

# Smalls Road Public School

Smalls Rd, North Ryde NSW 2113

## Construction Management Plan



Document Number: KANE--CMP

Revision	Date Prepared	Reason for Issue
001	September 22, 2017	For Review

Date: 22<sup>nd</sup> September 2017

**CONTENTS**

1.	INTRODUCTION .....	3
2.	COMMUNICATION .....	3
	SITE ESTABLISHMENT .....	3
3.1	Project Plans .....	3
3.2	Site Establishment .....	4
3.2.1	Preliminary Site Sketch .....	5
3.3	Environmental Controls .....	5
3.4	Site Offices and Amenities .....	7
	Traffic Management and Pedestrian Movement .....	7
3.6	Cranes .....	8
3.7	Hoisting and Material Handling .....	8
3.8	Site Signage .....	8
3.9	Car Parking .....	8
3.10	Temporary Services .....	8
3.11	Preliminary Works .....	9
4.	CONSTRUCTION .....	9
4.1	Early Works .....	9
4.2	Demolition .....	9
4.3	Footings and Structure .....	10
4.4	Roof and Facade .....	11
4.5	Internal fit-out .....	11
4.6	Services .....	11
5.	COMMISSIONING & COMPLETION .....	12
5.1	Commissioning & Handover Plan .....	12
5.2	Commissioning Programme .....	12
5.3	Witness Testing .....	13
5.4	As-Builts and Manuals .....	13
5.5	“Defect Free” – Kane’s Approach .....	13
6.	OCCUPATIONAL HEALTH AND SAFETY .....	14
7.	QUALITY ASSURANCE .....	14
	ENVIRONMENTAL MANAGEMENT .....	15

## **1. INTRODUCTION**

This Construction Management Plan has been developed to provide a detailed, yet open insight into how Kane proposes to execute the works and operate the Smalls Road Public School during the construction, leading to a successful delivery of the project.

The Kane Delivery Team will be responsible for the implementation of this plan.

## **2. COMMUNICATION**

Kane will implement the Aconex Online Document Management System on the project as the document control software to be used by all project participants. Aconex will ensure that all project information, including drawings, specifications and correspondence is readily updated and available. All Kane team members have a thorough understanding of this system and have found its implementation and use has contributed to successful outcomes on previous projects.

We propose that Client Coordination Meetings be adopted and conducted on a weekly basis to discuss progress, upcoming activities, access/egress, services interruptions/isolations and any related client coordination issues.

Key members of the Kane project team will lead regular subcontractor meetings (and involve stakeholders as required) to review progress, coordination and other matters. Subcontractor meetings will be held at the Kane Site Office on a weekly basis or more often if required.

Kane's Project Manager will hold, chair and minute Site Meetings on a fortnightly basis with NSW Education and the Principal's Representative to report on progress, coordination and other construction related issues. Meeting minutes will be distributed to those present and other relevant parties within three working days of the meeting.

## **3. SITE ESTABLISHMENT**

Kane recognise the importance of a positive start to the project and as a result, site establishment and site mobilisation activities will be carried out in a logical and ordered manner. Kane's site establishment for the works aims to:

- Maintain public safety
- Minimise the impact of the works on the public and adjoining properties
- Minimise the loss of on street car parking and
- Maximise the efficiency and therefore cost of construction

All site establishment activities will be conducted in accordance with:

- The requirements of the Contract
- Local authority and stakeholder requirements
- Program timeframes
- Any NSW Education requirements

Kane's proposed project team are best positioned to undertake these works. Our approach is described below.

