



SCHEMATIC DESIGN REPORT

MILLARS WELL DANCE HALL AND CHANGE ROOMS

Prepared for The Shire Roebourne

On 22nd May, 2014

To be read in conjunction with:

"Site Investigation Context and Brief Report"

"Concept Design Report"

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Formworks Architecture

Version 2.0
Project Stage – Schematic Design Stage

DOCUMENT DEVELOPMENT HISTORY

Build Status:

Version	Date	Author	Reason	Sections
V 1.0	22-05-2014	NJ	Schematic Design Issue	
V2.0	20-06-2014	NJ	Issued with minor Amendments	

Amendments in this Release:

Section Title	Section Number	Amendment Summary

Distribution:

Copy No.	Version	Issue Date	Issued To
1	V 1.0	22.05.2014	Shire of Roebourne
1	V 2.0	20.06.2014	Shire of Roebourne

Hard drive location:

N:\02_Projects\649_Millars Well Dance Hall\Admin\02_Reports_Brief_Scope of Works\Formworks\Schematic Design Report\Millars Well_Schematic Design Report_2014-06-19_Final_NJ.docx

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INTRODUCTION

Project Objectives

Formworks Architecture are engaged by the Shire of Roebourne to provide Architectural Design Consultancy Services for the development of community facility buildings at Kevin Richards Memorial Oval in Millars Well. Services are to include Concept Design and Schematic Design stages.

This report is intended to provide a summary of the Schematic Design stage for the project and is submitted to the Shire of Roebourne for approval.

The Millars Well Dance Hall and Changing Rooms project involves a redevelopment of the existing Millars Well Pavilion located at Kevin Richards Memorial Oval. The renovated facilities include a kitchenette, an expanded pavilion hall and storage rooms. In addition the project includes the development of a new changing room facility located to the west of the existing KATS clubroom building. These additions will allow for greater use by the community meeting the demands for increased regular dance classes and sports.

Location/Site

The proposed development is located at Kevin Richards Memorial Oval on Tilbrook Road, Millars Well – Karratha on Lot 4611, Reserve 38919 in the Shire of Roebourne. The site is bounded by Balmoral Road to the north, and Tilbrook and Teesdale Place to the West.

The site area is approx. 12,740sqm

(Refer to Appendix 1 for Aerial Map)

The existing Millars Well Pavilion is currently accessed from Teesdale Place with a car park capacity of approximately 73 cars. The Millars Well Change room facilities will be accessed from Tilbrook Place.

Project Brief Summary

Millars Well Dance Hall

- Expansion of the dance hall space through the demolition of the change rooms to the south of the building.
- Provision of new floor finish, new dance barres and wall mirrors.
- Provision of new acoustic metal strip suspended ceiling
- Provision of additional external doors from hall to outdoor terrace to the north
- Provision of operable wall
- Relocation of the kitchenette to the south of the building, with new servery and external door.
- Creation of new kitchenette store
- Creation of new internal store
- Provision on new internal UAT, accessed from the hall.
- Renovation of Change Room 1 – new fittings and fixtures, new shower cubicles.
- Renovation of Change Room 2 - new fittings and fixtures, with the addition of an ambulant toilet.
- Provision of connecting doors between Change Room 1 and Change Room 2

Millars Well Changing Rooms

- Provision of new unisex changerooms.
- External storerooms x 3
- First Aid Room
- Umpires Change room
- Cleaners Room

Refer to Appendix 2 - Schedule of Accommodation

DESIGN SUMMARY

Existing Pavilion

The design of the renovation to the existing Millars Well Pavilion has been developed to provide a more functional dance hall space. The kitchenette is relocated to provide a large open dance hall space, and the provision of a kitchen store and internal store increases the functional provisions of the space.

An operable wall is proposed to provide multi-user flexibility.

An additional internal store is located in the north end of the hall and a uni-sex universal access toilet facility is provided with internal access of a revised corridor space.

We propose that a new floor finish is provided to suit the Dance Hall function, and that a new acoustic metal strip ceiling provided. The existing ceiling is not acoustically treated and has many decommissioned A/C diffuser grilles that would be removed as part of the renovation.

New Change Rooms

The new change room facility is located to the north of the KATS clubroom and will provide comprehensive uni-sex change room facilities for sports groups using the oval. The change rooms are designed to interconnect, so that a single team can use the entire facility as needed. Each change room does have an individual entrance to provide increased flexibility. The change rooms are designed to utilise natural cross ventilation and avoid the need for mechanical exhaust or air conditioning. The upper sections of the walls are designed as architectural screens to provide security, and allow natural cross ventilation through the space.

External Store rooms are provided to the north of the facility. Two of these stores are accessible internally from the Change Room 1, and all three are also accessed externally.

Umpire Change room, First Aid room and a Universal Access toilet and shower are provided at the facility, all with external access. The Umpire room is also connected internally to Change Room 2.

The design of the facility has been developed with a large canopy room form, providing deep shade coverage to all walls, and a large area of shade and weather protection to the external area directly outside the change rooms. This allows for a large area for teams to gather.

Feedback from Concept Design Stage

Following the submission of the Concept Design materials minor comments were received from the Shire of Roebourne. These are summarised as follows:

Dance Hall

- Relocate the operable wall further south in the hall
- Relocate the proposed UAT to the space adjacent to the kitchen store
- Provide additional wall mirrors

Changerooms

- Reconsider planning to provide larger Change Room to the south with 24-25 seats, and smaller Change Room to the north with direct access from Storerooms, to allow for rub down tables.
- Relocate HWU and cleaners Storerooms to the rear of the facility

Refer to Appendix 2 for the mark up drawings received.

Following receipt of the comments, a conference call meeting was conducted and amendments agreed as follows:

- Hall plans revised according to comment. The UAT layout removed the Kitchen Store – which was in excess of requirements
- Changeroom layouts were revised to comments received, with the wet areas of Change Room 1 located closer to the entry and a single, larger changing area provided to accommodate 24-25 seats.

Draft Layouts were provided to the client for approval. Approval was provided.

CONSTRUCTION MATERIALS

Construction materials have been selected to provide cost effective, low maintenance and durable construction, and a contemporary design solution.

New Change Rooms

External Walls

- We propose to use face brickwork on some of the external walls. Bricks will be selected from the Geraldton Brick Company range, and a variety of colours will be used to provide some design and interest to the elevations. All areas of face brick will be treated with anti-graffiti coating
- We also propose to use some areas of modular, Colorbond metal sheet wall cladding, installed to a diagonal pattern. This would be installed on cyclone rated steel framed wall construction.

Internal walls

- We propose that in the change room areas, the face brickwork construction is continued to the internal wall finish. There would be wall tiling provided to the shower stalls and splashback areas as required.
- Store rooms, Umpire rooms, First aid rooms and the UAT would have plasterboard internal walls with areas of wall tiling as required

Internal ceilings

- The design concept for the changing room areas, is that there is no ceiling provided. The roof steel structure and underside of roof material would be exposed in these areas.
- There would be a plasterboard ceiling to Umpires Room, First Aid Room, UAT and all store rooms.

Floor finishes

- The design concept for the change room floors is to have a resilient floor finish that can be hosed down and washed. We propose an exposed aggregate coloured concrete paving to change rooms, with tile finish to shower areas.
- The Umpire Room, First Aid Room and UAT would have fully vitrified floor tiles.
- Stores would have steel troweled concrete finish, with a sealer finish.

External Paving

- We would like to continue the monolithic concrete floor finish to the external areas and proposed to use a coloured concrete paving.

Roof

- We propose to use a Colorbond metal sheet roofing on steel roof structure. This is the most economical and durable roof sheeting for the climatic conditions. We have developed an interesting roof form, which provides deep shade and weather protection for the facility. Structural steel roof members and steel columns will be painted.

Architectural Screens

- The architectural screens are a design feature of the facility, and allow for security and natural cross ventilation. Screens would be powdercoated perforated aluminium. The doors to the change rooms are designed as gates, using the same perforated screen material.

BUILDING SERVICES

Introduction

WSP have been engaged to provide some early stage mechanical and electrical building services engineering to support the architects developing the design of the Millars Well Dance Hall and Change Rooms. This document outlines WSP's understanding of the building services brief for the works.

