the documentation.

The utility infrastructure requirements proposed currently are last century, expensive and not sustainable. A 21st century utility solution utilises local resources, recycles, and is locally managed – being sustainable into the future. A bonus is that homes connected to recycled water schemes and PV roof installations achieve high BASIX recognition.

Wilton

P7 tabulates the utility infrastructure requirements for Wilton. It again only refers to the incumbent utilities old school Business as Usual expensive centralised models. BAU does not account for the ready availability of local energy and water service potential. Bingara Gorge already operates with a local sewer treatment facility providing irrigation water for the Golf Course. Wilton presents an opportunity to install new but tried technologies to make this new, relatively isolated community almost independent of main grid supply.

Other Precincts

The Greater Macarthur Investigation Plan defers the remaining Precincts as not being required for housing within a 20 year time horizon.

The provision of decentralised local utility installations may make development of these precincts economically viable. The opportunity should be allowed for proponents to pursue “out of sequence” rezonings subject to meeting “no additional cost to Government” criteria.

Local Utility Provision

Technology

- Flow Systems utilises existing technologies in the collection and treatment of sewer, and the distribution and reticulation of recycled water. Treatment, storage and distribution facilities are located on Local Water Centre sites of only 4-6,000m2, and can be adjacent to residential development as the plants have no environment externalities.
- Electricity and energy generation, storage and distribution technologies and costs are rapidly changing; Photo Voltaic and battery storage costs are falling rapidly and are now cost competitive with conventional centralised generation, distribution and reticulation.
- A low carbon Energy Centre can be co-located with the Local Water Centre to both power the water centre and provide direct services. Services include embedded heating and cooling networks, district energy, trigeneration, solar.

Environmental Benefits

- A dwelling connected to a Flow pressure sewer and recycled water reticulation is Basix compliant. Potable water bulk supply is reduced by 50%. Recycled water utilised for irrigation (e.g. parks) provides for a greener local amenity, and can reduce the heat island impact of urban development. Irrigation water is always available, even during droughts, as water usage within the home is independent of water restrictions.
- The construction of pressure sewer lines in road verges has minimal environment impact compared to gravity sewers which need to follow drainage corridors, and may be deep due to topography variations.
- Local generation (PV and gas), and reticulation of electricity has benefits in that the system can be very efficient, with minimal transmission losses, and greatly reduced green-house gas emissions.

- Greater Macarthur also benefits from being atop an existing commercial coal seam gas field, so an energy source is immediately available, for both heating/cooking, and for supplementary electricity generation.

Financial Models

- Government will be seeking to minimise its financial exposure to infrastructure costs, and will be seeking to recover costs through developer contributions.
- The provision of utility infrastructure by licensed utility providers can follow similar funding models, but is flexible in that the utility may be able to up-front fund some infrastructure. The actual financial models utilised by licensed utility providers will be determined on a project by project basis.
- Non-Government utility providers will provide utilities at a competitive price for the developer, and at a potentially lower cost to consumers. As retail pricing is regulated, costs to consumers cannot be higher than conventional utility provision.

Consumer Benefits.

- A local utility provides consumers with a degree of "ownership" of their utility which is not provided by conventional servicing – flush and forget.
- With the smart technology installed with the energy and water management systems, consumers have immediate access to their usage and costs.
- Dwelling construction costs may be reduced, or the cost burden for BASIX compliance shifted, with the local utility taking responsibility for PV installation, and recycled water provision.

For a case studies of the energy and water benefits see Appendix A page 11

Conclusion

Flow Systems commends the Government for its initiative in comprehensively planning for the managed release of land in Greater Macarthur. A continuous supply of zoned and serviced land is required to meet the on-going demand for urban development in South West Sydney.

Planning and development pathways should not, however, be constrained by traditional utility servicing, particularly as centralised systems are inefficient and not sustainable. Twenty-first century urban development needs to reflect and implement available and emerging technologies. Decentralised utility services are able to be provided by licensed utility providers and can be planned and installed quickly, at lower cost, providing sustainable local services. This in turn releases land faster and brings forward housing starts and associated economic activity. More flexible sustainable infrastructure reduces costs and future-proofs, enables high amenity and liveability – driving greater value into the future.