### **3.1 Project Plans**

Prior to the commencement of any works on-site, Kane will prepare and submit for the approval of Coffey and NSW Education project specific plans which will be endorsed by relevant local authorities and external stakeholders. The Project Plans which Kane will develop for the project include:

- Site Establishment Plan for each site
- Traffic Management Plan for each site
- OH&S Management Plan (complies with AS/NZS 4801:2001 and FSC accredited)
- Environmental Management Plan (complies with AS/NZS ISO 14001:2004)
- Quality Management Plans (complies with AS/NZS ISO9001:2008)
- Communication Plan which outlines key contacts from Kane, Coffeys and NSW Education , and establishes formal and informal communication processes between all stakeholders
- Detailed dilapidation survey of the existing and adjacent site, roads, crossovers, access paths, footpaths and vegetation around the site
- Any other specific Management Plans as required under the Contract, including:
  - Aboriginal Participation (if required)
  - Local Industry Participation (if required)
  - Workplace Relations

### **3.2 Site Establishment**

The Site Establishment Plan will illustrate how Kane intend to set up the site and manage vehicle movement, pedestrians, traffic management and logistics. We will take into account the requirements of Ambulance NSW, the general public and visitors as well as owners and occupiers of adjacent properties. The Site Establishment Plan will illustrate the following: -

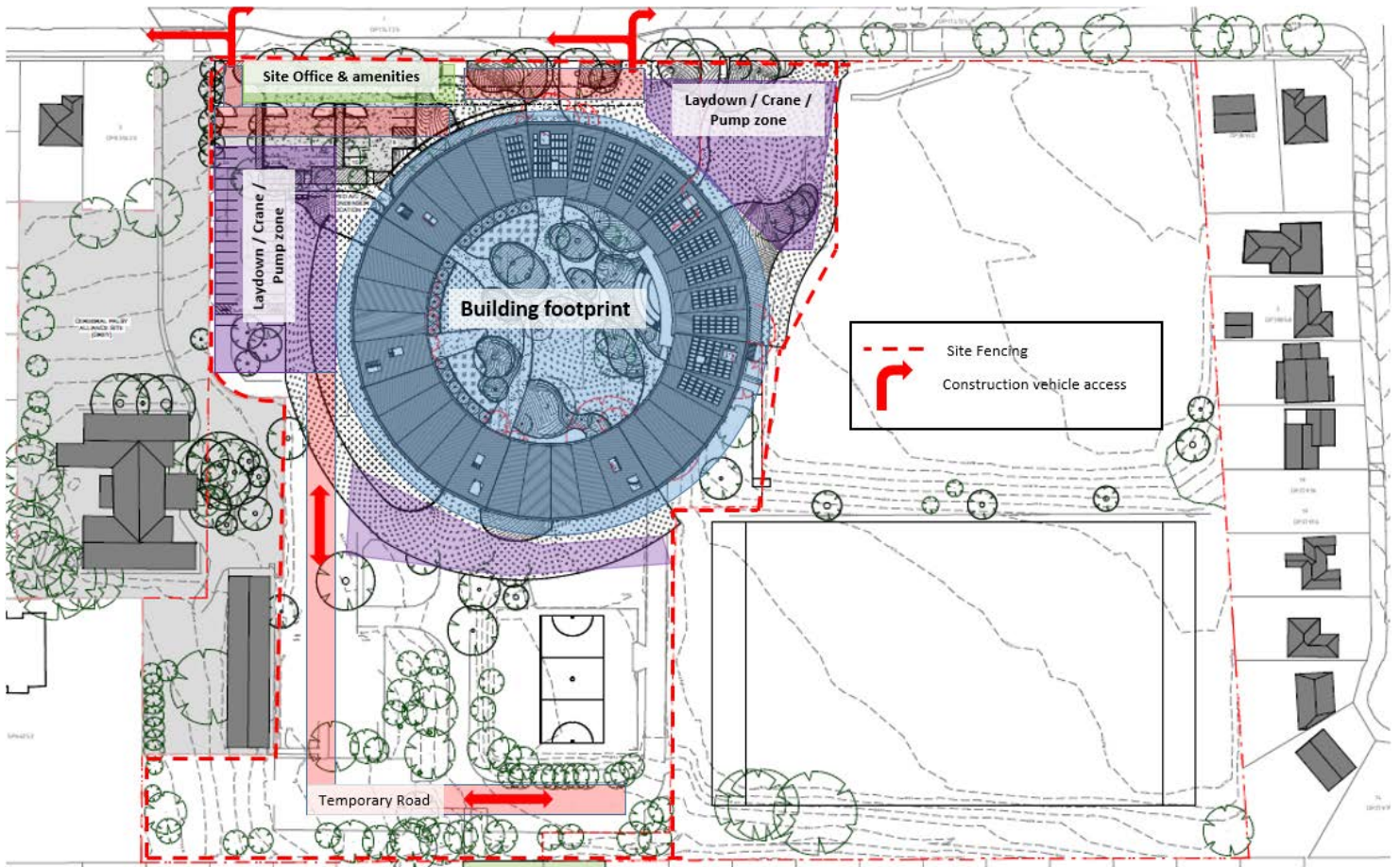
1. Temporary Hoarding & Fencing Location
2. Site Office and Amenities Location
3. Vehicle & Pedestrian Entry and Exit Points
4. Materials Handling Location
5. Crane / Concrete Pump Setup Location
6. Sediment Control