The Shire of Roebourne has engaged Formworks Architects to undertake a SchematicDesign for building works relating to the Millars Well Dance Hall and Change Rooms, encompassing the following scope:

- New change rooms and toilet facilities;
- New dance hall/community hall
- Verandah

This brief describes the acceptable requirements and technical criteria for the design, documentation and construction of the Mechanical, Electrical, Hydraulics and Fire services. The main purpose of this is to:

- Provide a basis for the Client to confirm acceptance of the services scope of works
- To act as a platform for the design development phase

Building Classification:

WSP understands that the Building Classification is: Class 9b

Incoming Services

Natural Gas/LPG:

- There is currently no Natural Gas to the site or in the vicinity of the site.

Sewer:

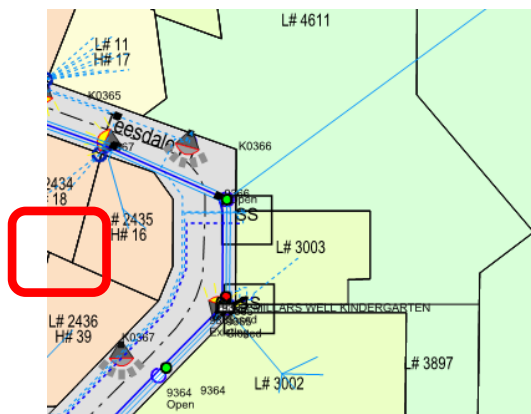
- There is a 150mm sewer connection to the site, located at the Teesdale Place entry. The existing 150mm sewer connection is sufficient to serve the proposed buildings.

Domestic Cold Water:

- There is no water supply shown to the site (DBYD does not always show water branches/connections to individual properties).
- Prior to commencement of works on site, Hydraulic Contractor is to allow to investigate the existing water supply to the site in order to confirm the location and diameter of the existing supply is adequate for the proposed installation.

Electricity:

- Electricity supply/services are serving the existing pavilion or changing room site are not yet identified. There appears to be an existing transformer substation located on Teesdale drive adjacent to Lot #3003. From Google Map, a transformer appears to be located in the corner of the car park (on Lot#3003). Based on the information we have we are unable to determine what infrastructure serves the site.



- We understand from the Shire of Roebourne that the existing Pavilion building is served from a site distribution board. The sketch drawing we have received and reviewed indicates that there is an existing distribution board located within the Pavilion. The drawing does not give any further details of electricity supplies. However, a reasonable extrapolation of the information we have reviewed does suggest a location for the Site Main Switchboard (SMSB).
- We have also reviewed drawing ref: 82 503-E1 which indicates that the existing distribution board within the existing Pavilion is served by an 80A 3-phase electricity supply. At this stage, we feel that the proposed Dance Hall could be adequately served using this 80A Three Phase electricity supply at 415V provided final selections of plant (water heaters and air-conditioning) and phase balancing of final circuits are made with care.
- At this stage, we feel that the proposed Change Room Block could be adequately served using a 63A Three Phase electricity supply at 415V provided final selections of water heaters and phase balancing of final circuits are made with care. This 63A supply would be run from the SMSB to the changing room block some distance away. The sub-main length appears to be significant and this may prove to be a problem given the distance involved. This assumes a new low voltage supply can be taken from the existing SMSB and that there is sufficient spare supply capacity available on the existing SMSB to support the change room block. The SMSB may need some modifications to provide space for an appropriate circuit breaker.

Information Required:

- Size of existing electrical supply and spare capacity
- Details of existing electricity demand
- Details of existing electrical services distribution (as-constructed drawings, single line diagrams etc.)
- Confirmation of location and details of the existing SMSB

Risk:

There is a risk that the existing electrical supply is insufficient to meet the projected future demands of the development. To mitigate the risk, further investigations are required to:

- Determine the size of existing electrical supply and capacity
- Determine the existing electrical demand
- Confirm the location of the existing SMSB
- Review and make recommendations on the adequacy or otherwise and the need or otherwise for a larger electricity supply to the site.

Mechanical

Extent of works

The scope of work will include the following:

- Contractor to fully survey the existing mechanical air conditioning and ventilation systems prior to commencement of works and prepare a condition report for client review.
- Existing wall mounted split air conditioning systems serving the existing dance hall to be retained. Contractor to allow for servicing, cleaning and relocation of indoor units to suit new room layout as required.
- Supply and installation of new wall mounted split air conditioning systems to serve the dance hall, and kitchen to suit the individual room cooling requirements complete with refrigerant pipework, controls, power supplies, condensate drains and all required ancillaries.
- Client to confirm requirements for control of air conditioning units i.e. individual infra-red remote controller, individual wall mounted controller, centralised controller for all units.
- All new outdoor condensing units to be located within lockable steel mesh enclosure.
- Supply and installation of suitably sized natural ventilation openings in compliance with the requirements of AS 1668.4 – 2012 for the dance hall and changing room areas. Natural ventilation to be provided by means of openable windows, weatherproof louvres and openings in the building façade.
- It should be noted that for spaces served by natural ventilation only, due to the location and weather conditions in the region, there will be various times of the year where the external weather conditions will have a negative impact on the natural ventilation of the relevant spaces and occupant comfort will be affected.
- Supply and installation of suitably sized mechanical ventilation systems to new toilets and WCs, cleaner's stores, umpire's room, first aid room and plant rooms (where required) in compliance with the requirements of AS 1668.2 – 2012. Mechanical ventilation shall be provided by means of;
- Roof mounted exhaust fan ducted within the ceiling space to ceiling mounted exhaust grilles
- In-line duct mounted exhaust fan within the ceiling space and connected to ceiling mounted exhaust grilles, discharging to atmosphere via wall mounted weatherproof louver/roof mounted cowl.
- Ceiling exhaust fan ducted to wall mounted weatherproof louver/roof mounted cowl.
- Supply and installation of make-up air system to the spaces served by mechanical ventilation systems. Make-up air to mechanically ventilated areas shall be provided by means of;
- Door transfer grille
- Door undercut.
- Ceiling mounted air transfer grilles and associated ductwork.
- Supply and installation of kitchen exhaust hood, power supplies and all associated ancillaries to kitchen areas.
- Note, existing cleaners' store, UAT, public toilets and electrical/comms cupboard does not form part of the scope of works.

Design Criteria

Item	Design Criteria
General	
External Ambient Conditions (for air conditioning plant full load performance)	<p>Summer:</p> <p>39.5°C dry bulb maximum</p> <p>28°C wet bulb maximum</p> <p>Winter:</p> <p>14.4°C dry bulb minimum</p>
Internal Conditions (for air conditioning plant full load performance) (assumed as existing systems which are being re-used)	<p>Summer:</p> <p>24.0°C dry bulb maximum at point of control</p> <p>Winter:</p> <p>21.0°C dry bulb minimum at point of control</p> <p>Relative humidity generally in the range 40%-60% but noting that no humidity controls are specified</p> <p>Upper limit on humidity of 60% is controlled by virtue of cooling coil performance only</p>
Air Conditioning System Controls Tolerance	±1.5°C dry bulb at point of control (assumed as existing system)
Outside Air	10 L/s/person.
Exhaust Air	25 L/s per listed fixture or 10L/s/m2
Internal Heat Gains	
Occupancy	<p>Dance Hall – 5m2 per person or as per architectural plans.</p> <p>Change Rooms – 2m2 per person or as per architectural plans</p> <p>Other Areas – As per Architect's Plans</p>
Infiltration	0.5 air changes per hour - perimeter zones
People (Dance Hall)	<p>90 Watts/person sensible</p> <p>160 Watts/ person latent</p>
People (Other)	<p>75 Watts/person sensible</p> <p>60 Watts/ person latent</p>
Lighting	15 Watts/m2
Equipment	5 Watts/m2

Hydraulic

Design Criteria

The Hydraulic Services are to be designed and installed in accordance with the following:

- Domestic cold water – AS/NZS 3500.1, WA code of practice for plumbing and drainage, BCA and Local Council Requirements.
- Domestic hot water – AS/NZS 3500.4, WA code of practice for plumbing and drainage, BCA and Local Council Requirements.
- Sewer, waste and vent – AS/NZS 3500.2, WA code of practice for plumbing and drainage, BCA and Local Council Requirements.

