Lower South Creek Wastewater

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 Lower South Creek 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 Lower South Creek DSP area is $6,183.32 ($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)	$6,183.32	$6,183.32 + CPI_1	$6,183.32 + CPI_2	$6,183.32 + CPI_x
Percentage of maximum price to be charged	0%	25%	50%	100%
Maximum price that can be levied on new development ($/ET)	$0	$1,545.83 + CPI_1	$3,091.66 + CPI_2	$6,183.32 + CPI_x

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 Lower South Creek 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):

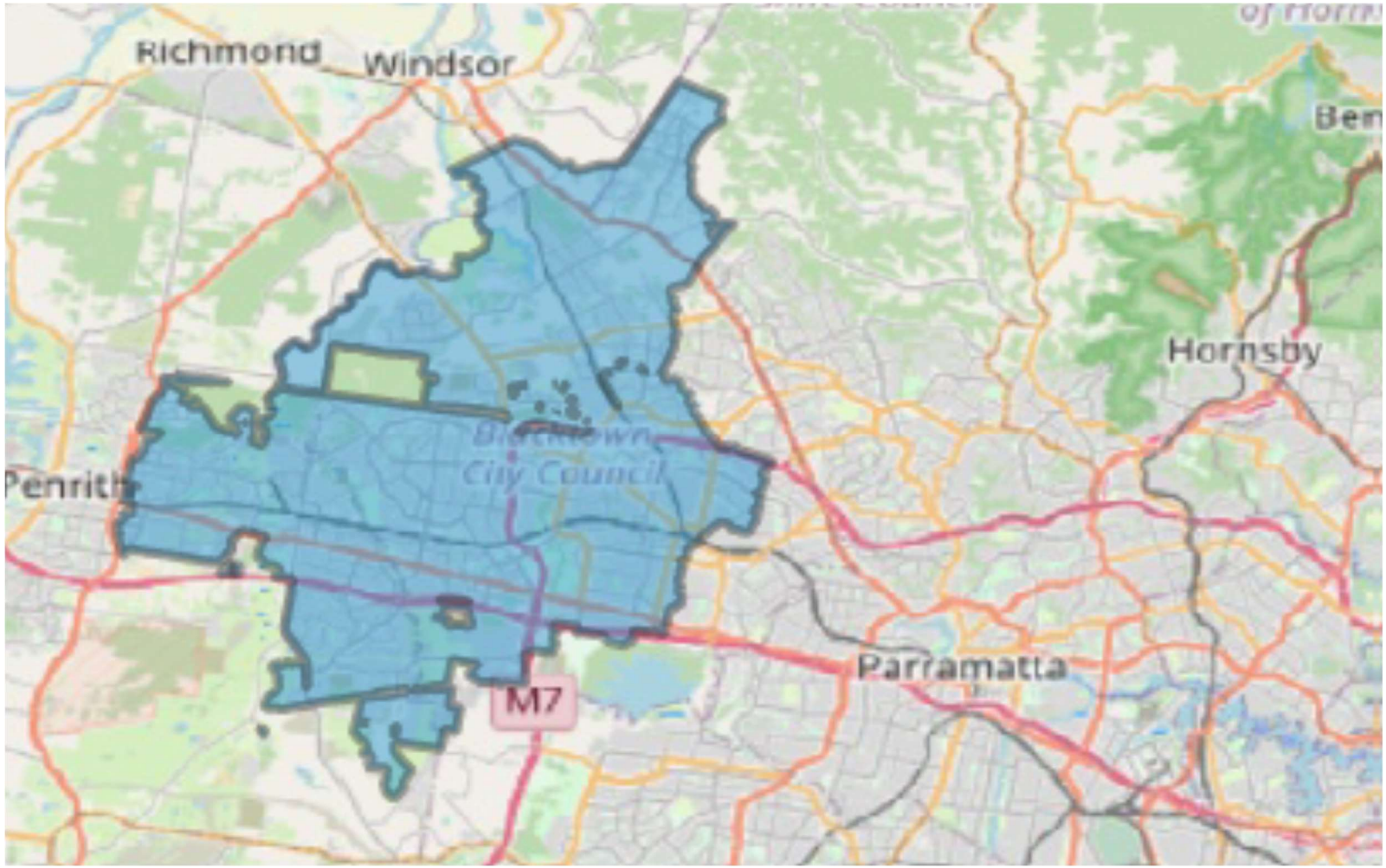
- Quakers Hill sewage treatment system;
- Riverstone sewage treatment system; and
- St Marys sewage treatment system.

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	Length of mains (km)	Pump stations
Quakers Hill	7,197	168,767	915	8
Riverstone	2,097	38,786	339	6
St Marys	10,249	164,000	956	10
TOTAL	19,543	371,553	2,210	24

Figure 3-1 Lower South Creek Development Servicing Plan Area



All three systems are in the catchment of the Hawkesbury Nepean River and fall within the Sackville 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 Lower South Creek DSP Area

