Nepean River Wastewater Services

Development Servicing Plan 2023

Sydney WATER

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1 Executive summary

This Development Servicing Plan (DSP) sets out the price for connecting a new development to a wastewater system in the Nepean River DSP region. Additional charges may be payable depending on what services will be provided to a development, such as drinking water.

The price for new wastewater connections has been calculated using the method set by the Independent Pricing and Regulatory Tribunal's (IPART) in their 2018 Determination[1]. Our approach to implementing the 2018 Determination is described in a separate methodology document[2], while this DSP describes inputs that are specific to this DSP area. The two documents should be read together to gain a full understanding of our approach.

The wastewater infrastructure contribution for the Nepean River DSP area is $16,020.40 ($2022-23) per Equivalent Tenement[3] (ET). On 19 October 2022, the NSW Treasurer issued an approval under section 18(2) of the *Independent Pricing and Regulatory Tribunal Act 1992*, authorising us to charge less than the maximum price calculated under the 2018 Determination until 30 June 2026. Table 1-1 sets out the maximum prices that will be levied on new developments for wastewater services in this DSP area from 1 July 2023 until the DSP is reviewed and replaced.

Table 1-1 – Wastewater infrastructure contribution prices for this DSP area ($2022-23)

	1 July 2023 to 30 June 2024	1 July 2024 to 30 June 2025	1 July 2025 to 30 June 2026	1 July 2026 onward
Maximum price calculated under the 2018 Determination ($/ET)	$16,020.40	$16,020.40 + CPI_1	$16,020.40 + CPI_2	$16,020.40 + CPI_3
Percentage of maximum price to be charged	0%	25%	50%	100%
Maximum price that can be levied on new development ($/ET)	$0	$4,005.10 + CPI_1	$8,010.20 + CPI_2	$16,020.40 + CPI_3

Note: the price is also adjusted each financial year based on changes in the Consumer Price Index (CPI) compared to the March Quarter 2023.

[1] IPART (2018) *Maximum prices for connecting, or upgrading a connection, to a water supply, sewerage, or drainage system for metropolitan water agencies*
[2] Sydney Water (2023) *Infrastructure contributions: how we apply IPART's pricing method*
[3] See section 2.3 for more information regarding ET's and an overview of how to apply this price to individual developments.

2 Introduction

2.1 Infrastructure contributions and Development Servicing Plans

The *Sydney Water Act 1994* allows Sydney Water to recover the investment of infrastructure needed to provide services to new properties.

IPART is an independent authority that regulates the pricing of declared government monopoly services. IPART may set a maximum price for a government monopoly service, or it may decide to set a methodology that must be used to calculate the price.

In their 2018 Determination, IPART set a methodology that must be used to determine the maximum price for a new development connecting to a water, wastewater or stormwater system. The IPART methodology generates a price payable by all development inside a discrete Development Servicing Plan (DSP) area. Contribution prices are calculated separately for water, wastewater and stormwater (and, under a separate determination, for recycled water).

2.2 Who pays the infrastructure contribution?

As a condition of development consent, a consent authority (usually Council) may require a proponent to make satisfactory arrangements for the provision of water-related services to a development. To identify and confirm the necessary arrangements, the proponent must submit to Sydney Water an application for a Section 73 Compliance Certificate.

Upon receiving an application, we will investigate the impact a proposed development is likely to have on our systems. We will then issue a Notice of Requirements (NoR) under s74 of the *Sydney Water Act*, setting out any conditions that must be met (eg, details of works that must be constructed so that services will be available to the development). Infrastructure contributions are payable for all developments that require a Section 73 Certificate and must be paid by the proponent of the development before the Certificate can be issued.

In many cases a development is for the subdivision of land into smaller lots that are later sold to others for purposes such as building a house. Infrastructure contributions are not levied on this subsequent development, unless the subsequent development also needs its own Section 73 Compliance Certificate (eg, because a single residential lot will be sub-divided to create a dual occupancy).

2.3 How do I apply the charge to my development?

The infrastructure contribution price is the amount that must be paid by one equivalent tenement (ET). IPART's 2018 determination defines one ET as being equal to the annual total demand of an average detached, single residential dwelling[4].

The total infrastructure contribution payable by any given development would equal the base price in the DSP area multiplied the number of additional ETs. For example, if a single residential dwelling uses 200 kilolitres of water in a year, one ET equals 200 kilolitres. If we receive a section 73 application for a development and assess that it will use 1,000 kilolitres of water over a year, the development is for five ETs. Assuming a base price in the DSP area of $5,000 per ET, the development would be required to pay $25,000 ($5,000 per ET x 5 ETs).

We work out the number of ETs in a development based on information supplied to us during the Section 73 process. In broad terms:

- For residential properties, the number of ETs depends on the density of proposed dwellings. Each detached dwelling would typically be considered one ET, while medium to high-density developments (such as flats and units) would be less than one ET per dwelling (eg, 0.8);
- For non-residential developments, the number of ETs will be assessed based on the expected volumetric demand of the proposed land use (eg, use of drinking water, discharge of wastewater);
- We may account for existing land uses if, for example, the land was already occupied and used our services. For example, if a lot with a single dwelling is subdivided to create two lots, we may apply a credit for the pre-existing dwelling and only require a payment equal to one ET (being the net increase in demand for our services).

The contribution price set out in this DSP will apply to all developments requesting a new wastewater connection, where a Section 73 Compliance Certificate will be issued after 1 July 2024. Further information on our approach to assessing the number of ETs in a development will be set out in separate policy and guideline documents that will be available on Sydney Water's website or via your Water Servicing Coordinator.

If your development also requires a new drinking water connection, you will also be required to pay a drinking water infrastructure contribution. The drinking water contribution payable by new connections in this DSP area is $3,281.85 / ET, as set out in the Greater Sydney Drinking Water DSP.

[4] Because IPART did not specify a value for 'average demand' in their 2020 retail price determination, we must assume a value when calculating the contribution price for a DSP area. Our approach to estimating average demand is set out in our infrastructure contribution methodology report.

