Construction Management Plan (CMP)

Cranbrook Senior School Redevelopment

Revision	Date	Section	Revision Details
01	30 Sep 2017	All	Work in progress / Draft Plan
02	9 March 2018	All	Preliminary

Contents

INTRODUCTION **3**

1.0 PROJECT OVERVIEW **3**

1.1 Project Brief *4*

2.0 PROJECT PROGRAM & MILESTONES **6**

3.0 CONSULTATION **6**

4.0 SITE ESTABLISHMENT & PROJECT STAGING **7**

Site Establishment *7*

4.1 Dilapidation Report 7

4.2 Signage 7

4.3 Site working hours 7

4.4 Stakeholder Management 8

4.5 Parking 8

4.6 Site Fencing, Hoardings & Security 8

4.7 Site Amenities 9

4.8 Site Inductions 9

4.9 Hazardous Materials 9

4.10 Safety Inspections 9

4.11 First Aid Facilities 10

4.12 Approved Plans to be on Site 10

4.13 Public Domain 10

4.14 Site Appearance 10

4.15 Site Personnel Behaviour 10

4.16 Environmental Controls – sediment controls, tree protection & dust control 11

4.17 Site Access 11

4.18 Existing services infrastructure 11

Project Scope *12*

4.19 Demolition 12

4.20 Shoring & Excavation 12

4.22 Structure 13

4.23 Façade 14

4.24 Internal Finishes 14

Preliminary

4.25 Connection of Services 14

5.0 MATERIALS HANDLING 14

6.0 CONSTRUCTION TRAFFIC MANAGEMENT PLAN 15

A detailed construction traffic management plan is included in Appendix E. 15

6.2 Construction vehicles site access 16

6.3 Standing of vehicles during construction. 19

6.4 Proposed road closures, temporary traffic routes and loss of pedestrian paths. 20

6.5 Emergency Access 20

6.6 Tower and mobile cranes 20

6.7 Standing of equipment on Council Land. 20

7.0 WASTE MANAGEMENT 20

8.0 CONSTRUCTION NOISE MANAGEMENT 21

9.0 MITIGATION MEASURES 21

Appendix A – Site Establishment Plan 24

Appendix B – Sediment Control Plans 26

Appendix C – Tree Protection Plan 28

Appendix D – Site entrances 31

Appendix E - Materials Handling Plan 33

Appendix F – Construction Traffic Management Plan 35

Appendix G – Waste Management Plan 36

Preliminary

INTRODUCTION

This Construction Management Plan (CMP) has been prepared in response to the Secretary's Environmental Assessment Requirements (SEAR's) key issues. It is part of the submission for the Cranbrook School development to be submitted to the NSW Department of Planning and Environment. The CMP is in line with the requirements noted in consultation with Woollahra Council and their CMP checklist. The CMP cannot be issued as a final until the project conditions are received.

The CMP will provide a summary of the works, what it entails and the proposed methodology on how the works will be constructed whilst minimising the impacts of construction activities on:

- Neighbours.
- Nearby residents.
- Users of public footpaths and roads.
- Parking near the site.
- Surrounding streets used to access the site.

1.0 PROJECT OVERVIEW

Cranbrook School is located within the suburb of Bellevue Hill located approximately five kilometres East of the Sydney's CBD. The existing School is surrounded by Victoria Road to the South, New South Head Road to the North & West, and Rose Bay Avenue to the East.

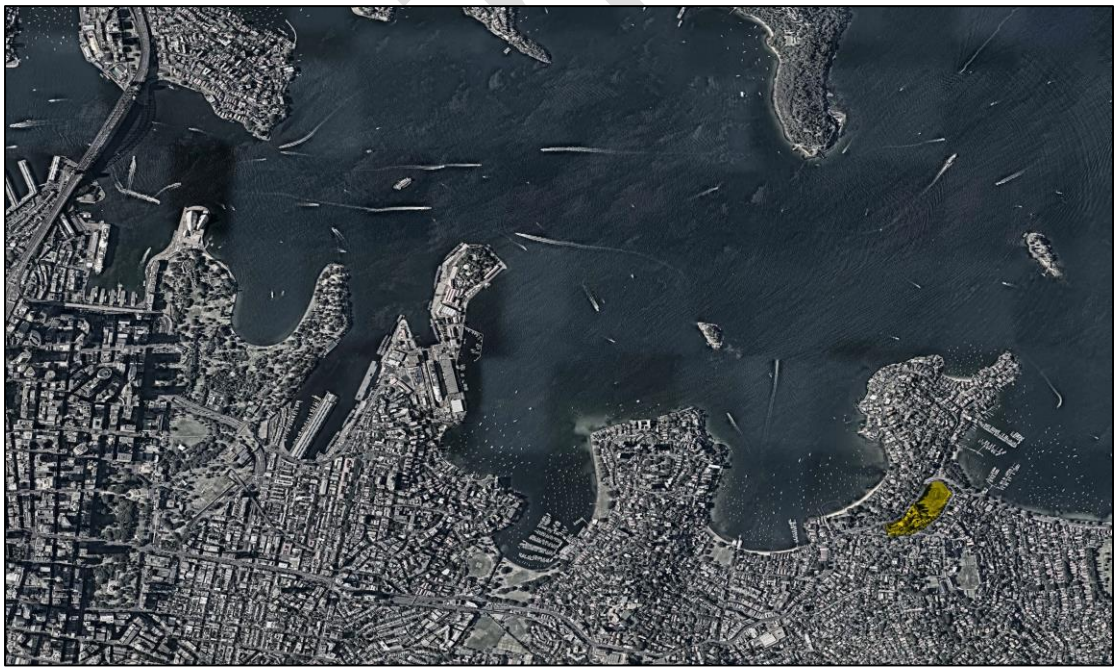


Figure 1 – Cranbrook School location.

minary

Figure 2 – Location Plan of Cranbrook Senior School

1.1 Project Brief

The scope of the project can be broken down as follows:

New Centenary Building:

- Demolition of the existing War Memorial Hall and Mansfield Buildings.
- Construction of the new Centenary Building.
- Use of this building includes classrooms, learning centres, chapel, performance centre and multipurpose basketball courts / assembly area (located at oval level).

New Carpark facility:

- Undercover carpark facility (constructed under the existing oval).

New Aquatic and Fitness Centre:

- Sports facility including basketball courts, gym, swimming pool (to replace existing) and sports training (constructed under the existing oval).

Upgrade of the existing Hordern Oval playing surface:

- Replacement of existing playing surface and minor adjustment of levels to suit the new buildings under the oval, new ground keeper's facility and pathways.

External works:

Preliminary

- Relocating the existing drop off / pick up zone on Rose Bay Ave too within the school grounds on a temporary basis during construction.
- These works will be completed at the commencement of the project to allow for the Work Zone to be installed on Rose Bay Ave (which is where the existing school pick up / drop off zone is currently located).

Figure 3 - Location plan of the works.

Pro

2.0 PROJECT PROGRAM & MILESTONES

The project will start with the relocation of the pickup / drop off zone currently located on Rose Bay Ave to within the site access road as noted in figure 3. After this the demolition of the existing War Memorial & Mansfield Buildings will be completed. Each new building will then be individually completed at different durations as noted below. At the time of this report the proposed start date of the project is late November 2018 (subject too statutory approvals and financing). The overall duration of the project is expected to take a minimum 24 months.

Proposed new development	**Planned start and finish dates** (TBC & subject to approvals)
Site Establishment	November 2018
Demolition Works	Dec 2018 to Jan 2019
Centenary Building	December 2018 to December 2020
Carpark	December 2018 to November 2019 (not OC)
Aquatic & Fitness Centre	December 2018 to August 2020
Reinstate & cure oval surface	June 2020 to Dec 2020
Project Completion	December 2020 (Estimated 24 months from construction commencement)

3.0 CONSULTATION

Cranbrook School has established an appropriate communication plan which ensures all neighbours and other relevant parties are informed about the development. Part of this plan will be that a construction team member will be included in the role as liaison officer with the community, school and authorities.

The communication includes a provision for community complaints to be submitted and tracked via a register which forms part of the Project Control Group's reporting structure.

Project updates to the local community will be issued on a regular basis.

Preliminary

4.0 SITE ESTABLISHMENT & PROJECT STAGING

Site Establishment

Refer Appendix A for the proposed Site Establishment plan.

4.1 Dilapidation Report

Dilapidation reports of the surrounding buildings, infrastructure and roads will be completed prior to construction and issued to the relevant parties.

The report will include photographs and site plans with location reference for ease of use. This report will form the basis for comparison with the dilapidation report that will be prepared after all construction works are completed.

4.2 Signage

Signage specifying any safety, security measures and key contact details shall be erected on the perimeter of the building site (i.e. attached to the building, fence or hoarding). A 24-hour contact name and phone number shall be provided.

Delivery signage will also be posted at the site entrances.

4.3 Site working hours

To mitigate impacts on the local stakeholders and Cranbrook School the proposed work hours provide the greatest opportunity for the most efficient construction program as well as mitigating traffic impacts. The preferred working hours of the site are:

- 7.00am to 5.30pm Monday to Friday, (TBC in approval conditions).
- 7.00am to 3.30pm Saturday (TBC in approval conditions).
- No work on Sundays and Public Holidays. (TBC in approval conditions)

The majority of site activities / site personnel will work during the hours of 7am to 3.30pm (subject to approvals). From 3.30pm to 530pm (Monday to Friday) / (subject to approvals) the site activities generally reduce with fewer site personnel working overtime. Concrete pours are a site activity on many occasions will need to work latter. The above work hours will assist with working in with the local schools where the site personnel are arriving before the students / staff and are leaving after the students have left for the day.

Outside these hours, works, such as special delivery of materials / machinery / specific site works may be required to be undertaken outside the approved hours (tbc) of operation of the site. This would be in line with the type of work, authority's requirements or for safety reasons. For example, wide delivery loads that are required to meet RMS restrictions on public roads or large concrete pours that requires time to pour and cure before it can be finished off. Communication with relevant authorities and neighbours will be issued prior to these events occurring to all impacted stakeholders

Preliminary

4.4 Stakeholder Management

The school and the Contractor will issue monthly communication updates for the Project to the relevant stakeholders, including local neighbours & relevant authorities. Stakeholders will have an open line of communication to Cranbrook School project team to address any issues and concerns if they arise.

4.5 Parking

The site is reasonable well served by public transport. Contractors will be encouraged to use public transport where possible. Site personnel when inducted to the site will be informed of this requirement, including details of available services. It is proposed (tbc / not part of current scope) to provide a limited amount of parking on part of Hordern Oval that is not being developed, and is also subject to detailed construction sequencing. Access into this area would be via the existing driveway on New South Head Rd. This temporary parking availablitiy is subject to materials handling requirements and spoil management process, which may need some or all of this area at different stages during the works.

The structure for the new carpark being constructed will be completed approximently one year after the works commence. It is intended that the crapark can be utilised on a temporary basis for site carparking and site amenitites.

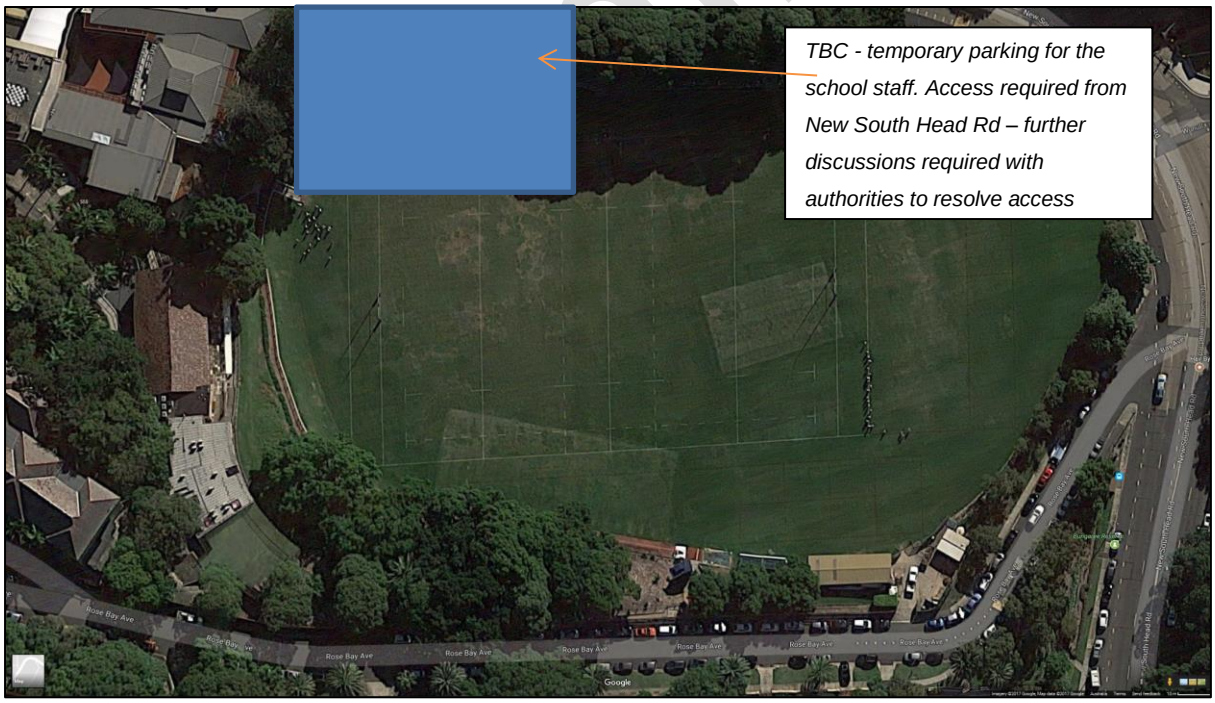


Figure 4: Possible temporary parking area.