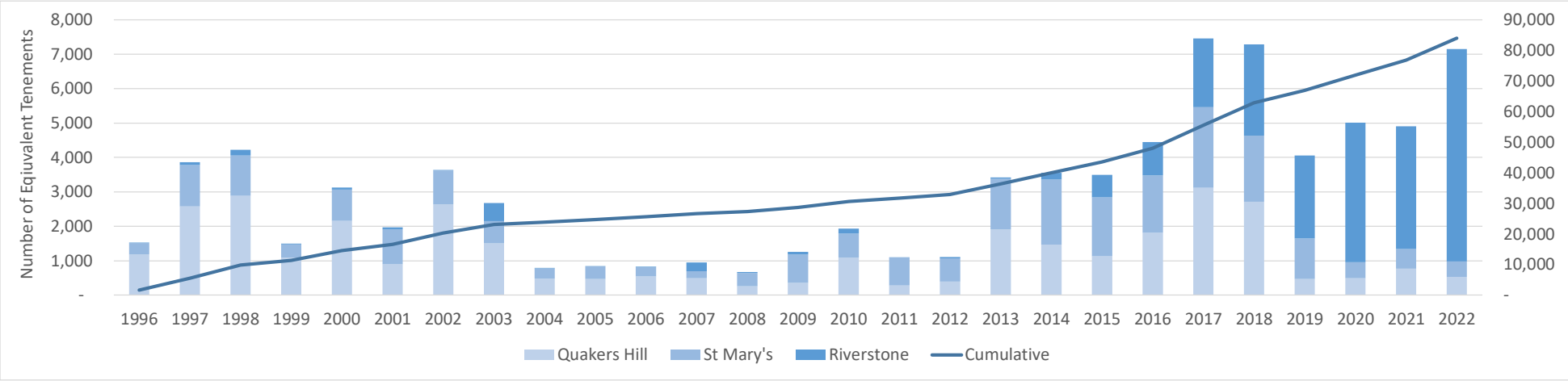
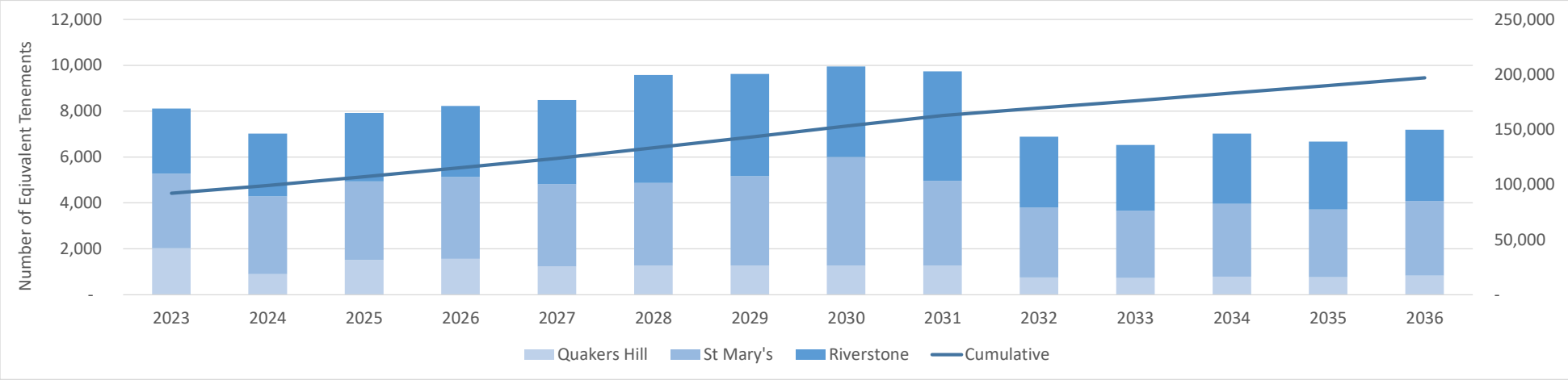


Figure 3-3 Future Development in the Lower South Creek DSP Area



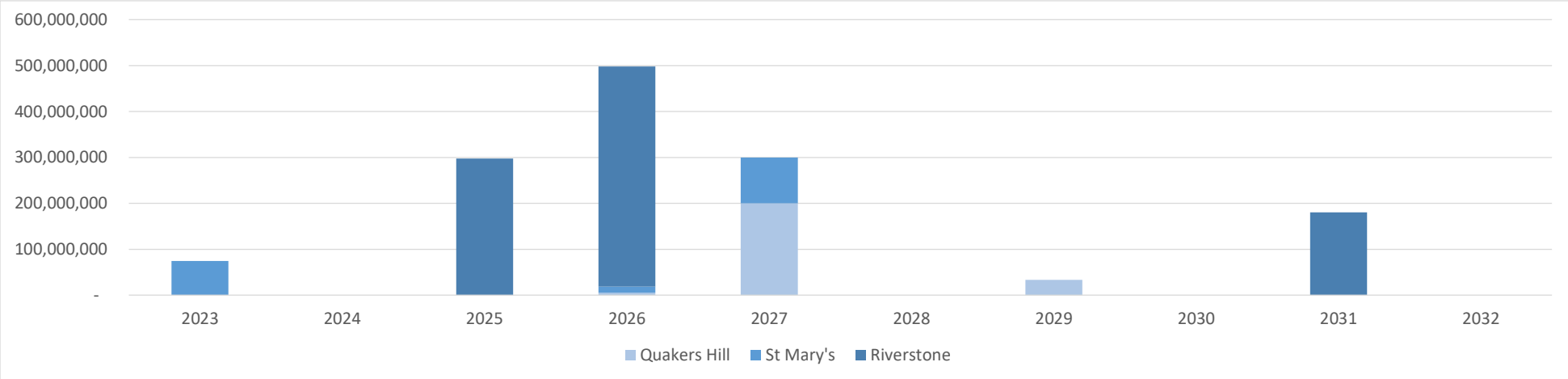
3.3 Past and future assets providing services to the DSP area

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	Quakers Hill	Riverstone	St Marys
Pre-1996 assets	$68,618,756	-	$149,011,198
Post-1996 assets	$53,388,080	$398,469,590	$228,702,310