**3.2.1 Preliminary Site Sketch**

**STAGE 1: Demolition**



**STAGE 2: Construction**



### 3.3 Environmental Controls

Our project Environmental Management Plan will be developed comprehensively and implemented strictly to ensure the project complies with authority guidelines and council bylaws. The project's exposure to weather during construction emphasises the need for rigorous management, specifically relating to water run-off and storm water control. Kane will develop a site specific Environmental Management Plan which will provide details on how Kane intend to manage environmental issues and the controls Kane will put in place. Site specific environmental controls relevant to each site will be installed before demolition and civil works start and are detailed below:

#### Storm water Management and Sediment Control

- Civil/earthworks are a significant component to the project and as a result appropriate storm water management and sediment control mechanisms will be put in place
- Kane intend to install temporary storm water drains and sediment pits around the perimeter of the site throughout all stages of the bulk earthworks phase
- Temporary swale drains with hay bale and sediment traps will be installed on-site to direct all storm water runoff from the site into these drains
- Silt fences with hay bale traps will be installed around all soil stockpiles in accordance with our Environmental Management Plan
- Kane will install rumble strips and wash down bays at the primary and secondary entry/exit points of the site
- Kane will import crushed rock to create and maintain temporary access roads for construction vehicles and workers on non-paved areas throughout the course of construction
- Review, understand and action any environmental conditions of the planning permit

#### Noise and Vibration

- Noisy tasks will be identified during our detailed planning stage. Steps will be taken to minimise noise and Kane will adopt a collaborative approach with the client, liaising regularly at our Client Coordination Meetings to identify mutually acceptable times to carry out noisy tasks
- We will limit the amount of vibration by ensuring concrete cutting equipment is used and concrete is lifted rather than jackhammered

#### Dust and Dirt

- Any airborne dust and dirt will be controlled via the use of sprinklers and/or water carts during dry months
- A truck wash-down bay will be installed at the primary access point

### 3.4 Site Offices and Amenities

We propose to limit site establishment to one location for each site. The layout will be designed to prevent any disruption of deliveries to the project.

Kane will provide site offices and amenities that will:

- Be able to accommodate the 80+ anticipated workers onsite
- Include administration offices
- Include a separate meeting room for conducting site meetings
- Comply with legislative requirements and industrial agreements
- Include change, first aid and OH&S facilities
- Be neat, clean, well-constructed and well maintained

### 3.5 Traffic Management and Pedestrian Movement

Traffic and pedestrian management will be one of the major issues on the project. KANE realise that we will be sharing access to the project with local businesses and members of the public.

KANE will have designated personal responsible for Traffic Control and Pedestrian Management

KANE will provide a Pedestrian and Traffic Management Plan that: -

1. Manages and controls construction traffic on adjacent roads
2. Coordinates with the Council to minimise the overall effect of construction traffic within the precinct
3. Minimises the loss of parking
4. Nominates specific materials handling locations
5. Nominates specific truck entry and exits to the site
6. Provides safe pedestrian access

### **3.6 Cranes**

We believe that the most efficient and effective method will be to use mobile cranes for all construction activities. This approach will allow flexibility with the location of cranes. Mobile cranes will be required for loading plant and materials and will be located within the site boundary.