Planning for the release of Greater Macarthur needs to reflect the large bounds in innovation and the robust market that has developed around the delivery of sustainable multi-utility servicing. It needs to reflect greater flexibility in utility servicing now available to communities.

Flow Systems and Brookfield Utilities would like to discuss these benefits with the Department to explore frameworks and avenues for sustainable infrastructure and low-carbon multi-utility solutions in the strategic infrastructure planning and implementation of Greater Macarthur.

TERRY LECKIE
Managing Director
flow systems

Appendix A – Corporate Overviews

Brookfield

flow systems

Time for a new approach

Australia will require more than half a million new homes in coming decades. It must also meet the challenge of limited government funding, water scarcity, rapid urbanisation, rising utility bills and climate change.

Tackling these challenges requires a new approach. Precinct utility servicing is setting new benchmarks for affordability, liveability and sustainability in the UK, Europe and the US.

Flow Systems (Flow) is spearheading this approach in Australia to assist in unlocking billions of dollars in investment, productivity and sustainability and delivering more timely, liveable and affordable housing stock.

Bundling sustainable water and energy infrastructure in precinct developments markedly reduces costs and locks in long-term benefits such as lower energy and water bills and more affordable infrastructure. Planning for precincts is essential as developers and regulators look to enable new innovations and approaches. Local utility infrastructure has a pivitol role in responding to changes in the economy and how it can support housing affordability now and in the long-term.

Brookfield and its Australian sustainability focused local utility company, Flow, welcome the new direction for infrastructure provision that is focusing the attention of urban planners and leading developers in Australia.

Planning for precincts is essential as developers and regulators look to enable new innovations and approaches.

Australian developments to access world's best multi-utility solutions

In 2015 Flow has been part of a significant and exciting repositioning by our parent company Brookfield.

With the acquisition of Flow and Tas Gas (Australia), Inexus (UK) and Enwave (Canada/USA) - Brookfield has established a significant global multi-utility business.

This substantial investment positions Brookfield as a world leader in sustainable water and energy utility services.

Brookfield has more than $200B in assets worldwide. It has a diversified portfolio across 20 countries, a 30,000 strong workforce and above average returns year on year. It is larger than any other utility operating in Australia.

$200B +

assets worldwide

30,000

strong workforce

Strata SE1 — London

Enwave, deep deployment — Toronto

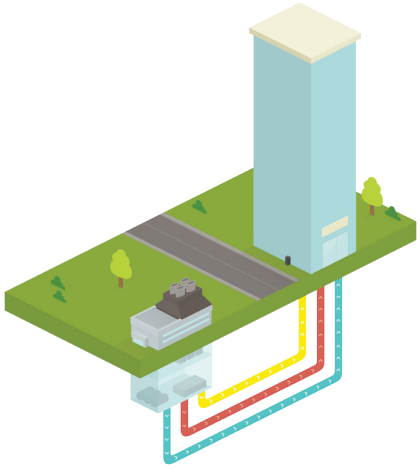
One Shelley Street — Sydney

Affordable, liveable, connected.

Flow understands the importance of climate-proofing and future-proofing new communities, along with a commitment to a low carbon future. Our communities are sustainable, liveable and connected.

Our solutions, based upon proven technology, support electric vehicles, locally generated clean energy, locally generated water supplies, intelligent communications, and community ownership models for residents and the community.

We want the benefits to be shared within the community for generations. Flow is driving a new low carbon multi-utility businesses with the support and global knowhow of Brookfield. Brookfield owns and manages $200B of assets across 20 countries. Its subsidiary – Flow leads the multi utility services offerings for residential and mixed use communities in Australia.



Green walls by Patrick Blanc

Our offer

Brookfield and Flow have the capability, commercial, technological and financial solutions to fund, design, construct, operate and retail sustainable water and energy infrastructure and services.

40% economic advantage

25% reduction in GHG emissions

Modelling demonstrates a 40% economic advantage over traditional servicing solutions, as much as a 25% reduction in total GHG emissions and the potential to create resource positive energy and water communities, able to export excess resources to surrounding assets and communities.

It has become clear at the Central Park development in Sydney, this approach to infrastructure increases the land value and long term economic interests of all parties.