Figure 3-4 Future Uncommissioned Assets in the Lower South Creek DSP Area



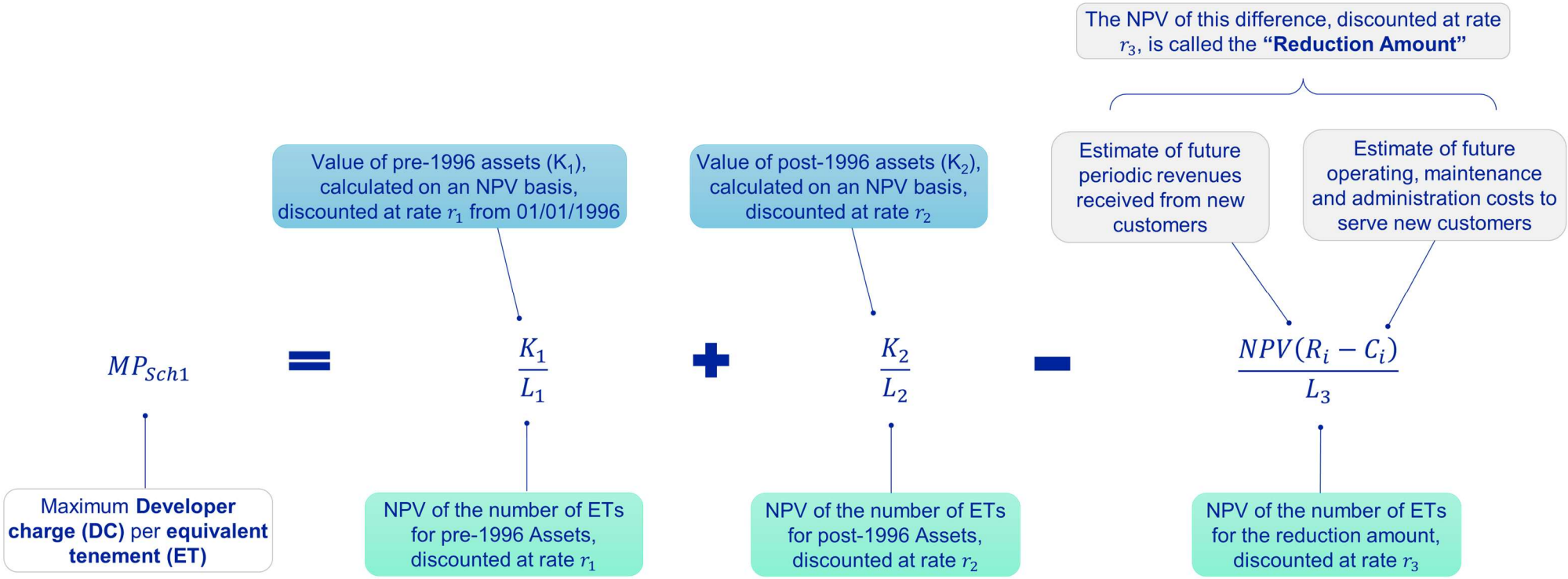
The infrastructure contribution price in this DSP will help to fund delivery of the following assets:

- Quakers Hill
    - 0.4KM of gravity main amplification, 2 generators and Staged Quakers Hill STP upgrades
- Riverstone
    - 18.1KM of gravity mains, 4.7GL of storage, 19.7KM of pressure mains, 4 new generators, 3 pump upgrades totalling 2.1kL/s, 3 new sewage pump stations totalling 138L/s, 2 new sewage pumps and Stage 2 of WWTP upgrade
- St Marys
    - 2.9ML of storage, 3 generators and solids stream amplification at St Marys STP

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	Lower South Creek 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)	130.5
Apportionment of commissioned assets	
(A) Total ETs (1970 – 2052)	347,346
(B) Pre-1996 ETs	57,462
(C) 1996 – 2022 ETs	82,305
Apportionment of pre-1996 assets 1 – [((B) + (C)) / (A)]	59.8%
Apportionment of post-1996 commissioned assets 1 – [(C) / (A)]	76.4%

4.2 Infrastructure contribution price elements

Table 4-2 – Charge for pre-1996 assets

(A) Present value of pre-1996 assets (K_1)	$257,747,784
(B) Present value of equivalent tenements (L_1)	264,217
Capital charge for pre-1996 assets (A) / (B)	$976 / ET

Table 4-3 – Charge for post-1996 assets

	Commissioned	Uncommissioned
(A) Present value of post-1996 assets (K_2)	$654,120,213	$1,172,718,675
(B) Present value of equivalent tenements (L_2)	267,442	267,442
Capital charge for post-1996 assets (A) / (B)	$2,446 / ET	$4,385 / ET

Table 4-4 – Net operating result

(A) Present value of revenue (R)	$388,792,145
(B) Present value of operating costs (C)	$177,464,977
(C) Present value of ETs (L_3)	130,209
Net operating result (A) + (B) / (C)	$1,623 / 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)
$975.52	$6,830.79	$1,622.99	$6,183.32

5 Appendices

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

5.1.1 Quakers Hill Wastewater System

The Quakers Hill wastewater system comprises of the suburbs of Quakers Hill, Kings Park, Marayong, Dean Park Hassall Grove, Oakhurst, Woodcroft, Glendenning, Plumpton, Doonside, Rooty Hill, Arndell Park and parts of Blacktown, Acacia Gardens, Kings Langley, Lalor Park, Hunting Wood, Eastern Creek and Minchinbury. Adjacent to Quakers Hill is the St Marys wastewater system to the west, North Head to the east, Riverstone to the north and Rouse Hill to the north-east. The Quakers Hill network lies entirely within the Blacktown LGA.

Wastewater is collected and transported to Quakers Hill WWTP via approximately 113 km of trunk gravity sewers with diameter of 300 mm or larger. The major carriers in the Quakers Hill wastewater system are the Eastern Creek Sub-main, Quakers Hill Carrier, Doonside Carrier, Breakfast Creek Sub-main, Rooty Hill Carrier and Bells Creek Carrier.

The major growth site is Blacktown CBD, contributing to an increase in both residential and non-residential growth (see also Figure 5-1). 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 peak dry weather flow do not impact wet weather overflows in the system.
- All SPSs except SP0421 have less than 4 hours detention time in 2051. However, with the exception of SP1153 and SP1181, all remaining SPS have either dual power supply or onsite generator to provide an alternate power supply.
- System wet weather overflow frequency does not exceed licence limit of 48 for all planning horizons
- Wet weather bypass to Quakers Hill WWTP does not exceed the licence limit of 48 for all planning horizons
- Of the maintenance holes that changed in frequency by 2051, there are seven that spilled more than 5 in 10 years on private property.

Figure 5-2 summarises major investments needed in the Castle Hill wastewater system to manage the impact of growth.

