

Bowden Heritage Precinct REMEDIATION WORKS



RenewalSA

Welcome to today's community drop-in session. We encourage you to view the following information panels, meet the team and ask questions.

The former Brompton Gasworks site, now known as the Bowden Heritage Precinct, is being cleaned up after standing dormant and fenced off for many years.

The redevelopment project will clean up the six hectare site, which has been heavily contaminated by past industrial uses and practices.

Today provides you with an opportunity to learn about the remediation works and to have your questions answered by the people managing the project.

The redevelopment of the Bowden Heritage Precinct is the next phase in the transformation of this once industrial area into a people-centred and environmentally sustainable neighbourhood that honours and enhances its rich heritage.

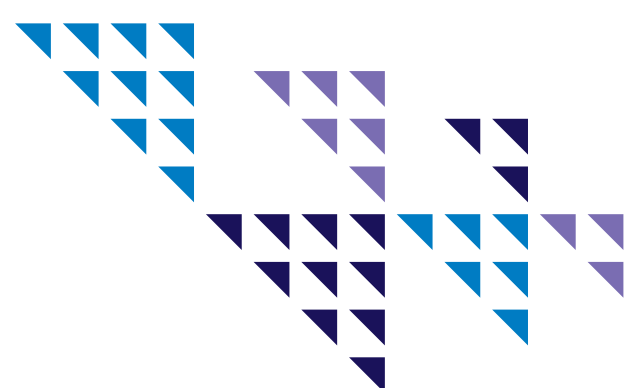
Once completed, the Bowden Heritage Precinct will be a lively and pedestrian-friendly space within the broader Bowden neighbourhood that balances retail, commercial, residential and community activity for residents and visitors to enjoy.



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Bowden Heritage Precinct

REMEDIAL WORKS



RenewalSA



Government of
South Australia

RENEWAL SA

Renewal SA is a statutory authority that provides an integrated approach to urban development on behalf of the Government of South Australia. Renewal SA is leading the transformation of the site as part of the broader 16 hectare Bowden project.



VENTIA UTILITY SERVICES AND SENVERSA

Renewal SA has engaged the professional services of remediation contractor Ventia Utility Services and environmental consultant Senversa to undertake environmental investigations and remediation works. Both are experts in their respective fields and have extensive experience across similar projects.



BLUESPHERE ENVIRONMENTAL



Independent Environmental Protection Authority accredited auditor Michael Seignior, from Bluesphere Environmental, will audit all investigation and remediation works to ensure the site is safe and suitable for the intended development.

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HISTORY OF THE BOWDEN PROJECT

Bowden is the state government's first higher density urban infill project. Located 2.5 kilometres from Adelaide's CBD on 16 hectares of land bordered by parklands, the project sets new standards in urban renewal.

► **2008** The project commenced with initial planning and community consultation. In November, the government purchased the 10.25 hectare former Clipsal Australia site from Gerard Corporation.

► **2010** This acquisition was later followed by the purchase of the adjacent Brompton Gasworks site (6 hectares) in March 2010.

► **2011** The project was granted final approval and site works began to provide the core infrastructure for a new community – the roads, parks, open spaces and other essential services.

► **2012** Land sales to developers commenced with off-the-plan product sales to the public later the same year.

► **2013** The first stage of streets and parks was officially opened in May and was shortly followed by construction of the first residential dwellings commencing.

► **2014** By August the first residents moved in.

From the beginning of the Bowden project, Renewal SA has extensively engaged the local community. This process of community engagement has been integral to the project, informing the development of the broader Bowden Master Plan and Urban Design Guidelines.



Completed

1. Gibson & 7th
2. 56 Seventh Street
3. Bowden Seven
4. Loft on Seventh
5. Nexus
6. Top Place
7. The Prince's Terraces
8. Terraces on Sixth
9. Nine on Sixth
10. The Merchant
11. Luminaire
12. Aeris
13. The Bowery
14. The Artisan
15. B Apartments
16. Park Central

Under Development

17. 354 Bowden
18. Guild Terraces

Future Main Street

Complementary retail.
Coming soon.

Future Development

Plant 3

Complementary retail.
Coming soon.

Plant 4

IGA supermarket, food/retail markets, cafés, conference and function facilities.



Café/
Restaurant



Car Park



Bowden Information
& Sales Centre

TODAY

- Bowden is home to more than 1,000 people
- More than 715 homes sold
- 583 homes completed
- 137 homes under construction

Bowden is re-emerging as a vibrant inner-city destination complete with numerous event and community spaces. It mixes the past with the future, blending history, culture and sustainability into a smarter way to live. Contemporary apartments, a retail and community hub, convenient public transport links, tree-lined streets dotted with colourful art, are all part of the remarkable vision being realised.

For more information about Bowden visit lifemoreinteresting.com.au

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HISTORY OF THE BROMPTON GASWORKS

MORE THAN
100
YEARS
OF INDUSTRIAL
HISTORY

The Gasworks were officially established in 1863 by the South Australian Gas Company (later known as SAGASCO) and were operated for around 140 years by various companies. The most recent of these was Origin Energy, which began winding down operations at the site in the year 2000.