4.6 Site Fencing, Hoardings & Security

The site will be appropriately secured by solid fences (chain wire or similar), hoardings and gates during the entire duration of the construction work. Gates will be installed to control access to the site.

Hoardings, gates and fences will be suitably lined to limit public viewing and ensure safe pedestrian flow. Attention will be paid to the effects of hoarding on service vehicle and pedestrian travel paths.

4.7 Site Amenities

Site amenities and facilities will be provided for work personnel including offices, toilets, lunch rooms, first aid rooms and change rooms. The attached site plan in Appendix A notes these proposed positions. The location of the site facilities during construction may vary as construction progresses.

4.8 Site Inductions

All site personnel will be site inducted prior to commencing work on site. The site inductions will be specific to the Cranbrook School site and Buildcorp safety protocols including site specific requirements including:

- Site safety
- Site access, site amenities & site procedures
- Deliveries & parking
- Client & neighbour requirements including; personnel behaviour; dust, vibration & noise controls.
- Head contractor policies & procedures.
- Cranbrook School requirements.

The head contractor and all sub-contractors must induct their employees into their safe work procedures. Induction register & copies of site SWMS will be available on site when required.

4.9 Hazardous Materials

For works that require hazardous and flammable products, storage shall be provided on site. The storage area shall be properly stored in secure areas located away from emergency exits, amenities, neighbouring properties & stormwater pits.

Storage and handling of materials shall be in accordance with Material Safety Data Sheets, the Occupational Health & Safety Act 2011 and the Occupational Health and Safety Regulations 2011.

Procedures will be implemented to control chemical storage and clean up and any spills if they were to occur.

4.10 Safety Inspections

An OH&S meeting will be held on a regular basis on site. This meeting will be conducted as per head contractor's OHS procedures.

An OH&S information board will be erected and a copy of the OH&S policy will be prominently displayed on the board. Safety inspections will also be displayed.

Preliminary

Sub-contractors will be required to submit an OH&S Plan / SWMS to the Contractor for review prior to commencement as per Buildcorp's policy & procedures. The sub-contractor is to incorporate any feedback from the Contractor and Superintendent into the OH&S Plan.

4.11 First Aid Facilities

First aid facilities are to be provided and maintained as per OH&S legislative requirements. The Contractor and all sub-contractors shall provide the name of a designated First Aid Officer to the Superintendent. There must always be at least one qualified first aider on site whenever any works are taking place.

4.12 Approved Plans to be on Site

A copy of the approved and certified plans, specifications and documents incorporating conditions of approval and certification shall be kept on site at all times.

4.13 Public Domain

To reduce pedestrian flow on Rose Bay Ave it is proposed that the pedestrian access along the East boundary will be closed with the alternate footpath on the East side being utilised. Refer to the construction traffic management plan for further details. All other footpaths and bicycle paths adjacent to the site will be kept unobstructed from tripping hazards from hoarding or fences.

Any works required within the public domain will need to receive authority approval as required.

All services extending over footpaths will be covered and fitted with a ramp to facilitate safe pedestrian access including access for persons with disabilities.

The public shall be protected from all construction activities including vehicle loading and off-loading within the public domain.

4.14 Site Appearance

Materials stored on site shall be adequately secured, organised and stacked to prevent unnecessary and unsightly disposal of materials around the site and public areas.

Trucks leaving the site shall be cleaned to ensure soil, mud and other site debris is prevented from spilling onto adjoining roads and footpaths.

All loads shall be covered to prevent the accidental spilling of materials on roadways.

4.15 Site Personnel Behaviour

The head contractor will ensure that site personnel will conduct themselves accordingly in the school & neighbouring environment. During the site induction site personnel will be inducted to these protocols. The protocol requirements (tbc) will include working with children policy, use of acceptable language, appropriate clothing, not entering the school grounds without approval, reporting of any incidents and compliance of any required documentation.

Preliminary

4.16 Environmental Controls – sediment controls, tree protection & dust control

Sediment and Erosional Controls: Refer to Appendix B for the sediment control plans. All sediment controls will be installed prior to works commencing. Maintenance of these controls will occur throughout the project duration.

These controls include the installation of silt control fabric at the low points of the site, at stormwater pit lids. In addition, a settlement pond will be added where ground water can accumulate and then be treaded according to authority requirements.

As most of the works occur in a sand substrate and once bulk earthworks are complete the low point of the site will be the aquatic centre pools (4lm below footpath level). As such it is not anticipated that there would be a water overland flow issue. However, the above measures will be put in place.

The Geotech has confirmed in their report that it is not expected to encounter the water table during the excavation works.

Tree protection: Refer to Appendix C for the tree protection (exclusion zones) plan for which trees will be maintained and protected throughout the project duration. It also indicates trees to be removed as part of the works. This plan has been extracted from the arborist report.

Dust Control: Where appropriate adequate dust control measures will be put in place to control wind driven dust. This will include covering stockpiled materials, keeping exposed material damp and covering loads when they leave / arrive on site.

4.17 Site Access

Due to the topography, number of buildings, design and size of the site construction access will vary during the construction cycle. This is further detailed in the Construction Traffic Management Plan in Appendix D.

4.18 Existing services infrastructure

Existing authority services infrastructure surrounding the site will be surveyed for position and depth. This will allow confirmation of their location to avoid accidental disruptions to the neighbouring properties and limit the risk of exposure to live services.

A dial before you dig report has been already been completed and will be updated prior to commencement of construction.

Similar this will be undertaken within the site school grounds to ensure capping and removal of services does not affect other operational parts of the School.

Preliminary

4.19 Demolition

Regular consultation will be employed during the demolition works to notify the School and their neighbours / stakeholders of any noisy and/or otherwise disruptive works which will likely impact operations or amenity.

To minimise any disruptions, it is anticipated that these works will be completed over the school holiday period.

The demolition of the existing War Memorial Hall and Mansfield buildings will be carried out by a specialist demolition subcontractor using a combination of machinery selected to suit the site conditions. The works will remove any hazardous materials (as noted in the report) as per authority guidelines.

The demolition contractor will identify existing materials to be recycled or separated eg, bricks, timber, and similar materials suitable for re-use. These materials will be removed from the site accordingly. Refer to the Waste Management Plan attached.

Access to this area, as noted below, will be via Rose Bay Ave / Gate Two at the point where the existing buildings are approximately level with Rose Bay Rd. The duration to undertake the demolition works is anticipated to be approximately 6 weeks. It is anticipated that there would be up to 10-15 truck movements per day.

All relevant signage, segregation fencing, scaffolding and dust control measures will be put in place.

4.20 Shoring & Excavation

Shoring will be required to stabilise the existing sand to the north of the Perkins Building to allow construction of the Centenary Building (which is approximately 18m above the level of Hordern Oval). Access for these works will be via the same entrance point for the demolition works, via Rose Bay Ave / Gate Two - at the point where the existing buildings are approximately level with Rose Bay Rd. To construct the shoring works it is anticipated that approximately 10 trucks are required each day. The shoring works will have a duration of approximately 20 weeks for the three buildings.

Bulk excavation for works will be completed using large excavators and excess spoil transported off site. Access for most of the bulk excavation will be via Rose Bay Ave / Gate three and one. In total approximately 86,000m3 spoil is currently estimated to be removed off site. The duration to undertake these works will be approximately 28 weeks. This will result in a truck movement of a, maximum of approximately 30 truck and dog (trailer) per day. Access around the site is well serviced to allow the use of truck and dog trailers. This will assist in reducing the number of truck movements for the earthworks excavation by nearly half. It is anticipated that the earthwork truck movements could be timed to work around the school drop off / pick up times. First movement off site could be undertaken prior to the 8.00am to 9.30am school zone with minimal truck movements arriving during the morning

Preliminary

school zones. Minimal spoil material movements during the 2.30- 4.00pm school zone would exist due to most return loads being completed prior to 2.30pm. Non-school days spoil removal does not need to be restricted in hours of operation. The above allows for two to three return loads off site each day that spoil trucks are running.

Subject to work activity requirements spoil removal off site will be maximised during school holidays where possible.

To help reduce the number of excavation trucks per day it is envisaged that the bulk removal of the excavation material for the three buildings will be undertaken at different time frames to the other buildings. This results in the earthworks being spread over a 28-week period which is a better outcome for the local community and transport network.

- Oval clearance / spoil separation top layer.
- Excavation of Carpark 14,000m3 tbc.
- Creation of piling platform for Centenary Building.
- Excavation of Centenary Building (after piled shoring complete) 27,000m3 tbc
- Aquatic & Fitness Centre approximately 45,000m3

Note some material will be stockpiled on the oval not being developed. This will be used where appropriate to reinstate the oval.

At the time of writing this report it was envisaged that the spoil being removed off site would generally be transported to the outer regions of Sydney. Due to most of the spoil being sand of ENM / VENM nature, opportunities are being tested for possible acceptable receivers of this material. This may allow to minimise traffic movements through Sydney and allow recycling of the spoil material.

4.21 Foundations

Piling, capping beams, and structural footings will be engineered and constructed in such a way as to mitigate the risk of noise and vibration wherever possible. During these works it is anticipated that there would be approximately 10 deliveries per day. This would include removal of some spoil, concrete trucks, and reinforcement supply. The works for the three buildings will be staggered with the overall duration taking approximately 20 weeks in total.

4.22 Structure

During the construction of the structure deliveries of materials will consist mainly of formwork, reinforcement and concrete for the Carpark, ARC and Centenary Building. The general movement of deliveries would be in the range of 10 -15 deliveries (including miscellaneous deliveries). During pouring of larger areas, e.g. large floor area, may result in 20 – 40 concrete trucks. The structure works for the project would have duration of approximately 50 weeks for the three buildings which again will be staggered.

Preliminary

4.23 Façade

The façade system(s) are likely to combine a mixture of structural steel framing, cladding, curtain wall, glazing, and precast elements. Deliveries for these works would result in approximately 2-5 delivery movements per day, much of which would be smaller trucks and utes. Precast elements to Building A and C will result in semitrailer deliveries of approximately 3-4 per day. The duration of these works will be for approximately 16 weeks.

4.24 Internal Finishes

The internal finishes and fitout will commence once the façade is installed and the buildings are directly water-tight. For the AFC and Centenary Building most of the fitout will be carried out from the adjacent Work Zones on Rose Bay Avenue straight into the relevant floor levels. Vertical movement of men & materials will also occur for Centenary Building with a man materials hoist located on the oval and servicing each floor of the building. This will result in deliveries of approximately 20-30 per day, predominantly smaller trucks and utes. The duration of these works will be for approximately 20 weeks.

4.25 Connection of Services

The services engineers are yet to determine specific locations for mains supply connections (water, gas, electricity, sewer, etc.) As part of this process, the relevant Authorities will identify the need to upgrade/amplify the existing services (if required) to accommodate the development. The initial investigations show that the site is surrounded by adequate authority services. Based on this preliminary feedback there will be little disruptions to the public domain for connection of new incoming services to the development.

5.0 MATERIALS HANDLING

Materials handling will involve the movement of material around the site to construct the building. The planning of this work upfront will allow the efficient construction of the building including safety, minimise double handling of materials and accelerate construction.

It is anticipated the main materials handling equipment will include:

- Forklift to unload and relocate materials within the site compound.
- Cranes, both mobile cranes and tower cranes, to lift materials to relevant floor areas and install structure elements such as formwork, reinforcement, precast concrete and structural steel.
- Concrete pumps for pouring the structure.
- Man & materials hoist to relevant floor levels of Centenary Building.

Appendix E shows the planned locations of the above equipment and the likely effects on neighbouring properties.

Preliminary

Off-site prefabrication methods will be utilised to minimise noise and disruption to School operations.

Centenary Building materials handling will be undertaken from both the Work Zone next to Gate Two and from within Hordern Oval site compound. A tower crane and concrete boom will be supplied for this building. Any overhead unloading of materials by crane lifting from the Work Zone will require the installation of a class B Hoarding System. There may be a need on some of the larger concrete pours to establish concrete pump and trucks on Rose Bay Ave for this building where possible. As the floors are constructed, they will be preloaded with bulk fitout materials such as gyprock sheets & wall framework. This will reduce smaller deliveries latter in the project.

For the carpark facility materials handling will be undertaken within the site compound. There will be no requirement to setup cranes or concrete pumps on Rose Bay Ave.

