

CONSTRUCTION MANAGEMENT PLAN



JULY 2019

WAIKATO REGIONAL THEATRE

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Appendix A – Site & Logistics Plan

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1 Introduction

This Construction Management Plan describes the site-specific requirements for **Waikato Regional Theatre** project. It covers the site establishment and layout details, describes the construction methodology and details the controls necessary to protect the environment. This Construction Management Plan is closely associated to a range of other plans and documents for the project as shown below:



1.1 Project Description

The construction of the new Regional Theatre which is to incorporate a community performing arts centre in the heart of Hamilton.

The expectation is for the Theatre to accommodate up to 1300 audience members as well as accommodation for performers, musicians and operating staff.

The building is to comprise of basement and sub-stage levels, 3 suspended floor levels above the stage level with 3 seating tiers within the auditorium as well as fly-tower construction for stage engineering operations.

Specialist stage engineering, lighting, audio-visual and acoustics will provide a state-of-the-art base for the performing arts on a local, national and international stage in the Waikato region

The Contract period is approximately 23 months

1.2 Hours of operation

The site is likely to be operational 6 days a week; however, this will be determined and advised further via the Resource Consent Conditions.

Hours of work will generally be:

7.00am - 6.00pm Monday to Saturday, and outside of these hours by arrangement with Southbase Site Management and all relevant authorities.

It will always be the intention to minimise disruption to neighbouring properties / businesses and highways; flexible working times will be required during specific activities.

1.3 Site Accommodation & Layout Plan

A Site Plan (refer to Appendix A) will be provided which will identify the location of the following:

- Site Location & Boundaries
- Hoardings
- Hazard Boards
- Pedestrian and Traffic Gates
- Sign In Area
- Site Accommodation (Toilets / Lunchroom / Offices)
- Lay-Down Areas
- Crane Locations & Other Major Plant
- Emergency Evacuation Point(s)

1.4 Key Neighbours / Businesses

The new Waikato Regional Theatre is located on Victoria Street within the heart of Hamilton. This is an established area of the city with numerous retail outlets, restaurants and cafes, residential properties as well as open public spaces such as Embassy Plaza.

Whilst Victoria Street is the main public thoroughfare, the site is also bordered by Sapper Moore-Jones Place to the South, Embassy Plaza to the North and the Waikato River with the riverside footpath to the East, all of which are open and accessible to the public at all times.

Residential properties are situated to the North of Embassy Plaza (240 Victoria Street) as well as to the West of Victoria Street; these premises need to be taken into consideration during the planning stages to ensure minimal disruption from the construction works is experienced; the same being applicable to the restaurants and bars who will have different restrictions and requirements for their operations.

Health and Safety of all site staff, visitors and operatives is paramount at all times; this extends to those in the vicinity of the works including neighbours, members of the public, local businesses and establishments; our Health, Safety and Environmental Management Plan will clearly identify and set out our methods and approach to maintaining a safe environment for everyone.

1.5 Site Security

A sign in system; 'Sign On Site' will be used on this project. This is an electronic signing on system where an 'electronic boundary' of the site is established. Anyone who has the app downloaded