The size of location of all mobile crane will be determined with the following considerations:

- Lifting Radius – the position of the cranes are able to service 100% of the structure
- Lifting Capacities – the position of the cranes will allow to lift plant to the roof
- The position of the cranes are able to access loading zones around the perimeter of the building
- The ground conditions where cranes will be located
- The position of the crane will not impact any critical activities

### **3.7 Hoisting and Material Handling**

Forklifts will be used to manage material deliveries to the site and to maintain orderly material storage around the site.

Hoists will also be utilized to move material vertically through the project.

### **3.8 Site Signage**

Kane will erect and maintain clear and appropriate signage which includes directional signage, OH&S signage and access signage. The project signboard will also be installed as described in the project preliminaries.

### **3.9 Car Parking**

Limited site parking will be available

### **3.10 Temporary Services**

Kane will provide dedicated temporary services to the site during construction. The table below indicates potential temporary services connections:

<b>TEMPORARY SERVICES</b>	<b>DESCRIPTION</b>
Power	Connect to existing power in street
Water	Connect to existing mains water
Sewer	Connect to existing sewer
Telecommunications/Data	Independent phone lines
Storm water	Maintain existing with EMP controls in place

## **3.11 Preliminary Works**

### **3.11.1 Protection works**

Kane will ensure that all required notices have been served to and received from adjacent property owners and occupants in the correct timeframes.

### **3.11.2 Site Survey**

Kane will carry out a site survey prior to commencing site to establish and verify the site boundary, establish construction grids, and to confirm that existing levels match those drawn in the tender documents.

### **3.11.3 Existing Services**

The presence of live services throughout this site is considered one of the highest risks to site safety.

Before commencing any works Kane will obtain from “Dial Before You Dig” confirmation of the exact positions of all underground services in and around the site.

Kane will engage a suitably qualified services locator to conduct an investigation of existing services in ground in conjunction with design documentation and any other client supplied information.

Identified services will be pegged out on site and documented by overlay on the design drawings. This plan of existing services will be incorporated in the Project Safety Management Plan, posted on the site notice board, included in the site safety inductions, excavation permits / procedures and subcontract tender documentation. This plan will be updated ongoing throughout the project in the event of redundant services removal and any diversion works.

## **4. CONSTRUCTION**

On award of the project, Kane will establish on site, commence the shop drawing process and place orders for equipment with long lead times. As part of the site establishment Kane will put in place a Project Management Plan which will include a Traffic & Pedestrian Management, Materials Handling as well as WHS, Environment and Quality Plans.

Prior to establishing on site, a Dilapidation Report on the surrounding buildings, roadways and footpaths will be undertaken and distributed to all stakeholders.

### **4.1 Early Works**

Concurrently with the Document Development Phase and in order to optimise the programme, Kane will assess the benefits of such early works activities as follows:

1. Services Locations
2. Services Amplifications if required
3. Demolition
4. Site Clearance
5. Building Pad

### **4.2 Demolition**

Demolition works will be executed in accordance with the relevant Statutory requirements. A Demolition Plan will be developed, approved and implemented prior to the commencement of any site works.

An investigation of existing site facilities by a Workplace hygiene consultant is required to determine the type and location of hazardous building materials (if any), and may include synthetic mineral fibres (SMF), lead based paints, polychlorinated biphenyls PCBs, microbiological hazards, coal tar pitch products and radiation sources. The hazardous building materials audit report prepared by the hygiene consultant is used by Kane

to confirm the type and location of hazardous building materials detected and where safe exposure limits to humans are exceeded. The report details the qualifications needed under relevant WH&S legislation of the removalist and the instructions on how to remove the materials safely. Kane invite specialist removalists to undertake the removal works. The removalists engaged must include in their SWMS, and follow the removal instructions documented by the hygiene consultant. The Kane Site Manager uses Schedule V to help facilitate the safe removal process.