Figure 5-1 Major development sites in the Quakers Hill Wastewater System

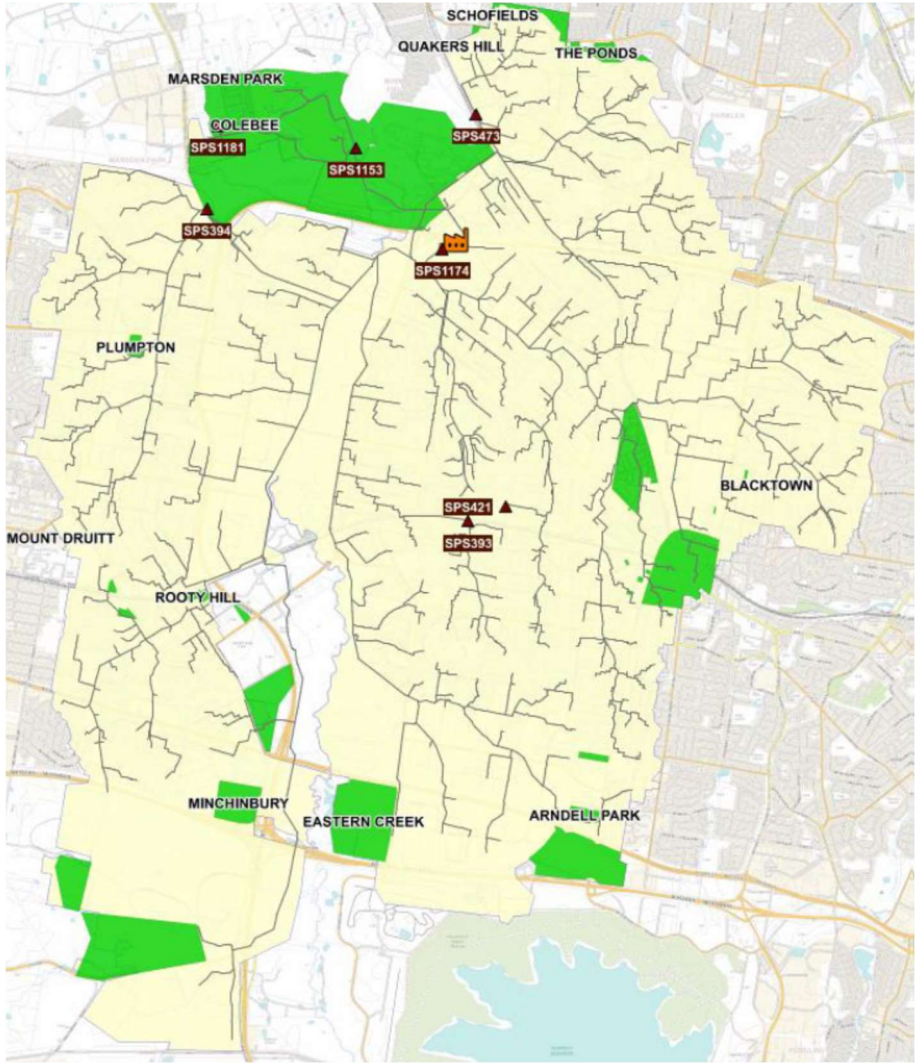
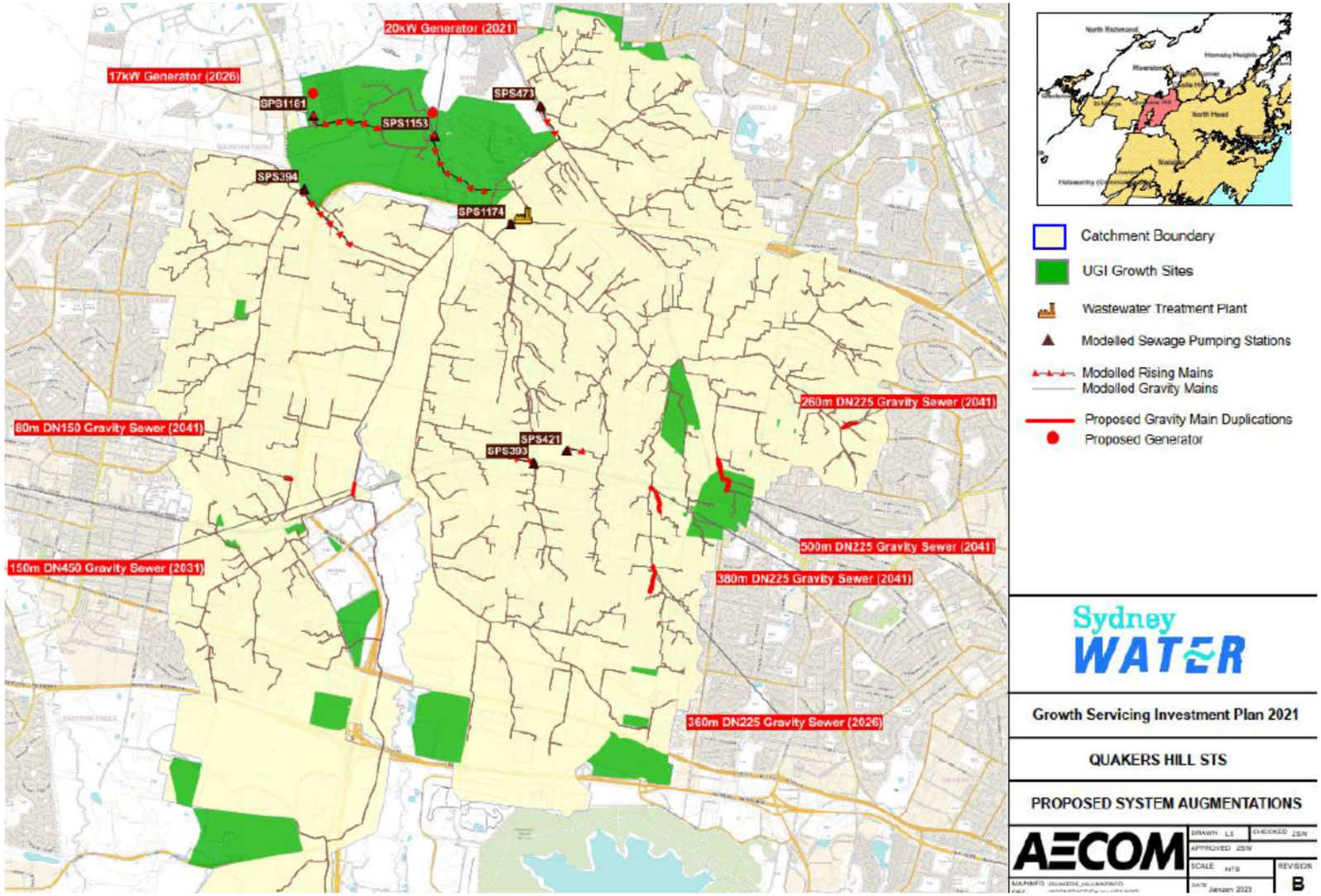


Figure 5-2 Investments needed to manage the impact of growth in the Quakers Hill Wastewater System



5.1.2 Riverstone Wastewater System

The Riverstone wastewater system comprises the suburbs of Riverstone, Riverstone East, Alex Avenue, Box Hill, Vineyard, Box Hill Industrial, Schofields, Schofields West, Marsden Park, Marsden Park North, Marsden Park Industrial and Shanes Park. Other systems adjacent to the Riverstone system is Quakers Hill and Rouse Hill system to the south. The Riverstone network lies mostly within the Blacktown LGA and partly intersects the Hawkesbury and The Hills Shire LGAs.