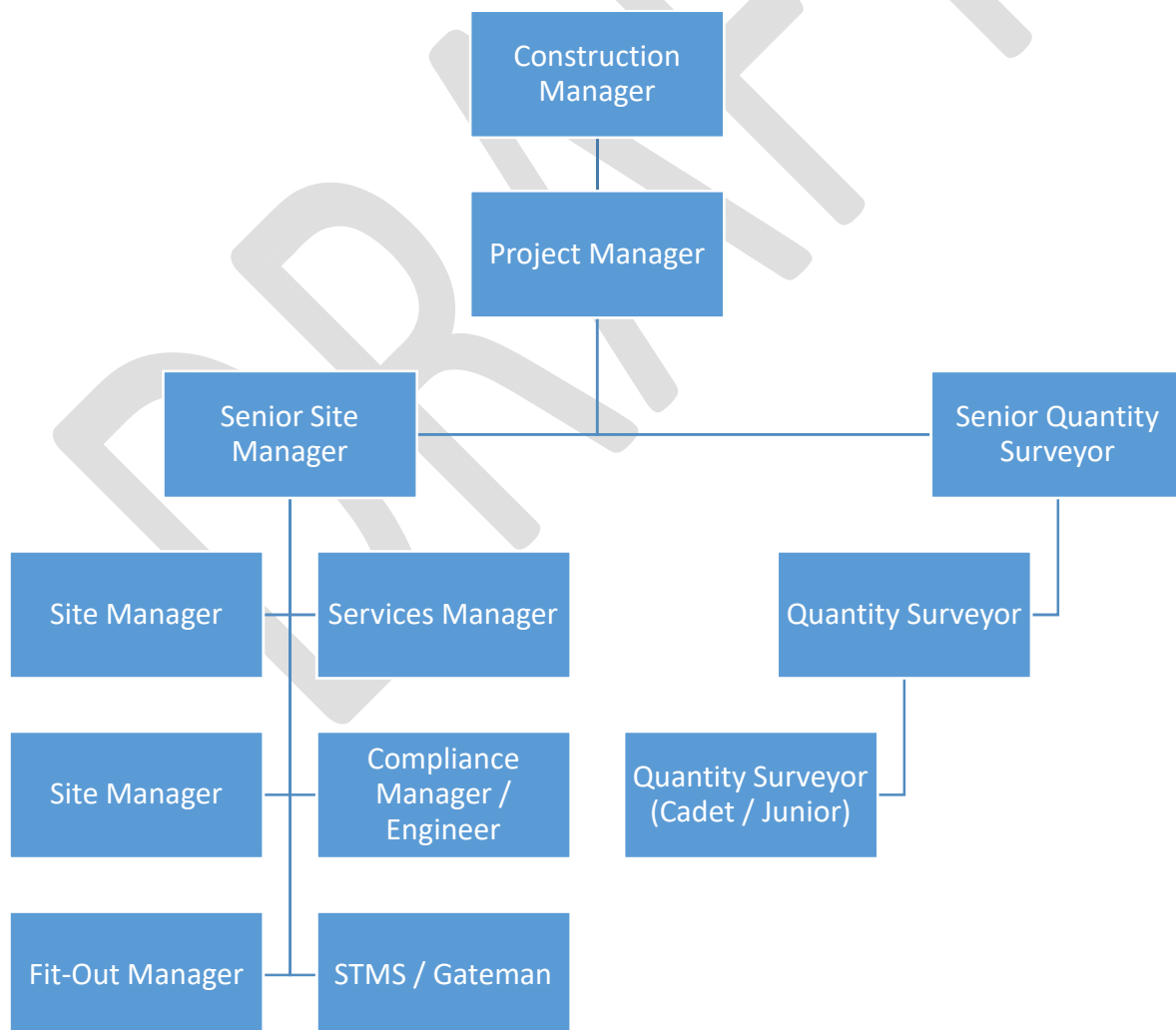
(which will include all subcontractors) will be detected as they walk onto the site and detected when they leave the site. A weekly report is produced by the system and the site team will be able to establish if anyone was at site out of hours. This allows a quick way for all site members to sign in each day. Those who do not have the app will need to sign in and out using the i-pad which will be located in the site office

The boundaries of the site will primarily be protected by means of a secure, solid and continuous hoarding. Each gate or access / egress location will be managed. Our site and logistics plan will identify all access / egress locations as well as signage that will provide all necessary contact details should these be required.

24-hour site CCTV cameras are anticipated to be installed as required and as the various stages of the construction dictate. They will be positioned to capture all boundaries of the site to capture any potential breaches of the site both during working hours and out-of-hours when the site is unoccupied.

The need for any out-of-hours security patrols will become apparent and adopted accordingly as the project progresses.

1.6 Project Organisation Chart



2 Construction Methodology

2.1 Building Surveys, Setting-Out & Datums

Upon commencement of the project, licenced surveyors will be employed to establish the datums and gridlines from given coordinates. These datums and gridlines will be used by all sub-contractors throughout all construction activities to ensure consistency of setting out.

2.2 Construction Methodology

Reference to be made to the Contract Programme for sequencing of works.

Site establishment – refer to appended Site & Logistics plan

- This will be carried out as the initial operation which will determine and establish the site boundaries and segregation to neighbouring properties and the public.
- It is planned for our site offices and accommodation to be positioned within Sapper Moore-Jones Place as this provides the most accessible point of contact for visitors, site operatives as well as all deliveries; many of which will be of significant size. It is intended for the footpath to be closed to the public with diversions established as per the Plan to allow for the positioning of the temporary site set-up and offices. The site facilities are proposed to be double stacked with gantries for support and to maximise on available space.
- The single point of access and egress for construction plant and deliveries will allow for better control of the site operations and interface with the public roads, footpaths and premises operations; a delivery schedule will be employed to ensure vehicles are not obstructing the main roads which has the potential to cause a hazard and nuisance. In order to facilitate this method, a call-in system will be utilised from a local 'holding area'.
- Full surveys utilising ground-penetrating sonar will be utilised to ensure all existing services are fully identified and associated risks with live services eliminated.
- Compliance with the relevant Resource Consent Conditions whether they are within the contract scope of works or if they are to be actioned by external parties: refer also to item 2.4 – Dilapidation Surveys within this CMP.
 - TMP (Traffic Management Plan) to be completed identifying Southbase proposals whilst complying with highways and access requirements and presented to HCC for comment and approval; we continue to work closely with HCC and the Transport Coordination Team
 - Prior to any earthworks / piling commences reference should be made and, where necessary, actions applicable to the Building Consent Conditions. Condition Surveys and Ground & Building Monitoring Marks as identified within the GSMCP (Groundwater & Settlement Monitoring & Contingency Plan) must be completed with monitoring scheduled as stated.
 - With regard to the existing neighbouring properties and those within close proximity to the site, accurate condition / dilapidation surveys will be carried out to properties; regular monitoring being scheduled throughout the key operation timeframes.

