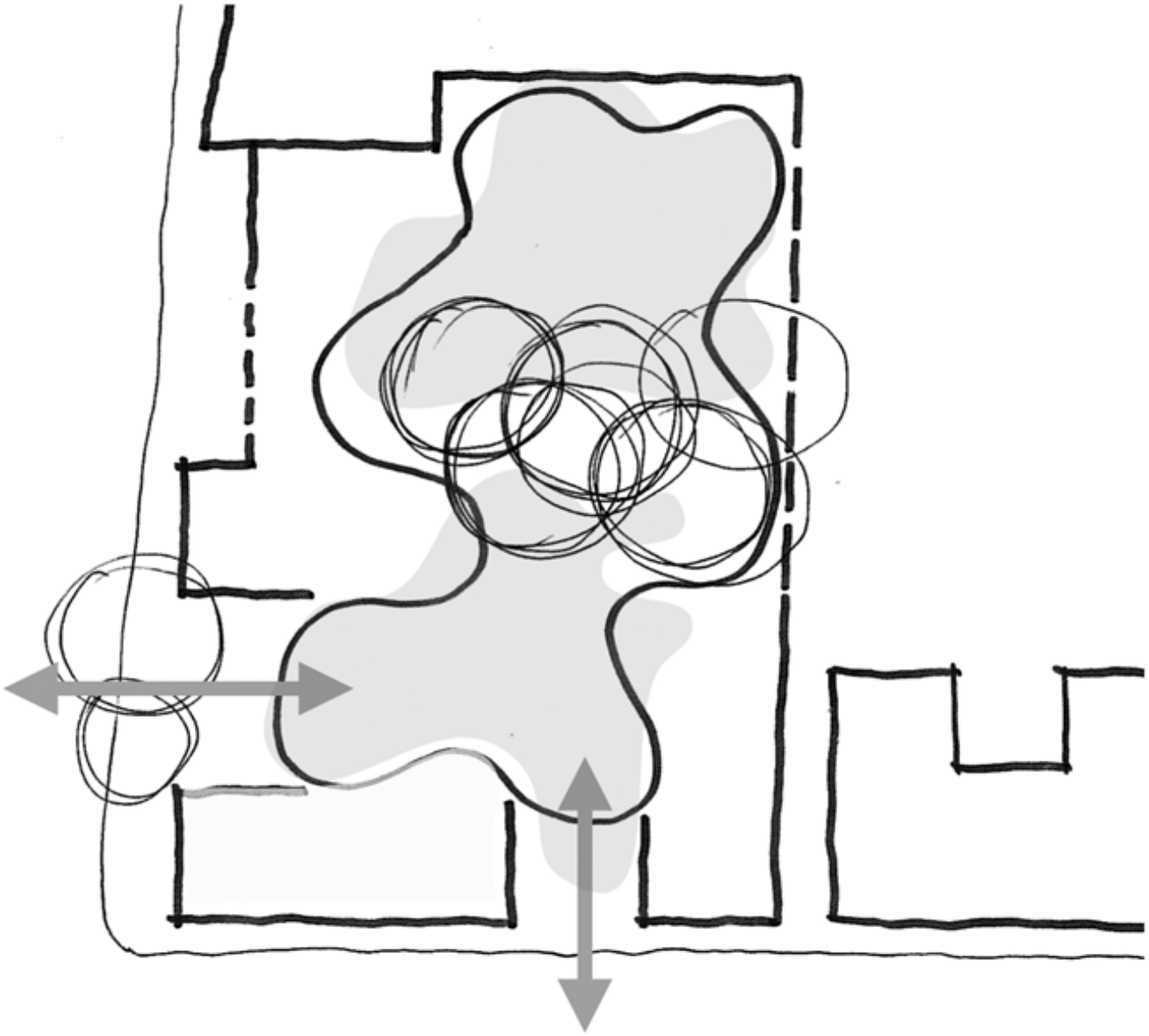
DARLINGTON PUBLIC SCHOOL REDEVELOPMENT

Appendix V — Construction Waste Management Plan

SSD-9914

Prepared by JBS&G

For NSW Department of Education



School Infrastructure NSW

Construction Waste Management Plan

Darlington Public School
Golden Grove Street, Darlington, NSW

27 April 2020

56243/129063 (Rev 1)

JBS&G Australia Pty Ltd

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JBS&G Australia Pty Ltd

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1. Introduction

JBS&G Pty Ltd (JBS&G) has been engaged on behalf of School Infrastructure NSW (SINSW, the client) to prepare a Construction Waste Management Plan (CWMP) for the redevelopment of the Darlington Public School (the site). Darlington Public School is located on the corner of Golden Grove Street and Abercrombie Street, Darlington, within the City of Sydney Local Government Area. The school is adjacent to the University of Sydney Darlington Campus and within walking distance to Redfern and Macdonaldtown train stations. The site is legally described as Lot 100 in DP 623500 and Lot 592 in DP 7523049 (**Figure 1**).

The State Significant Development (SSD) application seeks consent for demolition of existing school buildings and construction of a new part 2, part 3-storey building, increasing the school capacity from 230 to 437 students. The works also include replacement of the existing child-care facility (to the same capacity of 60 students), earthworks and landscaping. For a detailed project description refer to the Environmental Impact Statement (EIS) prepared by Ethos Urban.

1.1 Scope

This CWMP has been developed to address the Secretary's Environmental Assessment Requirements (SEARs) issued by the NSW Department of Planning and Environment for application SSD 19_9914[1], dated 19 March 2019. **Table 1.1** presents the SEARs required to be addressed to support the SSDA:

Table 1.1: SEARS Requirements

SEARS Requirements	Report Section
Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.	Waste streams associated with the construction phase of the project are presented in **Section 4.**
Identify and detail how any asbestos waste, lead-based paint and Polychlorinated biphenyls (PCBs) that may be encountered will be handled, transported and disposed.	Hazardous material handling, transport and disposal requirements are detailed in **Section 5** and **Table 5.1**
Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.	Servicing arrangements are presented in **Section 5**.
Assess, quantify and report on waste management in the context of the waste management hierarchy.	Waste Hierarchy is presented in **Section 3.3**. Waste Management is detailed in **Section 5**.