Major assets include the Market Street Carrier, Hobart Street Carrier, Advance Street Carrier, Princes Street Carrier, Brighton Street Carrier, First Ponds Creek Carrier, Riverstone Carrier, Chain of Ponds Carrier, Box Hill Carrier and Schofields Carrier (see also Figure 5-3).

There is significant growth across the Riverstone wastewater system, with an overview of major areas of development shown in Figure 5-4. 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% capacity during dry weather do not impact the wet weather overflows in the system.
- SP1154, SP1160, SP1202, and SP0564 do not have minimum 4 hours detention time for future conditions.
- System wet weather overflow frequency exceeds licence limit of 14 for existing and all planning horizons.
- SP0564 requires capacity upgrade.
- 6 MHs spill frequency exceeds licence limit of 14 in 10 years. 7 MHs in private property are spilling more than 5 times in 10 years.

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

Figure 5-3 Major assets in the Riverstone Wastewater System

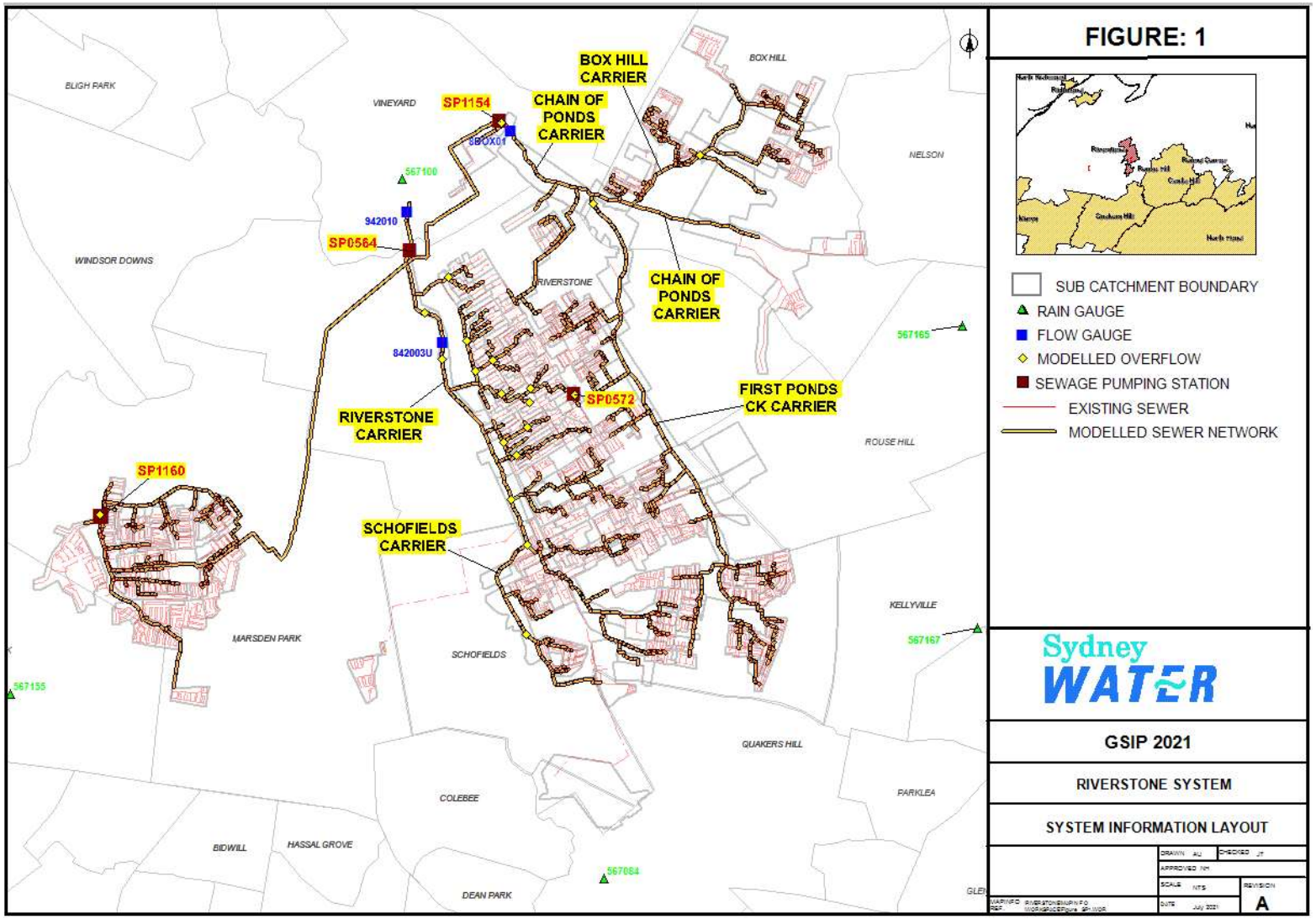


Figure 5-4 Major development sites in the Riverstone Wastewater System

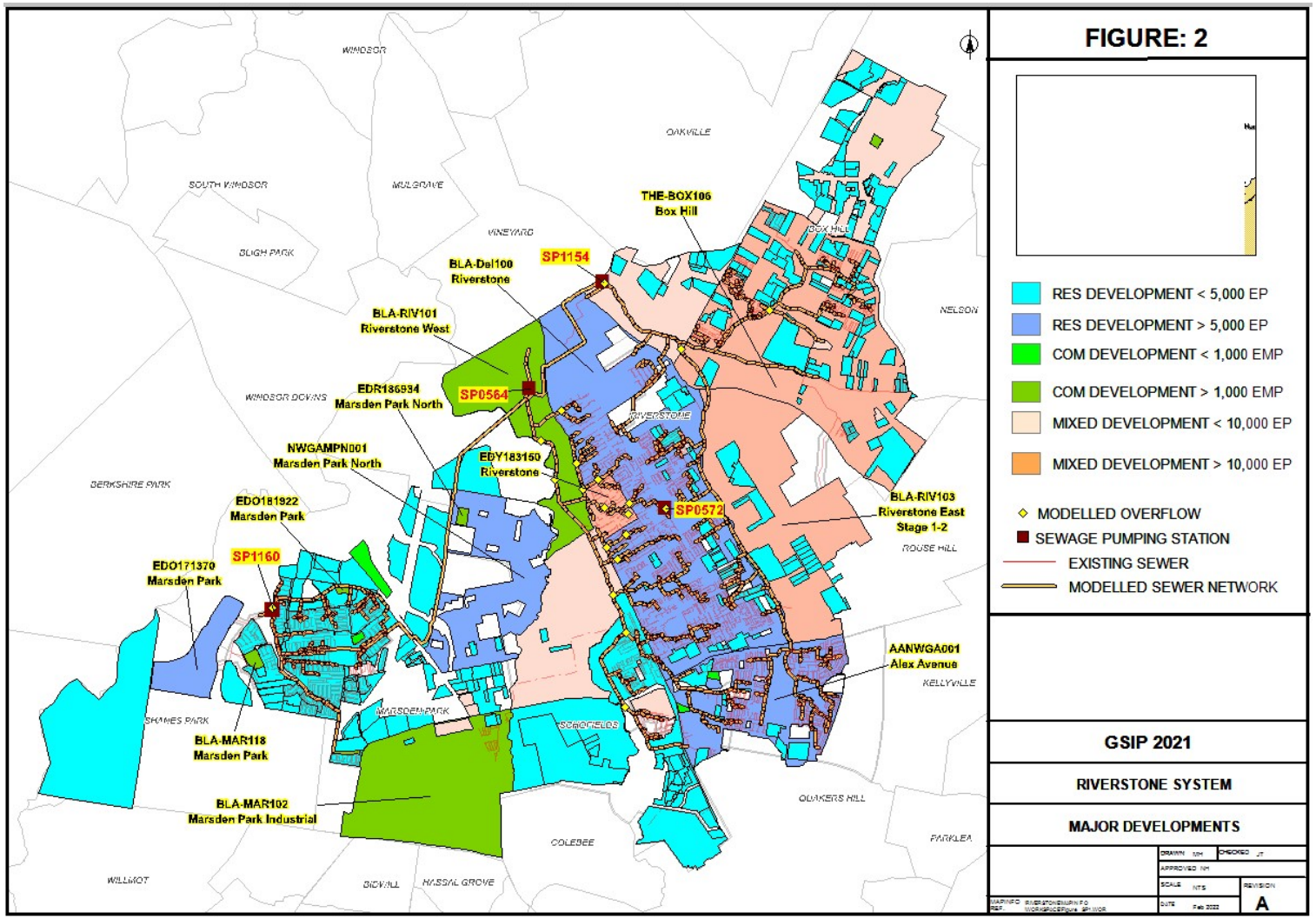
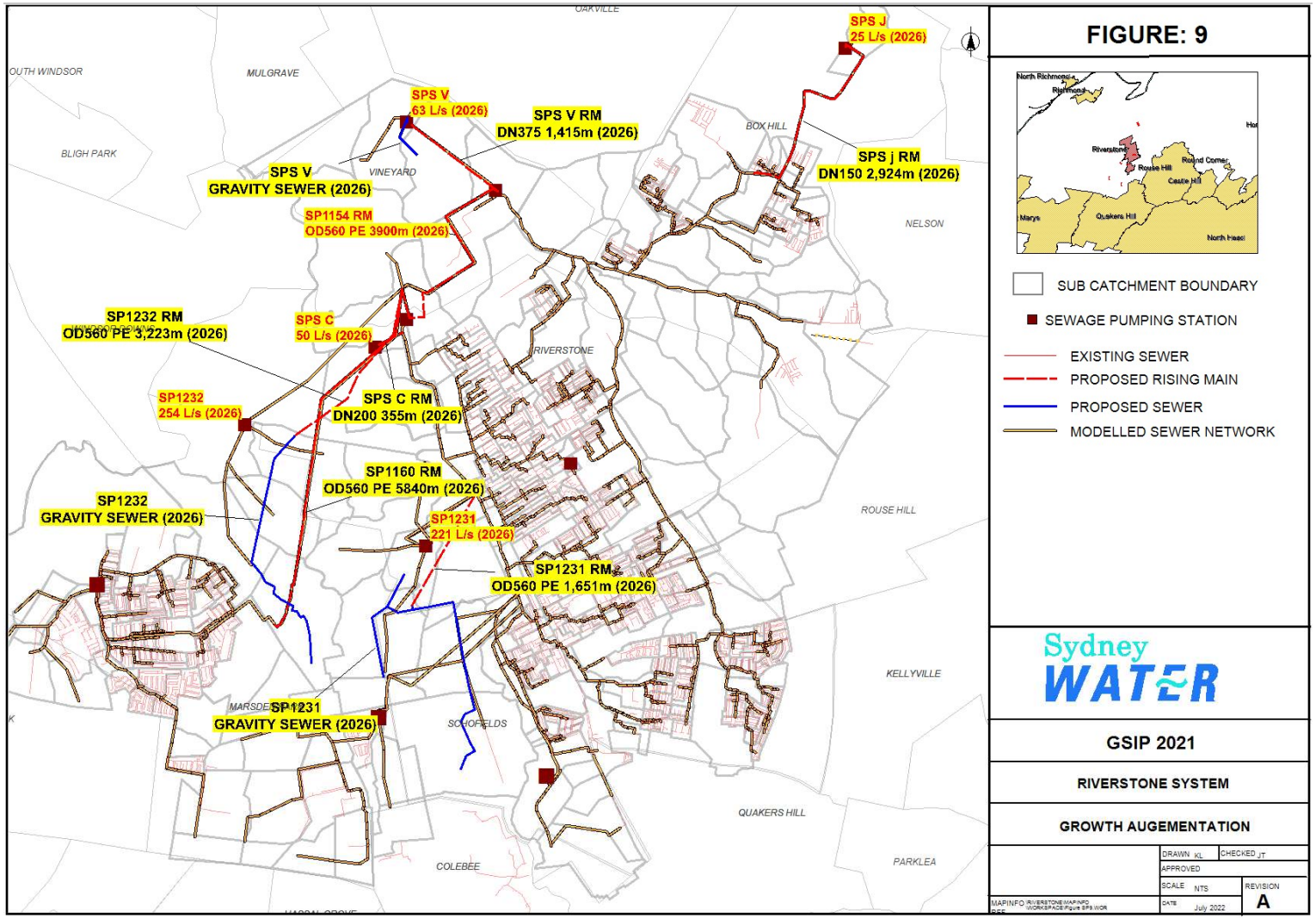