Demolition / Deconstruction

For the purpose of this CMP, the extent of the demolition is restricted to the current Theatre Scope of Works; however, this activity is likely to increase in volume and duration to encapsulate the demolition applicable to the Hotel Scope of Works; this additional scope being required to allow for the piling activities.

This phase will commence with a site survey that will identify all existing above and below ground services that are required to be decommissioned, removed and retained for new connections, after which demolition of existing building structures can commence.

Prior to any demolition works are carried out, reference to asbestos and contamination reports will be made. All ACM (Asbestos Containing Materials) will be removed under controlled conditions and as per Worksafe Guidelines prior to any disruptive operations commencing. Air monitoring and clearance certification will determine the commencement of demolition operations: refer to section 7.1 of this CMP for further information and procedures
Isolation and removal of all live services within the building and inground will be carried out prior to the demolition process ensuring safety of all operatives is maintained. Any reconnections to existing neighbouring properties / infrastructure will be completed.

Demolition and / or deconstruction of all existing structures and hardstand surfaces within the site boundaries.

Where possible, deconstruction methods are to be employed which will assist with minimising the impacts of noise and vibration; this being conducted in a top-down approach.

The intention is to commence to the North of the site and progress in a Southerly direction toward Sapper Moore-Jones Place; this being the initial and primary access / egress location.

The demolition of the existing structures will be carried out using long-reach excavators with grabber attachments; this method will reduce the potential noise and impact associated with pulling down structures.

Materials will be carted away by trucks and trailers via Sapper Moore-Jones Place whereupon they will be sorted, segregated and where possible, recycled at off-site facilities.

These works will inevitably produce noise, dust and some vibration; all of which will be managed by plant / equipment selection; dust suppression which will be controlled with water.

Working hours will be agreed where particularly sensitive periods through the day will be allocated quiet times: eg lunch time

Basement, Foundations & Substructure

During the course of the below sequence, the tower crane base will be installed. The tower crane will be erected to allow for the commencement of the structural steel from within the basement level.

If dewatering is deemed to be required during the earthworks and piling operations, notice for inspections will be made to HCC (Team Leader Central Monitoring)

Sequence

- Levelling of site and preparation for piling rigs (*excavators, trucks*)
- Deliveries of reinforcement cages and screw piles (*delivery vehicles – hi-ab*)

- Bored piles and screw piles commencing from North of site and moving South; this will require frequent concrete truck movement (*piling rigs 2- 3, mobile crane, concrete trucks, muck-away trucks, excavator*)
- Reduce Level to level B2 (*excavator, trucks*)
- Reduce Level to level B1 (*excavator, trucks*)
- Waterproofing and tanking operations (*hand tools*)
- Pile caps and ground beams (*small excavators, hand tools, concrete trucks, concrete vibrating equipment*)
- In-ground services – electrical, drainage etc (*small excavators*)
- Retaining wall to B2 (*carpentry hand tools, delivery vehicles, concrete trucks*)
- Reinforced concrete floor slabs (*large delivery vehicles, carpentry hand tools, concrete trucks, power floats, concrete pump*)
- Structural steel at level B1 including metal decking (*large delivery vehicles, mobile / tower crane, hand tools*)
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Water-proofing works will continue throughout the above sequence as per the architectural details and specifications ensuring all continuity and laps are compliant

Temporary works propping if required as well as any de-watering requirements will be monitored and instigated as works proceed.

Superstructure & Building Envelope

The tower-crane will be erected to assist with the construction of the steel frame, precast concrete and is to be utilised for all lifting operations up until all structure is complete; lifting operations include:

- Structural steel and floor decking
- Reinforcement
- Precast concrete wall panels
- Precast concrete floor panels and stairs
- Prefabricated glazing and wall units
- External screen components
- Plant and equipment (mechanical)

Refer to Appendix A for proposed Tower Crane Location

An additional location for a mobile crane to assist with lifting operations is proposed within Embassy Plaza to the North of the site. The use of this area will be determined at a later date; however, there are numerous benefits to the overall construction, placement and erection of materials as well as tower crane selection that need to be considered. Utilising this area will also have a positive impact on the construction programme as well as assisting with the effective management of Health & Safety

The structure will continue to be erected on a floor-by-floor basis and as per the structural details utilising the spliced column locations as hold-points. All precast units: floor panels, stairs, lift shaft will be installed and completed to one level before the next proceeds.

Upon completion of the structural frame and precast wall panels, access to the building envelope will be provided via a mixture of temporary scaffolding structures and elevated working platforms

depending on the elevations and available access at ground level. Rope access will also be utilised to enable finishes and sealants to be applied to the precast panel joints

External glazing and curtain walling will commence upon completion of the building superstructure

Due to the tower crane location being within the building footprint, upon removal of the tower crane, a mobile crane will be utilised to lift and install the remaining roof structure components; this is proposed to be located within Sapper Moore-Jones Place; the same applies for all roof-mounted equipment such as mechanical plant.