The scope of work is to include but is not limited to the following:

- The Contractor is to allow to fully investigate the existing Hydraulic Services to the site i.e.
 - I. The existing sewer location, size and invert level.
 - II. The existing domestic cold water location and size.
- Demolition works as required to facilitate new Architectural layouts.
- Supply and installation of new sanitary fixtures, fittings and tap-ware as specified by the Architect.
- Domestic Cold Water reticulation to all fixtures within the existing and new buildings.
- Install an RPZD valve to the cold water supply at the boundary to the site, as per Water Corporation requirements. RPZD valve is to be mounted on a concrete plinth and housed within a lockable vandal proof enclosure.
- Install individual isolation valves at fixtures to ensure that fixtures can be maintained or isolated without the need for isolating entire buildings.
- New Heat Pump Hot Water Systems to serve the existing and new buildings complete with dual circulating pumps (duty and standby pumps) for hot water flow and return runs.
- Hot water units are to be located within safe trays, safe trays connected to waste.
- Hot water pipework is to be fully insulated throughout.
- Thermostatic mixing valves set at 45 degrees Celsius are to be installed in all areas, with the exception of kitchen sinks and cleaner's sinks. Where hot water is provided to kitchen sinks and cleaner's sinks, this shall be provided at 60 degrees Celsius.
- Thermostatic mixing valves are to be accessible for routine maintenance and testing and are to be housed within stainless steel wall boxes with hinged and lockable doors.
- Installation of new sewer, waste and vent piping as required to complete the works, new sewer piping to be run at 1.65% minimum grade.
- Vents penetrating the roof are to be a minimum 6m from all Mechanical air intakes and located in the most aesthetically appealing positions possible. Confirm final vent locations with the Architect.
- Allow to install floor wastes to Change room areas to avoid slipping hazards, floor wastes are to be primed by means of either screwed nosed bib-cocks with removable handles, fixtures within maximum distance requirements or a suitable priming device.
- Provide adequate overflow relief for the sewer system, either by means of a reflux valve or overflow relief gully.

Electrical Services

Design Criteria

- General AS/NZS 3000 (wiring rules) and BCA 2013.
- Emergency lighting system including emergency and exit luminaires to the requirements of NCC-BCA 2013 and AS 2293.
- Cable selections shall be based on AS/NZS 3008.
- Structured Cabling System - AS/NZS3080:2003, AS/NZS 1367:2000
- Interior lighting design will generally comply with the requirements of AS/NZS 1680
- Exterior lighting (car park) –AS/NZS 1158.3.1:2005
- Refer also to the Schematic Design Schedule of accommodation.

The scope of work will include the following:

General Electrical Power

- A new building distribution board will be located within the electrical room. New Sub-Distribution Boards (DBs) to be installed in each changing room block - in locations to be agreed (e.g. store rooms).
- New electrical power supplies to mechanical, fire and hydraulic services equipment as required.
- Kitchen power – There will be a cook top range and oven.
- 10A double power outlets shall be provided to all areas. Refer also to the Room Data Sheets
- General outlets provided for white ware and hand held appliances in the kitchen.
- General cleaner's outlets to be provided in all other areas.
- Provide general power GPOs at even spacings/intervals around the perimeter of the room.
- All final circuit wiring to be XLPE insulated or insulated and sheathed where possible. Cables containing PVC to be avoided where possible.
- Electrical accessories to be from the Clipsal range or similar. White plastic finish.
- External power sockets to be IP67 and RCD protected.
- All final circuit cabling to be run in metal or impact resistant plastic conduit – to be concealed and run in voids and walls where possible or run surface mounted clipped to beams, purlins in a neat and tidy fashion.
- 1 x 3 phase outlet and 2 x double GPO inside robust vandal resistant enclosure to be fixed to the exterior of the building.

Power Generation (solar PV array)

We have carried out a review and feel that there is some potential to install a Solar Photo-Voltaic PV array to generate electricity to reduce carbon emissions and running costs. Based upon the usage patterns available the pay-back period for a 5kW array comprising of 25 panels (40m²) is approximately 10 years – even with the contribution from SECs in reducing the capital cost and the local export tariff offered by the electricity supply utility Horizon Power.

At this time, larger arrays require battery storage to provide smoothing which add significant cost and complexity. We understand that for such relatively small installations as here, accessing appropriate technology which meets the requirements of Horizon Power's Connection Rules at reasonable cost appears to be a barrier to developing such schemes. However, this may change going forwards and it is worth keeping this under review.

The panels would need to be located across the areas of North facing roof.

At this time we have not included the approximate \$16,250 + GST.

Communications

- Communications (data/phone) horizontal cabling will not be provided generally. However, a telephone lead in and multi-pair cabling will be required to be brought in to the electrical cupboard/comms room (Existing Cleaners Store).
- Adequate provision of and space for a small communications rack and equipment to be provided.
- Provide telephone 2 x telephone points in the electrical/comms room.
- Provide floor box power and data in the dance hall.
- Wi-Fi points are not required.

Lighting

The recommended maintained illuminance for the expected tasks (as defined in AS/NZS1680) within the development is as follows:

Class of Task	Average illuminance Level (lux)	Controls
Movement and orientation: ➤ Corridors and access ways	160 lux at FFL	PIR/Movement detection
Rough intermittent: ➤ Storage areas	80 lux at FFL	Movement Detection
Simple task: ➤ Utility rooms, WC's etc.	80 lux at FFL	PIR/Movement detection
Ordinary or moderately easy task: ➤ Umpires room ➤ First Aid room	320 lux at 0.7m AFFL.	Manual switching
Dance Hall – Dimmable House lighting and general lighting. House lighting to be arranged in zones to allow for flexible arrangements.	320 lux at FFL	Manual switching + dimming
External Verandah	80 lux at FFL	Manual switching
Car parking area	10 Lux	Time Clock + central switching
Perimeter/Security Lighting	7 Lux	PIR/Movement detection

FFL =

Finished Floor Level

LED vs Fluorescent Technology?

Generally, we expect the majority of the lighting to comprise of low energy fluorescent sources. However, we recognise that LED technology continues to evolve and penetrate the market. It is difficult at this time to make generic comparisons between LED and low energy fluorescent light sources because the lifecycle cost benefits are very dependent upon the application, design and choice of fittings. We have conducted some life cycle cost analyses to assess the potential for LED technology.

In our experience, we feel that LED lighting technology has most to offer in the following areas of the development:

- Toilets
- Changing rooms and showers
- Store rooms
- Umpires and first aid rooms
- External lighting (fixed to the buildings)

For the dance hall and kitchen areas, we would propose fluorescent light sources as we do not feel that currently available LED technology is sufficiently mature or cost effective at this time. However, this is a rapidly changing arena as new products become available and first costs reduce.

For this project, we would strongly recommend that the choice of light fitting technology (LED vs fluorescent) is reviewed during detailed design development when a particular scheme design is being considered.

External/Security Lighting

- External lighting to the verandah to be provided using surface mounted CFL or LED vandal resistant light fittings. A proportion of these light fittings to be switched to provide some low level lighting for passive security.
- Provide a number of wall mounted light fittings around the perimeter of each building (Dance Hall and change room blocks) to provide some low level lighting for passive security.
- External lighting to be enabled on a PIR.

External Car Park

- There are currently 2 existing car parking areas on the site. Where possible, it is anticipated the existing car park areas will remain in their current location and existing car parking will be formalised rather than new areas created. At this time, it is not clear to us of the need for any car park lighting.
- Should there be a need for car park lighting to be provided to these existing external car park spaces, provide safe parking facilities using low rise pole mounted CFL/metal halide/LED light fittings with reflectors selected to reduce/eliminate upward light spill (Type 5/Maximum UWLR = 3%).
- Exterior lighting (car park) –AS/NZS 1158.3.1:2005. From Table 2.5 in areas with medium night time vehicle or pedestrian movements and medium risk of crime gives an applicable lighting subcategory of P11b. Table 2.9 recommends an average horizontal maintained illuminance of 7.0 lux.
- Lighting to be controlled using a time clock and runback timer.
- External power points in anti-vandal covers/enclosures to be provided to enable use of the area for public markets and special events.

Emergency Lighting

- Under the BCA 2013, for a Class 9b building with a floor area of a storey is more than 300m² emergency lighting shall be provided [E4.2 (b) & (f) refers].
- Under the BCA 2013, exit signs must be clearly visible to persons approaching the exit and must be installed on, above or adjacent to each door providing egress from a storey to a horizontal exit or required exit [E4.5 refers].
- Emergency lighting system including emergency and exit luminaires to the requirements AS 2293.1 to be provided [BCA E4.4 refers] throughout the building.
- Generally, emergency lighting to comprise of a system of dedicated LED point light sources and illuminated EXIT signs located in accordance with AS 2293.