Figure 5-5 Investments needed to manage the impact of growth in the Riverstone Wastewater System



5.1.3 St Marys Wastewater System

The St Marys wastewater system comprises of the suburbs of Erskine Park, St Clair, Oxley Park, Mount Druitt, St Marys, Orchard Hills, Jordan Springs, Caddens, Cambridge Park, Lethbridge Park, Willmot, Shalvey, Whalan, Plumpton, Tregear, Kingswood and Werrington.

Adjacent to the St Marys system is the Penrith system to the west, the Quaker's Hill system to the east and the Riverstone system to the north. The St Marys network lies mostly within the Penrith LGA and partly intersects the Blacktown LGA.

Major assets in the system include the South Creek Submain, Ropes Creek Carrier, St Marys Carrier, Kingswood Carrier and Werrington Carrier (see Figure 5-6). An overview of major areas of development is shown in Figure 5-7. 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% capacity during dry weather do not impact the wet weather overflows in the system.
- SP0241 and SP1148 do not have minimum 4 hours detention time for existing and future conditions while SP0898 does not have minimum 4 hours detention time for future conditions.
- System wet weather overflow frequency exceeds licence limit of 35 for all planning horizons. But future frequencies remain less than the existing frequency meaning no deterioration due to growth.
- Wet weather bypass to St Marys WWTP does not exceed the licence limit of 153 for all planning horizons.
- Of the maintenance holes that changed in frequency between 2021 and 2051, there are 27 that spilled more than 5 in 10 years on private property.

Figure 5-8 summarises major investments needed in the Castle Hill wastewater system to manage the impact of growth.