Flow has a vision for sustainable, innovative, connected and economic infrastructure that will create flexible and yet resilient communities - a new playbook for global delivery of precincts. London's Kings Cross, Canada's Waterfront Toronto, and America's Battery Park City are further evidence that this vision is becoming a trend.

Australian developers are extending the country's sustainable precinct portfolio through current constructions at Green Square, Barangaroo (Sydney), Queens Wharf (Brisbane) and Fishermans Bend (Melbourne).

Green walls by Patrick Blanc

Our approach

We work on a preferred-partnership arrangement to create a local utility solution for water and energy that meet the needs of your development.

We work with you to identify the constraints and issues you currently have with your traditional servicing approach. We determine your minimum criteria to create a successful development and the ideal servicing outcomes to ensure this success. Then we look to provide a solution that meet or exceeds all of your criteria for success.

1

Partnership Agreement

Together we enter into a partnering engagement agreement.

2

KPI Working Group

We create a joint working group to confirm constraints and minimum criteria for success.

3

Solution for Success

Flow develops a solution that meets or exceeds all of the minimum criteria for success.

4

Commercial Offer

Flow makes a formal commercial offer.

5

Utility Appointment

You appoint Flow in accordance with the partnering engagement agreement and commercial offer.

Helping to deliver housing supply

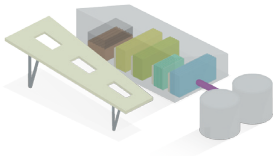
Flow solves problems and removes servicing constraints that slow up housing supply.

Private and public developers have experienced many frustrations under the traditional individual utility services approach:

- Delays in delivery of infrastructure to serve the development
- Large up front infrastructure costs leading to development that is not viable
- Frustrating negotiations with monopoly utilities that increase costs & create delays
- Sustainability targets become unachievable

In solving these frustrations private and public developers also ask us for:

+ Infrastructure that creates market differentiation to increase the rate of sales
+ Increased value for property purchasers
+ Lower water and energy charges for customers
+ Properties ready for market faster



Our services

Flow is the lead for Brookfield's move to support the development of Australia's multi-utility industry.

Australian developments will now benefit from Brookfield Flow's global and local experience in leading edge utility services that drive substantial benefit, future proofing homes, reducing carbon emission and delivering self-sufficiency for communities. The ultimate solution will encapsulate smart, sustainable, connected and economic infrastructure.

The internationally award-winning sustainable Central Park precinct is underpinned by recycled water and low carbon energy.

Sustainable

- Secure and resilient
- Low carbon, water sensitive

Connected

- Real-time 'Smart Grids'
- Community utility platform
- Leveraging the "internet of things"
- Custodian for community resources

Innovative

- Latest proven technologies
- Integrated systems platform
- Pre-approved funding structures

Economic

- Value Creation
- Lower cost of living
- Affordable infrastructure for creators of new communities

Minimum service offering

The new multi-utility solutions are configured from the following proven technologies or products to optimise energy and water efficiency and performance. We deliver services to mixed use developments in Housing Supply areas and Urban Renewal sites.

Housing supply

Water

- Drinking Water
- Non Drinking Water
- Wastewater
- Greenspace Irrigation
- Stormwater Harvesting

Energy

- High Voltage/Low Voltage substations
- Grid Connection
- Electricity generation and distribution, including solar and gas-fired
- Communications – Data

Urban renewal

Water

- Drinking Water
- Non Drinking Water
- Wastewater
- Rainwater Harvesting

Energy

- High Voltage Substations
- Electricity
- Hot Water
- Natural Gas Infrastructure & Services
- Communications – Data

In our experience, the optimal outcome in urban precincts or land and housing communities is achieved with a mixture of residential and non-residential premises equivalent to 2,500 to 3,000 dwellings served by a combination of both local energy and water systems.