Access Control & Security

Access control and keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6.

Fire Services

- Fire Sprinkler system is not required by BCA based on the Building Classification, compartment sizes and height of the buildings
- Fire Hydrants and Hose reels systems are not required by BCA based on the compartment sizes of the buildings
- Fire detection and occupant warning systems are not required by BCA based on the compartment sizes and numbers of storeys of the buildings. However, these will be required by the clients as per their Project Brief. It is proposed to install a AS 1670 compliant detection and alarm system providing coverage to the entire buildings. The system will consist of an addressable type FIP linked to Direct Brigade Alarm to notify the local Fire Brigade in the event of a fire.
- Fire extinguishers will be required and installed to AS 2444 and BCA requirements. The extinguishers will be selected according to Class of fire and Occupancy Hazards of the buildings.
- Spatial requirements for FIP is 600mm clearances from each sides of the panel and 1000mm in front for access. FIP panel dimensional size about 550mm(W) x 750(H) x 250mm(D).

BCA ASSESSMENT

Ian Lush and Associates were engaged directly by Shire of Roebourne to provide compliance advice for the project.

The schematic design layouts accommodate the assessments made by the BCA consultant. For the purposes of the assessment of the number of sanitary fixtures required, we have made the following assumptions

- The Millars Change Rooms can be assessed in conjunction with the fixtures provided in the existing Change rooms at the existing pavilion.

Additional BCA Assessments were made at the completion of Schematic Design. These assessments are included in Appendix 7. The outcomes of these assessments are to be incorporated in the documents during the Construction Documentation stage.

HAZARDOUS MATERIALS

Considerable areas of Asbestos construction have been identified at the existing Millars Well Pavilion. The schematic design has been developed with the assumption that the asbestos can be safely and effectively removed as part of the construction of new works.

A comprehensive Asbestos Register would need to be obtained as part of the redevelopment works.

PLANNING CONSIDERATIONS

Advice received from Shire of Roebourne Planning Department summarised as follows:

Lot 4611 on Plan 219757

1. The lot is reserved 'Parks, Recreation and Drainage' by the Shire of Roebourne Town Planning Scheme No. 8; and
2. The Reserve (Reserve No. 38919) is vested in the Shire for the purpose of 'Recreation'.

The development of land in a reserve, where such land is held by the Council or a public authority, and where the proposed development is for the purpose for which the land is reserved under the Scheme (or may be lawfully developed by the Council or public authority) is exempt from Planning Approval.

APPENDIX ONE

AERIAL MAP



APPENDIX TWO

CLIENT REVIEW AND COMMENTS

Client review comments received after Concept Design have been incorporated in the Schematic Design drawings. Client comments received after Schematic Design will be incorporated in the documents during the Construction Documentation stage

**Tambrey Pavilion
Millars Well Dance Hall and Changing Rooms
CLIENT CONCEPT FEEDBACK**

TO:	Senior Architect		Nick.juniper@formworks.com.au
Cc:	Leigh Cover, Manager Leisure Services		
	Kelly Rattigan, Director		
FROM:	Samantha Stewart, Project Officer (Client)		
FILE REF:	CP.507, RC.111, RC.112	Project No.	SP053 SP054
DATE:	14 April 2014		
PAGES:	1 page + 3 pages attachments (4 total)		

Client Feedback

The Client has liaised with internal stakeholders and provides the following feedback of the concepts;

DANCE HALL

- Swap internal UA toilet with southern internal store (next to kitchen store)
- Place operable wall on southern side of middle window (see mark-up)
- Show provisions of mirrors on one long wall and one short wall (see mark-up)
- Close off SW doors to Internal Store

TAMBREY PAVILION

- Flip western changing rooms 180° so that players are exiting the changing rooms on the outside
- Flip Cleaners Store and Umpires Room and move door to western wall
- Move Store door on eastern changing room to eastern wall
- Investigate integrating Cleaners Store with HWU.

CHANGING ROOMS

- Please see attached mark up for recommended changing room layout
- Investigate fill-ins for two external 'nooks' on eastern side of changing rooms (as circled in red)

Samantha Stewart
PROJECT OFFICER

General Notes

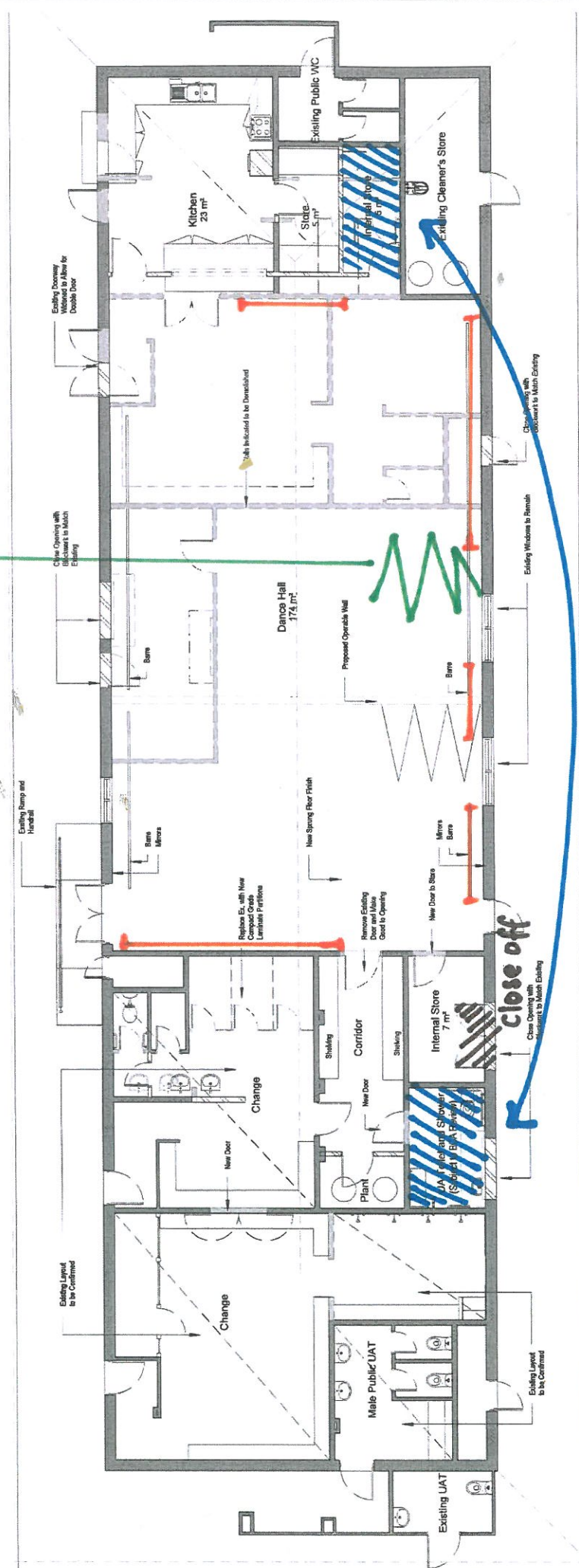
1. Do Not Scale From Drawings.
2. Check All Levels Relative To Existing Ground Levels Prior To Proceeding.
3. The Designer Shall Check All Dimensions On Site Prior To Commencing Construction.
4. The Designer Shall Check All Dimensions On Site Prior To Commencing Construction.
5. The Designer Shall Check All Dimensions On Site Prior To Commencing Construction.
6. The Designer Shall Check All Dimensions On Site Prior To Commencing Construction.
7. The Designer Shall Check All Dimensions On Site Prior To Commencing Construction.
8. The Designer Shall Check All Dimensions On Site Prior To Commencing Construction.
9. The Designer Shall Check All Dimensions On Site Prior To Commencing Construction.
10. The Designer Shall Check All Dimensions On Site Prior To Commencing Construction.