Upon completion of the façade, cladding and roof finishes flood testing of the gutter and roof membranes will take place after which certification of water-tightness will determine extent of internal fitout.

Fitout Works

Materials for the fitout works will be delivered via the new theatre loading dock situated within Sapper Moore-Jones Place; deliveries will be on an as required basis and will be managed by a booking system to avoid congestion on the roads as well as ensuring they are not left on site where the potential for damage is increased.

Due to the nature of this project, the focus will remain throughout the fitout stages in providing the highest standard of finishes; this will be achieved by the following as a minimum:

- Works being carried out in the correct environment:
- Careful selection of materials and products
- Careful selection of suitably selected subcontractors and suppliers
- Careful and rigorous management of all processes following out strict Quality procedures.
- Protection of finished goods and surfaces; the level of protection will be determined and agreed with the relevant subcontractor / supplier.

The initial stages of the fitout works will commence upon completion of the building envelope framework and cladding to ensure the best possible environment to the respective floor levels being worked on. 1st fix building services will run in parallel with the commencement of the floor fitout to ensure coordination is maintained. Specific task related 'hold points' will be identified throughout all stages ensuring defective and potential abortive works are identified early and closed out in a timely manner. Hold points will be included within the task related ITPs which will form an important part of the Southbase Quality Management.

When the correct environment is established, fitout to all levels will be staggered which will require careful management of trade resources. Common areas such as access stairs and lobbies will run in conjunction with each individual level with the lift car installation being scheduled for when building water-tight milestone is reached.

Specialist fitout works; which includes for the theatre specific installations will be carried at the correct period within the contract programme and will include specialist supervision from an early stage.

Access scaffold and birdcages are to be installed internally to both the auditorium and fly tower in order for high-level services and specialist installations such as acoustic shields and curtains to be installed. It is imperative that all testing and inspections are completed to all high-level services prior to the scaffold removal; timing of these works will be critical in maintaining programme. The

completion of the lower level fit out will be determined by the removal of the high-level access systems.

Commissioning and Completion

We believe that although the commissioning and completion phase of the project is illustrated as being carried out at the conclusion of the programme it actually commences from the outset of the project. Our project QS will run a deliverables schedule with the sub-contractors to ensure the timely presentation and delivery of all contract documentation which will include, but not be limited to the following;

- Shop drawing register
- Samples and approvals
- Warrantees and guarantees
- Producer statements
- Operational manuals

At the conclusion of the delivery phase of the project the compliance manager will collate all the above information to help facilitate the handover procedures and local authority closeout documentation for the consenting and code of compliance certificates.

- Commissioning & Completion
- Commissioning of building services
- Warrantees/Guarantees
- Consultant inspections
- Code of Compliance

Typical Example of Initial Works; task specific methodologies and risk assessments will be carried out and approved prior to any activity commencing ensuring that all mitigation methods have been incorporated and exhausted

Activity	Description	Likely Equipment	Construction Month
Asbestos / Contamination Removal	A full intrusive survey is to be carried out with full laboratory analysis of all samples taken. Upon completion of the survey, it will be established what materials are contained within the existing structure and whether removal and disposal of hazardous materials is required. If this is the case, all works will be carried out as per the Worksafe regulations	Hand tools Decontamination chambers and air-locks. Monitoring and analysis equipment Mobile shower units	Month 1
Demolition / Deconstruction	Full consultation with the preferred demolition contractor will determine the most effective equipment to be employed for the deconstruction and demolition of the existing structures;	Concrete saw, crane, excavators w/ hydraulic grabbers / crunching attachments & concrete breakers	Month 1 to 6

	equipment will be selected to ensure minimal impact to the surrounding environment with particular emphasis on mitigating vibration, excessive noise and dust migration.	(mostly excavator mounted breakers, with jack hammers in sensitive areas), muck-away trucks & loaders	
Removal of Existing Hardstands	Breaking and removing of the existing hardstand areas comprising of concrete and asphalt with respective sub-base materials.	Excavators and muck away	Month 1 to 6
Existing Tree Removal	Arborist to carry out all tree removal and subsequent protection of trees to remain in place throughout the construction period. A sequence and methodology will be created separately for these specialist works; however, they will be carried out under strict supervision due to the nature and protection order applicable to them	Rope access, chainsaws, wood chipper / mulcher.	Month 1 to 2
Piling Operations: Bored Piles Screw Piles	<p>Screw piling will be used for piling works in proximity to the Hotel Building to minimise vibration effects, and vibro-piling will be used in other areas.</p> <p>Details on the piling works are as follows: Permanent piles:</p> <ul style="list-style-type: none"> • 900 & 1200mm diameter bored piles using an auger rig to drill to the required design depths • Anticipating 2 piling rigs in order to maintain programme • Screw piling utilising 1 piling rig <p>Mobile crane to be used for all lifting operations such as the steel pile cages; this will be used for both forms of piles where required</p> <p>Pile casing will be installed as required by the pile design and formation levels / excavation; these will be positioned and installed with the mobile crane.</p> <p>All spoil generated from the pile will be removed by an excavator and muck away trucks</p>	Crane, screw driving rig, hand tools, drilling rigs, concrete pump, concrete trucks, Excavator and muck-away trucks	Month 4 to 7
Excavation to Reduced Level	During the piling operation, excavators will be used for the bulk excavation works; removing as much spoil from site via muck-away truck.	Excavators, Muck-away trucks	

	There is a potential to use the excavated material to build-up the levels in Embassy Plaza; this could benefit by reducing the quantity of heavy trucks disposing of waste material off site.		
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2.3 Specific Resource Consent Requirements

Resource Consent will confirm the Conditions that are to be met, incorporated and adhered to throughout various stages of the project.