The Aquatic & Fitness Centre materials handling will be undertaken from both the Work Zone and within the Hordern Oval site compound. A mobile crane or tower crane will be required to service this building. Any overhead unloading of materials by crane lifting from the Work Zone will require the installation of a Class B Hoarding System. Where possible, as the floors are constructed, they will be preloaded with bulk fitout materials such as gyprock sheets, pool tiles & wall framework. This will reduce smaller deliveries latter in the project. Concrete pumping will take place via combination from both the South (Hordern Oval) and North end of the site. There may be a need on some of the larger concrete pours to establish concrete pump and trucks on Rose Bay Ave for this building.

Preliminary

6.0 CONSTRUCTION TRAFFIC MANAGEMENT PLAN

A detailed construction traffic management plan is included in Appendix E.

6.1 Estimate of construction vehicles

It is estimated that the construction activities will generate construction vehicle movements peaking at 30-40 deliveries per day (i.e. 3-4 vehicles per hour). This includes combination of small ute type deliveries too concrete deliveries and truck dog removing spoil. Delivery shall be programmed wherever possible to avoid morning and afternoon peak periods, especially school drop-off and pick-up times.

To minimise impact on local traffic routes the following will be encouraged with incoming and outgoing deliveries:

- Stagger deliveries for the site through the day. Sub-contractors to log in deliveries with the project team to ensure that there is no back log of deliveries arriving at a similar time.
- Where possible have lay areas within the site for trucks to stand and wait to be unloaded.
- Investigation into lay areas outside the site boundaries but not immediate within the surrounding streets. Trucks can then be radioed to the site as required / available space is free.

- Traffic control measures to be placed at entry points to control traffic.
- Sequences to the construction works so that trade activates that rely on several deliveries to do their work do not happen on the same day. For example, a large concrete pour and removal of spoil from site will not be programmed for the same day.
- Prefabrication of products where possible (will reduce No workers on site & No of deliveries eg precast elements).
- Refer to attached TCMP - public transport & site personnel parking.
- Take different routes to and from the site.

6.2 Construction vehicles site access

Due to the topography, number of buildings, design and size of the site construction access will vary during the construction cycle. This is further detailed under the Traffic Management section of this report.

Gate One Site Access: Initially the site access will use the current oval maintenance driveway. This will allow the initial site establishment with delivery of site amenities and machinery. Earthworks will then commence within the oval building footprint. This will allow the site access to Gate Three to come on line (as the existing ground level is 2lm higher than the road level) and the creation of an internal temporary road that will feed along the oval up to Centenary Building.

Gate Two Site Access: This site access is located further up Rose Bay Ave and will be allocated for:

- The demolition of the two existing buildings –War Memorial & Mansfield Buildings. As these two buildings are located on the hill a separate site access is required for these works.
- The shoring works around the existing Perkins Building & Rose Bay Ave.
- Unloading and cranage of the façade system will also be undertaken from the proposed Work Zone next to Gate Two. This will be via a tower crane located within the site. (A Work Zone will need to be applied for to allow deliveries to be unloaded in this area).
- Once the Building A structure is completed this site access gate will also be utilised for the delivery of fitout works from the allocated work zone on Rose Bay Ave via the proposed Work Zone in this area.
- In allowing the fitout works and façade to be feed from the Work Zone on Rose Bay Ave, the access road that feeds across the oval to Centenary Building can be decommissioned, which allows the oval reinstatement works to commence.

Preliminary

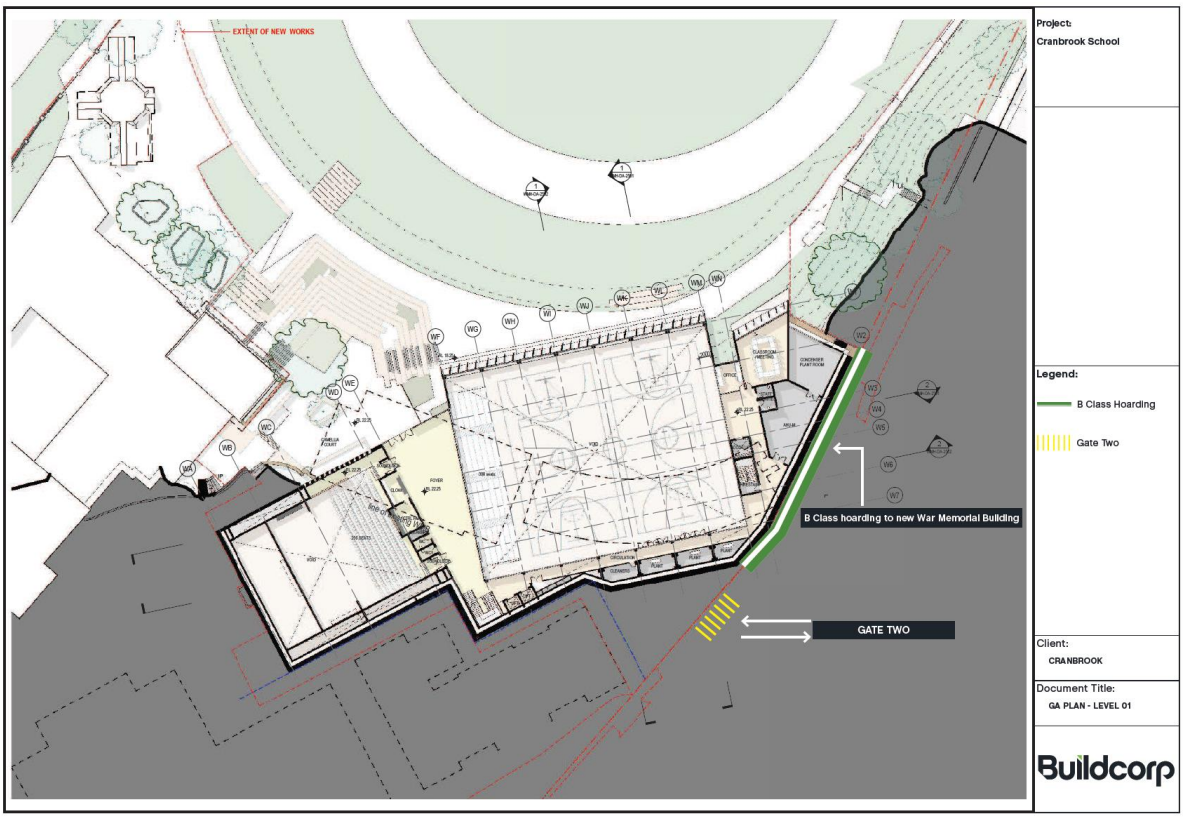


Figure 5 - Proposed Work Zone and site access Gate Two

Gate Three Site Access: The commissioning of Gate Three will allow for the Gate One to be an entry for the site and Gate Three to be an exit for the earthworks and foundation stage of the works. Gate Three will allow for the following work activities to be utilised via Gate Three:

- Removal of majority of the bulk excavation material from the three buildings.
- Foundations & structure
- Shoring works
- Structure of Carpark and AFC

Gate Four Site Access: Gate Four will become operational once the new carpark structure is completed. Due to the topography a temporary ramp will need to be installed down onto the oval and partly on top of the new Carpark structure (which will be back propped). This will

Preliminary

then feed the Centenary & AFC Buildings and the importing of soil and grass for the new oval.

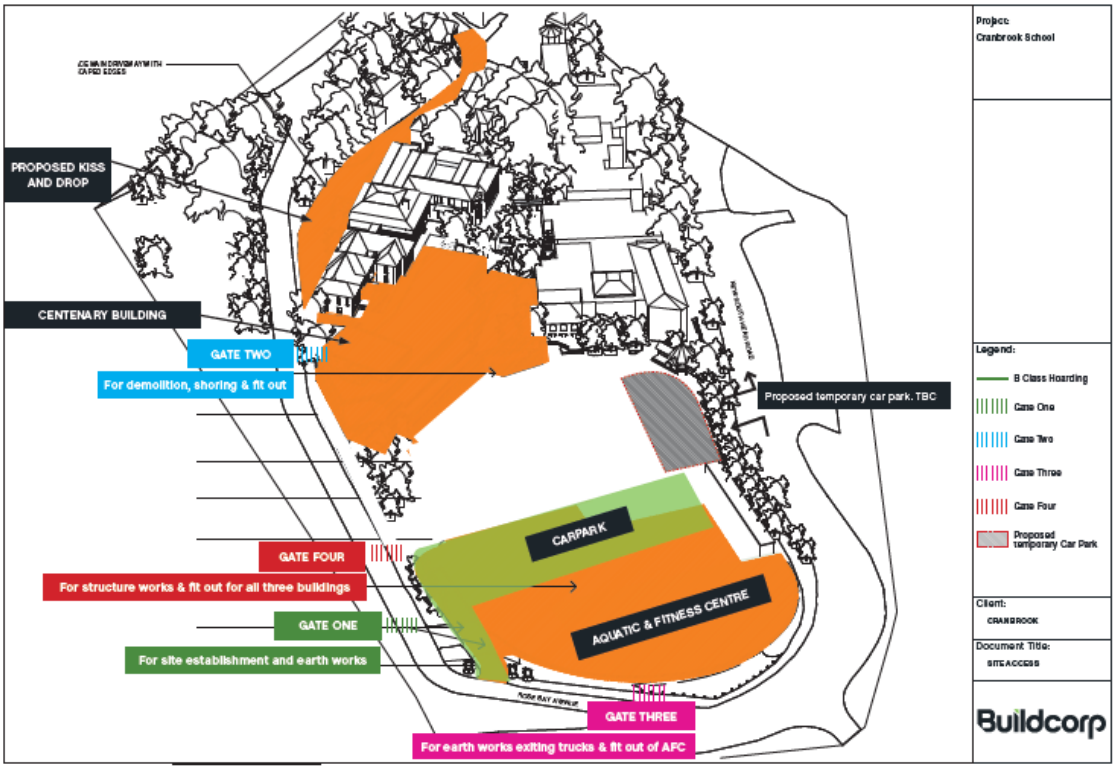


Figure 6 - Gate entrance 1 to 4

In summary the materials handling for each new building will be via the following site access gates.

Centenary Building:

- Creation of Gate Two access and Work Zone at high level Rose Bay Ave as noted in figure Appendix D and figure 7
- Demolition of existing structures from high level Rose Bay Ave (Gate Two).
- Shoring System from high level Rose Bay Ave (Gate two).
- Bulk excavation & removal of soil from site via Gate Three entry & exit via Gate Three (across oval).
- Foundations via Gate One & Three (across oval).
- Structure combination of Gate Four & craning from Work zone next to gate Two.
- Façade craning from Work zone next to Gate Two.
- Fitout / finishes from work zone next to Gate Two.

New Carpark

- Shoring system via Gate One & Three.
- Bulk excavation entry via Gate One and exit via Gate Three.
- Structure via Gate One and Three.

Prelim

- Fitout of services via new carpark entrance.

Aquatic & Fitness Centre

- Shoring system via Gate One & Three.
- Bulk excavation entry via Gate One and exit via Gate Three.
- Structure via Gate Three and Four.
- Façade via Gate Three and Four (craned from Work Zone).
- Fitout and finishes via Gate Three and Four.

Site access for personnel will be separate to the school grounds (ie site personnel will not walk through the school grounds to access the site works).

6.3 Standing of vehicles during construction.

Delivery vehicles will stand in the following areas:

A. Work Zone located near Gate Two on Rose Bay Ave.
B. Work Zone located near Gate Three on Rose Bay Ave.
C. Within the site as noted in Figure 7

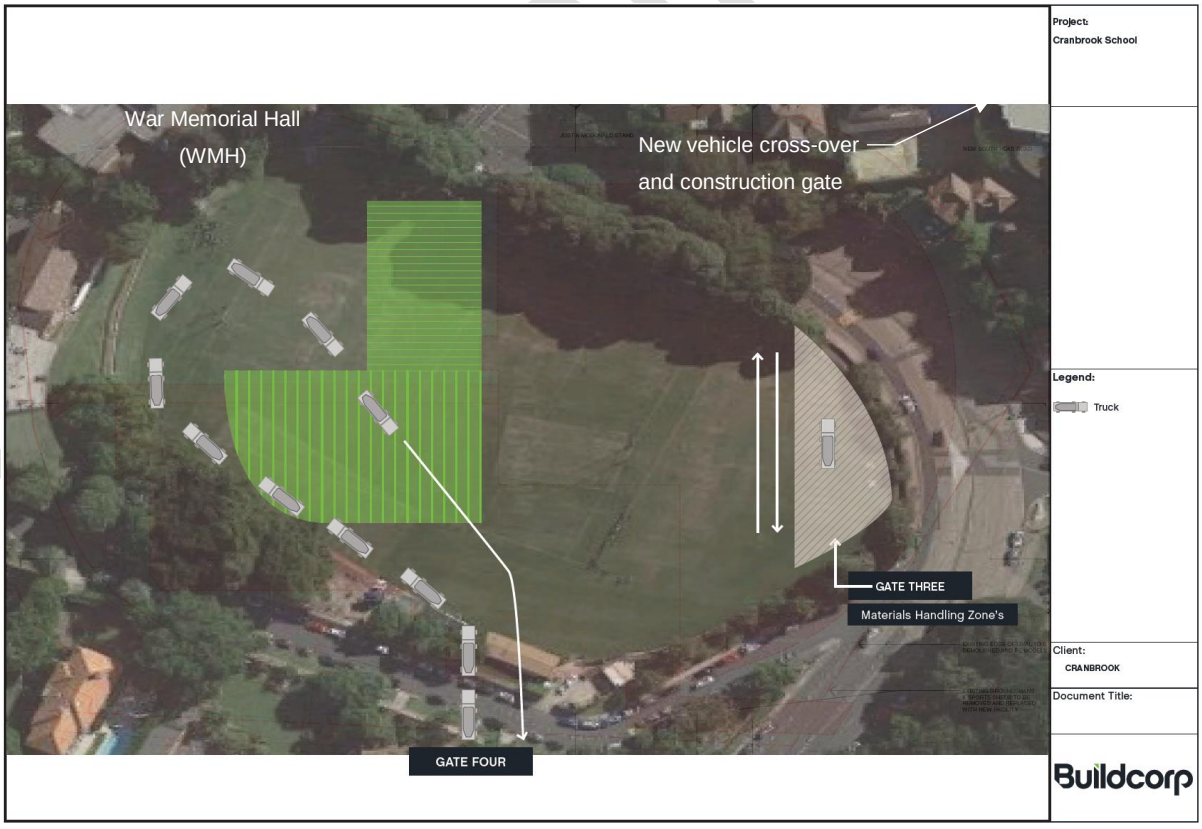


Figure 7 – Standing of delivery vehicles

6.4 Proposed road closures, temporary traffic routes and loss of pedestrian paths.

The following work activities may result in part or full road closures or footpaths. These will need to be confirmed as the design is finalised and await expert advice from the relevant trade contractors:

- Erection and dismantle of the tower crane.
- Concrete pours.
- Construction of temporary and permanent laybacks and footpaths.
- Infrastructure services connections to the site eg incoming high voltage.
- Erection and dismantle of hoardings.

