Design
for a better
future /

NSW Department of Education

Near-Surface and In-Situ Temperature Monitoring Investigation Summary Report – December 2024

Cringila Public School – 35 Sheffield Street, Cringila NSW

wsp

January 2025

Question today
Imagine tomorrow
Create for the future

Near-Surface and In-Situ Temperature Monitoring Investigation Summary Report – September 2024

Cringila Public School – 35 Sheffield Street, Cringila NSW

NSW Department of Education

WSP
104 Market Street
Wollongong NSW 2500
GPO Box 5394
Sydney NSW 2001

Tel: +61 2 9272 5100
Fax: +61 2 9272 5101
wsp.com

	Name	Date	Signature
Prepared by:	Hamish Cowan	08/01/2025	H Cowan
Reviewed by:	Andres Grigaliunas	13/01/2024	Andres Grigaliunas
Approved by:	Andres Grigaliunas	13/01/2024	Andres Grigaliunas

WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

Table of Contents

List of appendices

1 Introduction

At the request of the NSW Department of Education (DoE), WSP Australia Pty Ltd (WSP) was engaged to undertake 'spot-check' near-surface and in-situ temperature monitoring utilising real-time monitoring devices at Cringila Public School, 35 Sheffield Street Cringila NSW 2502. The aim of this investigation was primarily to investigate near-surface and in-situ temperatures associated with the pre-identified subsurface hotspot located in the northwest grounds at the school.

Based on the correspondence provided by DoE, the scope of works of this assessment are as follows:

- Conduct spot checks to gather near-surface and in-situ temperature readings via the use of heat sensing equipment; and
- Gather data at various points across the site to aid in the spatial delineation of the near-surface hotspot.

This report presents the results of Greencap's (now WSP) historical data relating to near-surface and in-situ temperatures as well as the results of the ongoing temperature monitoring investigation carried out on a quarterly basis, on the 6th December 2024 in the northwest hotspot, situated on the Cringila Public School grounds.

2 Temperature Monitoring Methodology

2.1 Visual Observations

Meteorological data such as wind and ambient temperature is also recorded. No visible evidence of combustion was present on the ground surface.

2.2 Temperature Monitoring

Across the northwest hotspot, a grid system has been established in order to provide a near-surface and in-situ temperature profile for the former hotspot (Refer to Appendix A for location) and the immediate surrounding area. Grid locations have been determined by Greencap/WSP consultants following initial surface temperature spot checks. Thermocouple monitoring points have been installed at depths of 1 m – 10 m across the former northwest hotspot area. Temperature measurements are taken at each grid point location using digital thermometers with ‘K type’ thermocouples designed for continuous temperature measurement. Temperatures were taken at all monitoring locations including injection wells (Refer to Appendix B Monitoring locations).

3 Temperature monitoring Results

The temperature data for representative validation monitoring locations, spread across the former northwest hotspot area are presented in the tables below.

3.1 Subsurface Temperature Data – Validation Wells

Sub-surface temperature measurements are taken from validation wells installed across the northwestern hotspot area.

All values are temperatures in °C, with the highest temperature per well per day highlighted. Temperatures within all other wells (including injection wells) during the monitoring period were similar to those below. The orange coloration in the tables below indicates the highest temperature detected in each well.

VW-01	3/10/2024	6/12/2024
1m	20.8	22.4
2m	21.0	22.5
3m	21.7	21.8
4m	22.3	21.8
5m	23.5	22.6
6m	23.6	22.6
7m	23.3	22.4
8m	22.6	21.3
9m	21.7	22.5
10m	20.8	23.8

VW-02	3/10/2024	6/12/2024
1m	22.9	29.1
2m	23.8	21.7
3m		
4m	24.3	23.5
5m	23.8	23.6
6m	23.4	23.9
7m	22.4	23.5
8m	22.1	23.7
9m	21.4	23.8
10m	19.6	24.9

VW-04	3/10/2024	6/12/2024
1m	22.7	23.1
2m	23.1	23.4
3m	24.4	24.1
4m	25.1	24.9
5m	24.9	25.0
6m	24.5	24.4
7m	23.5	24.3
8m	22.5	24.1
9m	20.9	23.9
10m	19.7	24.3

VW-08	3/10/2024	6/12/2024
1m	22.9	22.3
2m	23.6	22.7
3m	24.3	23.2
4m	23.9	24.0
5m	23.2	24.1
6m	23.0	23.0
7m	21.7	22.3
8m	19.9	21.6
9m	17.5	21.1
10m	17.7	23.4