Building Consent to be awarded and provided prior to commencement on site.

Any conditions and special requirements of the consent will be identified and included within the scope of works; these will be incorporated into a Conditions Matrix whereupon they will be more readily available for review and monitoring throughout the project period.

Inspections of all elements of the build will be identified whereupon a schedule will be agreed upon with the Council and any other inspecting authorities

2.4 Dilapidation Surveys

The dilapidation surveys will be carried upon site possession to establish and record existing condition and to monitor the effect that construction works have on surrounding properties and infrastructure.

2.4.1 Dilapidation of Adjacent Properties

A Dilapidation / Condition survey will be carried out to adjoining properties as identified within the Resource Consent Conditions and GSMCP; this will confirm which buildings and structures in the vicinity of the construction site will require surveying and monitoring based upon their proximity and vulnerability to the planned construction activities

2.4.2 Dilapidation of Footpaths, Kerbs & Street Furniture

Dilapidation surveys will be carried out at the following street locations:

- Saper Moore-Jones Place and the adjoining properties to the South
- Victoria Street
- Embassy Plaza and the adjoining properties to the North
- The Riverside Walk

As above, the locations will be visually inspected at regular intervals to monitor any damage that may occur. A plan will be put in place where it is evident that the construction works is causing damage to roads, pavements and street furniture. A copy of each survey will be provided and made available during the project in.

2.5 Photographic record for evidence

It is the responsibility of Site Managers to take and file progress photographs of elements of the construction which need to be recorded for evidence. This includes, but limited to:

- Building elements which will be closed in and have strict compliance requirements,
- Evidence of the completion of actions resulting from consultant or council inspections,
- Evidence of shoddy workmanship

Photographs will be filed in a manner that will assist others in locating the images at a later date; grid lines, room numbers, floor levels and elevation references are helpful.

Note: this is not to be confused with branding imagery which is detailed in the Site Branding and Communications plan.

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3 Traffic Management

3.1 Management of the Public

Management of the public is seen as paramount, hence our Traffic Management Plan (TMP) will identify the control measures to be employed ensuring safety of the public at all times. Closure of the footpath adjacent to the site boundary within Sapper Moore-Jones Place is vital for site operations and delivery whilst maintaining segregation to the public right-of-way.

Access to the lower riverside footpath at the bottom of Sapper Moore-Jones Place will be maintained; however, there may be periods during high-risk activities where we would deem it necessary to block access for agreed periods; the same applies to the public access to Embassy plaza when deliveries and lifting operations are conducted from this position. Any closures required will be carried out under strict agreement with the local authorities having given the required minimum notice period.

Our site notice boards adjacent to the main site entrance will be updated regularly; this can be viewed by the public at any time; the notice boards provide information such as:

- High-risk activities
- Scheduled deliveries for a given period
- Working hours
- Site contacts
- Site Rules and Access Requirements

3.2 Site Access

Ingress and egress for construction traffic will be controlled at the single-point entry / exit gate located within Sapper Moore-Jones Place as per the appended Site & Logistics Plan

A secondary access / egress location has been proposed within Embassy Plaza; the primary objective is for this to be used only as required to suit specific operations on site; however, it could also serve as a valuable delivery and lay-down area for larger structural materials (refer to site layout plan – Appendix A)

As the project progresses, alternative access / egress location may be made; the TMP and relevant Management Plans will be updated to reflect any changes.

A sign in register will be held at the site office whereupon any staff member, operative or visitor will be required to sign in and out. **Refer to item 1.5 – Site security**

3.3 Site Parking

Due to the limited area and access no vehicles will be permitted to park on site; contractor parking will be restricted to on-street parking or public parking within the area.

Contractors will be permitted to off-load tools, equipment and materials only; this will be by agreement with the site logistics manager / gateman

We will encourage car-pooling to help minimise the additional vehicles to this area

3.4 Onsite Traffic Movement

Movement of plant and equipment will be restricted to what is required at the time depending on the operation.

The majority of loading / unloading will be from the designated loading area in Sapper Moore-Jones Place; the loading zones is identified within the Site & Logistics Plan.

3.5 Pavements / Car Parks / Kerbs & Street Furniture

3.5.1 Pavement Closure

It is proposed that the pavement to Sapper Moore-Jones Place be closed to the public for the duration of the contact works; as per the appended Site & Logistics Plan, this footpath as well as part of the road would be required for site establishment and operation. Temporary diversion of the public will be required during the project period; this will be agreed with HCC prior to construction commencement.