In 1862 the foundation stone was laid in the base of the first smokestack by chairman Henry Ayres. The built form remained relatively unchanged for the first decade, however subsequent changes in technology and business needs have resulted in the site being repeatedly rebuilt.

The Gasworks were a catalyst for industrial expansion in the area, supplying fuel to the new factories which sprung up nearby. The site demonstrates the early pattern of industrial and economic growth in western Adelaide in the 19th and early 20th centuries.

During the first 100 years of the gasworks, coal was burnt at very high heat to produce gas in furnaces known as retorts on the site. The energy produced was used for lighting, heating water and many manufacturing processes.



In the 1960s, the Gasworks transitioned to processing newer products including Liquid Petroleum Gas (LPG) and natural gas. All the retorts were dismantled as working facilities in 1969.

Acquired by the state government in 2010, the former Gasworks site is the only one of its kind remaining in the

state and this important industrial heritage will be honoured as an integral part of the Bowden Heritage Precinct redevelopment.

In 2015, a section of the site was provisionally entered into the South Australian Heritage Register as a State Heritage Place. This listing was confirmed in October 2018.



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Remediation contractor Ventia has been transforming contaminated land and waterways – including former gasworks sites – using innovative, technology-driven solutions for more than 30 years.

With 140 environmental remediation projects successfully completed in Australia and internationally, Australian owned Ventia has dealt with a diverse range of contaminants from industry and other sources.

Ventia works across soil, sediment, surface water and groundwater remediation. From small projects to the largest and most complex, Ventia's environmental services teams have restored many sites to safe and productive spaces.

Ventia's internal capabilities include:

- ▼ Specialist engineering and geoscience
- ▼ Occupational health and hygiene
- ▼ Environmental monitoring of air, water and noise
- ▼ Asbestos removal and management
- ▼ Use of physical, chemical, biological and thermal remediation technologies
- ▼ Community engagement.

Ventia's teams develop site-specific solutions, informed by rigorous data analysis, to effectively manage each remediation project's unique risks.

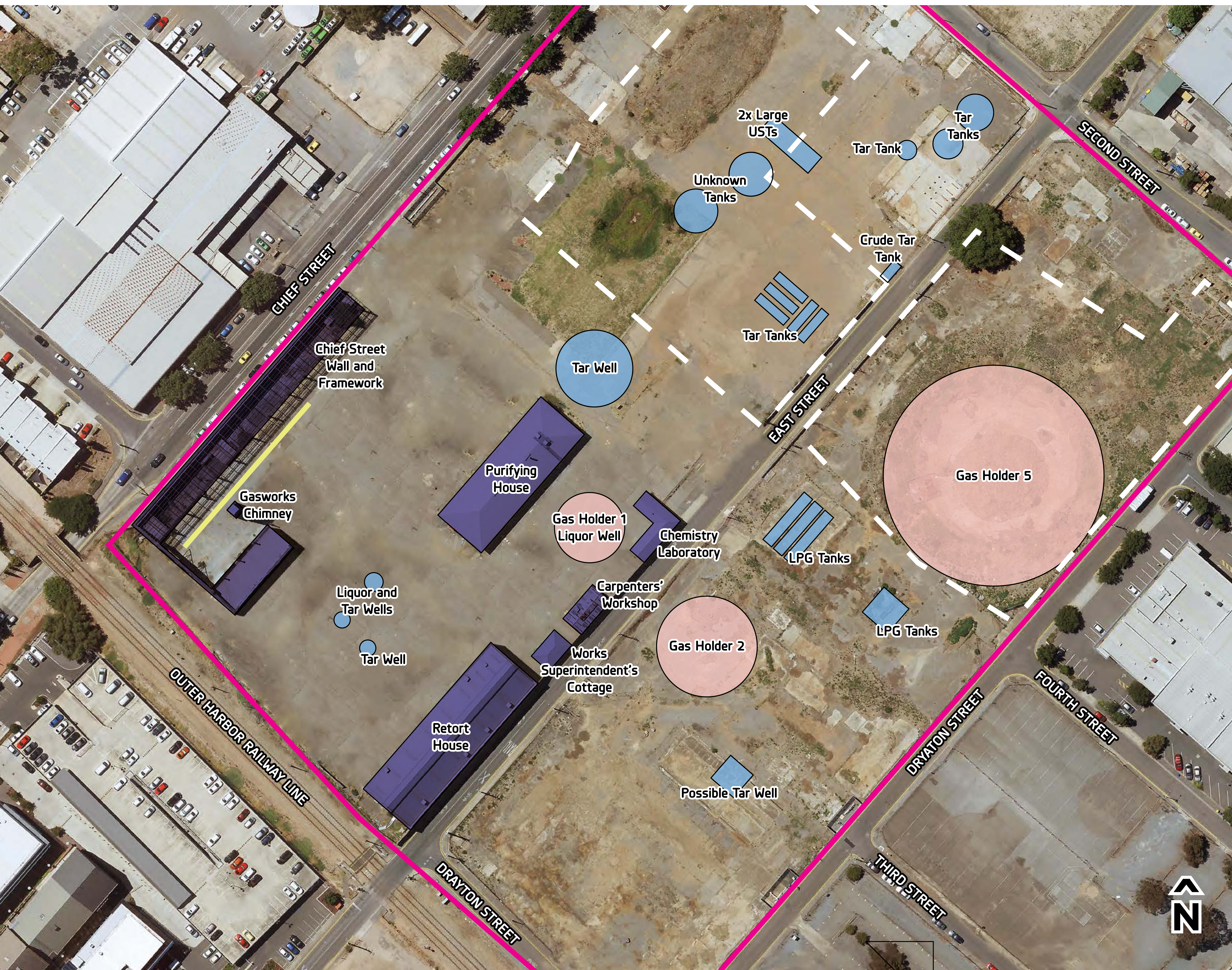
Ventia places high importance on protecting communities and local environments throughout all of its works.