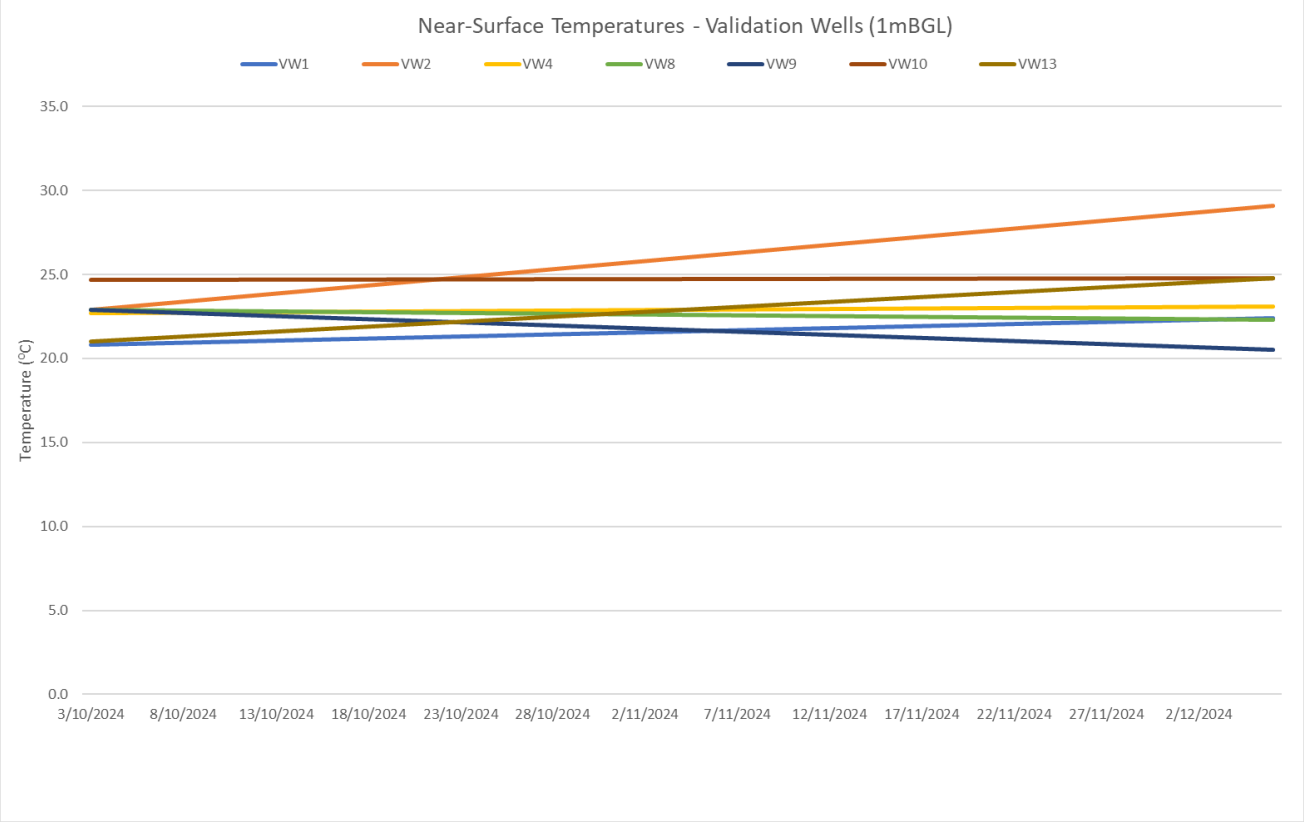
VW-09	3/10/2024	6/12/2024
1m	22.9	20.5
2m	24.1	20.2
3m	23.7	21.2
4m	25.3	22.0
5m	25.4	22.4
6m	24.6	22.6
7m	23.9	20.8
8m	22.7	20.9
9m	20.5	21.1
10m	19.7	22.9

VW-10	3/10/2024	6/12/2024
1m	24.7	21.9
2m	25.1	22.8
3m	25.1	23.6
4m	26.6	24.5
5m	26.0	24.6
6m	24.9	23.6
7m	24.6	22.8
8m	23.5	22.4
9m	22.8	21.7
10m	22.3	22.5

VW-13	3/10/2024	6/12/2024
1m	21.0	24.8
2m	21.6	25.3
3m	22.7	24.2
4m		
5m	22.8	24.8
6m	24.0	26.2
7m	22.6	25.7

3.2 Near-Surface Temperature Graph – Validation Wells

Near-surface temperature measurements taken at 1 m below ground level from representative validation wells installed across the northwestern hotspot area. All other Validation well temperatures in the northwestern hotspot area displayed temperatures similar to the data displayed in the below graph.