Segregation will be provided throughout the construction period between the site activities and the remaining operational public footpaths.

3.5.2 Council Car Parking Bay Suspensions

As per the appended Site & Logistics Plan, it is proposed that all parking bays within Sapper Moore-Jones (SM-J) Place be taken out of commission; this applicable to both sides of the road.

As entering SM-J Place, the parking bays to the left will be encapsulated within the proposed site boundary and therefore unusable. Those to the right will be taken out of commission to allow for 2-way traffic to be maintained ensuring constant access remains available for the restaurant (Madam Woo) car park and the basement car park entrance for 136 Victoria Street.

An additional proposal will be for the 3 parking bays to Victoria Street immediately outside of the existing building will be suspended to allow for a waiting zone for smaller deliveries and concrete trucks during the concrete pour activities.

Initial discussions have occurred with HCC regarding these suspensions.

3.5.3 Removal of Parking Meters

Parking meters installed to parking bays identified within 3.5.2 above will need to be either suspended and or removed.

3.5.4 Removal of Council Road Signage and Street Furniture

Upon completion of the initial dilapidation survey, a full schedule of Council signage, street furniture and assets will be documented including the condition at time of site possession. If any of these items are to be removed, this will be coordinated with the relevant Council.

It would be anticipated that all existing street furniture, fixtures and installations currently positioned within Embassy Plaza and Sapper Moore-Jones Place will need to be removed; albeit on a temporary basis to prevent potential damage. The storage and reinstatement would be carried out in conjunction with Council protocol

4 Storm water and Sediment Control

Southbase Construction will follow and comply with the sediment and erosion controls as stipulated within the Resource Consent conditions. Details will be developed in the form of a Stormwater Management Plan and will be put in place to protect any storm water outlets associated with the project prior to any excavation works commencing,

- Water management due to the concentrated flow due to the de-watering of site
- Surface protection from rainwater
- Surface protection from wind

4.1 Water Management – Concentrated Water Flow

Concentrated water flows will be managed as part of the de-watering process; if required, which will limit the discharge of ground water into the HCC storm water system as advised and approved by the HCC dependent upon region

We will employ a de-watering specialist for these works, if applicable, and their methodology will be detailed and provided as required.

4.2 Surface Water Protection

Surface protection shall be managed by ensuring that the site is stabilised during the excavation period. Protection to the storm water at street level will be managed at the HCC inlet with the method identified and detailed within the Stormwater Management Plan.

4.3 Surface Protection from Wind

Dust control will be monitored daily during the excavation period; on days where there is a perceived issue with dust the ground surface shall be sprayed such that it will not cause run off into the storm water.

4.4 Sediment Control

Southbase Construction proposes that the following sediment controls will be put in place to protect any storm water outlets associated with the project; further reference to made to the Stormwater Management Plan:

- Site exit points
- Silt Fences
- Filter Cloth

4.4.1 Site Exit Points

Southbase Construction will stabilise the entry / exit points to site as per the sediment control; this will be as per the Resource Consent Conditions.

4.4.2 Silt Fences

Silt fences will be set up as required to the perimeter of the site attached to the site fencing at any major natural collection points. These silt fences will not be used to filter construction water and will be as per the Resource Consent Conditions and subsequent Stormwater Management Plan.

4.4.3 Filter Cloth

All storm water inlets will be covered with filter cloth regardless of whether they are protected by a silt fence as an added precaution.

4.5 Maintenance

Maintenance of the protection systems will be as follows:

- Weekly formal inspection of all the systems as part of Southbase Construction Health Safety & Environmental audits
- Removal of sediment deposits to a designated area to ensure capacity and integrity of the protection system
- Immediate maintenance as required to ensure the capacity and integrity of the protection system

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5 Management of Construction Noise

Southbase Construction will endeavour to keep any surrounding businesses / neighbours informed of any noisy activity being undertaken during accepted business hours, any night work that may be deemed necessary will include a specific task analysis to include noise control which will be presented for approval prior to the event.

5.1 Noise Performance Standards

It is considered that the provisions of Section 16 of the Resource Management Act apply:

Section 16. Duty to avoid unreasonable noise

“Every occupier of land (including premises and any coastal marine area), and every person carrying out an activity in, on, or under a water body or the coastal marine area, shall adopt the best practical option to ensure that the emission of noise from that land or water does not exceed a reasonable level.”

Southbase Construction proposes that the construction works shall be carried out in general accordance with NZS 6803:1999 “Acoustics – Construction Noise” to the extent that it is practicable to do so.

5.2 Anticipated Noise Levels

The sound rating levels presented in the table below are based upon a database of measured noise levels from various construction sites and are cognisant of noise levels likely to be resultant on the project.