Major projects by Ventia include:

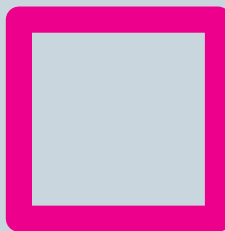
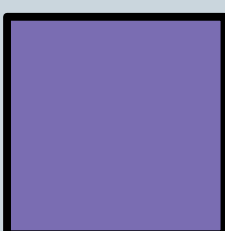
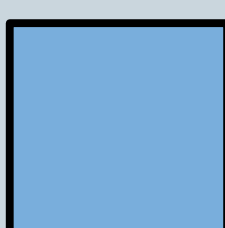
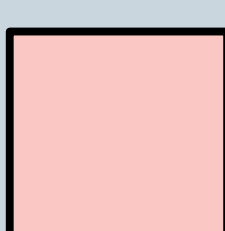


- ▼ Barangaroo Remediation, NSW (former gasworks, completion imminent)
- ▼ Cox Peninsula Remediation, NT (former Defence site) – winner of four awards including the Engineering Excellence Award for Project Management, Engineers Australia NT, 2018
- ▼ Macdonaldtown Gasworks Remediation, NSW – winner of six awards including the Clean Up Project Excellence Award, Australasian Land and Groundwater Association, 2016.



ENVIRONMENTALLY SIGNIFICANT SITE FEATURES



LEGEND

-  Bowden Heritage Precinct
-  Retained Structure
-  Tank Infrastructure
-  Gas Infrastructure
-  Tunnel
-  Inferred Pug Hole Boundary
(based on previous investigations)

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CONTAMINATION HISTORY

The industrial use of the site as a gasworks has left a legacy of contamination, both in the soil and groundwater.

By processing coal under heat and pressure to produce gas, by-products including tar, ash and other substances were

created, many of which had no industrial worth (or, were unusable for other purposes). As was common practice at the time, these wastes were generally buried or put into tanks, slowly impacting the site as the wastes spread and tanks leaked.

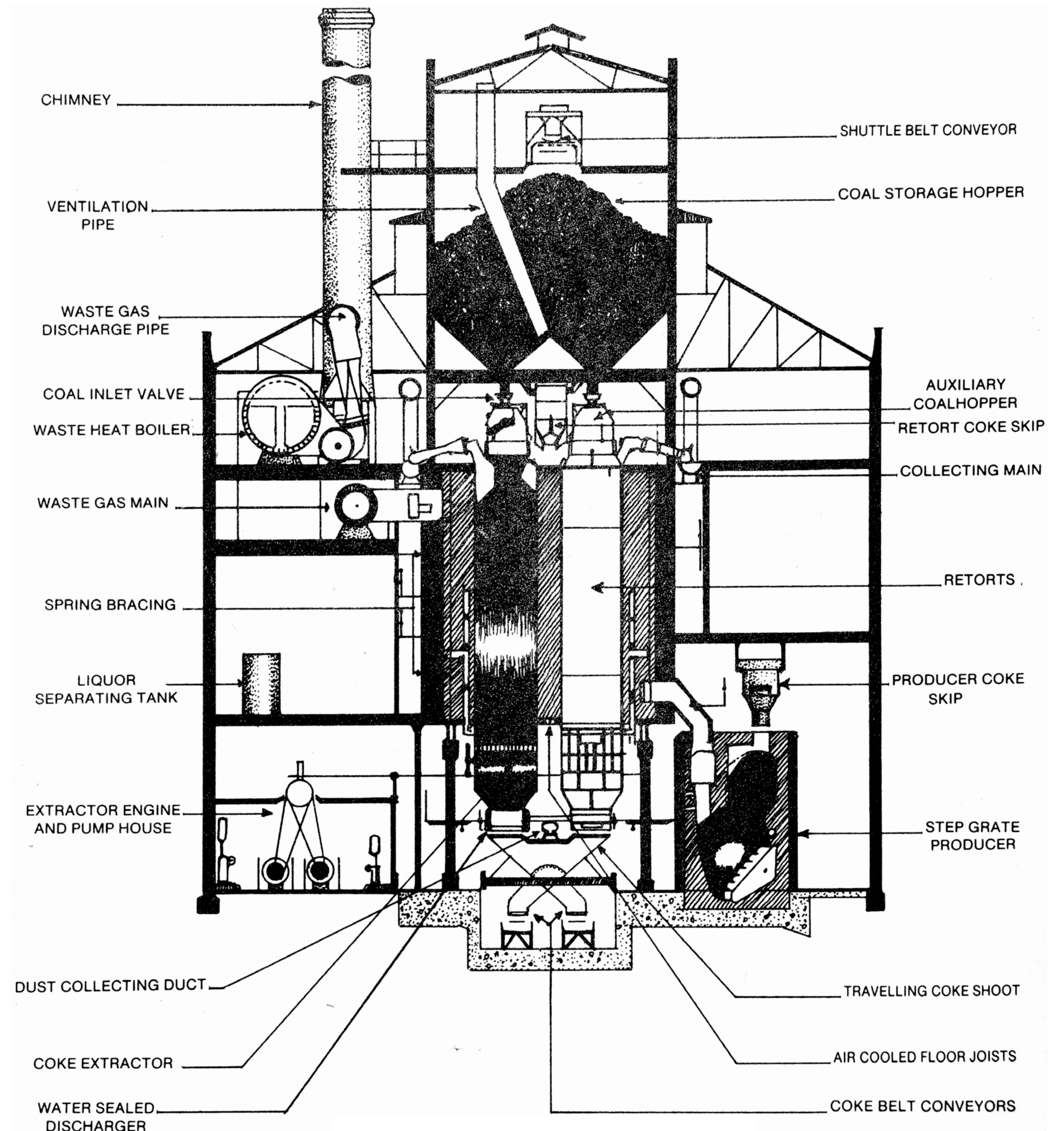
At Brompton, a typical gas production process was used.