4 Analysis of data

Temperature data gathered in validation monitoring locations during this monitoring period were consistently found to be below 30°C.

The 2mBGL thermocouple at IW-20 indicated a slightly elevated temperature of 32.2°C. This variation in temperature (previously recorded at 17.2°C on the 3rd of October and 30.0°C on the 23rd of September) is not deemed significant and does not indicate an issue. The data suggests that, at the monitored points, remediation works have had a successful cooling effect.

5 Discussion

The near-surface and in-situ temperature monitoring conducted during the month of December 2024 indicates that the temperatures have remained in acceptable levels and do not indicate a genuine risk that would trigger further corrective action.

It is recommended that regular site inspections, including air and temperature monitoring, are continued to monitor the ongoing condition of the site.

6 Limitations Statement

This Report is provided by WSP Australia Pty Limited (*WSP*) for Department of Education - Southern NSW AMU (*Client*) in response to specific instructions from the Client and in accordance with WSP's proposal.

6.1 Permitted purpose

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose (*Permitted Purpose*).

6.2 Qualifications and assumptions

The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Report and are subject to the scope, qualifications, assumptions and limitations set out in the Report or otherwise communicated to the Client.

Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and / or recommendations in the Report (*Conclusions*) are based in whole or in part on information provided by the Client and other parties identified in the report (*Information)*, those Conclusions are based on assumptions by WSP of the reliability, adequacy, accuracy and completeness of the Information and have not been verified. WSP accepts no responsibility for the Information.

WSP has prepared the Report without regard to any special interest of any person other than the Client when undertaking the services described in the Agreement or in preparing the Report.

6.3 Use and reliance

This Report should be read in its entirety and must not be copied, distributed or referred to in part only. The Report must not be reproduced without the written approval of WSP. WSP will not be responsible for interpretations or conclusions drawn by the reader. This Report (or sections of the Report) should not be used as part of a specification for a project or for incorporation into any other document without the prior agreement of WSP.

WSP is not (and will not be) obliged to provide an update of this Report to include any event, circumstance, revised Information or any matter coming to WSP's attention after the date of this Report. Data reported and Conclusions drawn are based solely on information made available to WSP at the time of preparing the Report. The passage of time; unexpected variations in ground conditions; manifestations of latent conditions; or the impact of future events (including (without limitation) changes in policy, legislation, guidelines, scientific knowledge; and changes in interpretation of policy by statutory authorities); may require further investigation or subsequent re-evaluation of the Conclusions.

This Report can only be relied upon for the Permitted Purpose and may not be relied upon for any other purpose. The Report does not purport to recommend or induce a decision to make (or not make) any purchase, disposal, investment, divestment, financial commitment or otherwise. It is the responsibility of the Client to accept (if the Client so chooses) any Conclusions contained within the Report and implement them in an appropriate, suitable and timely manner.

In the absence of express written consent of WSP, no responsibility is accepted by WSP for the use of the Report in whole or in part by any party other than the Client for any purpose whatsoever. Without the express written consent of WSP, any use which a third party makes of this Report or any reliance on (or decisions to be made) based on this Report is at the sole risk of those third parties without recourse to WSP. Third parties should make their own enquiries and obtain independent advice in relation to any matter dealt with or Conclusions expressed in the Report.

6.4 Disclaimer

No warranty, undertaking or guarantee whether expressed or implied, is made with respect to the data reported or the Conclusions drawn. To the fullest extent permitted at law, WSP, its related bodies corporate and its officers, employees and agents assumes no responsibility and will not be liable to any third party for, or in relation to any losses, damages or expenses (including any indirect, consequential or punitive losses or damages or any amounts for loss of profit, loss of revenue, loss of opportunity to earn profit, loss of production, loss of contract, increased operational costs, loss of business opportunity, site depredation costs, business interruption or economic loss) of any kind whatsoever, suffered on incurred by a third party.