Typical Examples of anticipated equipment to be used:

Item	Sound Rating/Pressure	Information Source
30 Ton Excavator	80dB(A) Leq @ 10m	C3- NZS6803
Vibratory Roller	78dB(A) Leq @ 10m	C3- NZS6803
6m3 Concrete Truck	72dB(A) Leq @ 10m	C3- NZS6803
Concrete Pump	81dB(A) Leq @ 10m	C6- NZS6803
Mobile Crane - Moving	79dB(A) Leq @ 10m	C7- NZS6803
Carpentry/Formwork Activity	79dB(A) Leq @ 10m	C7- NZS6803
Circular Saw 225mm Blade	79dB(A) Leq @ 10m	C7- NZS6803
Concrete Vibrator	73dB(A) Leq @ 10m	C6- NZS6803
Electric Percussion Drill	78dB(A) Leq @ 10m	C6- NZS6803
Power Float	72dB(A) Leq @ 10m	C6- NZS6803

5.3 Noisy Construction Activities

Noise levels at the commencement of the project are likely to be higher due to excavation and earthmoving activities throughout the project. However; due to the nature of the construction process other operations that are anticipated to create most the construction noise are:

- Tree cutting & chipping
- Deconstruction / Demolition
- Excavation, civils and compaction
- Erection of precast concrete and structural steelwork
- Carpentry and Joinery operations utilising powered tools

- Concrete pours and pumping
- Breaking of piles

5.4 Noise Management and Mitigation Measures

This section will outline noise management measures to keep within the recommended range to comply with NZS6803:1999.

Southbase Construction may put in place the following measures to mitigate and minimise noise during the construction process:

- Maintain the tight timeframe for the construction of the substructure and superstructure to ensure minimal construction time
- Ensure that our subcontractor's plant and equipment is well maintained and fitted with appropriate sound baffles and or mufflers
- Regularly monitor noise levels at the street frontages and to neighbouring properties to assist in the management and deflection of construction noise at ground level
- Devise a roster approach to the scheduled noisy work activities that cannot be avoided. Understanding the restrictions and requirements of neighbouring property operators / owners will allow for a realistic approach to these works.

5.5 Noise Monitoring

Construction noise levels and the compliance with NZS6803:1999 will be monitored by Southbase and may be monitored by Hamilton City Council (ACC) during the course of construction. Any attended noise monitoring shall be undertaken by a suitably qualified and experienced consultant in accordance with the relevant New Zealand Standard. Should monitoring be required the response shall be that:

- The source of the excessive noise shall be identified
- The most practical mitigation solution shall be determined in consultation with the Construction Project Manager
- Undertake further monitoring once solutions have been implemented

6 Archaeological Protocol

The project is in an area of Hamilton where there is the potential for archaeological remnants being uncovered during excavation; this having been identified within Contract documentation

The excavation works anticipated for this project include for basement construction, piling, foundations and in-ground services; therefore, there is the potential for archaeological finds.

Procedures are to be followed during all earthworks related activities whereupon supervision will be in place from the relevant authorities as per the Archaeological Assessment and any subsequent assessments made available

Should the discovery of objects of archaeological interest be unearthed the following protocol will be employed (this will also be posted on the site notice board):

In the event that an unidentified archaeological site is located during works, the following rules will apply;

1. Work shall cease immediately at that place and within 20m around the site.
2. The contractor must shut down all machinery, secure the area, and advise the Site Manager.
3. The Site Manager shall secure the site and notify the Heritage New Zealand Regional Archaeologist. Further assessment by an archaeologist may be required.
4. The Site Manager shall notify the Heritage New Zealand Regional Archaeologist and the appropriate iwi groups or kaitiaki representative of the discovery and ensure site access to enable appropriate cultural procedures and tikanga to be undertaken, as long as all statutory requirements under legislation are met (*Heritage New Zealand Pouhere Taonga Act, Protected Objects Act*).
5. If human remains (koiwi tangata) are uncovered the Site Manager shall advise the Heritage New Zealand Regional Archaeologist, NZ Police and the appropriate iwi groups or kaitiaki representative and the above process under 4 shall apply. Remains are not to be moved until such time as iwi and Heritage New Zealand have responded.
6. Works affecting the archaeological site and any human remains (koiwi tangata) shall not resume until Heritage New Zealand gives written approval for work to continue. Further assessment by an archaeologist may be required.
7. Where iwi so request, any information recorded as the result of the find such as a description of location and content, is to be provided for their records.
8. Heritage New Zealand will determine if an archaeological authority under the *Heritage New Zealand Pouhere Taonga Act 2014* is required for works to continue.

It is an offence under S87 of the *Heritage New Zealand Pouhere Taonga Act 2014* to modify or destroy an archaeological site without an authority from Heritage New Zealand irrespective of whether the works are permitted, or a consent has been issued under the Resource Management Act.

7 Contamination

The following contamination issues may be present for the project; however, at this stage no soil contamination reports have been made available.

Should contaminants become evident upon receipt of the respective reports, Southbase Removal Management Plan would be compiled with the basic principle being as follows:

7.1 Asbestos

An Asbestos Survey and report has yet to be completed and made available. Upon receipt of the survey report, should any asbestos be identified and is required to be removed it is to be notified to the client and to Worksafe followed by a fully detailed asbestos removal plan.