Once any proposed closures are required relevant authority paperwork will be submitted, including traffic control plans. From this any required conditions will then be put in place.

6.5 Emergency Access

Access to the construction area by emergency vehicles would be available via the construction gates and work zones nominated.

6.6 Tower and mobile cranes

It is anticipated that there will be one tower crane on site for materials handling of the Centenary Building. For the carpark and Centenary Building, it is anticipated that mobile cranes or a tower crane will be used for materials handling.

It is anticipated the tower crane for both buildings will be erected and dismantled within the site compound. Further details will be provided on the location, number and size of vehicles involved in the process, proposed timing, traffic management controls and whether any partial road closures are required.

6.7 Standing of equipment on Council Land.

It is anticipated that there will be minimal need to stand plant on Council Property for most of the project duration. However, as the project develops and available space is reduced there may be a need to stand some plant within Council land. If this is the case the then the necessary approvals to do so will be procured from the local Council. Such examples include:

- Delivery of wide loads such as piling rigs.
- Installation of B class Hoardings.
- Concrete pours for Centenary Building will occur from Rose Bay Ave.
- Crane use.

7.0 WASTE MANAGEMENT

Refer to Appendix G for the detailed Waste Management Plan (WMP).

Preliminary

A comprehensive survey of the existing site shall be conducted to identify existing materials for reuse or recycling. This will include salvageable materials include sandstone, bricks, timber, and similar materials suitable for re-use.

Excavated materials shall be reused on the site wherever possible. Any surplus materials needing to be exported from the site will be sorted into separate soil classifications and managed according to EPA requirements. The hazardous material and contaminated ground survey has been undertaken. Any hazardous materials identified will be disposed of in accordance with statutory and EPA requirements. The Geotech report has identified approximately 5000m3 of GSW. It is proposed that any GSW found during excavation be relocated to a borrow pit in a location to be determined on site as per the EPA guidelines.

8.0 CONSTRUCTION NOISE MANAGEMENT

A Noise and Vibration Management Plan will be prepared by the school acoustic consultant and head contractor once the project's design has been sufficiently detailed.

This summary assessment has been carried-out based on assumptions i.e. the types of equipment which would typically be used on similar projects. These typical sources of noise may be effectively controlled via:

- Appropriate hoardings around the site and strategically locating noisy items of plant away from sensitive receivers
- Selection of quieter construction methods wherever possible and appropriate, particularly for piling works
- Selection of low vibration construction work methods wherever possible and appropriate
- Vibration monitoring and management controls for heritage structures
- Coordination with the School and their relevant stakeholders / neighbours to minimise disruption wherever possible.
- Noise monitoring as required.

9.0 MITIGATION MEASURES

The development site is predominantly an island, surrounded on three sides by existing roads. There is only one direct boundary neighbour adjacent the existing Cranbrook School on Victoria Rd (who are the greatest distance from the construction works and should not be impacted). The proposed development may affect the residential properties on the opposite side of Rose Bay Avenue and Victoria Rd (from New South Head Rd to Rose Bay Ave). New South Head Road provides adequate separation between the development site and sensitive receivers to the North.

In summary mitigation measures are as noted below

Concerns	**Mitigation Measure**

Preliminary

1. Noise works eg rock hammering or demolition	• Construction equipment may be fitted with noise mitigation equipment wherever possible or reasonable • Noisy work will be identified and communicated to relevant stakeholders and neighbours, giving them sufficient notice • Noisy equipment to be located further away from residential neighbours wherever possible.
2. Dust	• Appropriate hoardings to be provided around the site • Ensure construction vehicles have been appropriately cleaned before exiting the site • Ensure sufficient wetting-down is completed during demolition and excavation activities • Ensure stockpiles are sufficiently protected
3. Hazardous materials being encountered	• Hazardous materials survey conducted prior to works commencing on site • Appropriately licenced contractors engaged to remove any hazardous materials found • Appropriate signage and exclusion zones maintained during applicable works
4. Sediment run-off entering the storm water system or surrounding streets	• Follow prescribed sedimentation and erosion control measures as provided by the Civil Engineer • Conduct regular visual inspections of silt socks and all other sedimentation controls to ensure integrity of the systems is maintained at all times. • Provide dedicated wash-out facilities for use by relevant Subcontractors.
5. Unauthorised entry to the site (public, students, etc.)	• Appropriate hoardings will be provided which separate all construction activities from the public and/or the School • Provide project updates and tours for the staff & students of Cranbrook to minimise curiosity. • Signage
6. Vibration during excavation, piling and structural works	• Maximise use of bored piles rather than driven piles.

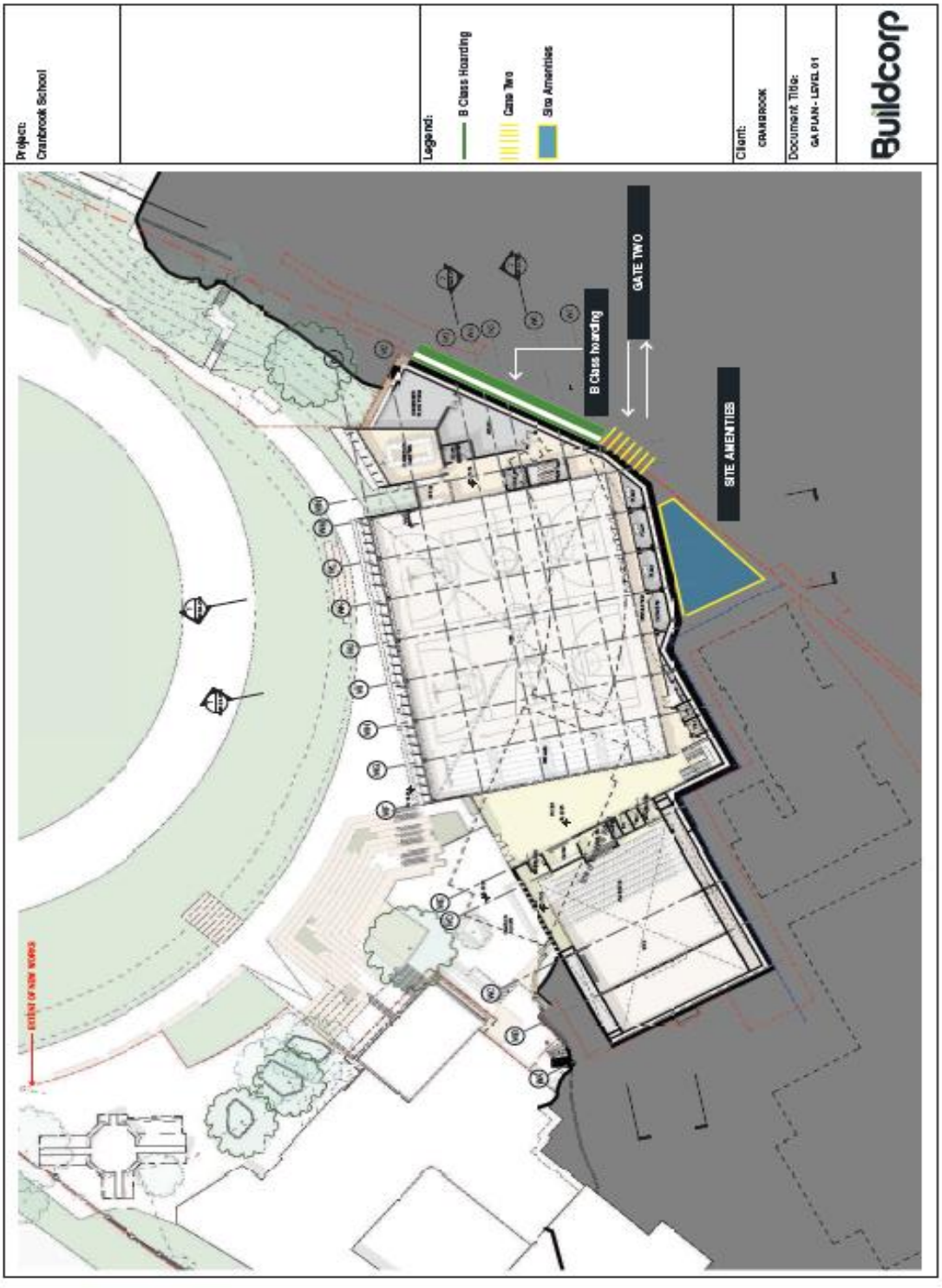
Preliminary

	• Saw cut rock where feasible to minimise rock breaking equipment. • Applicable works will be identified and communicated to relevant stakeholders and neighbours giving them sufficient notice • Vibration monitors may be provided near heritage buildings as an early warning alarm during adjacent piling & structural works
7. Construction vehicles, plant and equipment on public roads (arriving / leaving the site)	• Traffic controllers to manage construction vehicle movements to/from the site as required. • Safe public access routes to be pre-agreed and maintained. • Site plan and access diagrams provided to delivery drivers before reaching site, to minimise the time spent on public roadways surrounding the site. • Maximise site times to accelerate completion of spoil removal.
8. Site personnel behaviour both inside and external of the site (eg language, rubbish left on streets, interaction with neighbours)	• Site inductions will include site requirements. These will include no inappropriate language, no throwing rubbish on streets, parking of vehicles legally and wearing appropriate clothing etc. • Weekly tool box talks will reinforce requirements. • Daily check of surrounding streets. • No smoking in immediate proximity of school or site. • Working with children's check.