All of our services are underpinned by

- A multi-smart data management platform
- Precinct wide systems monitoring
- Local community workers
- Customer service and retailing capability

Additional services

Water

- Stormwater
- Fire fighting water
- Lakes
- Greenspace management

Energy

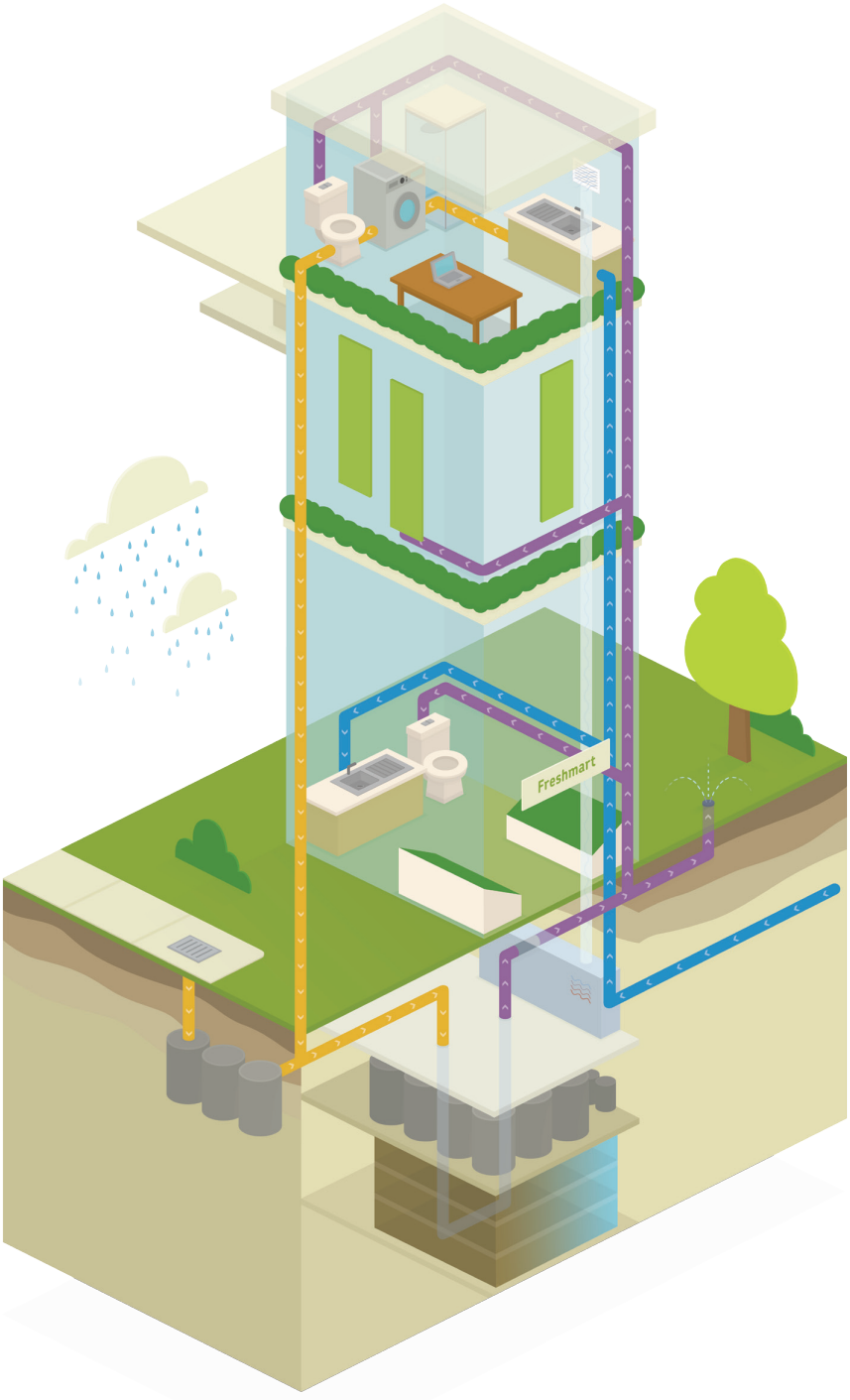
- Chilled water
- Thermal hot water
- Solar
- Electric vehicle charging infrastructure
- Co/tri-generation

Our work at Central Park

CentralPark Services

The Flow utility solution has supported Frasers Sekisui in the delivery of a globally acclaimed sustainable development.

Costs were fixed and delivery of services guaranteed. Sales rates are above average, property owners are already receiving increased value at a lower cost for services than traditional utility offerings.