3 Nepean River DSP area

3.1 Systems covered by this DSP

The boundary of this DSP area covers the following systems (see also Table 3-1 for selected key statistics):

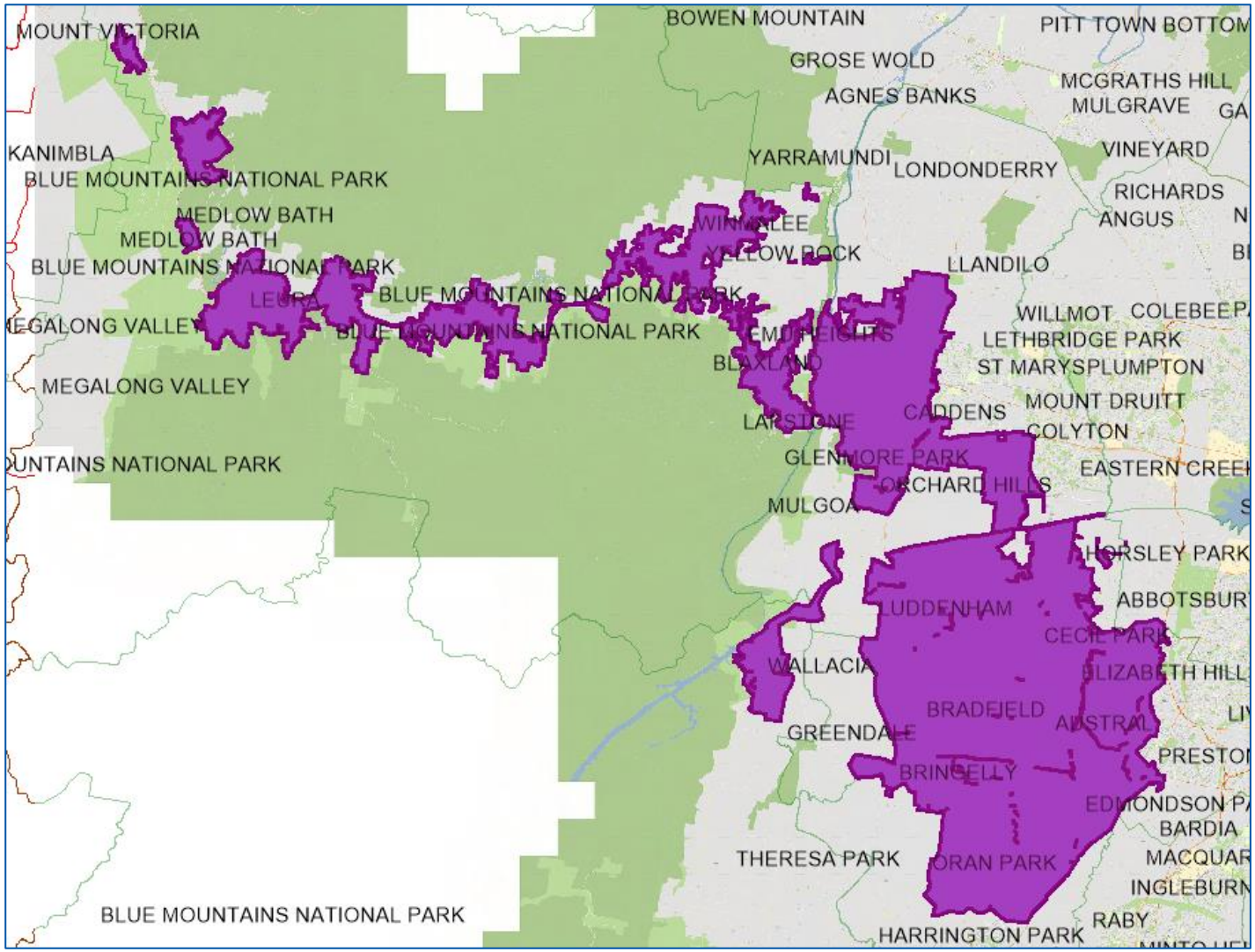
- Penrith sewage treatment system;
- Upper South Creek sewage treatment system;
- Wallacia sewage treatment system; and
- Winmalee sewage treatment system.

A sewage treatment system consists of the wastewater pipes, pumping stations, and resource recovery centres that transport used water away from homes and businesses for treatment before being beneficially reused or safely released to the environment.

Table 3-1 – Summary statistics for systems in the DSP area (as at 2022)

System	Catchment area (Ha)	Residential population
Penrith	5,554	104,453
Upper South Creek	TBD	TBD
Wallacia	1,245	4,856
Winmalee	6,972	59,890
TOTAL	12,526	169,652

Figure 3-1 Nepean River Development Servicing Plan Area



All four systems are (or will be) in the catchment of the Hawkesbury Nepean River and fall within the Yarramundi 2 Sub-Zone adopted by the Environment Protection Authority (EPA) for the purposes of setting Environment Protection Licence (EPL) nutrient load limits[5]. While EPA has allocated each sewage treatment system a notional nutrient 'allowance', EPL compliance will be assessed at a Sub-Zone level. The licensing framework provides flexibility to direct investment so that it occurs at sites where licence limits can be achieved at least cost.

As each of these systems essentially face the same set of performance requirements, particularly EPL licence limits, we have grouped them together for the purposes of creating a DSP area and associated infrastructure contribution price.

Further background on each of the systems in this DSP area is contained in section 5.1.

3.2 Past and future development in the DSP area

This section provides an overview of past and historical development in the DSP area.

Historical development is summarised in **Figure 3-2**.

For the purposes of calculating an infrastructure contribution price for this DSP area, the forecast of future development must align to the available capacity provided by existing and future assets. In this DSP area, the forecast of future investment in new assets is limited to the next 10 years. As a result, the development forecast used to calculate the infrastructure contribution price must be limited to the amount of new development that can be serviced by assets commissioned within the next 10 years. Because asset capacity is typically delivered in large blocks, development can often continue to connect to a system for many years beyond the adopted investment horizon (see **Figure 3-3**).