— Mirrors

operable wall

Swap

- ▨ New construction
- ▨ Demolished
- ▨ Existing



1 Floor Plan - Concept Design

1 P20

A00 200

Project: Millars Well Dance Hall and Changing Rooms

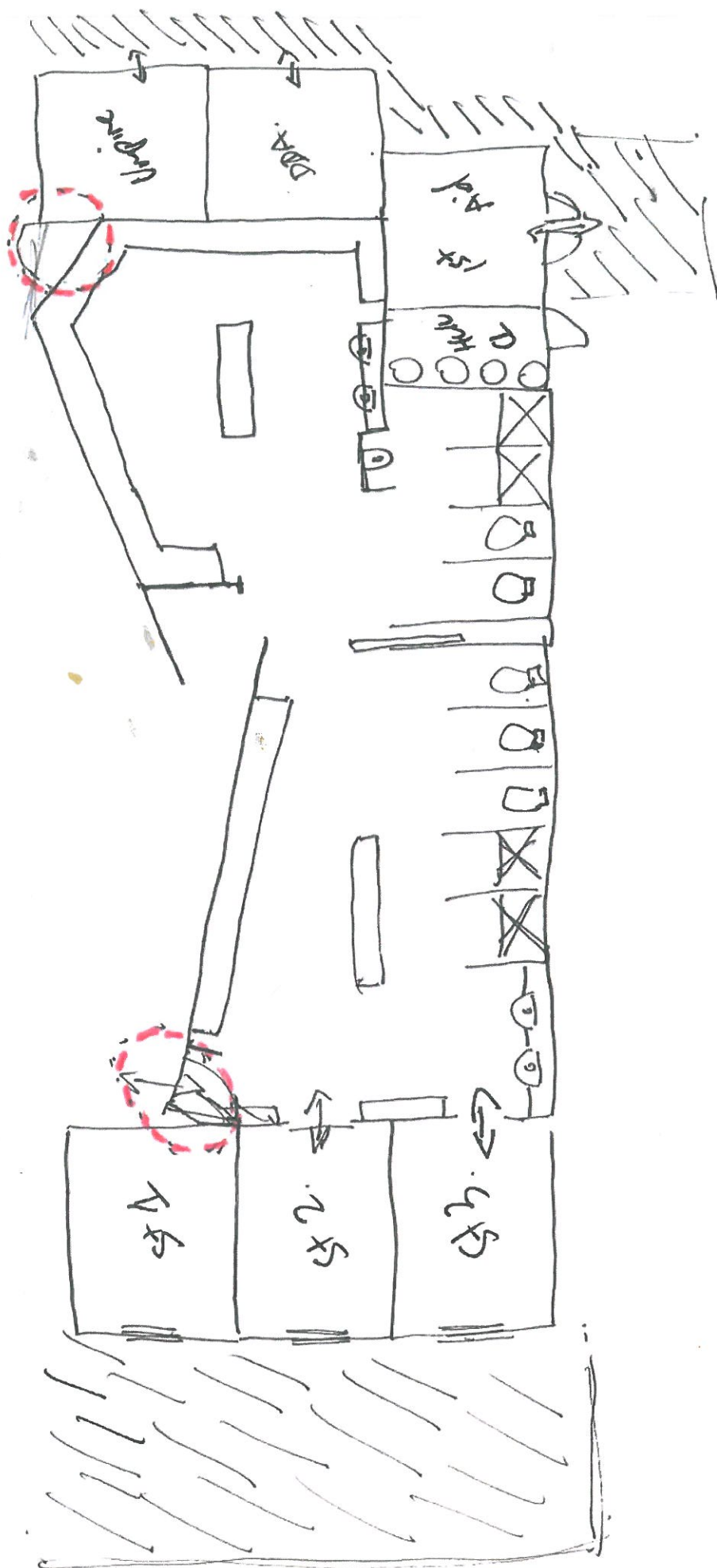
Architect: 19 Jewell Parade
North Fremantle, WA 6159
Postal Address: PO Box 100
North Fremantle, WA 6159
Phone (618) 9335 5220
Fax (618) 9335 5287

formworks
formwork delivery

Status: Ground Plan 1-100

Drawn: Ruth
Date Created: 10/10/14
Job no: 648
Drawing no: A00.103
Scale @ A3: 1:100
Approved: Nick Juniper
Date Plotted: 10/01/14 09:04 AM

Rev | Date | Amendment



**Tambrey Pavilion
Millars Well Dance Hall and Changing Rooms
CLIENT FEEDBACK**

Internal Officers have reviewed the Schematic Design reports for Tambrey Pavilion and Millars Well Dance Hall and Changing Rooms and provided the following feedback;

Tambrey

- Check if the existing car park numbers are sufficient for proposed occupancy
- The Cleaners Store is larger than briefed
- Vehicle access to the First Aid Room is not good
- The ramp that leads down to the oval is leading straight on to grass
- Doors leading into the UA Toilet look too small – Check these for compliance
- Minimise the use of windows/glass as this can be a security risk

Millars Well – Changing Rooms

- Poor vehicle and oval access to First Aid Room
- Long distance from Cleaners Store to internal areas – cleaners will need to carry equipment around the building.
- Size of the changing rooms has increased from the brief
- The current location may not be the best site

Millars Well – Dance Hall

- Door to the UA Toilet does not look to be of a compliant size
- Need to mark Existing Public Toilet as female

Please also see the attached documentation mark up.

Samantha Stewart
PROJECT OFFICER



schematic design report		PR3.34	
project	Millars Well Dance Hall	job no.	649
date	23-06-2014	page	21 of 26

APPENDIX THREE

SCHEDULE OF ACCOMMODATIONS

MILLARS WELL DANCE HALL AND CHANGING ROOMS

Schedule of Accommodation

Name	Area (m²)	Services	Fixtures, Fittings, Furniture	Finishes	Notes
DANCE HALL					
COMMUNITY HALL - EXISTING BUILDING					
Existing Hall	173	<ul style="list-style-type: none"> • Lighting - Dimmable house lighting and general lighting. House lighting to be arranged in zones to allow for flexible arrangements. • Airconditioning - required • Fire Detection - required • Security - required • Power points - even spacing around perimeter of room (in-floor location also) DGPO • Data points - required (in-floor) • Portable/securable sound system - required 	<ul style="list-style-type: none"> • Tables • Chairs • Floor/wall secured barres • Full length mirrors to walls 	Floor: transportable wooden sprung floor with tarkett or vinyl finish. Walls: brick with acoustic panels to interior, mirrors on some walls Ceilings: suspended acoustic metal strip ceiling Doors: lockable solid core timber doors with acoustic insulation. Window treatment: block out curtains or blinds.	To provide functional activity space. To be accessible from exterior and universally accessible. Appropriate sound isolation and room acoustics. Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6.
Kitchenette	23	<ul style="list-style-type: none"> • Lighting - Energy efficient triphosphor fluorescent. Emergency lighting required. • Airconditioning - required • Fire Detection - required • Security - required • PA system - not required • Power - 4x DGPO • Data point - required • TV - not required • Water & Waste - hot and cold water 	<ul style="list-style-type: none"> • Bench with cupboards under • Sink • Paper towel dispense • Soap dispenser • Storage for kitchen equipment • Fire extinguisher • Microwave • Oven • Urn 	Floor: resilient floor Ceilings: painted gyprock Walls: painted gyprock Doors: Lockable painted solid core timber door Windows: servery window with roller shutter	To provide basic food prep and tea prep for internal and external servery. To be located adjacent to and accessible by Hall. Lockable servery to both hall and verandah. Commercial not required. Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6.
Existing Change Room no. 1 (male)	45	<ul style="list-style-type: none"> • Lighting - Energy efficient triphosphor fluorescent. Emergency lighting required. • Airconditioning - exhaust fans • Fire Detection - required • Security - required • PA system - not required • Power - 3x DGPO • Telephone/Data - not required • TV - not required • Water & Waste - hot and cold to showers and hand basins & hot and cold to cleaners hose cock. Well drained to accommodate removal of dirt. 	<ul style="list-style-type: none"> • Towel / bag hooks x25 • Shower (on timer) x4 • Urinal x1 • Robust bench seating 	Floor: non-slip resilient floor Walls: Tiled to 1800 H, anti graffiti coated brickwork above Ceilings: no ceiling Doors: Lockable painted solid core timber door. Windows: not required	To provide quality change room facilities for users of the community hall. Accessed externally. Non-gender specific (although we need a urinal in one) to provide flexibility during major events. Internal door between the two change rooms required to allow the space to be opened up. Showers and basins to be on timers. Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6.