Recycled water

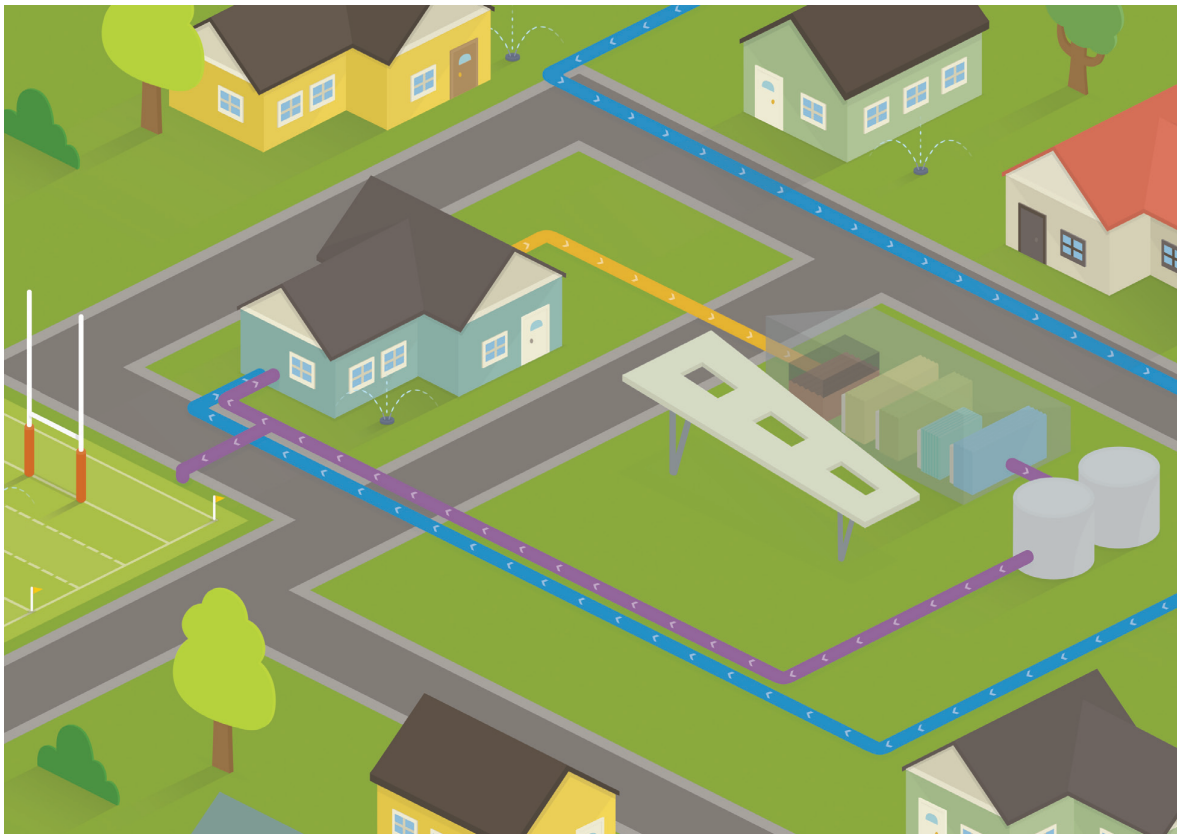
Wastewater

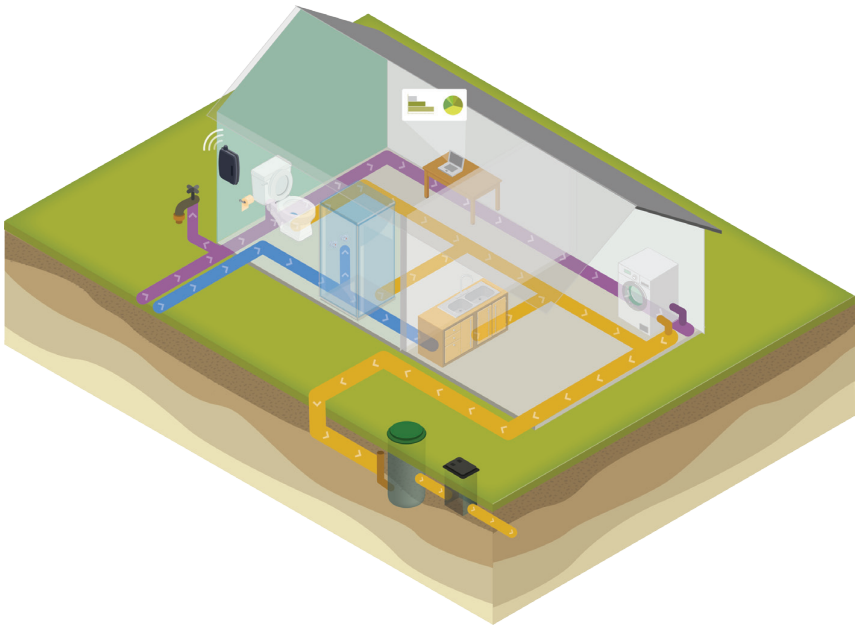
Drinking water

Our work at Pitt Town

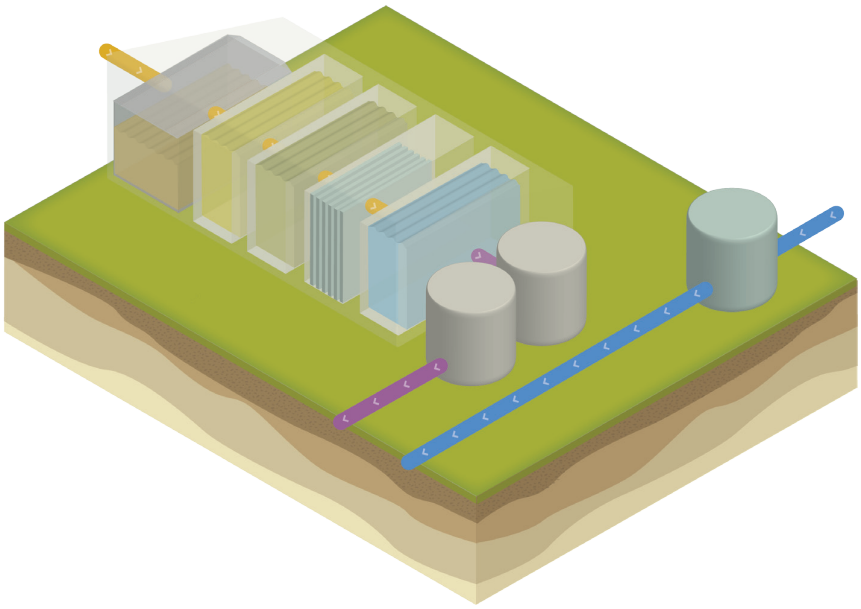
Pitt Town Water

In Pitt Town; JPG Property were able to improve the viability of the development, deliver next stage properties earlier and reduce the services costs for customers through the Flow utility solution, Pitt Town Water.





Seven purification processes convert wastewater into the highest Australian standards recycled water for toilet flushing, washing machine use & irrigation.



Recycled water

Wastewater

Drinking water

Talk to us.
Together we can make this happen.

1300 803 803
flowsystems.com.au

Appendix B – Case studies

Sustainable water

With housing growth attached directly to the ability to deploy water infrastructure, local sustainable water solutions are more important than ever in assisting the NSW government meet projected population growth and the demand for new homes. Enabling the successful operation of sustainable local networks within the water market will deliver value, innovation and positive outcomes for the community and the economy.

Flow is working to ensure NSW Planning and Environment is committed to a diverse water market that supports local, sustainable, low carbon solutions. Flow has a strong bond with its local community, fostering relationships with local schools, universities, community and government organisations to promote and enhance sustainable living. Local water networks drive awareness, participation and behaviour change towards a more sustainable future.

Total water cycle management

Flow's total water cycle management approach includes:

- Integrated Water Cycle Management (IWCM)
- Wastewater management and treatment
- Highest quality recycled water production and distribution

Benefits

Flow's approach delivers substantial benefit to State Government, local Government, communities, customers and developers:

Government

- Lower annual customer water bills
- Greater customer protection against continuing price increases often required to fund costly, ageing centralised infrastructure
- Solving net housing supply problems by speeding up land release
- Faster delivery of affordable housing
- Local employment benefits

- Economic stimulus associated with accelerated housing delivery
- Local authorities retain drinking water and stormwater revenues while wastewater CAPEX costs are removed
- Climate-proofing against extreme weather events
- Eliminating uncontrolled nutrient discharges to the environment, including nitrogen, utilising pressure sewer systems
- Assisting in the reduction of carbon emissions