[5] EPA (2019) *Regulating nutrients from sewage treatment plants in the Lower Hawkesbury Nepean River catchment*

Figure 3-2 Historical Development in the Nepean River DSP Area

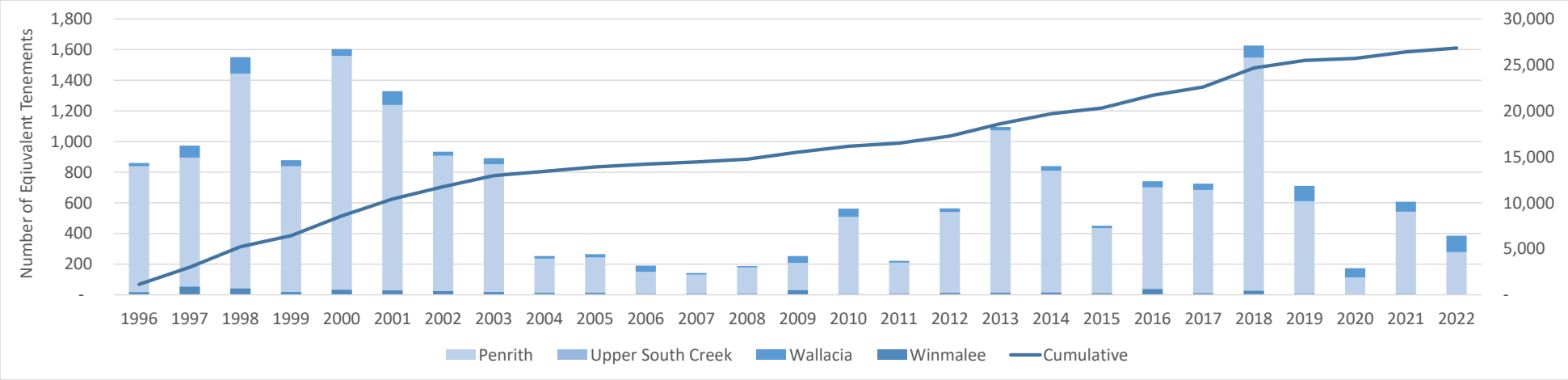
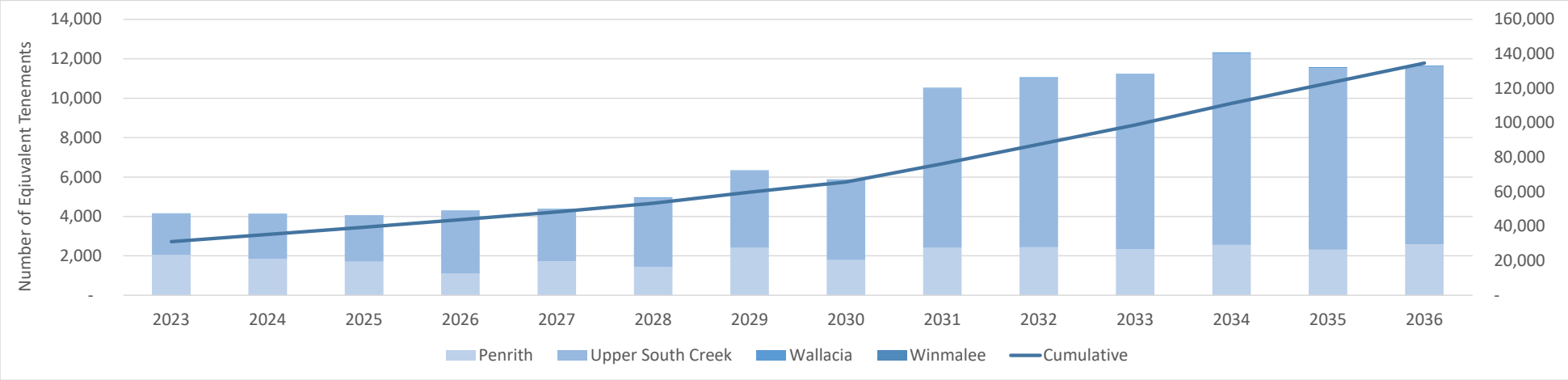


Figure 3-3 Future Development in the Nepean River DSP Area



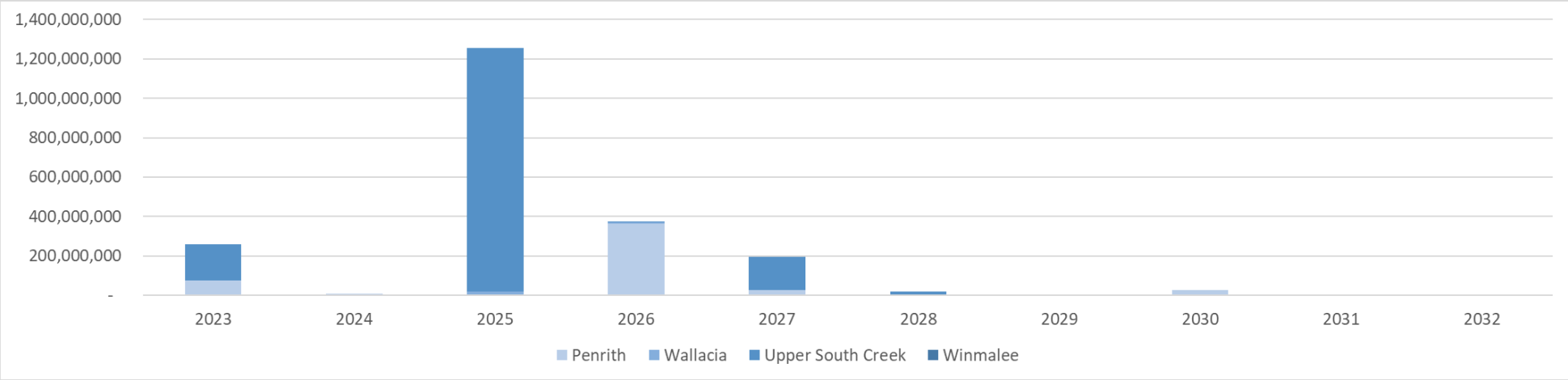
3.3 Past and future assets providing services to the DSP area

This section shows the value of past (Table 3-2) and future (**Figure 3-4**) assets constructed to provide services to new development. Consistent with IPART's pricing method, asset values are shown in the year commissioning (ie, not as a cashflow). As noted above, future assets are limited to those likely to be commissioned inside the next 10 years. The value and timing of asset commissioning beyond 10 years is more uncertain, and if further investment is needed after 10 years this will be captured in a future review of this DSP.