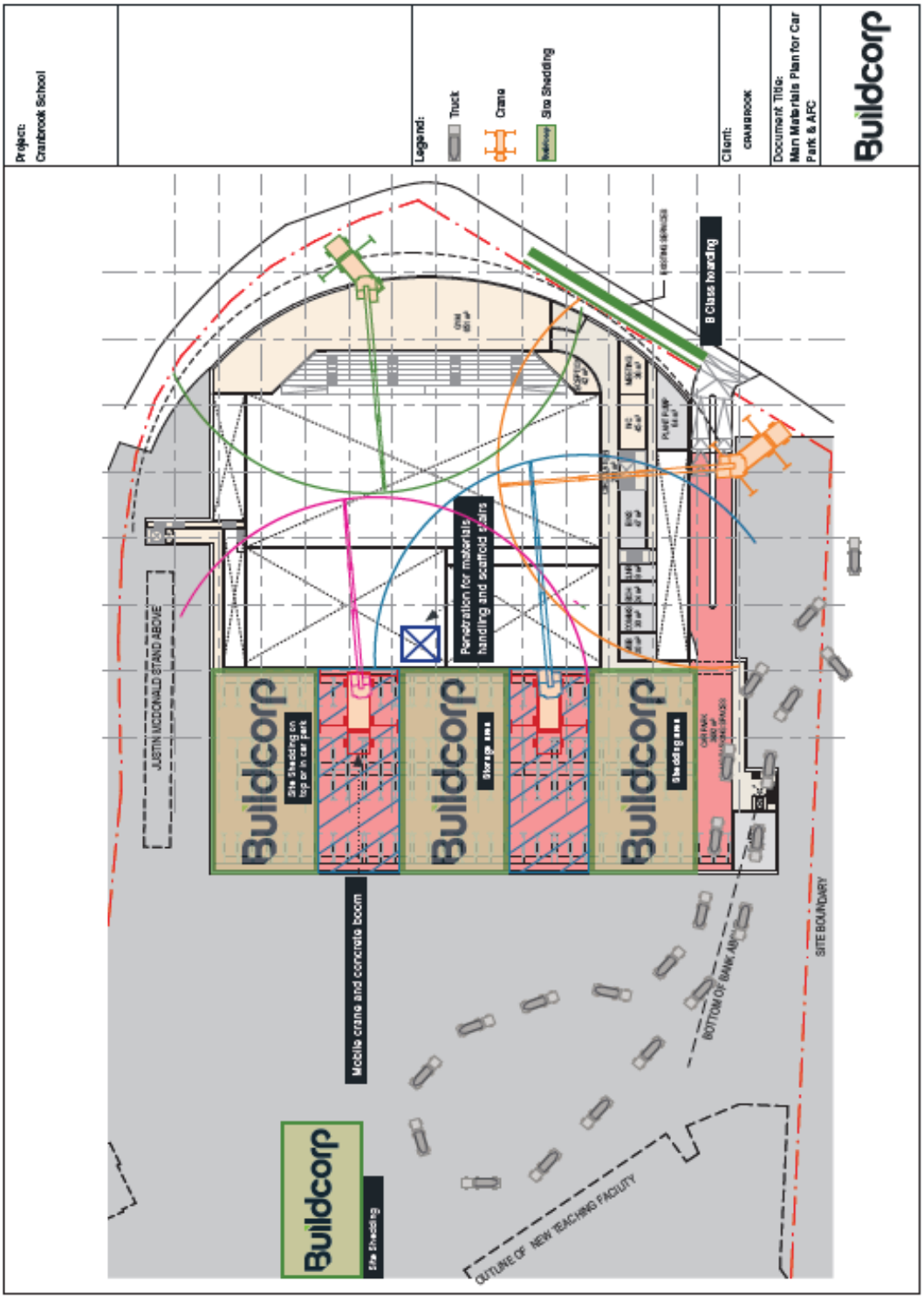
Preliminary

Appendix A – Site Establishment Plan

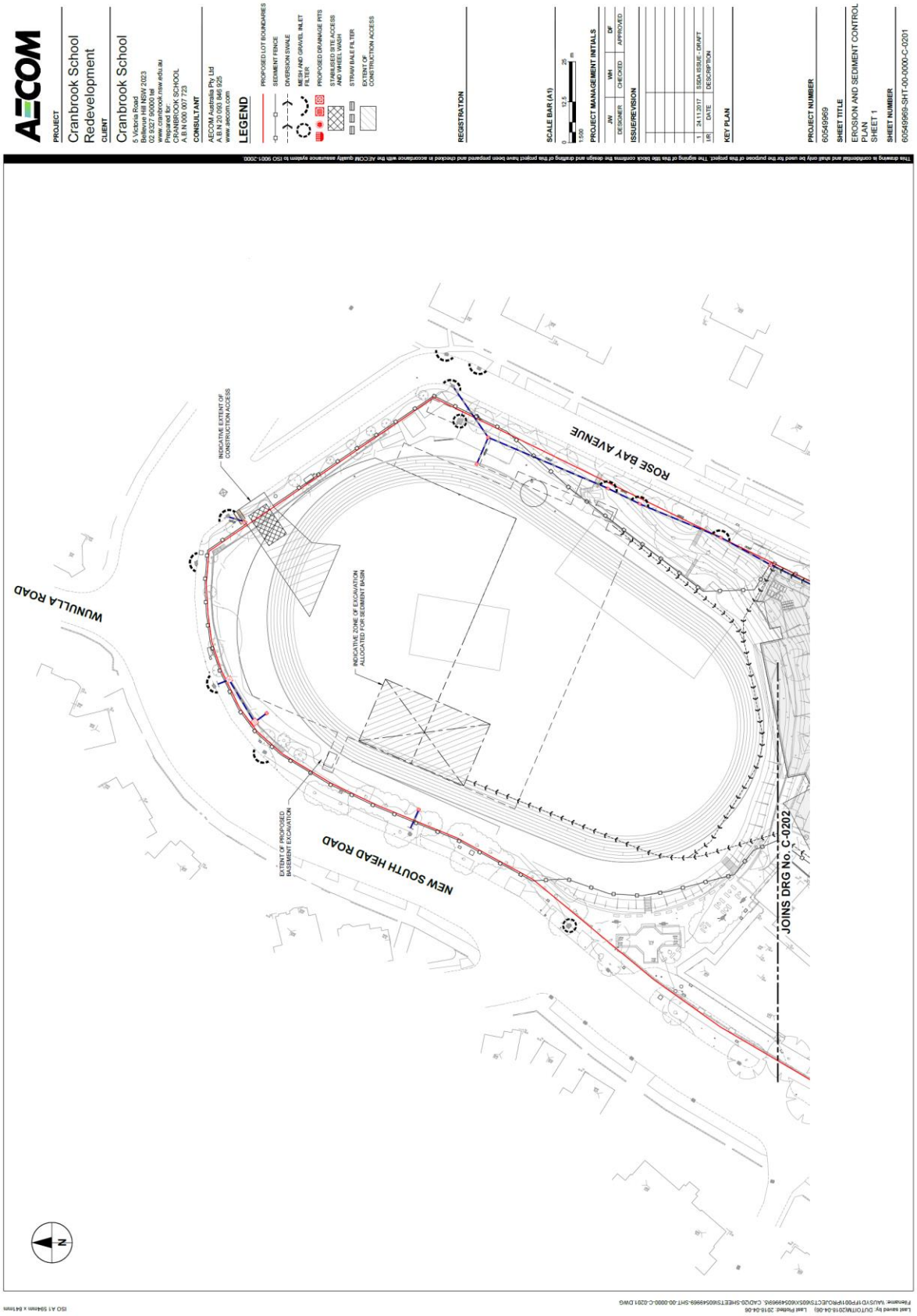
Site Establishment Plan for Centenary Building

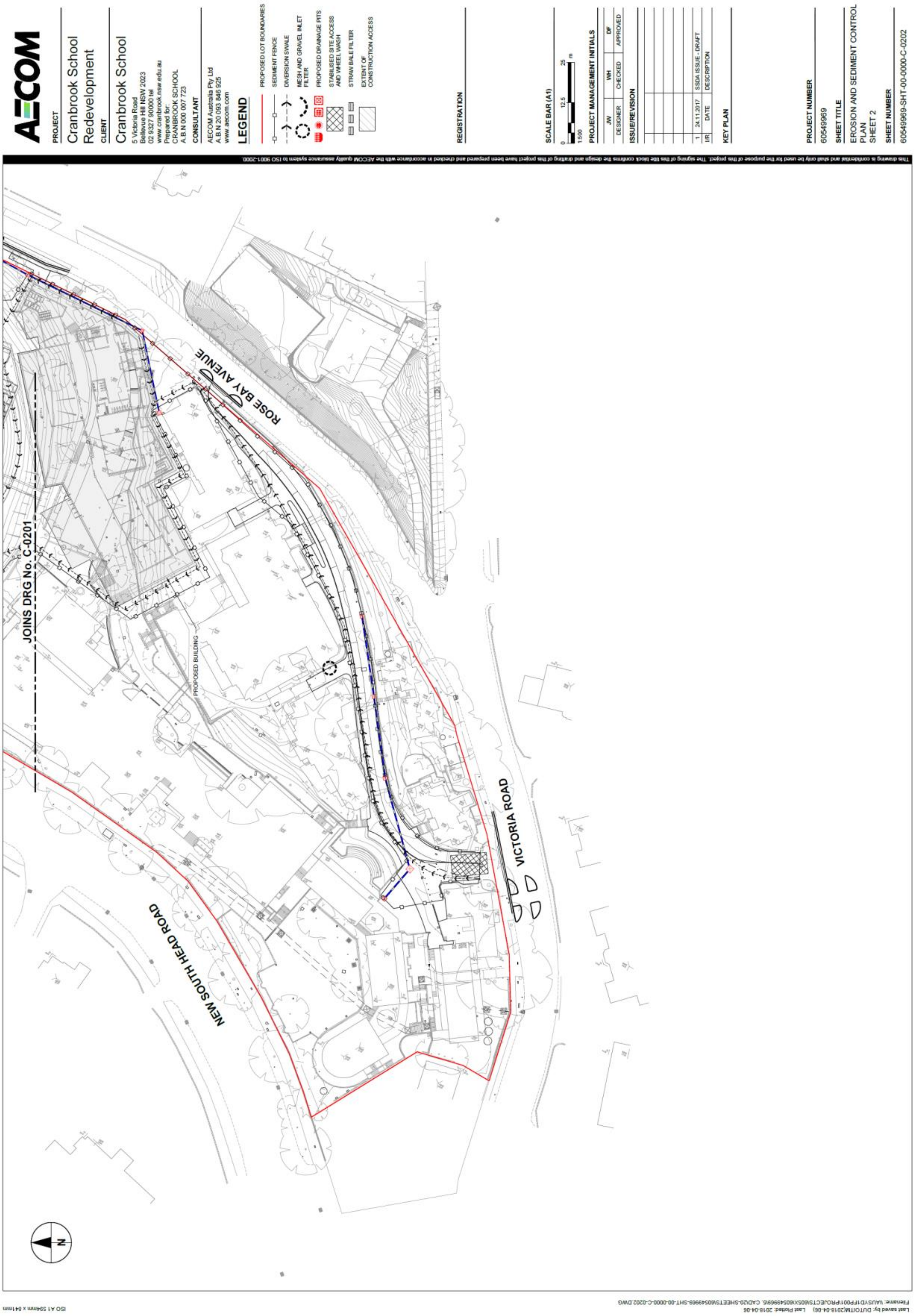


Site Establishment Plan for Carpark & Aquatic Fitness Centre


Project:
Cranbrook School
Legend:
Truck
Crane
Site Shedding
Client:
CRANBROOK
Document Title:
Man Materials Plan for Car Park & APC
Buildcorp
B Class hoarding
Penetration for materials handling and scaffold stairs
JUSTIN MCDONALD STAND ABOVE
Site Shedding on top of in car park
Storage area
Shedding area
Mobile crane and concrete boom
Site Shedding
OUTLINE OF NEW TEACHING FACILITY
BOTTOM OF BANK ABOVE
SITE BOUNDARY

Appendix B – Sediment Control Plans

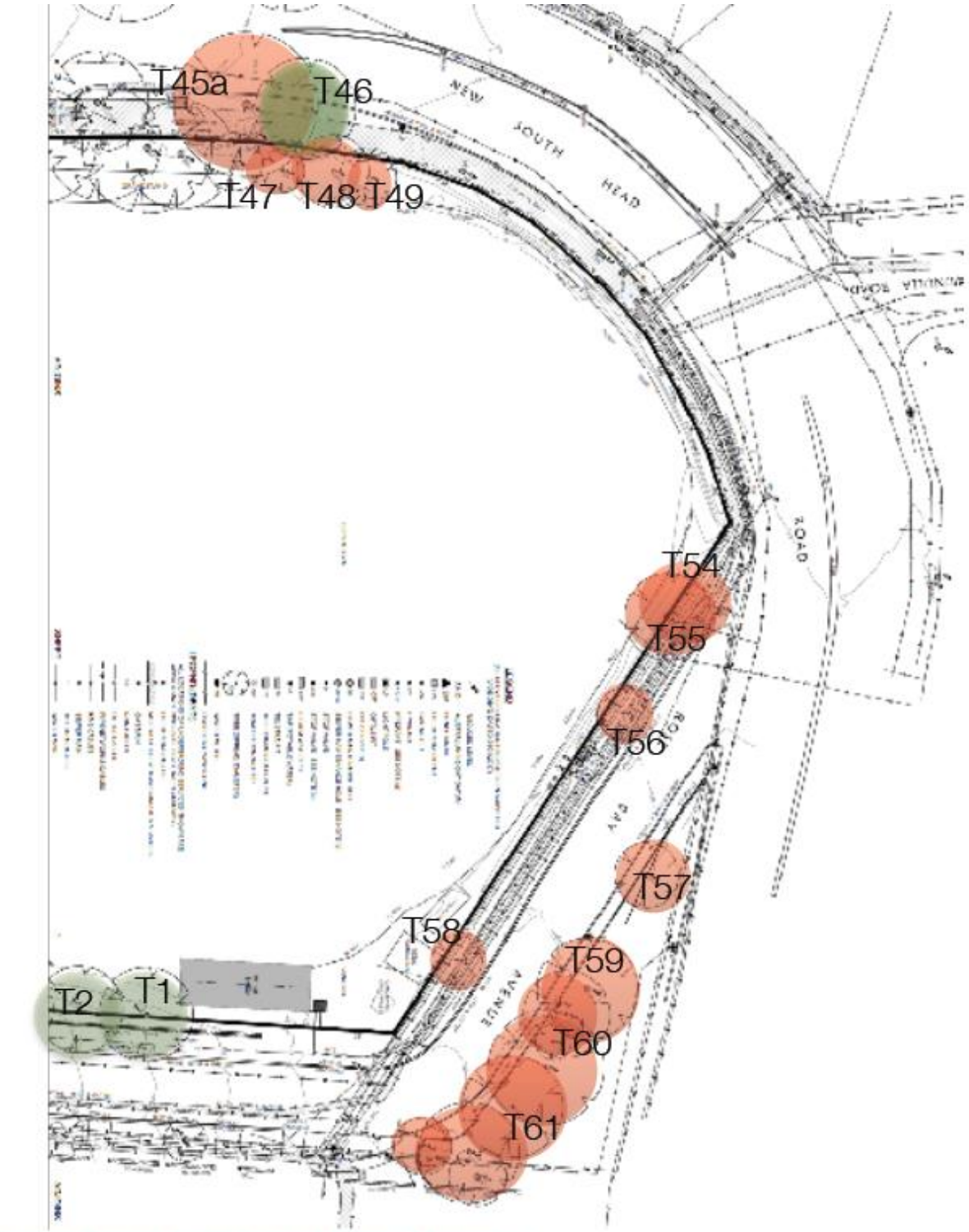



PROJECT
Cranbrook School Redevelopment
CLIENT
Cranbrook School
CONSULTANT
LEGEND
PROPOSED LOT BOUNDARIES
SEDIMENT FENCE
DIVERSION SWALE
MESH AND GRAVEL INLET FILTER
PROPOSED DRAINAGE PITS
STABILISED SITE ACCESS AND WHEEL WASH
STRAW BALE FILTER
EXTENT OF CONSTRUCTION ACCESS
REGISTRATION
SCALE BAR (A1)
PROJECT MANAGEMENT INITIALS
ISSUE/REVISION
KEY PLAN
PROJECT NUMBER
60549969
SHEET TITLE
EROSION AND SEDIMENT CONTROL PLAN
SHEET 2
SHEET NUMBER
60549969-SHT-00-0000-C-0202
ROSE BAY AVENUE
VICTORIA ROAD
NEW SOUTH HEAD ROAD
JOINS DRG No. C-0201
PROPOSED BUILDING