The removal of Asbestos must be conducted by a contractor who holds a current license, and is listed on the Worksafe register: <http://www.worksafe.govt.nz/worksafe/information-guidance/guidance-by-hazard-type/asbestos/licensing/licence-holder-register>

Worksafe procedures are to be followed through all subsequent activities until such time a clearance report and air monitoring has been completed.

8 Environmental Considerations

An environmental management plan will be developed and made available prior to the commencement of the project; this will further confirm Southbases' commitment in complying and exceeding contract, local and council requirements for environmental controls and management.

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9 Waste Management

Waste disposal will be monitored using a REBRI appointed waste disposal contractor and a rigorous Waste Management Plan.

A report will be generated confirming the quantities of waste for re-use, recycling or land-fill

Due to the tight constraints of the site, segregation of the waste will be carried out off-site.

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10 Complaints

10.1 Procedures for Handling of Complaints

In all probability an environmental related complaint will firstly be directed to the ACC, it would then be expected that the ACC would inform Southbase Construction within 24 hours of the complaint having been lodged, from which Southbase Construction will investigate.

The following procedure will be as follows:

- The caller's name and contact details will be recorded and immediately forwarded to the appropriate Southbase Project Manager
- The Southbase Project Manager will then inform the applicable subcontractor and take the most practical action to address the environmental issue
- The Southbase Project Manager shall inform the complainant of the actions taken to address the issue and ensure that the matter is closed out
- A complaints file shall be maintained onsite which shall be made available for inspection by the ACC and any affected / interested party.

11 Construction Management Plan Activity Schedule

What	How	Who	When
Populate Construction Management Plan	Gather the relevant information and plan the project to provide details to complete this plan	PM	Prior to start on site
Hours of Operation	Develop and confirm hours of construction which meet any requirements as set out in the Contract Documents and Resource Consent	PM	Prior to start on site
Site Accommodation & Layout Plan	Develop, agree and mark up a site accommodation and layout plan showing the following: <ul style="list-style-type: none"> • Site Location & Boundaries • Hoarding / Fencing • Hazard Boards • Pedestrian and Traffic Gates • Sign In Area • Site Accommodation (Toilets / Lunch Room / Offices) • Lay-Down Areas • Crane Locations & Other Major Plant • Emergency Evacuation Point(s) 	SSM	Prior to site establishment
Site Security	Set up any site security as required in the contract or by the risk matrix for the project	SSM	Prior to start on site
Datum and Building Set-Out	Confirm the Datum in writing to the Client and establish any critical set-out requirements	SSM	Prior to start on site
Construction methodology	Develop and agree with the team the specific construction methodology for the project.	PM/SSM	Prior to start on site
Resource Consent	Obtain and review any Resource Consents which have been issued for the project. Any deliverables from these consents are to be listed on the Deliverables Register	PM	Prior to start on site
Dilapidation Survey	Establish whether a dilapidation survey is required and if applicable arrange for this to be carried out and issued to all relevant parties.	SSM	Prior to start on site
Traffic Management Plan	Develop a Traffic Management Plan to be approved (if necessary) by the Local Authority, affected property owners (or tenants) and Client.	SSM	Prior to start on site
Pavements / Car Parks / Kerbs & Street Furniture	Establish whether there will be closures or removals to any roads, car parks, pavements etc and ensure the relevant applications are in place.	PM/SSM	Prior to start on site
De-watering methodology	De-watering methodology and calculations to be developed	SSM	Prior to start on site
Stormwater and Sediment Control	Stormwater and sediment controls are in place	SSM	Prior to start on site
Stormwater and Sediment Control	Modify (if applicable) the Weekly Inspection checklist to include the maintenance of specific stormwater / sediment controls for the project.	PM	Prior to start on site
Archaeological Protocol	Apply for approval to dig or obtain approval from the Client	PM	Prior to start on site
Archaeological protocol	Place accidental discovery protocol on noticeboards across site during periods of excavation	SSM	Once site established

Contaminated Ground	Contaminated Ground methodology to be developed and agreed	PM/SS M	Prior to start on site
Contaminated Ground	Activity Schedule from Contaminated Ground requirements to be developed and implemented	PM	Prior to start on site
Asbestos	Asbestos methodology to be developed and agreed	PM/SS M	Prior to start on site
Asbestos	Activity Schedule from Asbestos removal requirements to be developed and implemented	PM	Prior to start on site
Environmental Management Plan	<ul style="list-style-type: none"> • EMP to be developed to meet Green Star or other Contract requirements (ONLY IF A SEPARATE EMP IS CALLED FOR IN CONTRACT DOCUMENTS, OTHERWISE REVERT TO SITE HSEP PLAN) • Internal Air Quality Plan to be developed for Green Star Projects 	PM	Within 10 days of contract signing
Waste Management	Develop REBRI Waste Management Plan	SSM	Within 10 days of contract signing

Appendix A – Site Layout Plan