Table 3-2 – Total present value of commissioned assets by system, 1970 – 2022 ($2022-23)

System	Penrith	Upper South Creek	Wallacia	Winmalee
Pre-1996 assets	$174,675,779	-	-	$22,000,923
Post-1996 assets	$210,774,596	-	$44,267,971	$118,600,913

Figure 3-4 Future Uncommissioned Assets in the Nepean River DSP Area



The infrastructure contribution price in this DSP will help to fund delivery of the following assets:

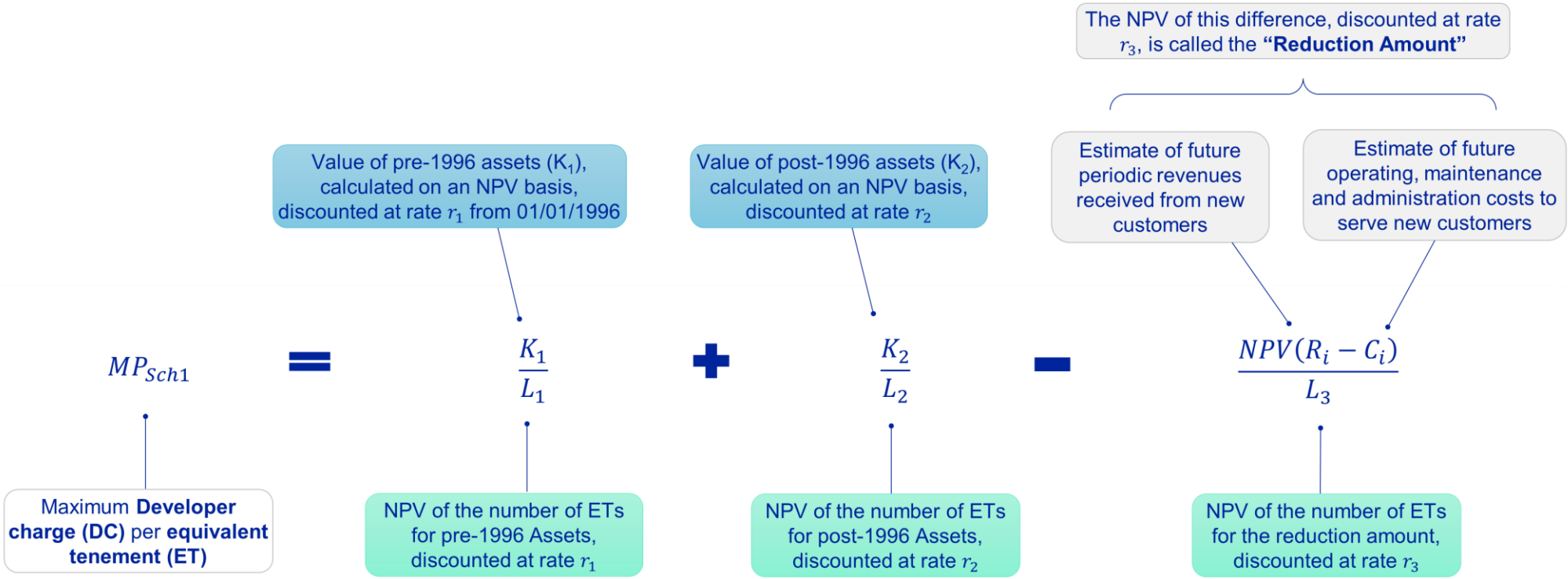
- Penrith
    - 7.3KM of gravity mains, an ERS project, 8.5KM of rising main, 1 new rising main project, 1 new pump station, 3.4ML of dry weather storage, 6 generators, capacity upgrades totalling 943L/s, 4 upgrades to Penrith WRP, 5ML/d of additional RO capacity and 3 stages of aerobic digestion investments
- Upper South Creek
    - 42.9KM of gravity mains, 2 undefined gravity main projects, 26.6KM of rising mains, 5 undefined rising main projects, 1 pump amplification project, 8 SPS and supporting pump and civil works, 1 storage project and Staged Upper South Creek STP project
- Wallacia
    - 2.7KM of rising mains and 2 sewage pump stations totalling 6L/s

No investment is required in the Winmalee wastewater system.

4 Infrastructure contribution calculation

The main elements of IPART's pricing method are shown in **Figure 4-1**. The rest of this section presents the results of applying this method.

Figure 4-1 IPART's infrastructure contribution pricing method



4.1 Key inputs for this DSP

This section sets out assumptions used in the calculation of the infrastructure contribution price. Further detail on the approach, including assumed retail prices and escalation rates, are set out in our DSP methodology document.

Table 4-1 - Inputs to the infrastructure contribution calculation model

Input parameter	Nepean River Wastewater DSP
Base Year	2022-23
Real pre-tax discount rate for pre-1996 values (K_1, L_1)	3.0%
Real pre-tax discount rate for post-1996 values (K_2, L_2, L_3)	4.2%
Demand of one equivalent tenement (kL / year)	137.5
Apportionment of commissioned assets	
(A) Total ETs (1970 – 2052)	313,473
(B) Pre-1996 ETs	39,838
(C) 1996 – 2022 ETs	26,270
Apportionment of pre-1996 assets 1 – [((B) + (C)) / (A)]	78.9%
Apportionment of post-1996 commissioned assets 1 – [(C) / (A)]	91.6%

4.2 Infrastructure contribution price elements

Table 4-2 – Charge for pre-1996 assets

(A) Present value of pre-1996 assets (K_1)	$437,541,752
(B) Present value of equivalent tenements (L_1)	208,966
Capital charge for pre-1996 assets (A) / (B)	$2,094 / ET

Table 4-3 – Charge for post-1996 assets

	Commissioned	Uncommissioned
(A) Present value of post-1996 assets (K_2)	$429,709,475	$2,289,140,820
(B) Present value of equivalent tenements (L_2)	196,228	196,228
Capital charge for post-1996 assets (A) / (B)	$2,190 / ET	$11,666

Table 4-4 – Net operating result

(A) Present value of revenue (R)	$272,855,805
(B) Present value of operating costs (C)	$283,031,108
(C) Present value of ETs (L_3)	143,314
Net operating result (A) + (B) / (C)	($71) / ET

4.3 Total infrastructure contribution price

The following table shows the components of the infrastructure contribution calculation.