Name	Area (m²)	Services	Fixtures, Fittings, Furniture	Finishes	Notes
Existing Change Room no. 2 (female)	45	<ul style="list-style-type: none"> Lighting - Energy efficient triphosphor fluorescent. Emergency lighting required. Airconditioning - exhaust fans Fire Detection - required Security - required PA system - not required Power - 3x DGPO Telephone/Data - not required TV - not required Water & Waste - hot and cold to showers and hand basins & hot and cold to cleaners hose cock. Well drained to accommodate removal of dirt. 	<ul style="list-style-type: none"> Towel / bag hooks x25 Coat hook (back of toilet door) x3 Mirror x2 Hand basin (on timer) x2 Shower (on timer) x2 Toilet suite x3 (1xambulant) Toilet paper dispenser x3 robust bench seating 	Floor: non-slip resilient floor Walls: Tiled to 1800 H, anti graffiti coated brickwork above Ceilings: insulated, painted gyprock Doors: Lockable painted solid core timber door. Windows: not required	To provide quality change room facilities for users of the community hall. Accessed from multipurpose rooms and externally. Non-gender specific (although we need a urinal in one) to provide flexibility during major events. Internal door between the two change rooms required to allow the space to be opened up. Showers and basins to be on timers. Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6.
U/A WC and Shwr.	confirm	<ul style="list-style-type: none"> Lighting x1 Exhaust x1 Floor waste x2 	<ul style="list-style-type: none"> Mirror x1 Toilet paper dispenser x1 Toilet Suite x1 Hand Basin x1 Waste bin x1 Grab rails (WC) x1 Grab rails (shower) x1 Shower seat 	Floor: non-slip resilient floor Walls: Tiled to 1800 H, anti graffiti coated brickwork above Ceilings: insulated, painted gyprock Doors: Lockable painted solid core timber door. Windows: not required	Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6.
Internal Store 1	7	<ul style="list-style-type: none"> Lighting - Energy efficient triphosphor fluorescent office. Emergency lighting required. Fire Detection - required Security - required PA system - not required Power - 1x DGPO Telephone/Data - not required TV - not required Water & Waste - not required 	<ul style="list-style-type: none"> Stackable shelving units 	Floor: Painted concrete Walls: Painted block work Ceiling: Painted gyprock Door: Lockable painted double solid core timber door Windows: not required	To provide storeroom for hall users To be located adjacent to hall and accessible directly from the Hall. Required to store tables and chairs. Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6.
Internal Store 2	5	<ul style="list-style-type: none"> Lighting - Energy efficient triphosphor fluorescent office. Emergency lighting required. Fire Detection - required Security - required PA system - not required Power - 1x DGPO Telephone/Data - not required TV - not required Water & Waste - not required 	<ul style="list-style-type: none"> Stackable shelving units 	Floor: Painted concrete Walls: Painted block work Ceiling: Painted gyprock Door: Lockable painted double solid core timber door Windows: not required	To provide storeroom for hall users To be located adjacent to hall and accessible directly from the Hall. Required to store tables and chairs. Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6.
Subtotal	293				
Existing Cleaners Store		not in scope			
Existing UAT		not in scope			
Existing public toilets		not in scope			
Existing Electrical / Comms Cupboard		not in scope			
Subtotal	0				

EXTERNAL AREAS

Walkways & footpaths					Universal access from car park to hall and change room facilities
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Name	Area (m²)	Services	Fixtures, Fittings, Furniture	Finishes	Notes
Car parking	1200	<ul style="list-style-type: none"> Lighting: as required by AS's 		Floor: Bitumen	Provide safe parking facilities Reuse existing parking Review Town Planning Scheme No. 8, appendix 4 Allow for Service vehicles
Site Signage					Building name signs - provide 2 x 6000mm x 1500mm metal signs fixed to the front and rear of the building
Subtotal	1200				

CHANGING ROOMS

CHANGING ROOMS - NEW BUILDING

Circulation	TBC				
Change Room no. 1 (male)	53	<ul style="list-style-type: none"> Lighting - LED. Emergency lighting required. Airconditioning - exhaust fans Fire Detection - required Security - required PA system - not required Power - 3x DGPO Telephone/Data - not required TV - not required Water & Waste - hot and cold to showers and hand basins & hot and cold to cleaners hose cock. Well drained to accommodate removal of dirt. 	<ul style="list-style-type: none"> Towel / bag hooks x25 Coat hook (back of toilet door) x2 Mirror x2 Hand basin (on timer) x2 Shower (on timer) x2 Urinal x1 Toilet suite x3 Toilet paper dispenser x3 Robust bench seating 100mm from walls Water fountain 	Floor: non-slip resilient floor, able to be hosed down Walls: Tiled to 1800 H, anti graffiti coated brickwork above Skirting: curved tiles Ceilings: No ceiling over change area. Doors: Lockable painted solid core timber door. Security screens to all external doors. Windows: not required	To provide quality change room facilities for users of the sports ground Non-gender specific (although we need a urinal in one) to provide flexibility during major events. Internal door between the two change rooms required to allow the space to be opened up. Showers and basins to be on timers. Floors to be able to be hosed down. Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6.
Change Room no. 2 (female)	50	<ul style="list-style-type: none"> Lighting - LED. Emergency lighting required. Airconditioning - exhaust fans Fire Detection - required Security - required PA system - not required Power - 3x DGPO Telephone/Data - not required TV - not required Water & Waste - hot and cold to showers and hand basins & hot and cold to cleaners hose cock. Well drained to accommodate removal of dirt. 	<ul style="list-style-type: none"> Towel / bag hooks x25 Coat hook (back of toilet door) x3 Mirror x2 Hand basin (on timer) x2 Shower (on timer) x2 Toilet suite x3 Toilet paper dispenser x3 Robust bench seating 100mm from walls Water fountain 	Floor: non-slip resilient floor, able to be hosed down Skirting: curved tiles Walls: Tiled to 1800 H, anti graffiti coated brickwork above Ceilings: no ceiling over change area Doors: Lockable painted solid core timber door. Security screens to all external doors. Windows: not required	To provide quality change room facilities for users of the sports ground Non-gender specific (although we need a urinal in one) to provide flexibility during major events. Internal door between the two change rooms required to allow the space to be opened up. Showers and basins to be on timers. Floors to be able to be hosed down. Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6.
U/A WC & shower	7	<ul style="list-style-type: none"> LED Lighting x1 Exhaust x1 Floor waste x2 DGPO x1 	<ul style="list-style-type: none"> Mirror x1 Toilet paper dispenser x1 Toilet Suite x1 Hand Basin x1 Wastebin x1 Grab rails (WC) x1 Grab rails (shower) x1 Shower seat 	Floor: non-slip resilient floor, able to be hosed down Skirting: curved tiles Walls: Tiled to 1800 H, anti graffiti coated brickwork above Ceilings: insulated, painted gyprock Doors: Lockable painted solid core timber door. Security screens to all external doors. Windows: not required	Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6.