Where a site has any potentially contaminated soil, the soil is classified prior to on-site reuse or disposal. Soils are considered potentially contaminated if they:

- have been mixed with any wastes or
- consist of, or partially consist of, soil of unknown origin brought onto a site or
- arise from sites where former uses include industrial, commercial, mining or agricultural activities or
- have had manufactured chemicals applied.

Fill material (clean fill), may be suitable for site filling or levelling depending on an assessment of contaminant levels and intended use. An assessment of soil, including site history, will determine whether the material has been potentially contaminated as a result of industrial, commercial, construction or agricultural activities, or contaminated with manufactured chemicals; and/or where material has been placed as filling or has been mechanically disturbed. Soil may be classified as fill, when:

- an assessment of soil determines the material is not contaminated or
- contaminant levels in the soil are below those specified by EPA, and without potential amenity effects, e.g. highly odorous or
- any elevated level of metals (such as arsenic) or other constituents can be demonstrated to be of natural origin.

The existing College will have all its hazardous materials removed from them prior to the buildings being demolished. These works will be completed by a licensed contractor and on completion of these works will be a clearance certificate allowing for the remaining structures to be demolished.

Following the removal of the contaminated materials listed in the HAZMAT the existing structures will be demolished enabling the earth works to commence.

## **4.3 Footings and Structure**

### **4.3.1 Earthworks**

Once the demolition is complete the bulk out of the building foot print will commence down to the subgrade required. Following the removal of all excess material piling & detailed excavation will commence ready for the FRP process to start.

The outer landscape areas will also be cut down to the required subgrade to complete all bulk excavations early during the construction stage.

### **4.3.2 Concrete Placement**

Generally, all concrete placement will be complete by either a boom pump or line pump. The sequence of pours will be development in accordance with the structural drawings allowing for construction joints etc. Setup of the concrete pump will be developed onsite ensuring safe truck movement to and from site and safe access/egress from the pour area during each pour.

### 4.3.3 Structural steel

Structural steel Shop drawings will be developed early in the construction stage to ensure the install of the structural steel follows the concrete placement.

All main members will be installed following by purlins/girts and secondary steel. Once the structure is complete Kane will organize to have the structure inspected by the structural consultant to receive structural sign (this is a Hold Point). This will allow for the roof and external finished to be fixed off to the structure.

## 4.4 Roof and Facade

### 4.4.1 Roof

Insulation and Roofs sheets will be craned up in stages following sign off of the structural steel. Temporary scaffold will be in place providing a safe means of access to and from the roof with temporary perimeter protection during the installation process.

### 4.4.2 Façade

As the formwork is removed the framing and support structure for the sub head can be installed allowing for the installation of the wall cladding and glazing. This sequence of works will tie into the installation of the roof ensuring a water tight building

## 4.5 Internal fit-out

Construction of structural /fire/ acoustic walls will commence followed by light weight wall construction. This will allow for all high level services to pass through walls ensure the comply with fire/acoustic regulations. This process will also include wet areas.

Hold points will be established during the early stages of the fit out to ensure services/noggins etc. are installed and reflect the drawings prior to sheeting. Service Hold points will also develop to control this process.

## 4.6 Services

**Power Supply** A new power connection will be connected to the existing infrastructure.

**Telecommunications** A new power connection will be connected to the existing infrastructure

**Water Supply** A new power connection will be connected to the existing infrastructure.

**Sewerage Connection** A section 73 NOR application will be sent following the DA approval.

**Gas Supply** A new gas connection will be connected to the existing infrastructure.

## 5. COMMISSIONING & COMPLETION

This type of facility demands high levels of construction skill and are very demanding of the subcontractors at all stages of the project, but never more so than at the final testing and commissioning stages.

Inspection & Test Plans (ITPs) will be generated for all critical phases of construction. These are submitted by the subcontractor to Kane for review and approval in conjunction with the relevant specifications and standards.