Table 4-5 - Components of the infrastructure contribution price, $ per ET ($2022-23)

(A) Pre-1996 commissioned assets	(B) Post 1996 assets	(C) Net operating result	Infrastructure Contribution (A) + (B) – (C)
$2,093.84	$13,855.56	($71.00)	$16,020.40

5 Appendices

5.1 Appendix A – Background information on the systems in this DSP

5.1.1 Penrith

The system services the Penrith and Blue Mountains Local Government Areas (LGA) including the suburbs of Castlereagh, Upper Castlereagh, Cranebrook, Mt Pleasant, Cambridge Gardens, Kingswood, Jamisontown, Glenmore Park, Blaxland, Warrimoo and Mt Riverview. Adjacent systems include the St Marys wastewater system to the east and the Winmalee wastewater system to the northwest. The former Glenbrook Wastewater System is part of the Penrith system.

Wastewater from the Penrith catchment is collected and transported to the Penrith WRP via eight pumping stations. Wastewater from Glenbrook catch is collected via the Warrimoo Carrier (DN600) and transferred to Penrith WRP via the Glenbrook Transfer Main (DN600). See Figure 5-1 for an overview of the system assets, and Figure 5-2 for the location of major growth areas. The current and expected performance of the system is summarised as follows:

- No dry weather overflows from the system for all planning horizons
- Pipes that exceed 60% full during dry weather do not impact the wet weather overflows, except downstream of overflow DS5OF009.
- There are 10 SPSs with a detention time of less than 4 hours in 2046. Three SPSs have an onsite generator or are linked to another SPS.
- SP1189 is recommended for capacity upgrade to manage additional growth.
- Wet weather overflow frequency exceeds licence limit of 36 events in 10 years for all planning horizons. The Glenbrook area exceeds its licence limit of 10 events in 10 years for all planning horizons.
- Wet weather bypass to Penrith WWTP does not exceed the licence limit of 198 events in 10 years for all planning horizons.
- Of the maintenance holes that changed in frequency between 2016 and 2046, four exceed 5 in 10 years on private property.

Figure 5-3 summarises major investments needed in the Penrith wastewater system to manage the impact of growth.