1.2 In accordance with the SEARs listed above, the scope of this CWMP is to address the likely waste streams generated during the works, provide indicative estimations of waste quantities, and propose management, reuse, recycling and disposal procedures during the demolition, excavation and construction works of the redevelopment works within the subject site. **Objectives**

The key objective of this CWMP is to support the client in the SSDA through identifying the types and quantities of potential waste streams and to establish management measures to prevent environmental harm, minimise waste and maximise resource preservation.

This CWMP specifically aims to:

- Address the SEARs for waste as per SSD 9344;

[1] *Application Number SSD – 9914 Darlington Public School Redevelopment. Golden Grove Street, Darlington within City of Sydney. Department of Education.* Secretary's Environmental Assessment Requirements, Section 4.12(8) of the Environmental Planning and Assessment Act 1979 Schedule 2 of the Environmental Planning and Assessment Regulation 2000 dated 19 March 2019 (SSD 9914)

- Promote waste minimisation through avoiding and reducing waste generation;
- Promote the recycling of building and demolition materials;
- Comply with legislative criteria and adhere to waste minimisation guidance and standards;
- Apply the waste management hierarchy (**Section 3.3**) throughout construction; and
- Specify safe and appropriate management of potentially contaminated wastes.

2. Project Description

Darlington Road Public School provides education to preschool and primary school students for the local school catchment area, and NSW Government has recently provided funds to remove existing structures on site, undertake cut and fill activities to the site and construct new buildings to ensure it can accommodate increases in the surrounding population.

2.1 Location and Site Layout

Information relating to the site are provided in **Table 2.1** below. The site location is illustrated in **Figure 1.**

Table 2.1: Site Details

Site address	Golden Grove St, Darlington, NSW, 2008
Local Government	City of Sydney
Zoning	SP2 – Infrastructure (Education Establishment) Local Environmental Plan (LEP) 2014
Surrounding Land Use	North: Sydney University Regiment IXL Garage bordering the school, with terraced houses to the north across Darlington Ln. East: University of Sydney Business School Campus. South: Abercrombie St and terraced housing followed by railway line and Carriageworks and the main southern train line. West: Golden Grove St and medium to high density housing.

2.2 Project Scope of Works

It was understood from the client that the subject site will undergo the following redevelopment works including:

- Demolition of existing structures on site;
- Site preparation;
- Construction of one new part 2, part 3-storey building, increasing the school capacity from 230 to 437 students, containing:
    - Replacement of the existing child care facility (capacity of 60 students);
    - Several Outdoor play areas;
    - One outdoor, undercover play area;
    - Several collaborative learning areas;
    - Services and mechanical plant rooms;
    - Canteen;
    - Administration facilities;
    - Staff facilities;
    - Special program/counselling rooms;
    - A community clinic and waiting rooms;
- Construction of a new entry forecourt;
- Community Hall with stores and kitchenette;
- Landscaping and fencing; and

- Tree removal.

Details design drawings are included in **Appendix A**.

2.3 Existing Environment

2.3.1 Topography

A review of the regional topography (LPMA[2]) identified that there was a gentle gradient towards the south-east. The site has an elevation of between approximately 41 to 43 m Australian Height Datum (AHD).

2.3.2 Buildings, Structures and Roads

The entrance to Darlington Public School is located on Golden Grove St. The northern portion of the site is predominantly occupied by a bitumen basketball court surrounded by established trees. The southern portion of the site contains school buildings Block A, Block B and Block C surrounded by concrete and bitumen. A small area of lawn is present in the central eastern portion of site adjacent to the centrally located softball area.

2.3.3 Acid Sulfate Soils

Review of the 1:25 000 scale Prospect Paramatta Acid Sulfate Soil (ASS) Risk Map (DLWC 1997[3]) indicated that the site is located within an area of 'no known occurrence' of acid sulfate soil materials. Based on the site's elevation, the reported geology and the ASS Risk Map classification, no further consideration of requirements for the management of acid sulfate soil is required.

2.3.4 Vegetation

As mentioned above, the site is predominantly surfaced with concrete hardstand or bitumen with the exception of the lawn and softball area in the central portion of site. The central portion and northern boundary have established trees, most of which are proposed to be retained as part of the proposed works as shown in the Design Drawings (**Appendix A**).

2.3.5 Presence of Chemical Storage, Hazardous and Fill Material

No previous environmental reports or hazardous materials survey reports for existing site infrastructure have been provided by the client. However, it is anticipated that fill material may have been imported to create the existing site levels and therefore should any soil require disposal off-site as part of the scope of works, it will need to be classified as per the NSW EPA Waste Classification Guidelines (EPA 2014[4]) as discussed in **Section 4**.

[2] Land and Property Information, Spatial Information Exchange website, http://maps.six.nsw.gov.au/ accessed 21 May 2019
[3] *Prospect Paramatta Acid Sulfate Soil Risk Map* (Edition 2), NSW Department of Land and Water Conservation (DLWC 1997)
[4] Waste Classification Guidelines. Part 1: Classifying Waste. NSW Environment Protection Authority (EPA 2014)

3. Legislative Requirements and Guidelines

3.1 Legislation

This CWMP has been prepared in accordance with the requirements of the *NSW Waste Avoidance and Resource Recovery Act 2001*, and the NSW *Protection of the Environment Operations Act 1997* (POEO Act). These and other key legislation relevant to waste management at the site are provided in **Table 3.1.**