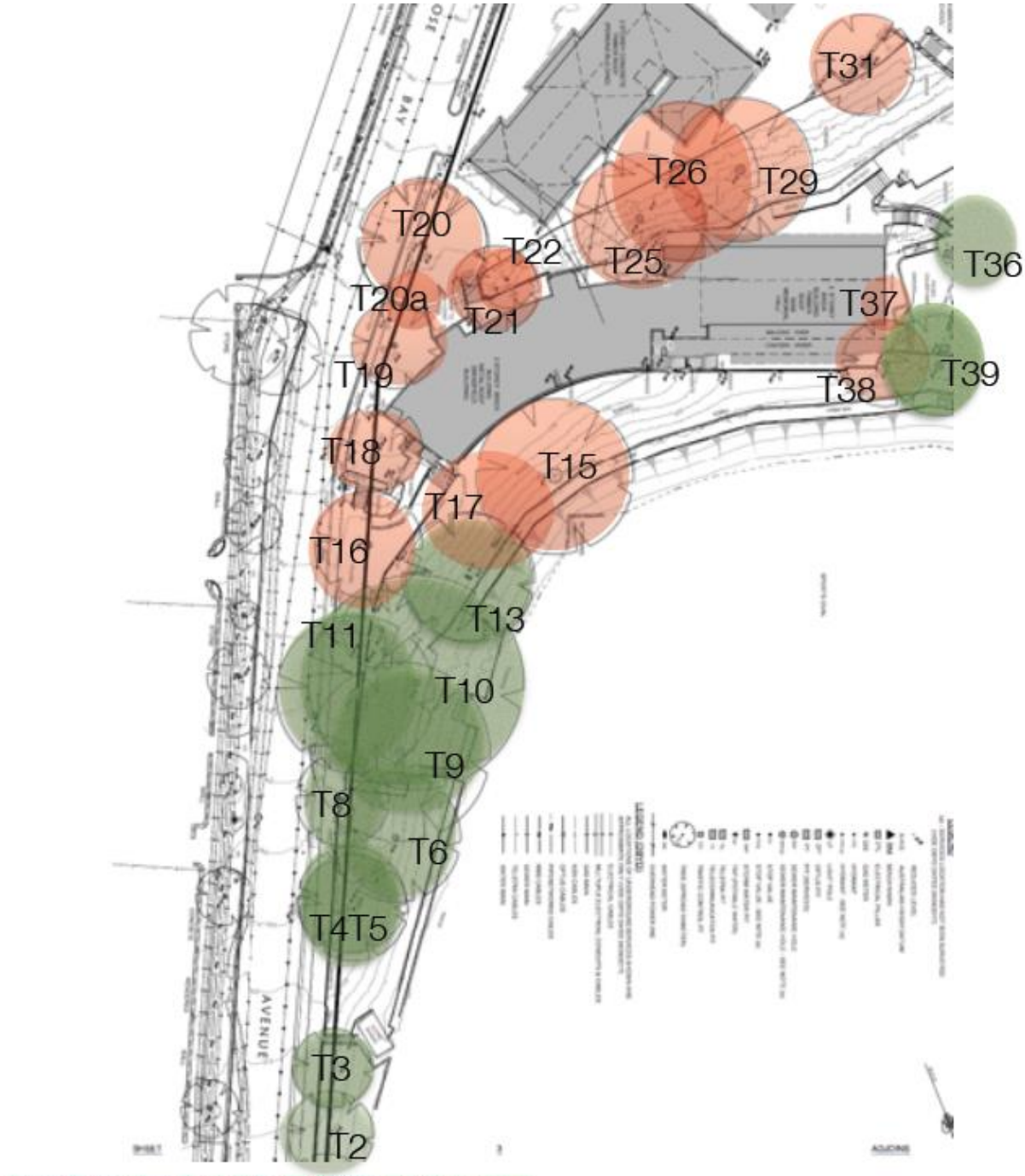
Appendix C – Tree Protection Plan

Red symbol = trees to be removed

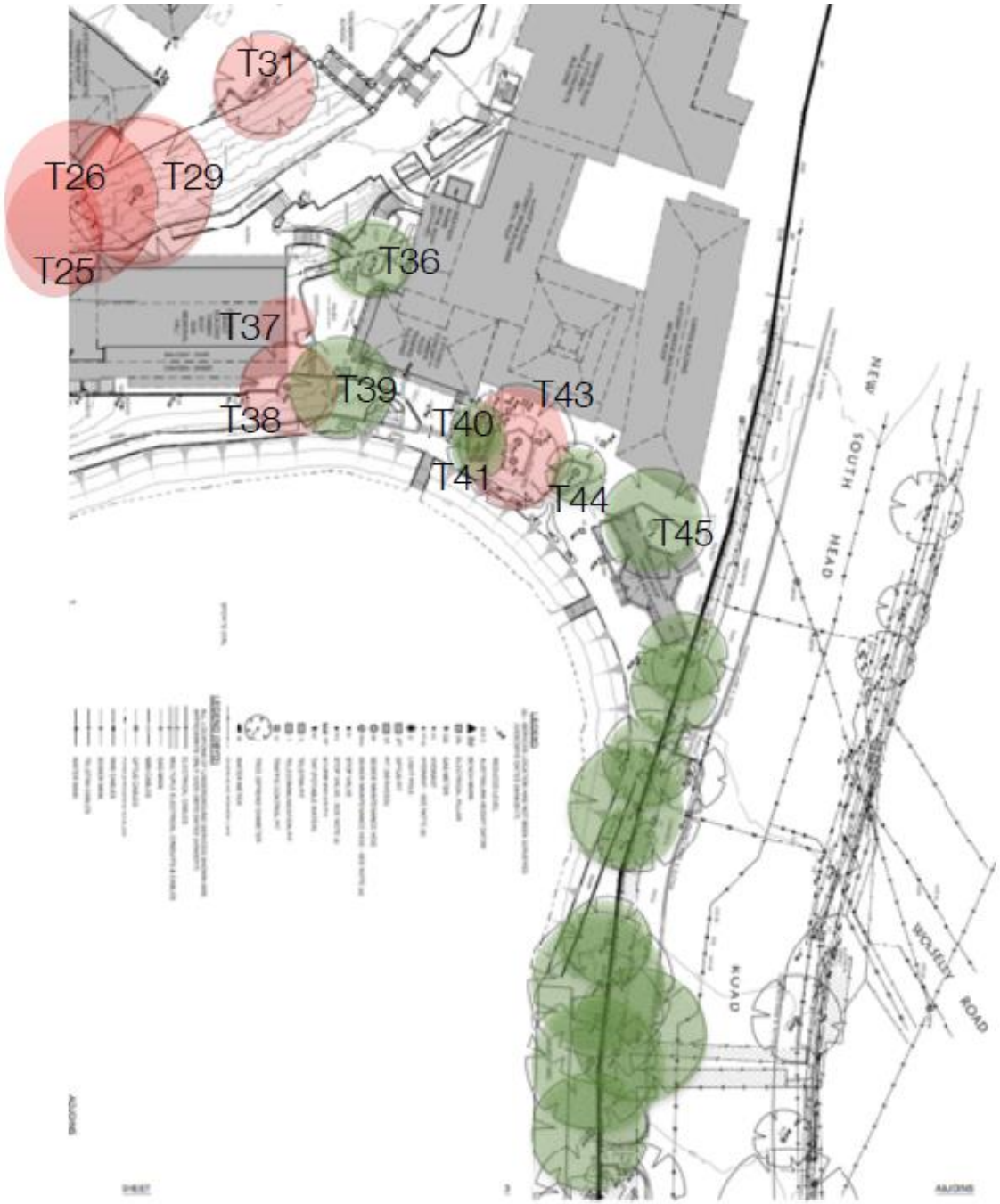
Green symbol = trees to be retained and protected