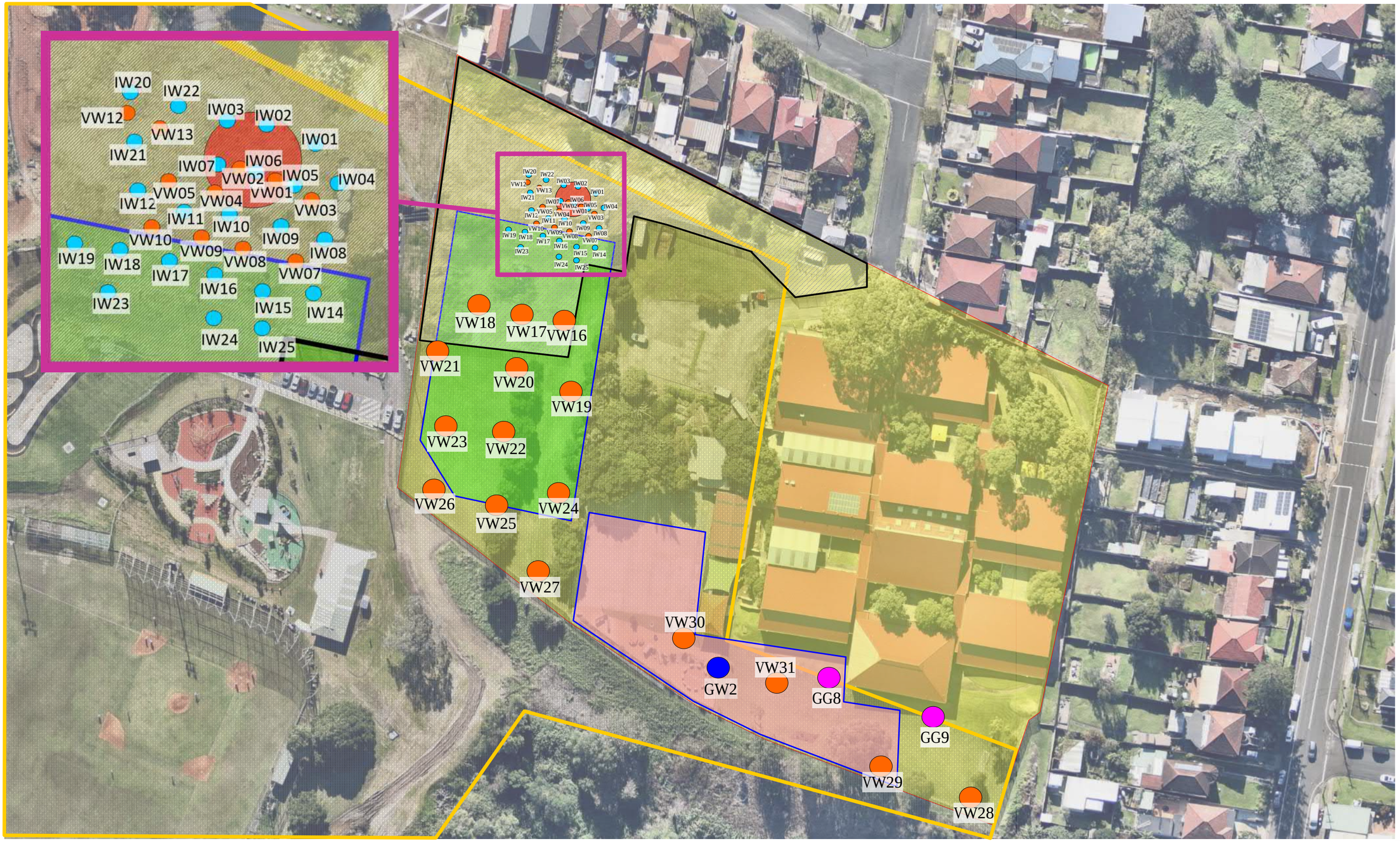
Appendix A

Area of Concern – Northwest Hotspot


CRINGILA PUBLIC SCHOOL
Area of Concern – Northwest Hotspot
N
Lackawanna St
Lackawanna St
Lake Ave
Lake Ave
Lake Ave
Cringila Public School
Cringila Park - Home of Cardinals Baseball

Appendix B

Monitoring locations



Legend:

- Site boundary
- Planned capping/ remediation area
- Area 2
- Area 1
- Temperature Monitoring Well Location
- Former Injection Well With Thermocouples Installed
- Groundgas Well (installed by GC, 2018)
- Groundwater Well (installed by GC, 2018)
- Former North-West Hotspot
- Coal Embankment
- Former Water Injection Area

Metres: 0 12.5 25 37.5 50

GREENCAP Going Further in Managing Risk

Client Name:	Department of Education				
Client Number:	C107471	Project Number:	J171286		
Project Description:	RAP Addendum - Cringila PS				
Address:	35 Sheffield St, Cringila NSW 2502				
Prepared:	MB	Reviewed:	DC	Version Date:	07/11/2022
Figure 2	Remediation area and temperature monitoring well locations				

About Us

WSP is one of the world's leading engineering professional services consulting firms, bringing together approximately 65,000+ talented people around the globe. We are technical experts who design and provide strategic advice on sustainable solutions and engineer Future ReadyTM projects that will help societies grow for lifetimes to come. wsp.com