Table 3.1: NSW Waste Legislation Summary

Legislation	Purpose
Protection of the Environment Operations Act 1997 *Protection of the Environment Operations (Waste) Regulation 2014* *Protection of the Environment Operations (General) Regulation 2009*	The Act is the key piece of environment protection legislation administered by the NSW Environment Protection Authority (EPA). The object of the Act is to achieve the protection, restoration and enhancement of the quality of the NSW environment. The Act enables the Government to establish policy instruments for setting environmental standards, goals, protocols and guidelines.
Waste Avoidance and Resource Recovery Act 2001	The WARR Act promotes waste avoidance and resource recovery to achieve a continual reduction in waste generation, provides for development of a state-wide Waste Strategy, and introduces a scheme to promote extended producer responsibility for the life-cycle of a product. Objectives of the Act include: • To encourage the most efficient use of resources and to reduce environmental harm; • To ensure that resource management options are considered against a hierarchy (see **Section 3.3**); • Provide for the continual reduction in waste generation; • To minimise the consumption of natural resources and the final disposal of waste; • To ensure that industry shares with the community the responsibility for reducing and dealing with waste; and • To assist in the achievement of the objectives of the *POEO Act.*
Environmental Planning and Assessment Act 1979 *Environmental Planning and Assessment Regulation 2000*	The Act and the Regulation provide the overarching structure for planning in NSW. They provide for a number of other statutory documents to support the planning structure, including State Environmental Planning Policies and Local Environmental Plans. The objectives include: • The proper management, development and conservation of natural and artificial resources; and • To encourage ecologically sustainable development.
Environmentally Hazardous Chemicals Act 1985 (NSW)	The Act provides for control of the effect on the environment of chemicals and chemical wastes. The EPA is responsible for administering this legislation, in partnership with other state government agencies. It is the primary legislation for specifically regulating environmentally hazardous chemicals throughout their life cycle. The Act sets out requirements for: • Chemical Control Orders (CCOs) which are used to manage specified hazardous chemicals and chemical wastes; • Technology assessments, which ensure that premises treating or destroying chemicals are safe and appropriate for their purpose; and • Licensing of individuals or industries who manage chemicals that are subject to a CCO.
Contaminated Land Management Act, 1997 and *Regulation 2013*	The Act establishes a process for investigating and (where appropriate) remediating land that the EPA considers to be contaminated significantly enough to require regulation.

3.2 Guidelines

Guidance documents and policies considered in the preparation of this CWMP are included in **Table 3.2.**

Table 3.2: NSW Guidance Summary

Guideline	Purpose
NSW Environment Protection Authority (EPA) Waste Classification Guidelines 2014 (EPA 2014)	The Waste Classification Guidelines have been established by the NSW EPA to assist waste generators to classify wastes. Wastes are classified into groups that pose similar risks to environment and human health. Waste classifications are discussed further in **Section 4.1**.
Building Code of Australia (BCA)	The BCA contains technical provisions for the design and construction of buildings and other structures, covering such matters as structure, fire resistance, access and egress, services and equipment, and energy efficiency as well as certain aspects of health and amenity.
NSW EPA's Waste Avoidance and Resource Recovery (WARR) Strategy 2014-21	The WARR strategy provides a framework for waste management for the state until 2021. Key targets include: • Avoid and reduce waste generation; • Increase recycling; • Divert more waste from landfill; • Manage problem wastes better; • Reduce litter; and • Reduce illegal dumping.
NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012	The guide provides advice to assist architects, developers, council staff and building managers to incorporate better waste management practice into the design, establishment, operation and ongoing management of waste services in commercial and industrial developments.
NSW Government Resource Efficiency Policy (GREP) 2019	The policy aims to reduce the NSW Government's operating costs and lead by example in increasing the efficiency of its resource use. The policy will continue to drive resource efficiency by NSW Government agencies in four main areas – energy, water, waste and air emissions from government operations. The GREP was introduced in 2014 and reviewed in 2018 to take into account implementation challenges, technology development and market trends. Local government, state-owned corporations, public trading enterprises and public financial enterprises are strongly encouraged to adopt this policy's approach.
How to manage and control asbestos in the workplace, SafeWork NSW Code of Practice, 2016 (NSW Government)	The Code of Practice is an approved code of practice under the *Work Health and Safety Act 2011*. The code provides guidance on how to manage risks associated with asbestos and asbestos containing material at the workplace and thereby minimise the incidence of asbestos-related diseases such as mesothelioma, asbestosis and lung cancer.
How to safely remove asbestos, SafeWork NSW Code of Practice, 2016 (NSW Government)	The Code of Practice is an approved code of practice under the *Work Health and Safety Act 2011*. The code provides practical guidance on how to safely remove asbestos from all workplaces including structures, plant and equipment and should be read in conjunction with *How to manage and control asbestos in the work place* Code of Practice.
Australian Government Construction and Demolition Waste Guide, 2011	The aim of the guide is to help develop effective markets for materials diverted or derived from the construction and demolition waste stream.
Australian Government Sustainable Procurement Guide, 2018.	The guide aims to reduce the adverse environmental, social and economic impacts of purchased products and services throughout their life through considerations such as waste disposal and the cost of operation and maintenance over the life of the goods. The guide was developed to assist Australian Government purchasers to include sustainability considerations in all stages of the procurement process, from identifying the business need to disposal of goods.
Sampling Design Guidelines – Contaminated Sites. NSW EPA, 1995	The Sampling Design Guidelines were established by the NSW EPA to: • Encourage the use of a statistically based approach to the design and sampling for contaminated sites and the interpretation of these samples for assessing and validating contaminated sites; and • Provide a convenient summary of statistical methods.

3.3 Waste Hierarchy

Waste management for the project will be undertaken in accordance with the waste hierarchy, which underpins the objectives of the *Waste Avoidance and Resource Recovery Act 2001*. The waste hierarchy shown in **Figure 3.1** demonstrates preferred approaches to waste management to ensure sustainable development and use of resources.

Figure 3.1: Waste Hierarchy

The hierarchy also aims to maximise efficiency and avoid unnecessary consumption of resources. This CWMP seeks to implement the waste hierarchy to minimise waste disposal and promote waste reduction in order of preference:

- Reduce or avoid waste through selection of items and design;
- Reuse materials without further processing;
- Recycle and process waste for reuse as a new product;
- Recover energy through combustion of materials where acceptable and in accordance EPA Regulations;
- Treat waste to stabilise the waste product for disposal or reuse; and
- Dispose of waste when no other management options are appropriate.