It is envisaged that Ambulance personnel will require witness points for their own verification with the services, security and IT aspects of the project. We will liaise with NSW Education during the establishment of the ITPs to agree any special requirements.

Further details of quality control during the testing and commissioning phase will be included in the Project Quality Plan

The commissioning process tests that the completed facility meets the specified operational requirements through the design and installation of the building, its services and equipment and their safe operation.

Testing, demonstration and commissioning extends from testing of each individual item through to testing fully operational systems. Testing, demonstration and commissioning requires full liaison and co-ordination of the programme with NSW Education. During these phases, the correct operation of all equipment shall be proven in all modes of operation and they shall extend for such period as is necessary for the equipment to function as specified. Representatives from the suppliers/manufacturers of the relevant major plant items will be present on site during one or more of these phases to provide advice on critical and important tests and/or commissioning works.

### 5.1 Commissioning & Handover Plan

Kane will produce a Commissioning Plan which encapsulates all of the building services, their particular commissioning requirements, what will need to occur and how each stage of the commissioning will occur. This will include:

- Equipment to be commissioned with descriptions
- Programme
- Client & consultant inspection intervals
- Testing stages
- How & what test records will be maintained
- Training plan
- Information on any staged handovers
- List of information that will be provided to NSW Education at the time of handover
- Certificate of Occupancy
- Independent certification
- Maintenance Schedule
- Witness Testing – completed and signed offforms
- Defect Liability Period procedures
- Operational & Maintenance manuals

### 5.2 Commissioning Programme

Kane understand the importance of the commissioning process and therefore develop a highly detailed and process driven commissioning program. The program is developed in coordination with all trades and the functional description. The aim of the program is to gain a thorough understanding of the time constraints and time required to deliver a complete and effective commission of all systems and related interfaces. Included within the program will be milestone inspections, hold points and linked tasks.

## 5.3 Witness Testing

Kane understand the high importance of the witness testing process, and will be presented to the client and consultants **only** once the system has been successfully tested. Kane will develop Witness test sheets for all systems, incorporating all operations to be tested and will submit these to the client and consultants for their review and approval. The witness testing will be scheduled to ensure the process is efficient and allow for a thorough testing period.

## 5.4 As-Builts and Manuals

Operations and maintenance manuals will be compiled by our project team in a timely manner in order to allow for adequate review by Coffey and respective design consultants prior to final handover.

## 5.5 “Defect Free” – Kane’s Approach

KANE use the Aconex Field programme as our defect management tool. This programme enables KANE project staff to progressively identify, manage and rectify defects throughout the construction process, simplifying the whole process. Our system is designed to eliminate defects at the source through the application of the following principals and techniques: -

1. Defect Free Culture – KANE will ensure that the site embodies a culture of strengthening teamwork and co-ordination amongst subcontractors rather than treating the project as a series of separate trade packages. By building a sense of ownership and pride in one’s work, we seek to prevent defects from happening. The object is to get things right the first time and eliminate the need for the subcontractors to re-visit and perform re-work. Ensuring the subcontractor is aware of the quality issues usually associated with a particular task in addition to what items will be checked upon completion of their work will prevent defects from happening. KANE will ensure that the subcontractors prepare and submit for review, their quality management plan. Pre-commencement meetings with the subcontractor’s supervisor and employees are held to communicate KANE’s standards and expectations for the project.
2. Identification of Defects – KANE will identify defects as close as possible to the time they occur. KANE project staff progressively manages defects and instigate walks through the project with the client, consultants and subcontractors to identify any defective workmanship. A system of inspections and check-sheets prior to the following trades commencing works is used to ensure the work carried out by the subcontractor is acceptable and in accordance with the contract documentation. Our defect management system is supported by our quality management system and the issuing of non-conformance reports incorporating remedial actions
3. Rectification of Defects – KANE will rectify defects as soon as possible after they have been identified. Defects are to be rectified prior to the following trade commencing works.
4. Avoid Repetition of Defects – Tool box talks and subcontractor coordination meetings are used as a means of raising workmanship issues with subcontractors and educating subcontractors in avoiding repetition of defects.