Customers & communities

- Water secure communities – saving valuable drinking water
- Generating new water sources locally
- Increased amenity including greening of parks, gardens and community facilities all year
- Climate-proofing against extreme weather events
- Reusing a waste resource to generate new water sources for multiple uses
- Eliminating uncontrolled nutrient discharges to the environment, including nitrogen, utilising pressure sewer system

Substantially improved environmental outcomes:

- no open settling ponds
- no over-run/ overflow issues as a result of inundation events
- no odour
- no noise

Future proofing communities with global best innovation

- Assisting in the reduction of carbon emissions
- Enabling community infrastructure ownership
- Developers
- Improved CAPEX/cashflow outcomes
- Flexible, faster infrastructure delivery and shorter land holding costs
- Improved housing stock
- Faster delivery of affordable housing
- A sustainable solution at a discounted value
- Removal of barriers to development enabling greater control over where and when development can occur
- Fixed cost scheme establishment
- Performance commitment to developers program
- Reduced construction risks/costs
- Greater flexibility in staging developments
- Better environmental outcomes
- Removes significant risks (e.g. there is no requirement for third party easements)

Sustainable energy

At the heart of Flow's approach to energy infrastructure and services is sustainability. Flow designs local embedded networks for new developments and precincts. We harness the latest innovations bringing together water and energy infrastructure and services to reduce costs, underpin sustainability and ensure greater benefits are passed on to customers. In partnership with our clients, Flow works to deliver the best possible economic, social and environmental outcomes. We do this by:

- Maximising renewable energy generation
- Managing peak loads
- Ensuring energy efficiency
- Assisting communities in the transition to lower carbon fuel sources
- Flow works with our developer and government clients to deploy local decentralised energy networks that utilise proven low carbon technologies to reduce dependency on coal-fired electricity and improve our environment.

Our solutions streamline infrastructure delivery for developers, ensure local energy security, and provide customers with more visibility and control over their energy costs. Local embedded networks are maximising energy generation and efficiency within communities. They are helping to manage peak loads and transition energy supplies to lower carbon fuel sources. Flow is working with clients to design embedded electricity networks that improve revenues for customers and reduce infrastructure costs. We differentiate ourselves by combining our embedded networks with energy generation from carbon efficient sources and through our next-generation metering and billing platforms.

Technologies

Flow works with developers and councils to deploy technologies such as:

- Microgrids
- Renewable energy technologies
- Low carbon generation including cogeneration and trigeneration
- District thermal energy
- Embedded networks
- Energy efficiency
- Smarter configuration of substation infrastructure distribution networks internal to precincts
- Multi metering

Our solutions focus on locally deployed energy generation that increase the reliability of long-term savings for residents and ensure reliability of supply. All solutions include advanced multi-metering solutions that streamline infrastructure for developer clients and provide residential consumers with more visibility and control of their energy costs than ever before.

Energy security

Low carbon energy technologies are becoming more viable due to advances in energy storage, the exponential reduction in cost of solar, and a rise in traditional energy costs. For new greenfield and communities these advances provide exciting new opportunities for energy security. Flow is at the forefront of assisting developers and councils design and deploy local utilities capable of:

- Reducing lead-in infrastructure costs
- Providing long term reductions in utility costs for customers/communities; and
- Securing low carbon energy futures for communities
- Buildings & Precincts

Our embedded network model applies to both buildings and precincts. It delivers more significant savings than traditional embedded network offerings, removing risk to developers and owners corporations and enabling contestability and autonomy by residents and owners.

Benefits of energy

Flow's approach delivers substantial benefits to State government, local government, developers, communities and customers:

Government

- Low carbon, reducing GHG emissions
- Secure and resilient energy infrastructure
- Positive social infrastructure
- Embracing innovation
- Integrated systems designs
- Smart procurement
- Real-time electricity and water, grids
- Risk sharing
- Value capture

Customers & communities

- Lower utility bills over the long term
- Resilience, self sufficiency and local energy solutions
- Greater control over energy use

Developers

- Higher yield for developers through bundling infrastructure savings
- Uplift in liveability
- Resiliant and sustainable infrastructure solution
- Enabling sustainable water solutions