4. Waste Streams and Classification

4.1 EPA Waste Classification

The NSW EPA Waste Classification Guidelines (EPA 2014) provides for the classification of wastes into groups that pose similar risks to the environment and human health, which are defined in the POEO Act. Classes of waste described in the guideline are described in **Table 4.1.**

Table 4.1: Summary of NSW EPA Waste classifications

Waste Classification	Description
Special waste	Special wastes are wastes that pose specific regulatory requirements due to the risks of harm to the environment and human health. These wastes include clinical and related waste, asbestos waste, waste tyres, and anything classified as special waste under an EPA gazettal notice.
Liquid waste	Liquid waste is classified as any waste (other than special waste) that meets the following criteria: • Has an angle of repose of less than 5 degrees above horizontal; • Becomes free-flowing at or below 60 degrees Celsius or when it is transported; • Is generally not capable of being picked up by a spade or shovel; and/or • Is classified as liquid waste under an EPA gazettal notice.
Pre-classified waste: • Hazardous waste • Restricted solid waste • General solid waste (putrescible) • General solid waste (non-putrescible).	Where the waste is neither liquid nor special waste; the EPA has pre-classified other commonly generated waste types, as defined in Schedule 1 of the POEO Act. This includes hazardous waste, restricted solid waste, general solid (putrescible) and general solid (non-putrescible) waste. Putrescible waste is the component of the waste stream that is liable to become putrid, and usually refers to vegetative, food and animal products. A list of all currently gazetted waste classifications is provided on the EPA website at: www.epa.nsw.gov.au/waste/wastetypes.htm. Where material is classified as hazardous waste, it is noted that such materials cannot be directly disposed of and must be treated prior to disposal by an appropriately licensed facility/operator.
Wastes classified via chemical assessment: • Hazardous waste • Restricted solid waste • General solid waste (putrescible) • General solid waste (non-putrescible).	Where the waste does not fall into one of the above categories, chemical assessment of the material is required to finalise a waste classification as per the procedures outlined in detail in EPA (2014) and/or consideration of General or Specific Waste immobilisation approvals as approved under the *Protection of the Environmental Operations (Waste) Regulation* (2014).

4.2 Waste Streams and Classification

A variety of waste types are expected be generated during the site preparation and construction parts of the project. Potential waste types and corresponding EPA classifications for the Darlington Public School Redevelopment are summarised in **Table 4.2**.

Table 4.2: Potential Waste Types and Classification

Waste Type	EPA Classification	Generated	Project Phase
Excavated Soil	Subject to Waste Classification as per EPA 2014 following excavation	✓	Excavation, Construction
Rock and excavated stone	General solid waste (non-putrescible)	Potential	Excavation, Construction
Green waste (Garden Organics)	General solid waste (non-putrescible)	✓	Excavation (site preparation)
Metals (including roofing)	General solid waste (non-putrescible)	✓	Demolition, Excavation, Construction
Wood waste (including joinery offcuts)	General solid waste (non-putrescible)	✓	Demolition, Construction
Blockwork	General solid waste (non-putrescible)	✓	Demolition, Construction

Waste Type	EPA Classification	Generated	Project Phase
Glazed Bricks	General solid waste (non-putrescible)	✓	Demolition, Construction
Concrete (Building frames, cores & roof; external works; slab)	General solid waste (non-putrescible)	✓	Demolition, Excavation, Construction
Plasterboard	General solid waste (non-putrescible)	✓	Demolition, Construction
Glass	General solid waste (non-putrescible)	✓	Demolition, Construction
Carpet Tiles	General solid waste (non-putrescible)	✓	Demolition, Construction
Vinyl	General solid waste (non-putrescible)	✓	Demolition, Construction
Plastic (Artificial Turf and other durables (non-packing))	General solid waste (non-putrescible)	✓	Demolition, Construction
Plastic and foam packaging	General solid waste (non-putrescible)	✓	Construction
General refuse	General solid waste (putrescible), and General solid waste (non-putrescible)	✓	Excavation and Construction
Electrical (HV and LV)	General solid waste (non-putrescible)	✓	Demolition, Construction
Optic fibre wiring	General solid waste (non-putrescible)	Potential	Demolition, Construction
Light bulbs	Hazardous waste	Potential	Demolition, Construction
Batteries	Hazardous waste	Potential	Demolition, Construction
Empty drums (e.g. oil, fuel, chemicals, paint, spill clean-up)	Hazardous waste if the containers previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and from which residues have not been removed by washing or vacuuming. General solid (non-putrescible) waste if containers cleaned by washing or vacuuming.	Potential	Demolition, Excavation, Construction
PVC pipes (stormwater, electrical, optic fibre, sewer)	General solid waste (non-putrescible)	✓	Demolition, Construction
Site runoff (wastewater)	Liquid waste	Potential	Demolition, Construction
Sewage	Liquid waste	Potential	Demolition, Construction
Asbestos containing materials	Special waste	Potential	Demolition
Lead based paints	Hazardous waste	Potential	Demolition

4.3 Waste Quantities

4.3.1 Demolition

During the development of a detailed schedule of planned works, the quantity of waste generated, and the locations of temporary waste storage areas will be confirmed. Based on initial site inspections and appraisal by the demolition/construction contractor, waste quantities will be estimated.

The demolition schedule will be developed to ensure appropriate temporary waste storage areas are available for storage of demolition waste. If required, waste will be periodically removed from the site during the demolition works to ensure there is sufficient waste storage capacity available.

4.3.2 Construction

Indicative quantities of waste likely to be generated during construction (excluding excavation and other enabling works) will be determined when the detailed demolition schedule has been established. It is expected that actual waste quantities and composition will vary depending on outcomes of detailed design, materials specification and construction planning and methods.

Indicative waste volumes have been provided for context based on benchmark data developed by the UK Building Research Establishment Group (BRE 2012[5]), see **Table 4.4**), which is based on waste generation at various construction projects including healthcare, commercial, industrial and public buildings.

A value of 20.7 m^3 per 100 m^2 has been adopted to estimate waste generation for the construction phase of this project, for Education building waste. Indicative waste composition information shown in the tables below (derived from the Sustainability Victoria Waste Wise Tool Kit (2013 [6])) provides an estimate of quantities for each waste stream.