- Bituminous coal was heated in large clay tubes known as retorts, inside a furnace fed by coke.
- High temperatures carbonised the coal.
- About 40% of the coal's weight was converted into gas, the remaining 60% became coke.
- To remove impurities, the gas was scrubbed with ammonia then cooled.
- Tar was removed from the gas through condensation and sent to a tar well.

- Ammonia was removed by bubbling the gas through water in a scrubber tank.
- Purifiers containing moist iron oxide removed hydrogen sulphide and other impurities.
- From the purifiers, the gas was measured then sent to a large gasholder.
- From the gasholder, the gas was sent through a mains to the community.

This is why the contaminants onsite are ash, tar, coke, ammonia, metals and hydrocarbons.

Cross-section of a Woodall-Duckham continuous vertical retort house



Source: *The Unquenchable Flame – The South Australian Gas Company 1861-1986*
Authors: Peter Donovan and Noreen Kirkman – First published: 1986

INVESTIGATIONS TO DATE

A series of supplementary environmental site investigations has recently been completed in areas not previously assessed. These investigations were undertaken to assist in refining the understanding of the site contamination issues and the risk-based, site-specific remediation strategy for the site.

The investigations included sampling and analysis of soil, soil vapour and groundwater.

The scope of the investigations and methods applied were reviewed and approved by the independent, Environmental Protection Authority (EPA)-accredited Site Contamination Auditor. The Auditor will also review the results of the investigations.

So far, the data from these investigations appears to be consistent with data collected previously onsite.

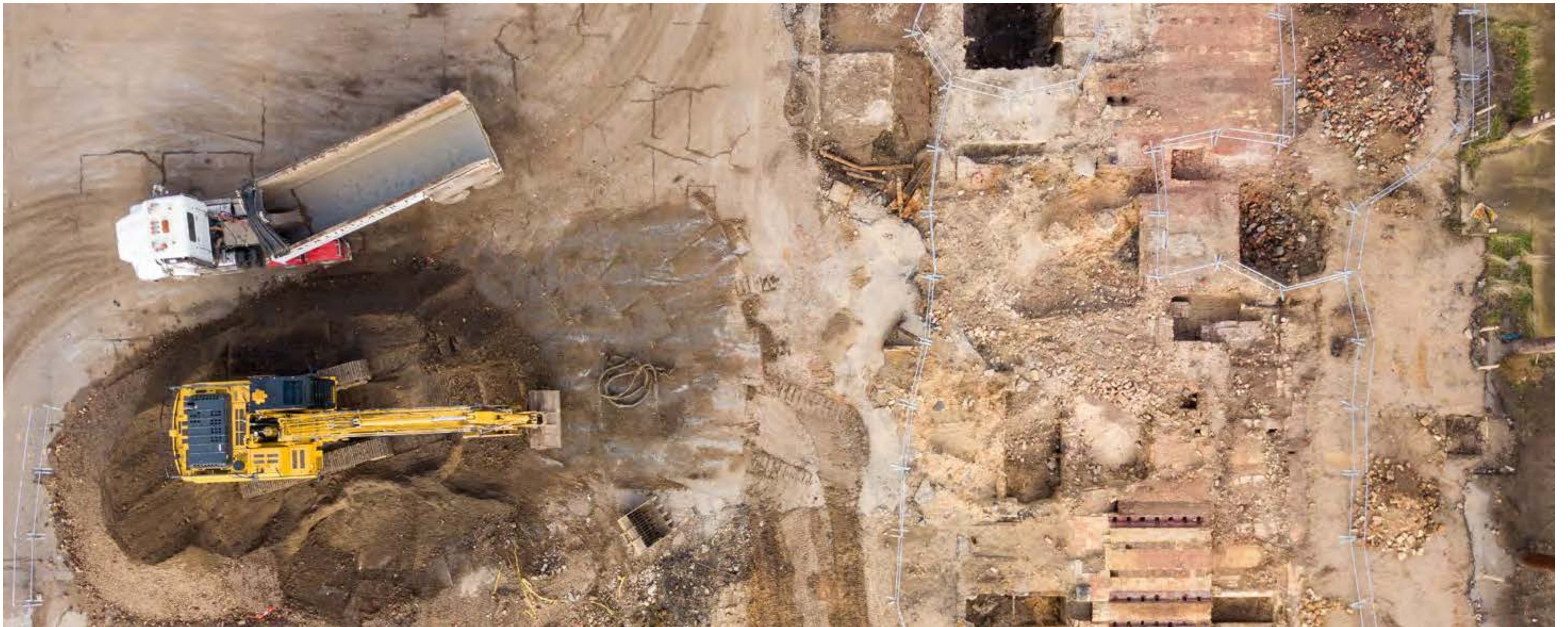
With these site investigations complete only minor investigations are now required onsite.