Name	Area (m²)	Services	Fixtures, Fittings, Furniture	Finishes	Notes
Umpire's room	7	<ul style="list-style-type: none"> Lighting - LED. Emergency lighting required. Airconditioning - exhaust fans Fire Detection - required Security - required PA system - not required Power - 3x DGPO Telephone/Data - not required TV - not required Water & Waste - hot and cold to showers and hand basins & cold only to WC. Well drained to accommodate removal of dirt. 	<ul style="list-style-type: none"> Towel / bag hooks x2 Mirror x1 Hand basin x1 Shower x1 Toilet suite x1 Toilet paper dispenser x1 Robust bench seating 100mm from walls 	Floor: non-slip resilient floor Skirting: curved tiles Walls: Tiled to 1800 H, anti graffiti coated brickwork above Ceilings: insulated, painted gyprock Doors: Lockable painted solid core timber door. Windows: not required	Provide a changing and showering area for an umpire. To be accessed internally and externally from Changing Room 2. Unisex to maximise flexibility. Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6
First Aid	7	<ul style="list-style-type: none"> Lighting - LED. Emergency lighting required. Airconditioning - exhaust fans Fire Detection - required Security - required PA system - not required Power - 4x DGPO Telephone/Data - not required TV - not required Water & Waste - hot and cold to hand basin. Well drained to accommodate removal of dirt. 	<ul style="list-style-type: none"> Hand basin x1 First aid bed x1 Tall shelved cupboard x1 	Floor: non-slip resilient floor Skirting: curved tiles Walls: Tiled to 1800 H, anti graffiti coated brickwork above Ceilings: insulated, painted gyprock Doors: Lockable painted solid core timber door. Windows: not required	High quality first aid room for users of the changing rooms. To be accessed externally It is intended that the first-aid room be used during games times. Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6
Subtotal	124				
External Store 1	10	<ul style="list-style-type: none"> Lighting - LEe. Emergency lighting required. Airconditioning - exhaust fans Fire Detection - required Security - required PA system - not required Power - 1x DGPO Telephone/Data - not required TV - not required Water & Waste - not required 	<ul style="list-style-type: none"> Stackable shelving units 	Floor: Painted concrete Walls: Painted block work Ceiling: Painted flush Villaboard lining Door: Lockable roller shutters Windows: not required	Store room for outdoor equipment. Internal door access and external roller door access. To house sports equipment as required Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6.
External Store 2	10	<ul style="list-style-type: none"> Lighting - LED. Emergency lighting required. Airconditioning - exhaust fans Fire Detection - required Security - required PA system - not required Power - 1x DGPO Telephone/Data - not required TV - not required Water & Waste - not required 	<ul style="list-style-type: none"> Stackable shelving units 	Floor: Painted concrete Walls: Painted block work Ceiling: Painted flush Villaboard lining Door: Lockable roller shutters Windows: not required	Store room for outdoor equipment. Internal door access and external roller door access. To house sports equipment as required Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6.
External Store 3	10	<ul style="list-style-type: none"> Lighting - LED. Emergency lighting required. Airconditioning - exhaust fans Fire Detection - required Security - not required PA system - not required Power - 1x DGPO Telephone/Data - not required TV - not required Water & Waste - not required 	<ul style="list-style-type: none"> Stackable shelving units 	Floor: Painted concrete Walls: Painted block work Ceiling: Painted flush Villaboard lining Door: Lockable roller shutters Windows: not required	Store room for outdoor equipment. External roller door access. To house sports equipment as required Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6.

Name	Area (m²)	Services	Fixtures, Fittings, Furniture	Finishes	Notes
Cleaners Store	3.5	<ul style="list-style-type: none"> Air conditioning - ventilation Lighting - LED, emergency lighting Security - required Fire detection - required Power - 1 x DGPO required Waste & Water - Hot and cold water required 	<ul style="list-style-type: none"> 1 x cleaners sink and tap (slops drain) Adjustable shelving Ventilated storage cupboard 	Floor: painted concrete - non-slip Walls: painted gyprock Ceiling: painted gyprock Door: lockable painted hollow core timber door	Wash down area for garden/outdoor maintenance staff, and storage area for lawn mowers and the like. Additional scope - extra storage. Keying to be Shire of Roebourne's Master Key system - Lockwood Generation 6
Subtotal	33.5				

COVERED OUTDOOR AREAS - NEW BUILDING

Verandahs & shade structures	200	<ul style="list-style-type: none"> Lighting: External lighting requirements depending on final layout. Water & Waste - water point/removable hosecock 			Shading to: major pedestrian routes outdoor gathering spaces eaves overhang (for shading internal areas)
Subtotal	200				

Existing building	293
Existing verandah	n/a
New building	157.5
New verandah	200
External Areas	1200
Gross Area	1850.5



APPENDIX FOUR

OPINION OF PROBABLE COSTS

Item	Description	Rate	Total
<u>EXECUTIVE SUMMARY</u>			
<u>DANCE HALL</u>			
1	Upgrading of existing Facility to Dance Hall		326,240
2	Provisional Sums		57,500
	<u>Subtotal</u>		<u>383,740</u>
3	Preliminaries (approx. 10%)	10 %	39,260
	<u>Subtotal</u>		<u>423,000</u>
4	Building Cost Escalation (up to July 2014 based on CCIF forecasts)	0.61 %	2,600
5	Design Contingency (approx 2%)	2 %	8,500
6	Building Contingency (approx 5%)	5 %	21,700
	<u>ESTIMATED TOTAL BUILDING COST (Excl GST)</u>		<u>455,800</u>
7	Professional Fees (approx. 8%)	8 %	36,500
8	Approval and Survey Fees (approx. 0.7%)	0.7 %	3,200
	<u>Subtotal</u>		<u>495,500</u>
9	Locality Factor for Karratha (Allowance)	0.55	234,500
	<u>ESTIMATED TOTAL COMMITMENT DANCE HALL</u>		<u>730,000</u>
10	FECA	231 m ²	
<u>CHANGEROOM FACILITIES</u>			
11	Upgrading of existing Changeroom facilities		111,310
12	Provisional Sums - Headworks		7,500
	<u>Subtotal</u>		<u>118,810</u>
13	Preliminaries (approx. 10%)	10 %	12,190
	<u>Subtotal</u>		<u>131,000</u>
14	Building Cost Escalation (up to July 2014 based on CCIF forecasts)	0.61 %	800
15	Design Contingency (approx 2%)	2 %	2,600
16	Building Contingency (approx 5%)	5 %	6,700
	<u>ESTIMATED TOTAL BUILDING COST (Excl GST)</u>		<u>141,100</u>
17	Professional Fees (approx. 8%)	8 %	11,300
18	Approval and Survey Fees (approx. 0.7%)	0.7 %	1,000
	<u>Subtotal</u>		<u>153,400</u>
19	Locality Factor for Karratha (Allowance)	0.55	72,600
	<u>ESTIMATED TOTAL COMMITMENT CHANGEROOM FACILITIES</u>		<u>226,000</u>
20	FECA	92 m ²	
<u>NOTES & EXCLUSIONS</u>			
21	This Opinion of Probable Cost (OPC) is preliminary and can vary substantially based on the final scope and specification of work		

Item	Description			Rate	Total
22	The rates used in this OPC are based on the works being procured via a conventional, competitive tendering process				
23	Assumed all connections to existing services				
	<u>This OPC has been based on the following documentation and assumptions:</u>				
24	- Preliminary drawings and Brief Schedules as received from Formworks Architecture on the 10th April 2014.				
25	Budget figures as received from WSP Group for Electrical, Mechanical and Fire Services.				
	<u>The following has been specifically excluded from this OPC for which separate provision should be made as required</u>				
26	- Artwork				
27	- Abnormal site conditions				
28	- Relocation of existing services				
29	- Works outside the site boundaries				
30	- Goods & Services Tax				
	<u>Optional Items</u>				
	<u>(These costs exclude Preliminaries, Contingencies, Professional Fees and Locality factor)</u>				
31	New ceilings to Dance Hall				34,200
32	Operable wall				46,800

OPINION OF PROBABLE COST

Project: Millars Well Karratha
Building: Dance Hall & Changerooms

Details: Dance Hall - Revision 4

Item	Description	Qty	Unit	Rate	Total
1 Upgrading of existing Facility to Dance Hall					
1.1	Alterations and Demolitions			107.01	24,700
1.2	Windows			15.16	3,500
1.3	External doors			22.53	5,200
1.4	Internal walls			15.16	3,500
1.5	Internal doors			23.83	5,500
1.6	Wall Finishes			121.74	28,100
1.7	Floor Finishes			214.19	49,440
1.8	Ceiling Finishes			44.19	10,200
1.9	Fitments			126.51	29,200
1.10	Special Equipment			23.83	5,500
1.11	Sanitary Plumbing			11.26	2,600
1.12	Mechanical Services			146.00	33,700
1.13	Fire Protection			121.74	28,100
1.14	Electrical Services			420.24	97,000
		-		-	
	Total	231	m2	1,413.40	326,240