Strategies that will be implemented to minimise waste generation and maximise reuse and recycling are outlined in **Section 5.**

Table 4.4: Average Volumes of Waste Produced by Different Project Types

Project Type	Average volume (m^3) of waste per 100 m^2
Residential	18.1
Public buildings	20.9
Leisure	14.4
Industrial Buildings	13.0
Healthcare	19.1
Education	20.7
Commercial Other	17.4
Commercial Offices	19.8
Commercial Retail	20.9

Source: BRE (2012)

Table 4.5: Guide to Waste Composition and Volumes – Construction

Material	*Estimated Waste %*	Conversion Factor (Density) (Tonne per m^3)
Hard material	32%	1.2
Timber	24%	0.3
Plastics	15%	0.13
Cement sheet	9%	0.5
Gypsum material	6%	0.2
Metals	6%	0.9
Paper / card	4%	0.1
Vegetation	3%	0.15
Soil	1%	1.6
Other	0.3%	0.3

Source: Sustainability Victoria Waste Wise Tool Kit (2013)

Table 4.6: Approximate Quantities of Waste Generated During Construction Phase

Waste Type	Approximate quantity (m^3)
Hard Material	190.8
Timber	35.8
Plastics	9.7
Cement	22.4
Gypsum Material	6.0
Metals	26.8
Paper / card	2.0
Vegetation	2.2
Soil	7.9
Other	0.4

Source: Sustainability Victoria Waste Wise Tool Kit (2013)

[5] Building Research Establishment Group. *Smartwaste - BRE Waste Benchmark Data* (BRE 2012)

[6] Sustainability Victoria Waste Wise Tool Kit (2013)

5. Waste Management

Site specific waste management measures have been developed in line with the waste hierarchy outlined in **Section 3.3** and in accordance with the relevant legislative requirements and guidelines. These measures are applicable to the demolition and construction phases of the project.

5.1 Avoidance and Reduction of Waste

The demolition, excavation and construction contractor will be required to avoid waste generation, and endeavour to reuse materials where possible, thereby minimising waste generation.

During the construction phase, waste generation will be avoided through strategic selection of materials during design and purchasing, taking into account options to reduce waste generation for the project. This includes consideration of procurement of materials which are prefabricated, use minimal packaging, and are suitable for reuse across the site. Selection of construction materials will also consider the use of recycled items where practicable.

Opportunities to avoid wastes generated by construction include:

- Develop a procurement policy which considers waste avoidance measures such as:
    - Order site specific or prefabricated items where practicable to minimise surplus material;
    - Consider packaging material provided by suppliers during purchasing and reduce this requirement where possible, or consider returnable packaging;
    - Material selection to consider recycled items;
- Refine waste stream estimates to ensure adequate on-site storage and segregation; and
- Refine estimated volumes of materials for construction.

5.2 Reuse and Recycling

A 90% recycled or re-used target has been developed and noted on the Ecologically Sustainable Development report accompanying the SSDA for this project, as such majority of the excavated spoil will remain on site for site grading activities. While for other waste materials onsite, measures to separate waste streams will be implemented. This includes segregating wastes into appropriate dedicated bins or areas for reclamation on site or transportation to a designated recycling facility.

Concrete waste and waste rinse water are not to be disposed of at the site and rinse waters are required to be prevented from entering surface waters, including natural and artificial watercourses.

Should unexpected material containing asbestos be identified and cannot be safely removed/encapsulated, off-site disposal is the most appropriate option. The construction contractor will then liaise with a licensed asbestos removalist to determine a suitable disposal facility. Measures for dealing with hazardous waste (asbestos) are discussed in **Table 5.1.**

Procedures to manage the reuse and recycling of waste materials during construction include:

- Incorporation of waste management into development staging to promote reuse of materials across the site;
- Ensure areas for waste segregation are easily accessible and clearly defined;
- Ensure contractors are familiar with onsite waste storage areas for appropriate waste segregation;
- Determine suitability of materials generated during demolition for use in construction; and

- Consider opportunities for materials reuse in areas in proximity to the site or local construction activities where practicable.

5.3 Treatment and Disposal

Project wastes may require treatment to stabilise them for appropriate disposal to reduce the risk of harm to human health or the environment. These materials are not suitable for reuse or recycling and must be segregated and disposed of via a suitably qualified contractor.

Wastes will only be sent to landfill or disposal facilities where the prioritised management methods in the hierarchy cannot be effectively implemented. The construction contractor will liaise with the local council to determine appropriate disposal locations for potential waste streams.

Measures to manage the treatment and disposal of waste materials during construction include:

- Ensure wastes which cannot be reused or recycled and require disposal are clearly segregated from those which have the potential to be reused.
- Provide segregated bins for subcontractors to dispose of construction waste (i.e., metal, plastics and cardboard).
- Contractors and staff to be inducted into site waste management practices.
- Hazardous materials including asbestos (if identified) to be disposed of in accordance with the handling and disposal requirements of SafeWork NSW and NSW EPA.
- General wastes to be disposed of in accordance with NSW EPA/local council requirements.
- Toilet facilities must be regularly serviced and emptied by a licensed contractor.

It should be noted that concrete waste and waste rinse water are not to be disposed of at the site and rinse waters are required to be prevented from entering surface waters, including natural and artificial watercourses.

5.4 Waste Stream Management Options

The waste management measures outlined in **Table 5.1** will be implemented for each waste stream generated as part of the project. Key waste streams identified for this project have been discussed in more detail in this section to ensure appropriate waste handling for each type of waste.

Each waste stream will be separated and stored appropriately to ensure each type of waste is handled in the most appropriate and efficient way. The numbers and size of waste storage bins, containers, stockpile areas and loading zones on site will be determined by the demolition/excavation and construction contractor.

The Principal Contractor appointed by the client will implement its own waste management systems in accordance with this plan to ensure the schools existing waste management systems are not impacted by the redevelopment works.

5.5 Waste Disposal Hours

It is a requirement that waste collection services are not undertaken outside of the hours of 6.00 am and 10.00 pm, Monday to Saturday and 8.00 am to 10.00 pm on Sundays[7].