ARCHAEOLOGICAL INVESTIGATIONS

Some historical underground gasworks infrastructure has been exposed, inspected and documented by an archaeologist, such as retort house ventilation tunnels and former building footings. The archaeological works are ongoing.



REMEDIATION



The remediation strategy for the site integrates the redevelopment objectives with what is known about the nature and extent of the soil, groundwater and soil vapour contamination. It aims to deliver a safe, usable site, and improve the overall environmental condition of the land and underlying groundwater.

The site's contaminated fill ranges from less than 1 metre to 12 metres in thickness, and its groundwater is mostly contaminated from storage tank leaks of tarry liquid, but also from offsite sources. Where residual tar remains near the ground surface, soil vapour contamination may be present.

The remediation approach will be consistent with the SA Environment Protection Authority (EPA) guidelines and is likely to incorporate a combination of techniques that have been used to remediate other gasworks and contaminated sites.

The techniques will principally consist of:

- ▶ Offsite disposal and/or stabilisation of the historical underground infrastructure (including pipelines, tanks and sumps) which forms the primary source of contamination
- ▶ Excavation, consolidation and capping of the shallow contaminated soils to prevent future site occupants and users from coming into contact with residual contamination
- ▶ Installation of vapour barriers (if required) to prevent soil vapour contamination entering future dwellings and other structures.

The detailed remediation strategy will be reviewed and approved by the independent EPA-accredited Site Contamination Auditor before it is implemented.

MINIMISING LOCAL TRAFFIC IMPACTS

A Traffic Management Plan is being developed specifically for the remediation works.

While most remediation works and associated truck movements will be confined within site boundaries, trucks will transport soil, materials and equipment to and from the project site. Loads will be covered if hauling contaminated soil off site.

The site access point for trucks and other vehicles will be the main driveway at 21 Chief Street, Brompton. Although unlikely, if any additional access points are required during the project, residents and business owners who may be directly impacted will be consulted.

An accredited traffic controller will manage site access during project phases with peak truck movements. When pedestrians need to cross the driveway the traffic controller will assist them.

To minimise impacts on local traffic, Ventia will require its trucking contractors to use large arterial roads whenever possible. Traffic route information will be provided to the trucking contractors prior to arriving on site, so that they use an approved route.

Trucks and workers' vehicles will not be allowed to park on local streets surrounding the project site, avoiding further congestion for Brompton residents.

While moderate truck movements will be required on occasions, queuing of vehicles, street parking and idling engines will be avoided.

Whenever a truck driver arrives at the site, the Site Supervisor will run through a commercial driver's induction with them so that the driver is familiar with the site's features, project road rules, as well as the permitted internal haul road routes. All truck drivers will be required to comply with the applicable state road rules.

Pedestrians and road users are advised to be vigilant and while any disruptions are expected to be brief, your patience is nonetheless greatly appreciated by Ventia.



AIR QUALITY CONTROLS AND MONITORING

DUST

The project team is committed to minimising dust and vapour emissions to help maintain good air quality for the community. The following 'frequently asked questions' outline how controls and monitoring will be used to manage air quality.

How will dust impacts be minimised?

Dust controls are measures put in place to minimise dust impacts. They will include the use of water carts, water sprays and the covering of inactive soil stockpiles and excavations with mulches, foams or tarpaulins.

How will dust be monitored?

Dust deposition gauges will be set up on the project site. These gauges will continuously collect any dust and every month the amount will be measured at a laboratory.



ODOUR

What will create odour during the remediation?

The most odorous chemicals at former gasworks sites belong to a group known as Volatile Organic Compounds (VOCs). When soil that contains VOCs is excavated, these liquid compounds 'volatilise', or become vapour, causing odour to be emitted to the atmosphere.

Will the odours be harmful?