## 6. OCCUPATIONAL HEALTH AND SAFETY

Kane has a comprehensive Occupational Health and Safety Management System that complies with the requirements of, and is certified in accordance with AS/NZS 4801:2001 & the NSW OH&S Management System Guidelines June 2004 (which is generally considered a more onerous standard than AS/NZS 4801:2001).

Kane was also one of the first builders in Australia to be certified by the Federal Safety Commission. The health and safety of our employees, and people affected by our work, is a major priority will be considered for all work performed by or on behalf of Kane Constructions.

Our OH&S Management Plan for the project will detail:

1. How our OH&S policy will be applied to the project
2. How our OH&S system will be applied to the project
3. How compliance with external certification will be maintained
4. OH&S procedures and job safety analyses specific to construction
5. OH&S responsibilities by person, position and reporting relationship on-site
6. OH&S consultation to occur during the project
7. OH&S training to occur including site specific induction
8. Safety equipment and controls to be deployed
9. OH&S signage to be erected
10. Sample incident, accident and near miss recording and reporting
11. OH&S inspection/audit procedures to be applied
12. OH&S performance monitoring to occur
13. OH&S records to be kept
14. OH&S reporting to Council

## 7. QUALITY ASSURANCE

Kane will provide prior to commencement a comprehensive Quality Plan based upon the approved outline document. Our Quality Management Plan is AS/NZS ISO 9001:2008 accredited and demonstrates Kane Constructions commitment to quality outcomes and understanding and acceptance of the principles of Quality Assurance.

Kane will raise ITP's and ITR's in key quality areas of the project. At tender stage, the key areas which Kane has identified as high risk for quality include:

- All services
- Roofing
- Wet Areas / Toilets
- Tanking
- Structural Steel
- Rough-in prior to wall close

Our Quality Plan will detail:

1. How the company quality policy will be implemented
2. How compliance with external certification will be maintained
3. How the Quality Plan will be applied to construction
4. Responsibilities by person, position and reporting relationship on-site
5. Consultation on quality that will occur during the Project
6. Training on quality that will occur during the Project
7. Quality system inspections or audit procedures that will be applied to the construction process
8. Quality system performance monitoring that will occur on-site

9. Quality system records that will be kept
10. Quality system reporting to Council
11. Resolving defects
12. Contract administration/document control systems
13. Reporting

## **8. ENVIRONMENTAL MANAGEMENT**

Kane understand the environmental compliance and performance requirements for the project, as set out in the tender documentation, and our Environmental Management System is independently third party accredited to AS/NZS ISO 14001:2004.

Our **Environmental Management Plan** will include responsibility allocations for Kane employees, subcontractors and stakeholders.

Our Environmental Management Plan will include and/or address the following:

- Demolition material recycling
- General construction waste recycling
- Evidence of Environmental Management System accredited to the ISO Standard – AS/NZS ISO 14001:2004
- Operating hours, noise and vibration controls
- Air and dust management
- Waste and materials reuse management
- Storm water and sediment control

Our **Waste Management Plan** will include procedures on how we intend to meet the project requirement to recycle 60% (by weight) of construction and demolition waste. Our WMP will be submitted to Coffey within 10 days of contract award. It will nominate responsibility for Kane employees, subcontractors and stakeholders. Informing contractors during induction training will be the responsibility of the Site Manager. Our administration team will maintain records on recycling and provide a monthly report to Coffeys and NSW Education. All waste management will be conducted in strict accordance with our submitted WMP will be followed.

Our Waste Management Plan will include and/or address the following:

- Informing construction personnel through inductions and tool box meetings
- Details on recycling facility and their capabilities
- How we intend to control the materials handling process during demolition
- How we intend to control the materials handling process during general construction
- Separation of materials on-site
- Combined skips and separation of materials of site if applicable