Figure 5-6 Major assets in the St Marys Wastewater System

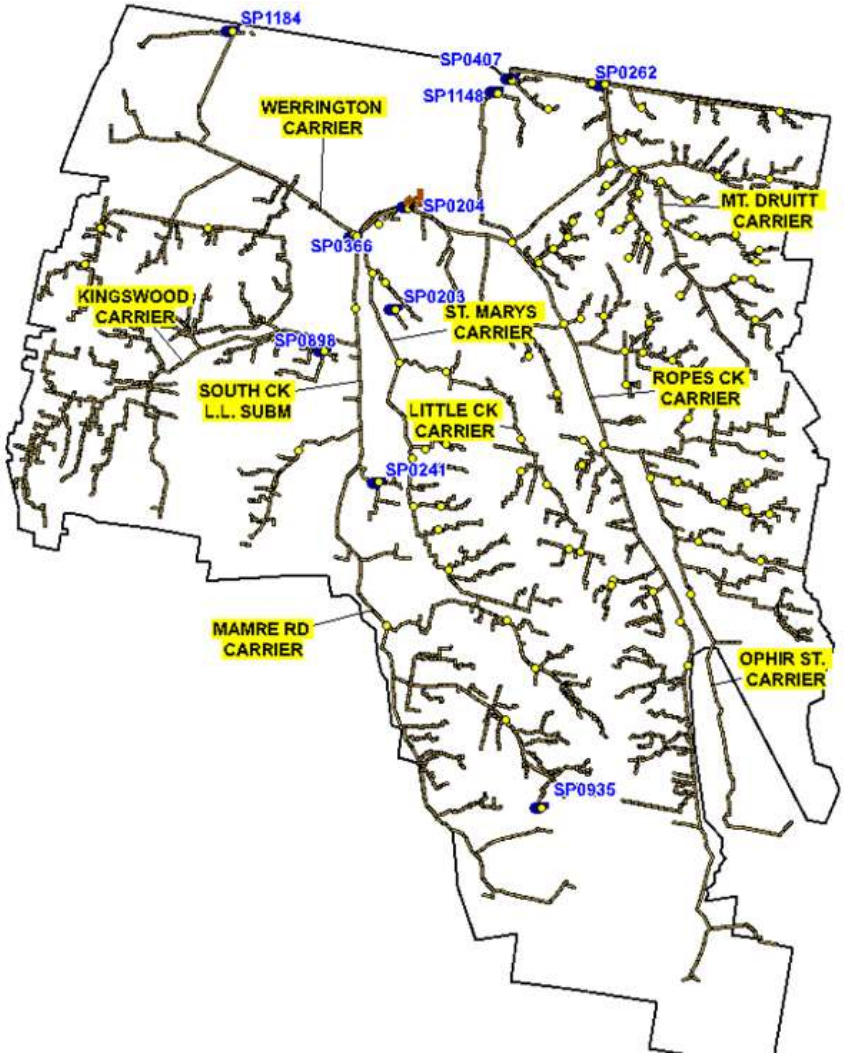


Figure 5-7 Major development sites in the St Marys Wastewater System

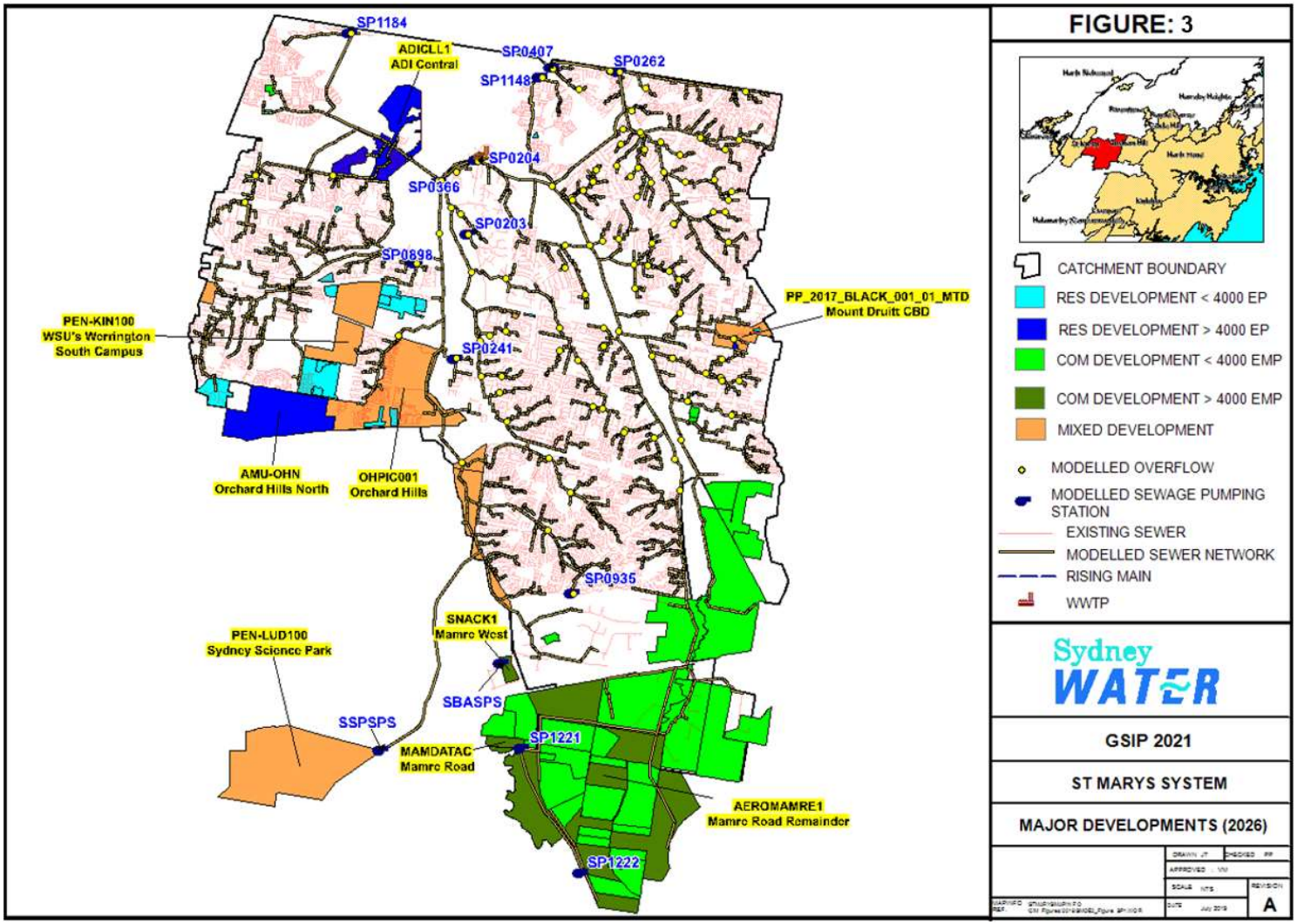
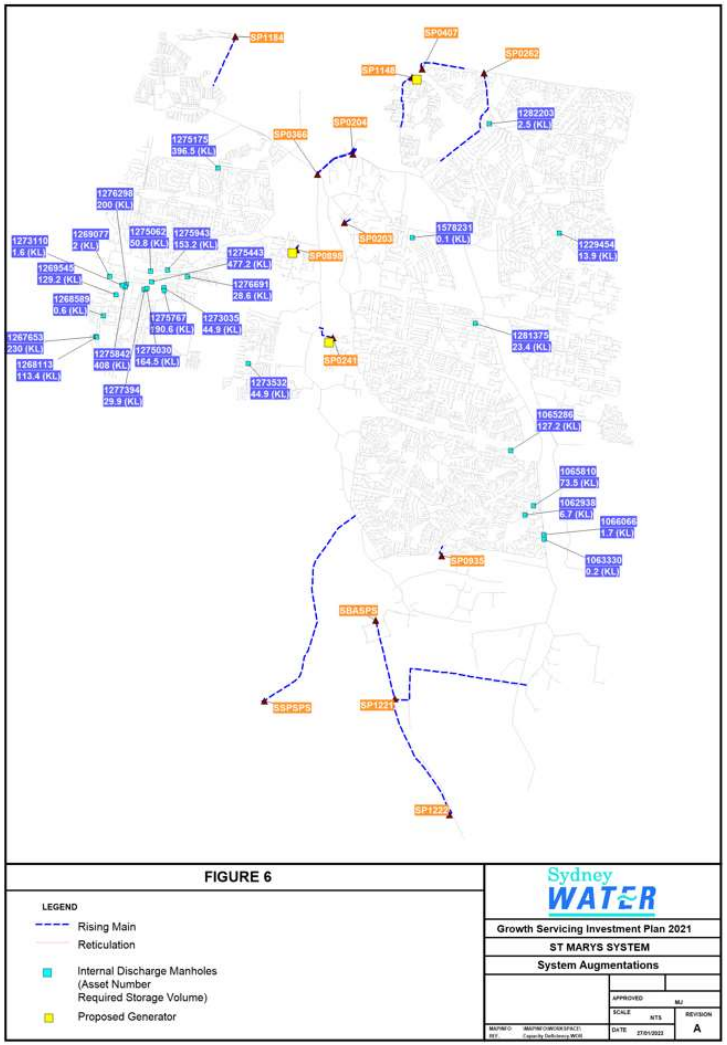


Figure 5-8 Investments needed to manage the impact of growth in the Riverstone Wastewater System



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

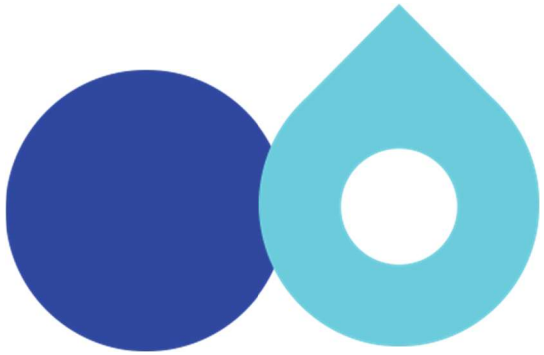
a description, or reference to a background document containing the description, of Pre-1996 Assets and Post-1996 Assets in the DSP Area including:
(1) the date (or forecast date) of the commissioning of each Asset;
(2) the size/length of each Asset;
(3) the actual efficient cost of each Asset (where 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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