Botanics Tree Wise People Pty Ltd. Po Box 600, Potts Point 2011. Ph 0411193366

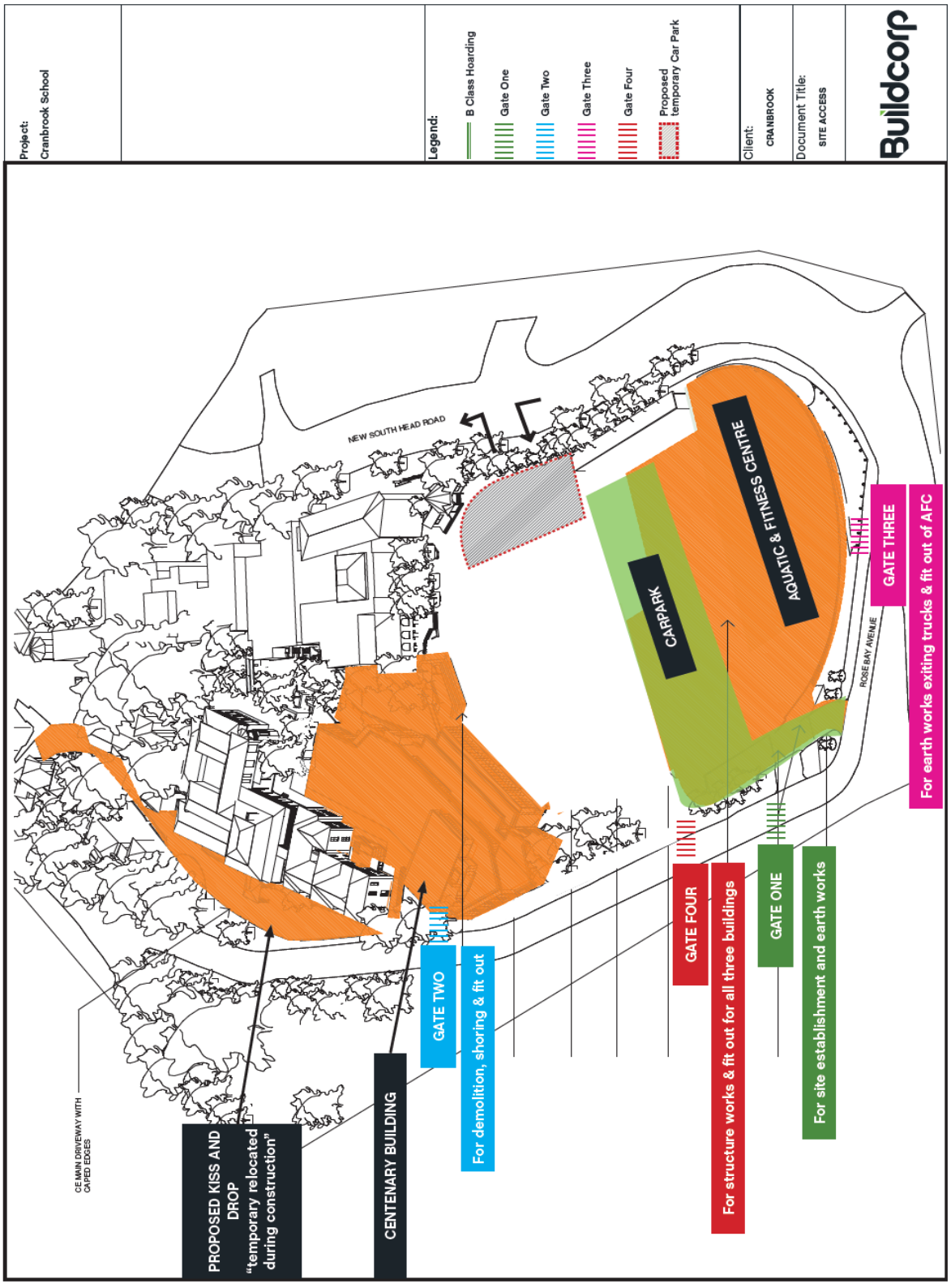


Botanics Tree Wise People Pty Ltd. Po Box 500, Potts Point 2011. Ph 0411193366

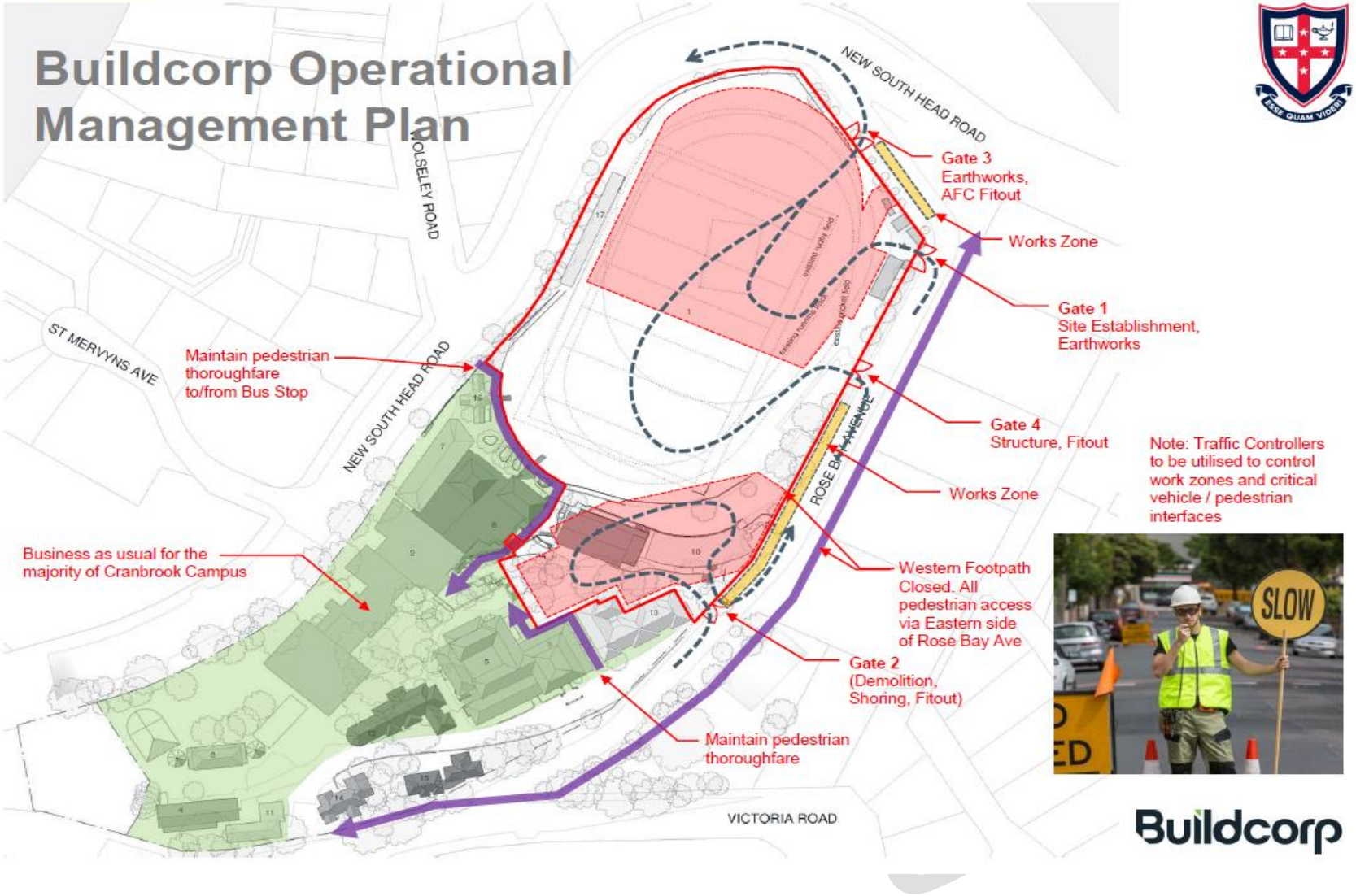


Botanics Tree Wise People Pty Ltd. Po Box 600, Potts Point 2011. Ph 0411193366

Appendix D – Site entrances



Buildcorp Operational Management Plan

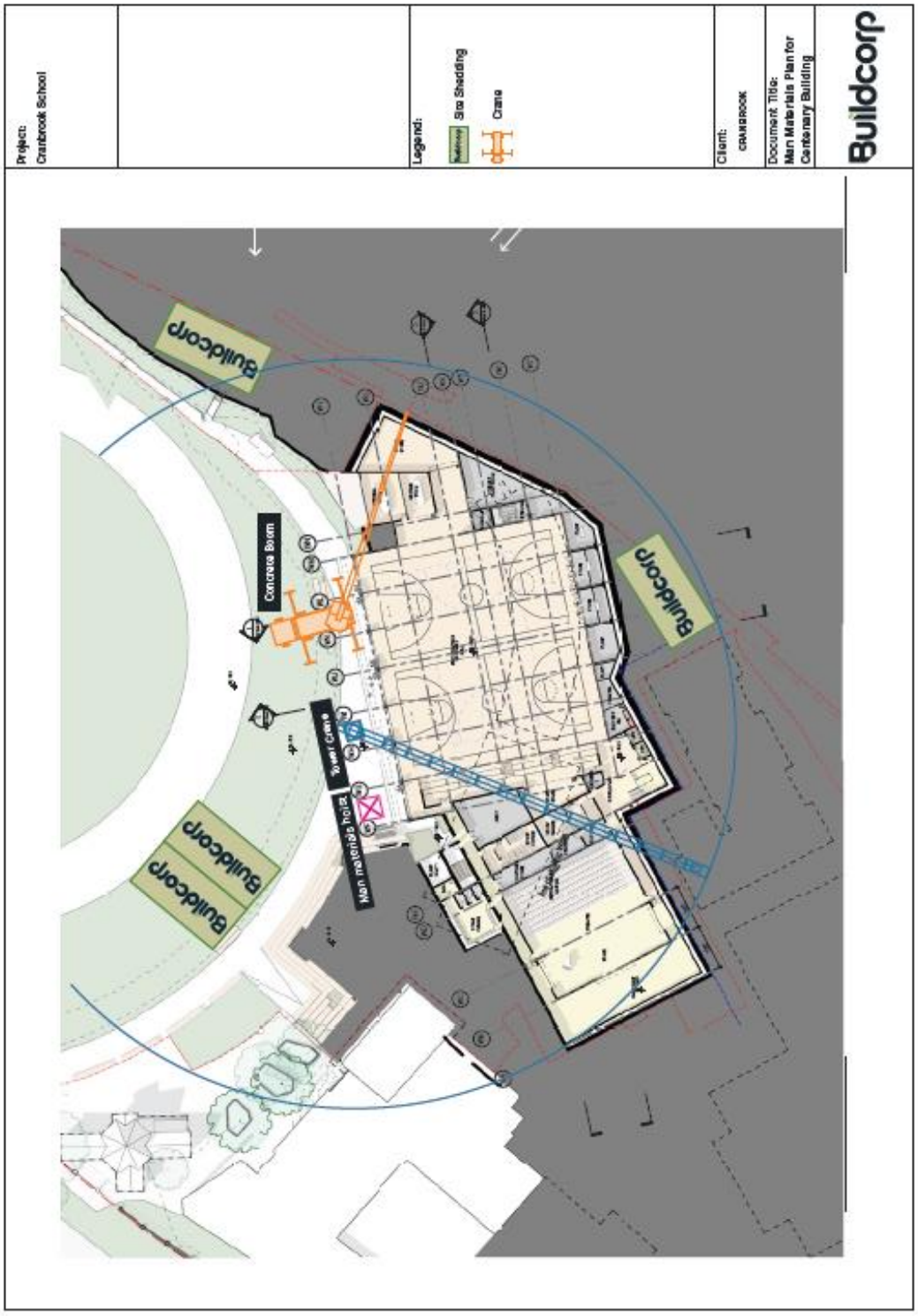


Note: Traffic Controllers to be utilised to control work zones and critical vehicle / pedestrian interfaces

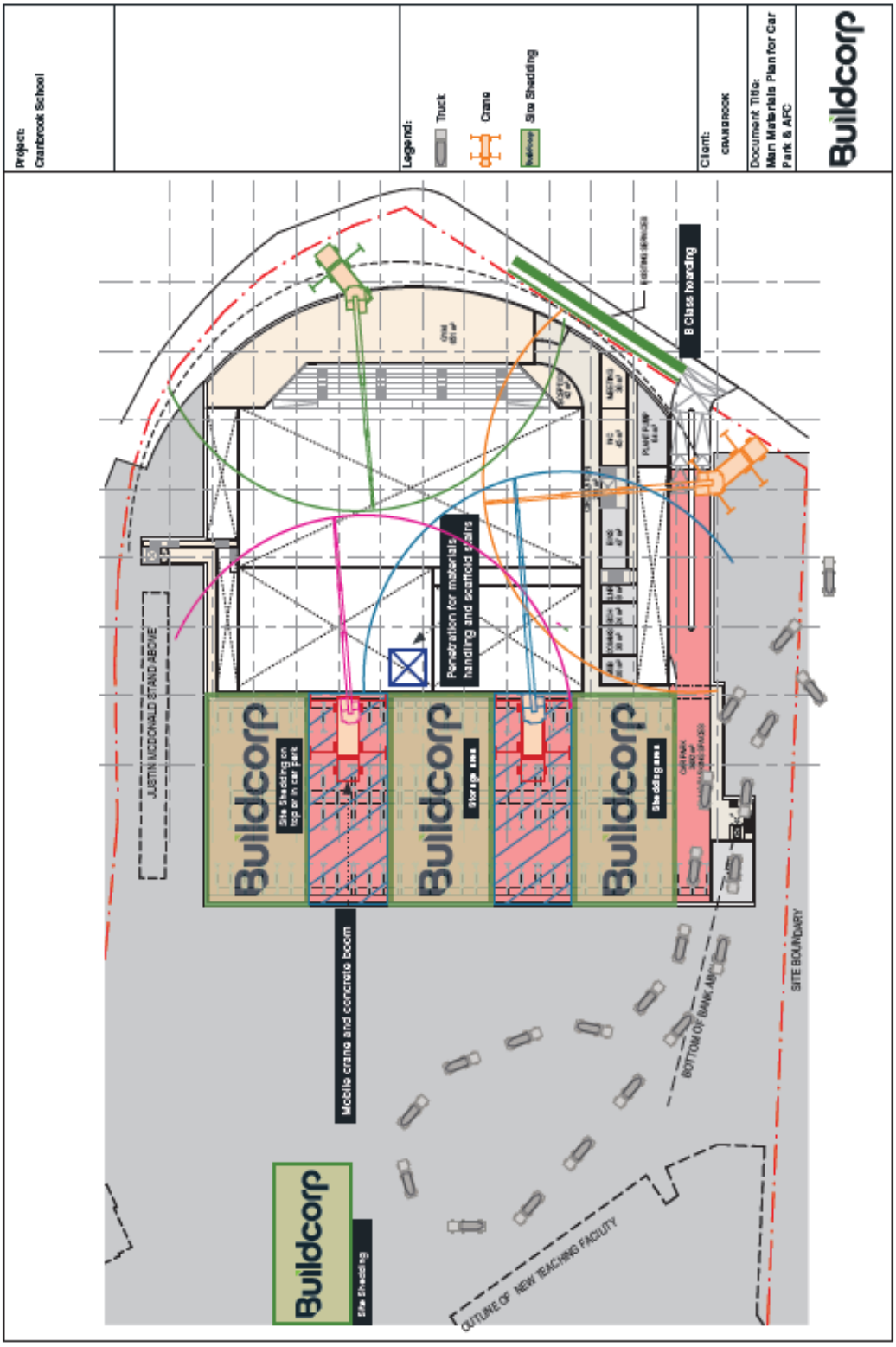
Buildcorp

Appendix E - Materials Handling Plan

Materials Handling Plan for Centenary Building



Materials Handling Plan for Carpark & Aquatic Fitness Centre


Project:
Cranbrook School
Legend:
Truck
Crane
Site Shedding
Client:
CRANBROOK
Document Title:
Main Materials Plan for Car Park & ARC
Buildcorp
B Class hoarding
Penetration for materials handling and scaffold stairs
JUSTIN MCDONALD STAND ABOVE
Buildcorp
Site Shedding on top of car park
Buildcorp
Storage area
Buildcorp
Shedding area
Mobile crane and concrete boom
Buildcorp
Site Shedding
OUTLINE OF NEW TEACHING FACILITY
BOTTOM OF BANK ABOVE
SITE BOUNDARY

Appendix F – Construction Traffic Management Plan

Refer Concept Construction Traffic Management Plan by PTC dated 16th February 2018.