Figure 5-1 Major assets in the Penrith Wastewater System

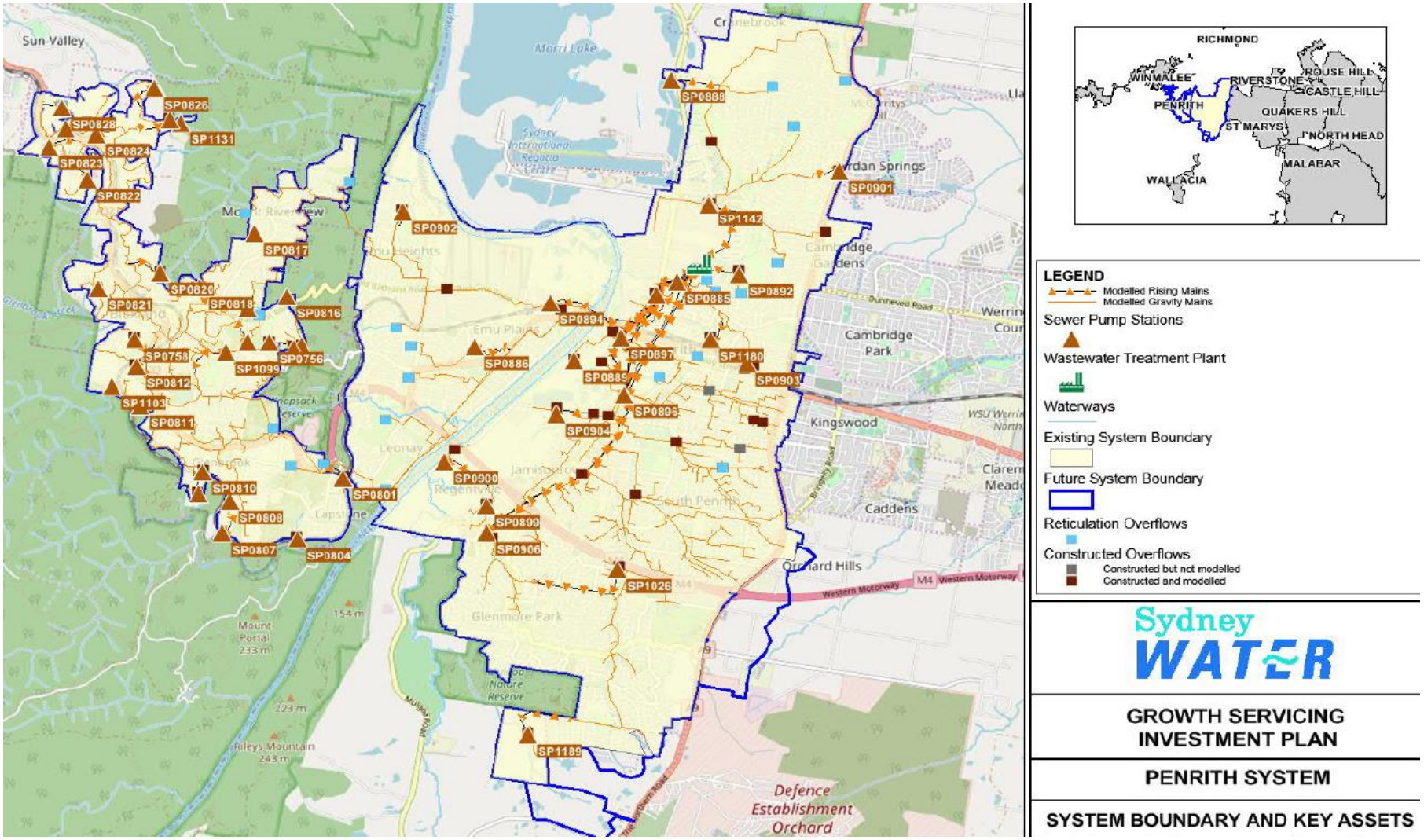


Figure 5-2 Major development sites in the Penrith