Odour from VOCs can be noticeable even when VOC concentrations in air are at safe levels. VOC concentrations will be monitored to assess the health risk.

What will the odours smell like?

Most odours emitted from gasworks soils smell like petrol, oil, tar or mothballs.

How will odour impacts be minimised?

Odour controls will be used such as fragranced misting sprays and soil coverings including mulches, foams and tarpaulins.

How will Volatile Organic Compound (VOC) levels be monitored?

A piece of portable equipment known as a photo-ionisation detector, or PID, will be used to monitor VOC levels on and around the project site.



Dust deposition gauge

Water cannon in use

NOISE CONTROLS AND MONITORING

The project team is committed to reviewing its work practices regularly to minimise the impact of noisy activities on the community. The following 'frequently asked questions' outline how controls and monitoring will be used to manage noise.

What project activities will produce noise?

Most project activities will produce noise levels similar to those from a general construction site. Activities such as occasional concrete cutting are likely to produce the highest noise levels.

How will noise impacts be minimised?

Noise controls are measures put in place to minimise noise impacts. Some examples of noise controls planned for the project are:

- ▶ Use of low-pitched reversing alarms on plant whenever available
- ▶ Placement of noise-generating equipment as far away from residences as possible
- ▶ The turning off of noisy plant when it is not in use.

Where and how often will noise be monitored?

A hand-held sound level meter will be used to measure noise at various locations on and around the project site. In addition, before a piece of heavy plant or equipment is used, its 'sound power level' will be measured.

The relevant Australian Standard and the SA EPA Environment Protection (Noise) Policy (2007) will be applicable to noise management.

What happens if noise is elevated?

If an activity cannot be undertaken without exceeding the noise limit, the activity will not commence before 8.00 am and it will not be ongoing for more than three hours while above the limit. In addition, a minimum 60-minute break will be provided between periods of elevated noise.

Site works will occur during normal construction site hours (Monday to Friday 7.00 am to 5.00 pm). Work on Saturdays may be required occasionally.



RETAINED STRUCTURES

Eight structures of cultural and historic significance have been retained within the State Heritage Place and are intended to be integrated with the new development. These structures reflect Bowden's rich industrial heritage and a strong sense of local identity and place. It is important to note that some structures have previously been known by other names, based on their functions at different times.

The retained structures are intended to be adapted and reused providing a new life while honouring their unique history. They will be integrated within the context of their location in the development and sensitively adapted to suit their new uses. Civil works, including new streets and landscaping will be constructed, together with the development of various buildings to create the Bowden Heritage Precinct. These works are designed to improve accessibility, showcase the retained structures, and accommodate a mix of retail, commercial, residential and community activity.