Preliminary

Appendix G – Waste Management Plan

Level 4, 10 Mallett Street
Camperdown NSW 2150
Phone: 02 9565 0000

Waste Management Plan

Cranbrook Senior School

BN1043

5 Victoria Rd, Bellevue Hill

Preliminary

Approved by:

Project Manager	**Date**
David Stralow	1 March 2018

Record of revisions of HSE Waste Management Plan

Edition Revision	Date	Page	By	Revision Details
A	1 March 2018	First issue	DS	Preliminary Issue

Controlled Copies / Distribution List

No.	User	Position	Issue Date
01	SSDA Issue	PM	2 March 2018

Preliminary

Introduction

This Waste Management Plan outlines Buildcorp's strategy to minimise the generation of waste, maximise reuse and recycling and ensure waste is disposed of at a licensed EPA waste disposal facility.

The purpose of this plan is to:

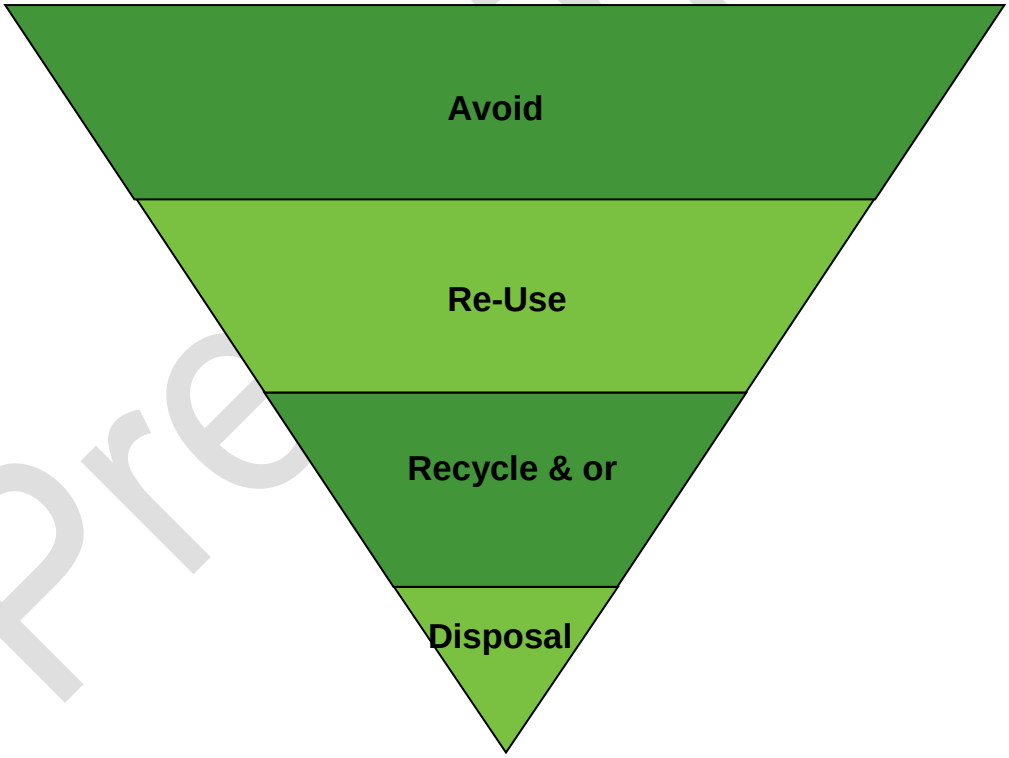
- Establish the specific procedures to ensure waste generated by project activities are minimised and waste is appropriately recycled.

- Provide a consistent and uniform approach that assures the required standards relating to waste are attained and maintained for the project works to achieve minimum recycling / reuse target of 80% of waste by weight minimising the amount of waste going to landfill.
- Establish waste management strategies for the construction stages from demolition, building construction through to commissioning.
- Establish provision for on-site monitoring of wastes generated with details of each material, disposal destinations (tracking) and receipts.
- Define the appropriate waste disposal measures to be undertaken for materials that pose an environmental risk such as soils, concrete, contaminated water, paints etc

Waste Management Hierarchy

Buildcorp have prioritised waste management by adopting a waste management hierarchy as follows:

1. **Avoiding Waste (**identify demolition and construction waste to minimise packaging and over ordering of materials)
2. **Re-Use Materials** (pallets and storage containers)
3. **Recycle and Reprocess Materials**
4. **Disposal of Waste**



Preliminary

Waste Minimisation Controls

The following controls will be implemented on site to ensure waste is minimised on the project:

- Main subcontractors are asked to submit waste minimisation details in their SWMS including the following:
    i. Avoiding over-ordering materials
    ii. Minimising the use of un-recyclable packaging materials

iii. Reviewing with suppliers, the potential for reusable packaging, such as cloth bags, blankets, pallets or containers for materials and equipment

iv. Buying environmentally-approved and recycled-content products where possible

- Waste management training is provided as part of Site Induction, ensuring that subcontractors and site visitors are aware of the materials on-site (in particular any hazardous wastes) and waste disposal requirements.
- Buildcorp will utilise the services of a Waste Sub-Contractor whose facilities and waste procedures have been audited by our sustainability management team for stringency and accuracy. They should need also meet the following requirements:
  i. Be appropriately licensed under the POEO Act (1997) and associated regulations to transport, store, recycle, reprocess and/or dispose of wastes removed from the site;
  ii. Provide waste containers and transport vehicles suitable for storage and carriage of waste types to be generated at the site;
  iii. Can provide EPA licenses of the appropriate landfills that are licensed to accept the waste which is generated on site
  iv. Provide accurate written documentation including tracking documentation and disposal receipts to Buildcorp in a prompt manner following the disposal of waste from the site to comply with regulatory and Buildcorp contract requirements;
  v. Remove and transport all waste for disposal to a facility lawfully able to accept the waste;
  vi. Securely load and cover all vehicles/bins and containing waste prior to exit from the site to minimise the risk of waste spillage, dust generation etc during transport.
  vii. Facilitate recycling of appropriate materials.
- Prior to commencing work on site project personnel (including subcontractors) are to be informed through the site induction process of the importance of waste, recycling, spills or incident impacts on the site and adjacent areas. Site supervisors are to discuss waste management issues at toolbox and other meetings as required.
- All work areas are to be maintained in a clean and tidy manner. A weekly (or more frequent if required) sweep of the entire site will be completed by the contractor to remove loose waste and/or litter present within the site to appropriate waste/recycling storage facilities in the loading dock.
- Daily inspections are to be conducted to ensure that the worksite is left in a rubbish-free state and that no rubbish has been “trapped” against site fencing
- Regular management audits are to be carried out to ensure that the Waste Management Plan is being adhered to

Waste Management

The table below represents the expected waste types that will be generated during the works and describes how each will be managed on-site, collected and the waste management outcome ranked from the most to least preferred.

Waste Type	Waste Management Outcome				
	Most Preferred				Least Preferred
	Avoid/Reduce	Reuse	Recycle	Recover	Treat &/or Dispose
Plasterboard					
Paper & Cardboard					
Steel, Scrap Metal etc…					
Timber					

Preliminary

Plastics and Foam					
Insulation Material					
Excavated Fill					
Glass					
Concrete and Bed Mix					
Residual					
Hazardous					
Food and General Waste					

Notes

1. Waste is collected in “general construction waste” bins and is sorted at a resource recovery facility using mechanical and manual sorting techniques that remove wastes such as plasterboard, timber, metal, cardboard and plastic for recycling.

2. Residual waste refers to construction waste other than those listed as a waste type.

3. Waste Management Definitions:

Re-use, means the activity of using waste materials in their current form (ie. not altering their chemical or physical state)
Recycling, means the activity of processing waste materials to form new products
Recovery, means the activity of processing waste materials for the purpose of recovering energy (eg. incineration)
Disposal, means the activity of depositing waste materials in landfill

Demolition

Where possible, demolition of the remaining components of the existing building is carried out in a manner to maximise reuse or recycling.

Prior to demolition works commencing, a hazardous materials survey of the site should be undertaken. Should any classified material be identified a specialist subcontractor should be engaged to remove the waste. These materials are to be disposed of in accordance with Authority requirements. Should the material to be demolished not be identified as hazardous it should be placed in the provided construction waste skip bins which will then be collected by the approved subcontractor for sorting and disposal.

Excavation Fill Material

Any fill materials identified requiring excavation within the site footprint should be reused, where suitable, on the site as part of the site engineering or landscaping work. Excess or contaminated excavation fill is to be removed off site and classified in accordance with relevant authorities. To ensure the fill is being taken to the correct landfill the subcontractor transporting the waste should provide details of the landfill site, the EPA licence details and confirmation that landfill is authorised to receive that waste. Trucking docket records are to be kept on site to check that fill is going to the nominated landfills.

Construction Waste

Construction and demolition bins are located in separate areas on the site to ensure safe storage and collection of waste. The construction waste generated on site is to be placed as follows;

- in mixed waste skip bins, meaning that all waste is deposited in the one skip bin and segregation into the appropriate waste streams occurs offsite.

Preliminary

- Where site room allows and subject to waste type quantity sorted into the appropriate waste bins and will be removed and where applicable recycled off site by the waste generating contractor.

Food and general waste

Food scrap/ general waste bins are provided in the vicinity of site offices and amenities. It is sorted into general waste, cans/bottles and paper/cardboard. Buildcorp site sheds have paper bins and printer cartridge bins (for staff to return to head office for recycling).

Hazardous Materials

Contaminated waste will be disposed of to an EPA licensed facility which is able to take the waste. Contaminated waste will be stored within designated storage areas on site. Records of disposal of the waste should be maintained with site records.

Hazardous Substances

Any subcontractors handling, using or disposing of harmful or toxic chemicals or substances are to ensure they follow appropriate manufacture requirements and legislation requirements in disposal. No chemicals or substances are to be disposed of down any drains, sewer etc on- site.

If a spillage of a hazardous substance occurs staff are appropriately trained in spill kit procedures to clean up spills immediately. Spill kits are located adjacent to the areas where hazardous substances are stored on site. Once the substance has been cleaned up it will then be disposed of to the appropriate EPA licensed facility. Records of disposal and the clean up methods of the spill are to be maintained with site records.

Waste Water/Wash Out Areas

Wash out facilities for finishing trades including concrete and paint waste are to be minimised and water recycling for these activities are encouraged. If a wash out facility is utilised it will not be plumbed to any building services or drain to stormwater.

The wash out area will have sediment controls and should be clearly signposted. The location of the wash down area is shown on the sites layout plan and everyone is made aware of this location during the site induction. Refer to the Sediment control section.

The wash out area and sediment controls should be emptied of all solid residues regularly in order for it to catch waste water. Solids which are caught by this process should be disposed of in a bin going to a licensed waste facility.

Site Management Roles and Responsibilities

To manage waste generation on site the following roles and responsibilities have been set for all contractors to follow and ensure the waste recycling targets can be met. The table below represents a summary of the waste management roles and responsibilities for the works on the Cranbrook Senior School project.

Responsibility	Project Task
Site Operation	
Base building management	• Ensuring that waste is segregated and collected in accordance with this Plan • Ensuring that Duty of Care documentation is obtained and maintained in the site file (eg. copy of waste transporters licence, waste collection receipts, waste transport certificates) • Updates to the Plan and Building Management approvals

Preliminary

	• Supervising the collection of waste by the waste contractor (where practical) • Maintaining site records of waste types and approximate quantities collected from site
Waste Sorting	
All Contractors	• It is the responsibility of all contractors to be inducted into this plan and put waste into the correct bins on site for appropriate disposal off site • Contractors are to use the designated bins on site and not dispose of any materials expect within designated bins on site • Minimise the generation of wastes through appropriate behaviour on site through site measurement and ongoing management of works
Waste Collection & Management	
Waste Contractor TBC & Buildcorp Project Manager	• Supply of bins, according to agreed approach & ongoing site requirements • Collection & disposal of waste, as agreed & according to ongoing site requirements • Weighing and sorting of all wastes generated on site for disposal off site • Ensuring that the waste collected is managed in accordance with the relevant legislation and the identified wastes are re-used, recycled or recovered
Reporting	
Buildcorp Project Administrator	• Tracking of wastes generated • Reporting of all waste data • End of Project reporting of waste data to confirm % recycled / reused and wastes to landfill • Preparation of final waste report for the site

Monitoring, Conformance and Reporting

The Buildcorp (BC) approved Waste Contractor will provide monthly recycling and waste minimisation reports. These reports are audited to ensure that we are reaching our set targets. Records of the total waste generation and disposal to landfill or recycling are retained on site by Buildcorp contractor site staff.

Any subcontractor found to be inappropriately acting will be issued with a non- conformance and rectification notice immediately by BC. The procedure for environmental non- conformances is as follows:

i. Site issue is identified
ii. BC investigates and issues a response to all subcontractors
iii. BC issues non-conformance/rectification notice to party responsible
iv. Subcontractor to cleanup up immediately to relevant legislative requirements
v. BC notifies external parties as required and final notice to subcontractor

Audits are to be conducted on waste generated to ensure it is being disposed of as per the procedures set out in this Waste Management Plan.

Preliminary