Wastewater System

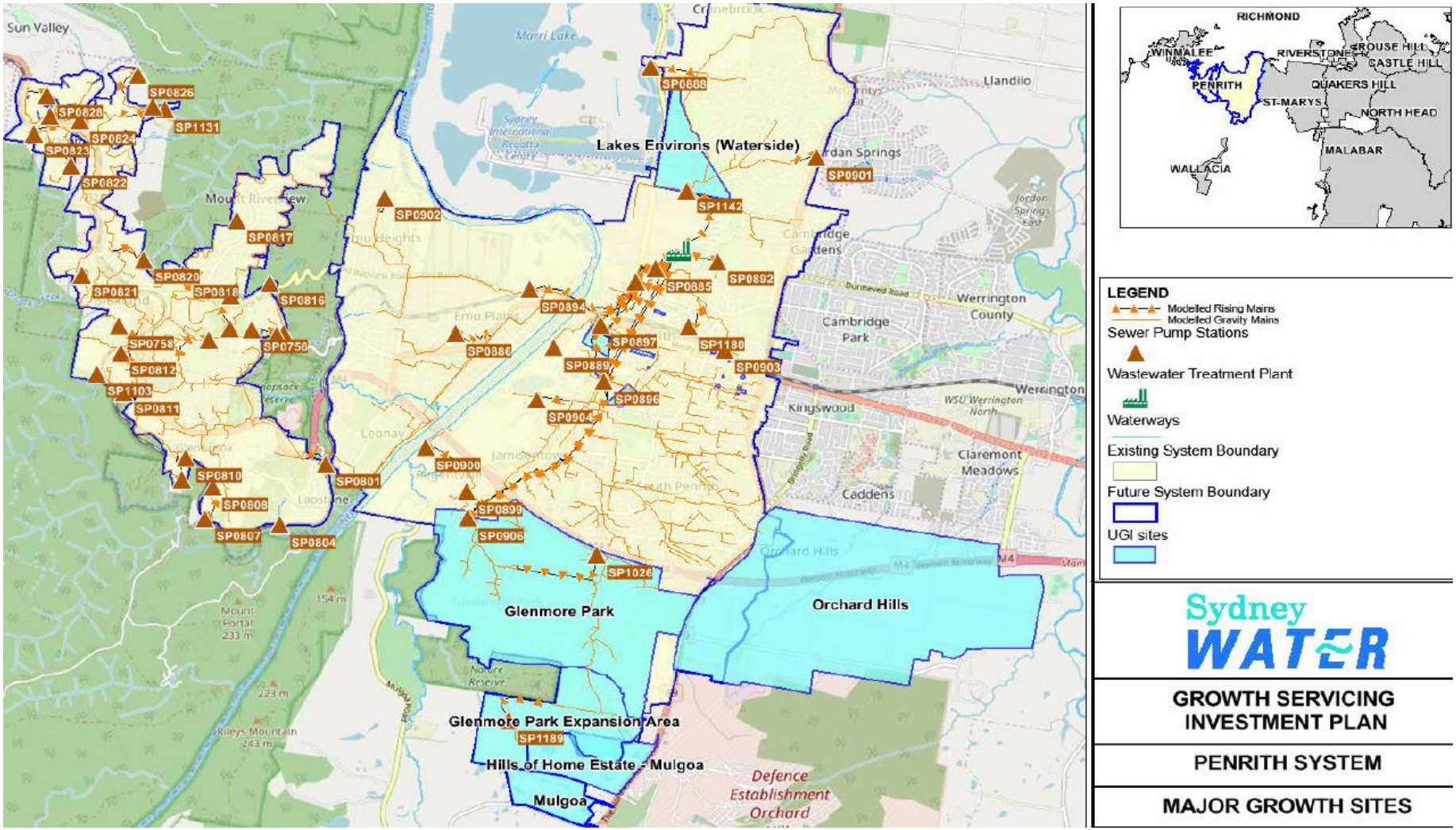
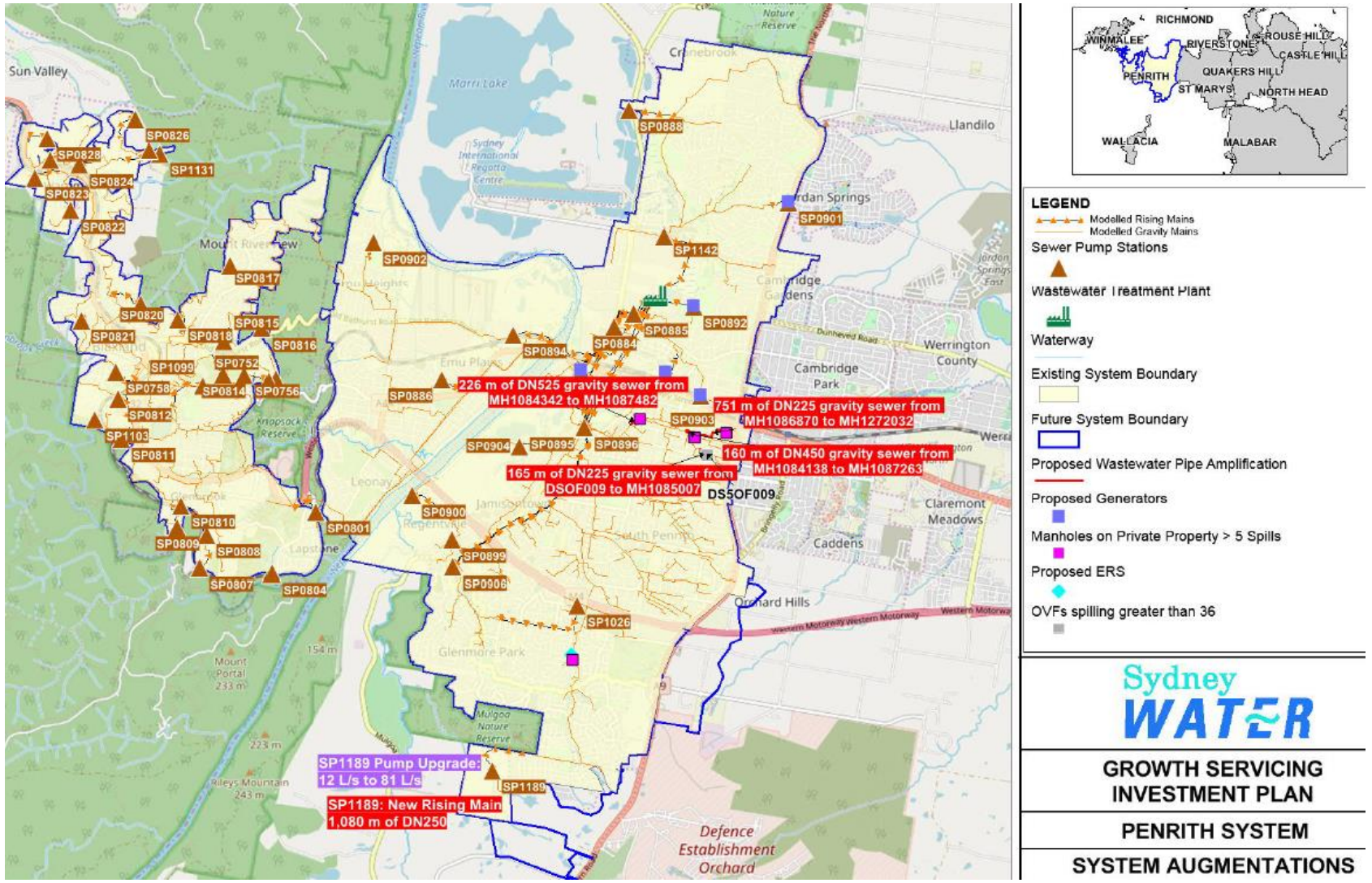
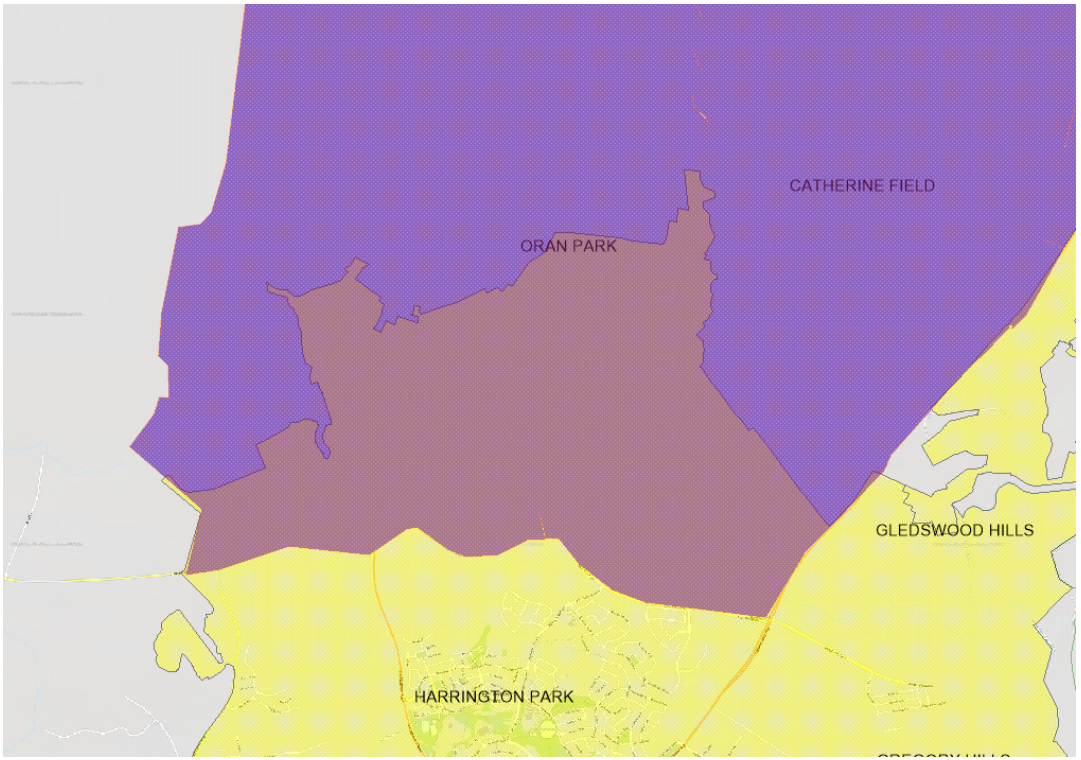