RETORT HOUSE



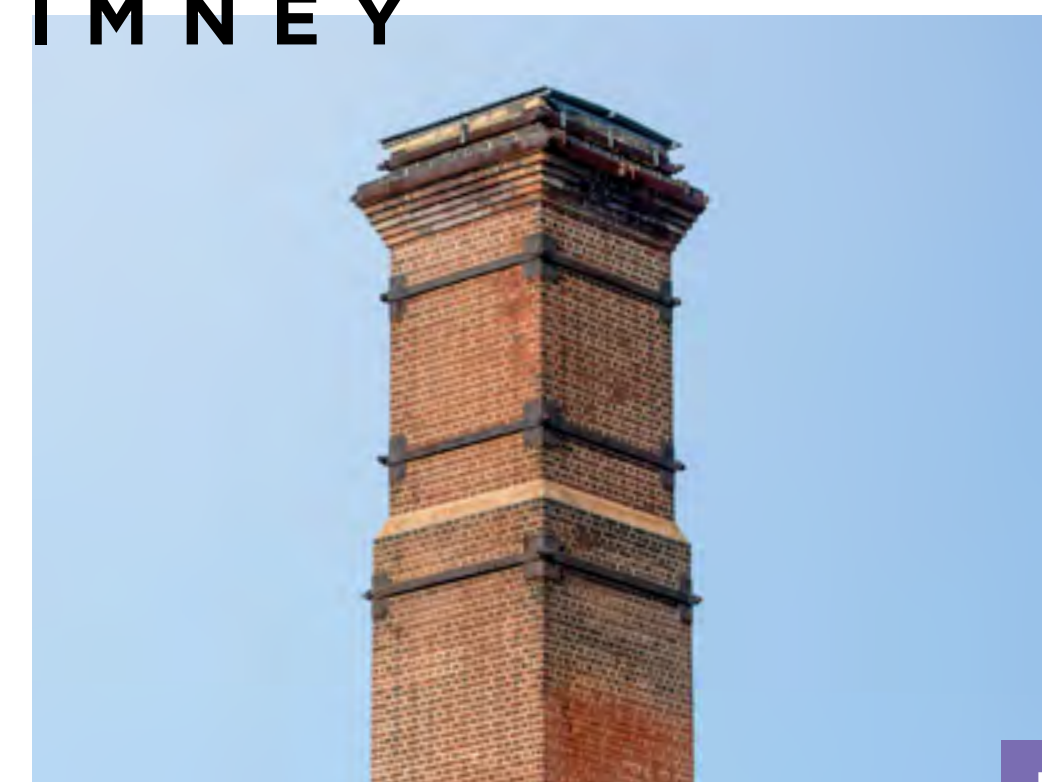
1

CHIEF STREET WALL AND FRAMEWORK



2

GASWORKS CHIMNEY



3

PURIFYING HOUSE



4

WORKS SUPER-INTENDENT'S COTTAGE



5

CARPENTERS' WORKSHOP



6

CHEMISTRY LABORATORY

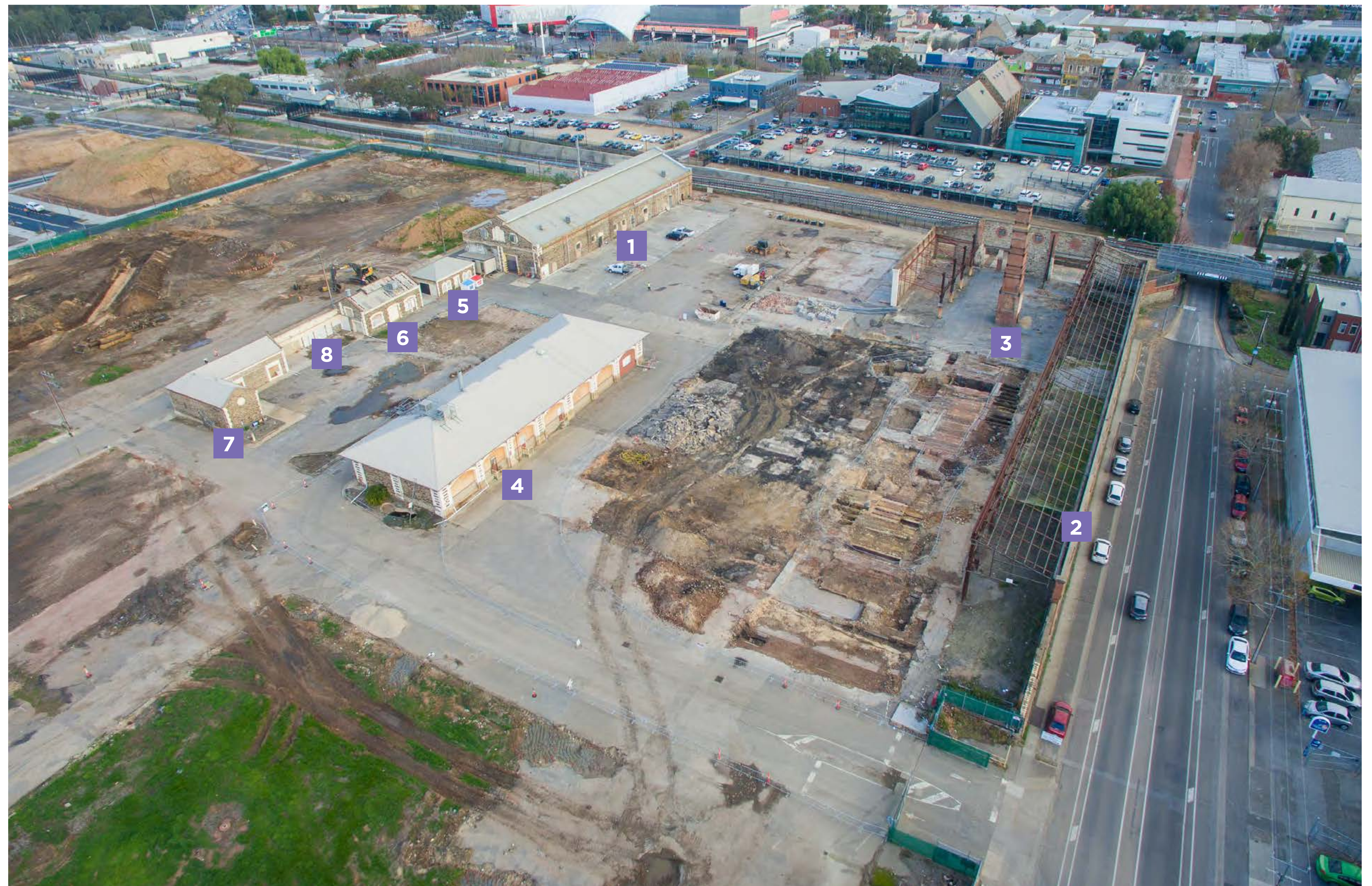


7

BLUESTONE WALL



8



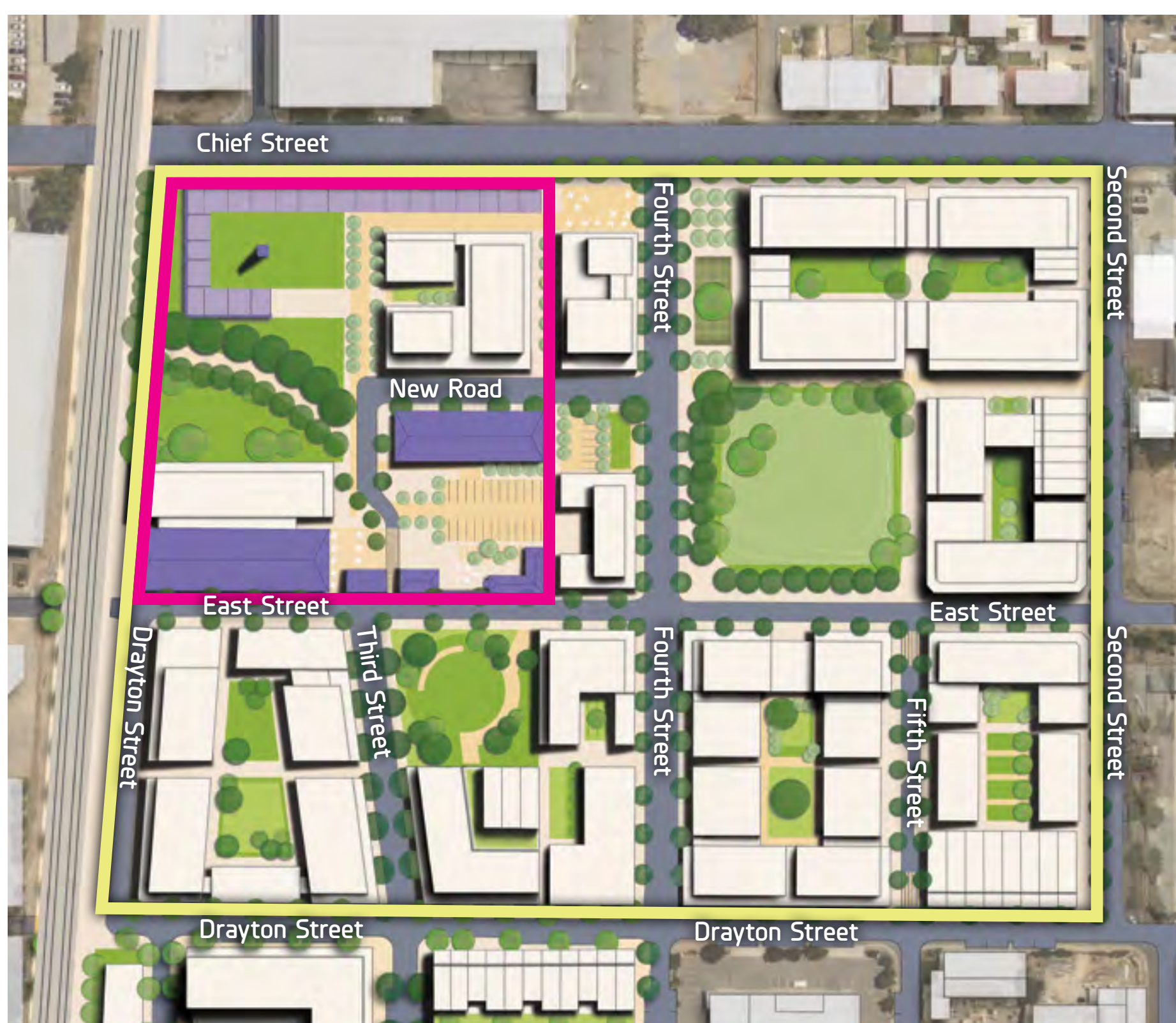
YOUR CHANCE TO GET INVOLVED

Once remediation of the site is complete the focus will turn to the delivery of the public realm and greenspace within the State Heritage Place.

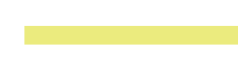


Planning for the public open space, bounded by the retort house, railway corridor, purifying house and Chief Street, will commence in the coming months. Throughout the planning process there will be a number of opportunities for you to provide input and share ideas with the public realm consultants and project team.

Renewal SA is planning a comprehensive engagement approach which is proposed to include an interactive blend of face-to-face and online methods implemented across the following stages of the planning process:

- 1 Developing the design vision and principles for the public open space
- 2 Developing public realm concept design options
- 3 Refining a preferred public realm concept design.



Proposed Master Plan (indicative)

-  BOWDEN HERITAGE PRECINCT BOUNDARY
-  RETAINED STRUCTURES
-  STATE HERITAGE PLACE (BROMPTON GASWORKS)

More information on how you can be involved will be shared soon. If you are interested in being involved, please register to be kept updated by visiting www.renewalsa.sa.gov.au/projects/bowden#bowden_heritage_precinct

Ideas and feedback obtained during the public realm engagement process will be considered in the context of the Bowden Heritage Precinct Master Plan which is drawn from the broader Bowden Master Plan and Urban Design Guidelines to ensure continuity and connectivity between the various stages of the overall project.

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THANK YOU & FEEDBACK



How did you find today's drop-in session?

Do you have any further comments?

Thank you for participating in today's community drop-in session.

We encourage you to keep updated on the redevelopment of the Bowden Heritage Precinct by visiting www.renewalsa.sa.gov.au/projects/bowden

Should you require further information relating to the remediation of the former Brompton Gasworks site, please contact Ventia.

PHONE 1800 009 414 – Community Contact Line

EMAIL bromptonremediation@ventia.com.au



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