5.6 Other Considerations

To ensure waste is not unintentionally tracked off-site, the vehicles or trailers used to transport waste or excavated spoil from the site will be covered before leaving the subject site, to prevent

[7] *Waste Policy: Managing Waste in Public Places information Fact Sheet.* City of Sydney, 2020. Found at: https://www.cityofsydney.nsw.gov.au/__data/assets/pdf_file/0007/194380/Waste-Policy-local-approvals-policy-for-managing-waste-in-public-places.pdf

spillage or escape of dust, waste or spoil from the vehicle or trailer. Any mud, splatter, dust and other material that is likely to be released from the wheels, underside or body of vehicles, or plant leaving the site will also be removed through a shaker bay or wash down area prior to leaving the subject site.

Table 5.1: Waste Stream Management

Waste Stream	Project Phase	Management
Concrete	Demolition and Construction	Concrete is likely to be generated during the demolition phase and the construction of the new school building and associated facilities. It is possible concrete may also be generated from kerbing and footpaths for external and landscaping works. There is also a possibility that concrete waste may be generated from excess concrete poured during construction, although this will be minimised wherever possible using the methods outlined in **Section 5.1**. Concrete can be reprocessed and may, in some instances, be reused across the subject site, however, the general practice is to break up/crush the concrete and arrange for disposal to a recycling facility or disposal offsite. Options may include disposal of excess concrete to a HDPE lined pit on site, to allow for regular reprocessing or disposal to a recycling facility. Wet supply may be placed back into supply trucks to return to the producer at the cost of an additional fee.
Soil	Demolition, Excavation and Construction	Soil is likely to be generated during establishment activities, removal of trees, excavation to establish required site levels, installation of infrastructure and other construction activities. Soil surplus to the site requirements will be sampled, analysed and classified in accordance with NSW EPA Waste Classification Guidelines (EPA 2014) prior to for offsite disposal at a facility that is licensed to accept that class of waste. As no previous environmental reports were provided by the client, whilst a 90% recycled and re-used target has been set for the project, it is anticipated that the excavated materials that meet the relevant site reuse criteria will, where possible be reused to establish the required site levels during construction works. A soil management plan (as part of a Construction Environmental Management Plan) will be developed to provide guidance for all soil testing, excavation, reuse and disposal works. In general, it is expected that assessment of relevant material will identify that undisturbed natural soil and bedrock at the site will meet the definition of VENM for off-site disposal or re-use purposes. VENM is considered suitable for re-use on-site, or alternatively, may be suitable for beneficial reuse at another site as fill material. In accordance with Part 1 of the Waste Classification Guidelines (EPA 2014), the VENM is pre-classified as general solid waste and may also be disposed of accordingly to a facility that is licensed to accept it. Where stockpiling is required prior to redistribution, control measures to avoid sediment and erosion will be implemented where appropriate. This may include establishing a bund or lining of the base with an impermeable HDPE plastic liner. Where excess soil cannot be redistributed or has been situated in proximity to asbestos containing materials (if present on site), the soil is required to be treated and/or disposed of, potentially as low level contaminated waste via a licensed removalist to a disposal facility.
Rock and excavated stone	Demolition, Excavation and Construction	Rock and excavated stone may be generated during excavation and construction of new buildings for footing and foundation construction. Depending upon the quantities and properties of the materials generated, materials may be used as aggregate or sub-base for other works across the site as described in the **Soil** section above.
Metals	Demolition and Construction	Metal wastes are likely to be generated during removal of roofing within the demolition/site establishment phase. There is also a possibility that metal waste may be generated from excess materials purchased for the site as part of construction work, although this will be minimised wherever possible using the methods outlined in **Section 5.1**.

Waste Stream	Project Phase	Management
		Principal Contractor appointed by the client will investigate and determine appropriate storage and recycling of metals to reduce waste, including location and signage of skip bins onsite. Where recycling of metal is not feasible, for example distribution to salvage yards for reuse, the contractor will organise disposal of the timber to a licensed waste facility.
Green Waste/ Wood Waste	Demolition, Excavation, Construction	Green/wood waste is likely to be generated during removal of trees and excavation of topsoil (mulch) for site grading purposes. It is likely that wood waste (timber) may be generated during the demolition phase as well as from excess materials purchased as part of building construction works, although this will be minimised wherever possible using the methods outlined in **Section 5.1**. Principal Contractor appointed by the client will investigate and determine appropriate storage and recycling of timber to reduce waste, including location and signage of skip bins onsite.
Plasterboard	Demolition, Construction	Plasterboard is likely to be generated during the demolition phase as well as the construction of new buildings, although this will be minimised wherever possible using the methods outlined in **Section 5.1**. Principal Contractor appointed by the client will investigate and determine appropriate storage and recycling of plasterboard to reduce waste, including location and signage of skip bins onsite. Uncontaminated plasterboard (e.g. offcuts) or material with low levels of contamination such as nails and screws is completely recyclable and can be recycled for use in new plasterboard or the gypsum used in agricultural soil conditioners.
Plastics	Construction	Plastic wastes associated with packaging for construction materials can be recycled or in some cases returned to the supplier of the materials for reuse. Where possible, plastic (non-durable) wastes will be reduced using the methods outlined in **Section 5.1**.
General Waste	Demolition, Excavation and Construction	Wastes such as food waste, organics and biodegradable material will be created as a result of worker activity on site. Non-putrescible wastes are generally inert, or solid, and are not able to be composted, recycled, reprocessed or reused. Principal Contractor appointed by the client will ensure adequate bins are provided on site for putrescible waste. This is particularly important around worker congregation areas, site office areas and toilet facilities. It is likely that general waste will increase at times of internal and service fit out during construction, primarily associated with excess packaging materials and workers on site. Principal Contractor will determine the location of skip bins and specify waste stream separation measures across the site. Where possible, co-mingled recycling bins will be provided in common areas at work sites for plastic and glass bottles, soft drink cans, aluminium and tin cans to avoid these items being disposed to landfill. Specialised bins for cigarette butts will also be provided in designated smoking areas.
Hazardous Waste – General	Demolition, Excavation and Construction	Small quantities of hazardous wastes may be uncovered during the demolition phase. Hazardous waste could also be generated during construction of new buildings (e.g. light bulbs, batteries, used drums from oil, fuel, chemicals or paint). Separate containers for the safe storage of these wastes will be provided where applicable, prior to removal offsite by an appropriately licensed contractor for recycling or disposal at a licensed facility.