Figure 5-3 Investments needed to manage the impact of growth in the Penrith Wastewater System



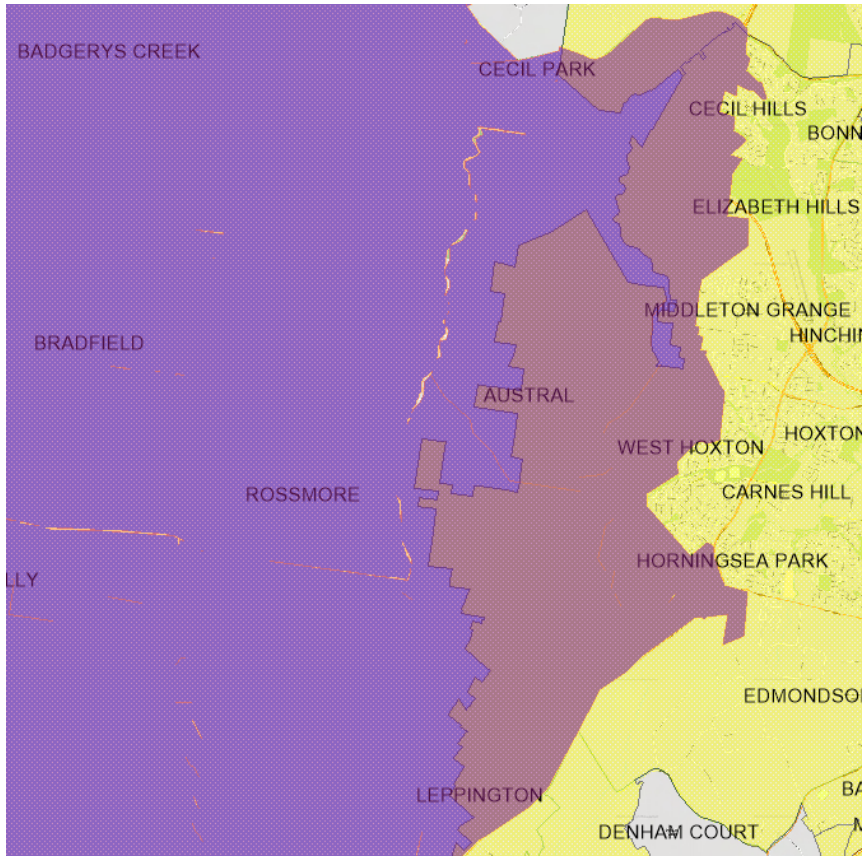
5.1.2 Upper South Creek

Since 2011 the West Camden wastewater catchment has extended its service to the Turner Road precinct and parts of Oran Park precinct as well as Harrington Grove precinct in the South West Growth Centre (shaded maroon in the map below). This allowed for the development of new housing in these areas by taking advantage of spare capacity in the West Camden network and wastewater treatment plant. Wastewater from these areas will be re-directed to the new Upper South Creek Advanced Water Recycling Centre, which forms part of this Nepean River Wastewater DSP.



Similarly, growth precincts in Leppington, Austral, Middleton Grange, West Hoxton, Elizabeth Hills and Cecil Hills have been served on an interim basis by sending wastewater flows to the Malabar wastewater system, taking advantage of available capacity in the nearby Glenfield and Hoxton

Park catchments. Wastewater from these areas (shaded maroon in the map below) will be re-directed to the new Upper South Creek Advanced Water Recycling Centre, which forms part of this Nepean River Wastewater DSP.



The South West Growth Area (SWGA) and the Western Sydney Aerotropolis and Growth Areas (WSAGA) are forecast to experience significant development and growth. These areas are expected to have approximately 100,000 residents and 34,000 jobs in the region by 2026. From 2026 it is planned that dedicated treatment will be provided a new Advanced Water Recycling Centre located in the Upper South Creek.

5.2 Appendix B – Minimum content of documentation for public exhibition

IPART information requirement	Reference
a summary of the contents of the DSP	Contents page
a statement specifying the System (or Systems) to which the DSP relates	Section 3.1
a clear and accurate description of the DSP Area to which the DSP applies, including: (1) its size; (2) the basis for defining its boundaries; and (3) reference to other DSPs where there is an overlap or co-usage of Assets	Section 3.1 See also the DSP methodology document
demographic and land use planning information including: **(1)** the current residential population in the DSP Area; (2) the estimated Equivalent Tenements in the DSP Area as at 1 January 1996; (3) the projected population over a period of 30 financial years starting from the financial year in which the DSP was registered with IPART; and (4) the projected Equivalent Tenements in the DSP Area for each financial year over a period of 30 financial years starting from the financial year in which the DSP was registered with IPART	Table 3-1 Figure 3-2 Figure 3-3 Note: Forecast ET's align to the capacity provided by the first 10 years of uncommissioend assets
timing of works in the DSP Area including: (1) completed capital works; and (2) proposed capital works	Infrastructure contribution calculation spreadsheets
the standards of service to be provided to customers in the DSP Area and design parameters of Assets	DSP methodology document
the calculated maximum price under clause 1 of Schedule 1 (MP_{Sch1}), and the information used to calculate that price, including: (1) the future periodic revenues expected to be received from new customers in the DSP Area each financial year; (2) the charges used for the calculation of those revenues; (3) average water usage figures used for the calculation of those revenues; (4) the future expected annual operating, maintenance and administration costs of providing services to new customers in the DSP Area in each financial year; and (5) indexation principles and parameters used for that calculation	Section 4 See also the DSP methodology document

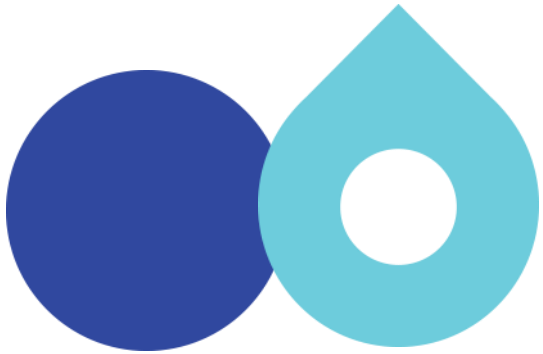
a description, or reference to a background document containing the description, of Pre-1996 Assets and Post-1996 Assets in the DSP Area including:
(1) the date (or forecast date) of the commissioning of each Asset;
(2) the size/length of each Asset;
(3) the actual efficient cost of each Asset (where applicable);
(4) the unit cost of each Asset (if applicable);
(5) the MEERA valuation of each Asset (if applicable);
(6) the total capacity of each Asset expressed in Equivalent Tenements (if applicable); and
(7) the details of the number of Equivalent Tenements served by each Asset in each DSP Area, where that Asset serves more than one DSP Area

Infrastructure contribution calculation spreadsheets (Sydney Water Talk website)

The proposed DSP areas and infrastructure contribution prices were on public exhibition for a period of 51 working days, from 28 April 2023 to close-of-business on 7 July 2023.

Sydney Water reviewed all submissions received during the exhibition period and submitted a final proposal to IPART on 31 August 2023.

IPART will review and register each DSP, and each DSP will remain in force until reviewed and replaced.



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