Waste Stream	Project Phase	Management
Hazardous Waste – Asbestos (Unexpected Finds)	Demolition and Excavation	As discussed in **Section 2.2**, demolition works associated asbestos removal works do not form part of the SSDA (and this CWMP), however should unexpected asbestos containing materials be identified during demolition or excavation phases, appropriate measures and controls are required to be implemented. Asbestos poses a risk to human health through exposure of loose fibres when damaged or disturbed. As such, asbestos is classified as special waste under the POEO Act, and the EPA (2014) Waste Classification Guidelines. Special wastes pose unique regulatory requirements due to the management responsibilities to minimise risk of harm. Should unexpected asbestos containing materials be identified within work areas and required removal, a site and material specific asbestos removal control plan (ARCP) will be developed by a competent person or a licenced asbestos assessor or licensed asbestos removal contractor prior to the commencement of any asbestos removal works. The ARCP will be developed in accordance with the requirements of SafeWork NSW How to Safely Remove Asbestos, Code of Practice 2016. Controls may include: • Appropriate PPE including respiratory protective equipment • Air monitoring undertaken by an accredited expect • The asbestos work area and removal site will be clearly defined and restricted to unauthorised personnel All asbestos removal, transport and disposal must be performed in accordance with NSW legislative requirements including storing or wrapping in polythene bags. Any asbestos removed from site will be inspected by a competent person or licenced asbestos assessor prior to movement to the waste disposal facility.

6. Roles and Responsibilities

This CWMP forms the basis of waste management on site for the demolition/excavation and construction phase of the Darlington Public School redevelopment works.

It is expected that all demolition and construction personnel will commit to the CWMP and be responsible for their own actions in adhering the waste management objectives. Waste management criteria (such as those contained in this report) should be contractually binding for all contractors working on the site.

A Construction Site Manager will be the key person responsible for implementation of the CWMP and adherence to applicable legislation, guidelines, licensing and project conditions outlined herein.

Table 6.1 presents suggested responsibilities for waste management.

Table 6.1: Roles and Responsibilities

Role	Responsibility
Environmental Management Representative	• Compliance with applicable environmental licences, legislation and project conditions. Ensure environmental management plan(s) across the site are adhered to and accurate to site conditions. • Undertake inspections to ensure compliance.
Construction Site Manager	• Ensuring workers and subcontractors are inducted into the CWMP along with other applicable management plans. • Responsible for undertaking procurement of construction materials in accordance with the waste management hierarchy. • Segregation of waste streams where required to ensure appropriate use, treatment and/or disposal.
Health and Safety Manager	• Safety inductions for all staff, workers and visitors. • Work with Construction Site Manager to determine safe handling of asbestos waste in compliance with regulatory requirements.
Site Workers	• Responsible for acting in accordance with the CWMP and site inductions. • Informing the Construction Site Manager of any waste management incidences and Health and Safety Manager of any safety issues associated with on-site activities.

6.1 Training and Awareness

Staff present on site during the construction stage of the project will be required to undertake induction and awareness training inclusive of the CWMP and site-specific waste management. This includes:

- Induction to the waste management hierarchy and use across the site; and
- Details of responsibilities for waste management and key personnel;
- Site specific waste management practices relevant to the project stage such as:
    - Waste storage and stockpiling locations;
    - Waste disposal requirements;
    - Hazardous or special wastes;
    - Record of waste disposal details and receipts; and
- Knowledge of emergency response procedures and contacts; and
- Asbestos Awareness Training (if asbestos is identified on site).

Signage will be provided on site to ensure waste management measures are communicated across the subject site, particularly for contractors and visitors who are not regularly on site. Signage will highlight correct procedures for separating wastes where required, locations of bins and waste

storage areas, labelling of designated bins, potential hazards associated with the waste streams and handling, and contact details should any issues be encountered.

Signage will be prepared and located on site in accordance with the Australian Standard (AS 1319) for safety signs, and the NSW EPA and Australian Standard for recycling signage.

7. Monitoring and Reporting

The following activities will be undertaken to inform future onsite waste management and to determine the success of the CWMP:

- Ensure waste quantities generated are recorded, including tracking of receipts from waste recycling or disposal via the appointed waste contractor;
- Record waste classification and testing results;
- Review the CWMP in light of any changes to construction activities or further information which may alter waste management practices;
- Undertake auditing of waste management across the site as a component of broader environmental site audits;
- Undertake visual inspections daily to ensure waste management controls are implemented and maintained across site; and
- Undertake final review of the CWMP upon project completion to ensure information accurately reflects site activities, and to assist future waste management.

Outcomes of audits and waste tracking will be reported to the client or the Principal Contractor, potentially through weekly or monthly reporting to ensure waste management objectives are adhered to.

7.1 Corrective Action

Where formal auditing, daily visual inspections or incident reporting identify incorrect storage or disposal procedures, or maintenance or waste management issues, observations will be promptly reported to the Construction Site Manager and recorded. The Construction Site Manager will determine appropriate measures to rectify the issues in a timely manner in consultation with the Environmental Management Representative and Health and Safety Manager where required.

8. Recommendations

This Construction Waste Management Plan will need to be updated once construction volumes have been finalised and temporary waste storage areas have been identified.

This CWMP must be in accordance with the sites SEARs application (SSD 9934) which requires the following waste management measures to be addressed:

'*Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.'*

Prior to commencement of construction, a Construction Environmental Management Plan (CEMP) will need to be developed. This CWMP will form a sub-plan of the CEMP for the redevelopment works. The CEMP should also include a soil management plan and an asbestos removal control plan (if asbestos is identified).

9. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquiries.

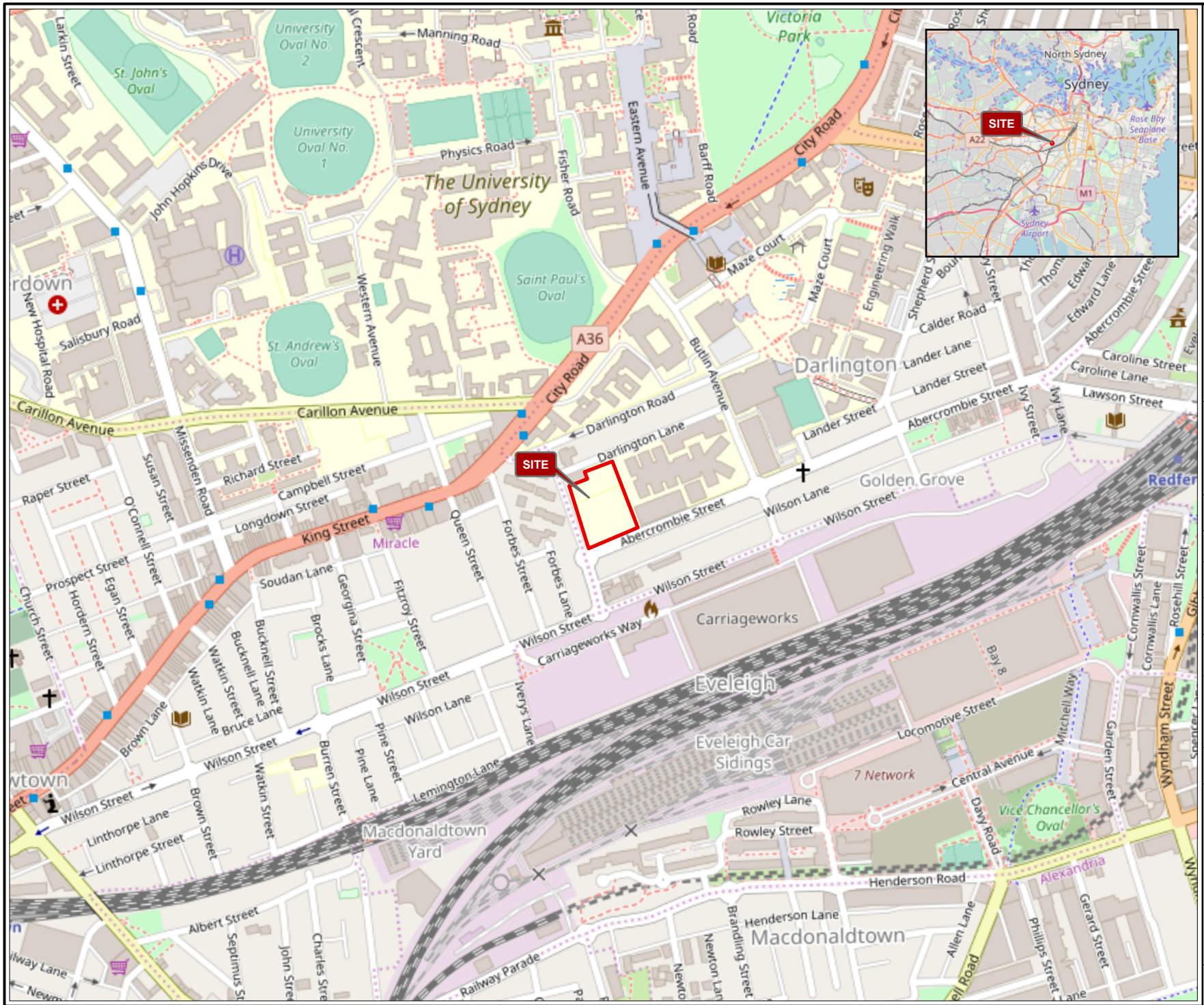
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

Figures



Legend:

Approximate Site Boundary

JBS&G

Job Number: 58181	
Client: School Infrastructure	
Version: R01 Rev A	Date: 31/03/2020
Drawn By: AV	Checked By: RL
Scale 1:7,500	

0 70 140

metres

Coord. Sys.

417 – 445 Abercrombie Street Darlington, NSW

SITE LOCATION

FIGURE 1

File Name: N:\Projects\School Infrastructure\56243 Darlington PS WMPs\GIS\56243.aprx

Legend:
Approximate Site Boundary

JBS&G

Job Number: 58181	
Client: School Infrastructure	
Version: R01 Rev A	Date: 31/03/2020
Drawn By: AV	Checked By: RL
Scale 1:750	

0 7 14
metres

Coord. Sys. GDA 1994 MGA Zone 56

417 – 445 Abercrombie Street
Darlington, NSW

SITE LAYOUT

FIGURE 2

File Name: N:\Projects\School Infrastructure\56243 Darlington PS WMPs\GIS\56243.aprx
Reference: Nearmap - www.nearmap.com - Imagery Date: 12-05-2019

Appendix A Design Drawings

NEIGHBOURING PROPERTY
UNIVERSITY OF SYDNEY

1

2

3

4

Bulk Waste Store
7.5 m2

CC.17
Comms
10.49 m2

EDB

CC.09
Laundry
5.2 m2

CC.04
Toilets
7.35 m2

CC.18
Indoor/Outdoor
Store
9.2 m2

35.600

FFL +36.830

CC.12
Cleaner
1.45 m2

CC.10
Staff WC
11.04 m2

PAA
3.14 m2

CC.01
Preschool 1
65.19 m2

Mech Plant
14.38 m2

CC.08
Staff Room
17.47 m2

CC.02
Preschool 2
75.19 m2

Cold
Water
Pump
10 m2

PAA
3.12 m2

Circulation

Water Meter
3.75 m2

PV
Inverters

CC.11
Kitchen
19.06 m2

CC.15
Store
2.61 m2

MSB

Circ

Riser

CC.05
Toilets
12.53 m2

CC.14
Store
2.61 m2

FFL +35.520

35.50

CC.07
Office
9.66 m2

CC.03
Preschool 3
75.5 m2

EMERGENCY PARKING
ONLY

FFL 35.500

Foyer

PAA
2.75 m2

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1	Claudia Bennett	Matthew Bennett	Matthew Bennett		27/04/2020