Item	Description	Qty	Unit	Rate	Subtotal	Total
1	Upgrading of existing Facility to Dance Hall					
1.1	Alterations and Demolitions					
1	Take out and remove existing ceilings and prepare to receive new (Kitchen and Stores)	60	m2	10.00	600	600
2	Take out and remove existing floor coverings and prepare to receive new	120	m2	10.00	1,200	1,200
3	Take out and remove single door	9	No	100.00	900	900
4	Take out and remove double door	2	No	100.00	200	200
5	Take out and remove existing window from wall, including sill, etc.	1	No	150.00	150	150
6	External face blockwork in building up openings, including making good render on inside (paintwork msd. sep.)	15	m2	450.00	6,750	6,750
7	Cut into existing external wall for new single door, including forming lintel over (door msd. sep.)	1	No	550.00	550	550
8	Cut into existing external wall for new double door, including forming lintel over (door msd. sep.)	1	No	800.00	800	800
9	Cut into existing external wall for service hatch from Kitchen, including forming lintol over and making good of opening	1	No	630.00	630	630
10	Cut into existing internal wall for new single door, including forming lintel over (door msd. sep.)	1	No	250.00	250	250
11	Cut into existing internal wall for new double door, including forming lintel over (door msd. sep.)	1	No	400.00	400	400
12	Demolish and remove toilet/shower cubicle, including door	3	No	50.00	150	150
13	Making good opening in 140 block wall where door removed	1	No	120.00	120	120
14	Demolish and remove internal block walls	165	m2	40.00	6,600	6,600
15	Make good existing concrete ground floor slab where wall removed	43	m	40.00	1,720	1,720
16	Allow for demolishing and removing of all fixtures and fittings	230	m2	10.00	2,300	2,300
17	Sundry demolitions		Item		1,380	1,380
	Total					24,700
1.2	Windows					
18	Powdercoated aluminium window to Servery at Kitchen	2	m2	500.00	1,000	1,000
19	Allow for block-out curtains/blinds to existing windows in Dance Hall	10	m2	250.00	2,500	2,500
	Total					3,500
1.3	External doors					
20	Timber single doors including frame, paint and hardware	1	No	800.00	800	800
21	Timber double doors including frame, paint and hardware	1	m2	1,300.00	1,300	1,300
22	Roller door to Service window at Kitchen	2	m2	300.00	600	600

Item	Description	Qty	Unit	Rate	Subtotal	Total
1	Upgrading of existing Facility to Dance Hall					<i>(Continued)</i>
1.3	External doors					<i>(Continued)</i>
23	Security screens to all external doors	10	m2	250.00	2,500	2,500
	TOTAL					5,200
1.4	Internal walls					
24	Single skin internal face block wall with flush joints to all internal faces	50	m2	70.00	3,500	3,500
	Total					3,500
1.5	Internal doors					
25	Timber single doors including frame, paint and hardware	5	No	800.00	4,000	4,000
26	Decorative roller shutter door to Kitchen Servery	3	m2	500.00	1,500	1,500
	Total					5,500
1.6	Wall Finishes					
27	Plasterboard direct fixed to face block walls including paint (Kitchen and new Stores)	130	m2	50.00	6,500	6,500
28	Render and ceramic tiles to block walls (PC \$45/m2) (Kitchen)	40	m2	150.00	6,000	6,000
29	Mirror cladding to walls	50	m2	300.00	15,000	15,000
30	Acoustic insulation around Comms room	30	m2	20.00	600	600
	Total					28,100
1.7	Floor Finishes					
31	Timber sprung floor in Dance Hall with vinyl finish	180	m2	240.00	43,200	43,200
32	Painted concrete floors in storerooms	30	m2	20.00	600	600
33	Ceramic floor tiles in Kitchen (PC \$45/m2)	40	m2	130.00	5,200	5,200
34	Anti-static vinyl sheeting in Comms room	4	m2	110.00	440	440
	Total					49,440
1.8	Ceiling Finishes					
35	Repaint existing ceiling in Dance Hall	180	m2	25.00	4,500	4,500
36	Flush plasterboard suspended ceiling including insulation and paint to Kitchen and new Stores	60	m2	90.00	5,400	5,400
37	Ceiling access panels	1	No	300.00	300	300
	Total					10,200
1.9	Fitments					
38	Timber barres in Dance Hall	25	m	140.00	3,500	3,500
39	Kitchen bench cupboards with laminated tops	12	m	900.00	10,800	10,800
40	Servery counters	5	m	600.00	3,000	3,000
41	Storage cupboard in Cleaners	1	No	1,200.00	1,200	1,200
42	Open wall shelving	17	m	600.00	10,200	10,200
43	Allow for signage		Item		500	500
	Total					29,200

Item	Description	Qty	Unit	Rate	Subtotal	Total
1	Upgrading of existing Facility to Dance Hall					<i>(Continued)</i>
1.10	Special Equipment					<i>(Continued)</i>
44	Microwave	1	No	800.00	800	800
45	Bench mounted electric cook top	1	No	1,000.00	1,000	1,000
46	Underbench electric oven	1	No	2,000.00	2,000	2,000
47	Range hood	1	No	1,500.00	1,500	1,500
48	Electric urn	1	No	200.00	200	200
	Total					5,500
1.11	Sanitary Plumbing					
49	All sanitary fittings connected to existing pipework with minor modifications		Note			
50	Stainless steel sink including tapware	1	No.	2,600	2,600	2,600
	Total					2,600
1.12	Mechanical Services					
51	Estimates by WSP Group dated 6 May 2014		Note			
52	Mechanical ventilation to Kitchen including exhaust hood, ductwork and roof cowl		Item		2,500	2,500
53	Airconditioning (split units x 2) to Hall		Item		10,000	10,000
54	Controls and wiring, balancing and commissioning		Item		12,000	12,000
55	Miscellaneous, Drawings and Manuals		Item		7,500	7,500
56	Builders work and margin		Item		1,700	1,700
	Total					33,700
1.13	Fire Protection					
57	Estimates by WSP Group dated 5 May 2014		Note			
58	Fire detection and alarm system including fire extinguisher	1	Item	26,800	26,800	26,800
59	Allow for builders work and margin	1	Item		1,300	1,300
	Total					28,100
1.14	Electrical Services					
60	Estimates by WSP Group dated 5 May 2014		Note			
61	Allow for demolitions and disconnections		Item		10,000	10,000
62	Allow for sub main and distribution		Item		20,000	20,000
63	Power including work to main site switchboard		Item		29,000	29,000
64	Internal lighting		Item		23,200	23,200
65	Commissioning, etc.		Item		8,000	8,000
66	Data installation		Item		4,000	4,000
67	Security installation		Item		Excluded	Excluded
68	CCTV installation		Item		Excluded	Excluded
69	Builders work and margin		Item		2,800	2,800
	Total					97,000

OPINION OF PROBABLE COST

Project: Millars Well Karratha
Building: Dance Hall & Changerooms

Details: Dance Hall - Revision 4

Item	Description	Qty	Unit	Rate	Total
2 Provisional Sums					
2.1	Provisional sum amount for Headworks	1	Psum		7,500
2.2	Provisional sum amount for External Facade Works to existing Dance Hall	1	Psum		50,000
	Total	-	-	-	57,500

Project: Millars Well Karratha Building: Dance Hall & Changerooms	Details: Dance Hall - Revision 4
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Item	Description	Qty	Unit	Rate	Total
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5 New ceilings to Dance Hall

5.1	Take out and remove existing ceilings and prepare to receive new	180	m2	10.00	1,800
5.2	Acoustic panel strip ceiling in Dance Hall, including insulation	180	m2	180.00	32,400
	<u>TOTAL</u>				<u>34,200</u>

Project: Millars Well Karratha Building: Dance Hall & Changerooms	Details: Dance Hall - Revision 4
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Item	Description	Qty	Unit	Rate	Total
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6 Operable wall

6.1	Acoustic rated operable wall including bulkhead above	30	m2	1,560.00	46,800
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OPINION OF PROBABLE COST

Project: Millars Well Karratha
Building: Dance Hall & Changerooms

Details: Dance Hall - Revision 4

Item	Description	Qty	Unit	Rate	Total
3 Upgrading of existing Changeroom facilities					
3.1	Alterations and Demolitions			65.85	6,000
3.2	Internal walls			7.68	700
3.3	Internal screen and borrowed lights			39.51	3,600
3.4	Internal doors			8.78	800
3.5	Wall Finishes			117.99	10,750
3.6	Floor Finishes			19.76	1,800
3.7	Ceiling Finishes			98.78	9,000
3.8	Fitments			168.04	15,310
3.9	Sanitary Plumbing			181.10	16,500
3.10	Mechanical Services			57.62	5,250
3.11	Fire Protection			83.42	7,600
3.12	Electrical Services			373.18	34,000
		-		-	
	Total	91	m2	1,221.71	<u>111,310</u>

Item	Description	Qty	Unit	Rate	Subtotal	Total
3	Upgrading of existing Changeroom facilities					
3.1	Alterations and Demolitions					
70	Take out and remove existing ceilings and prepare to receive new	100	m2	10.00	1,000	1,000
71	Take out and remove single door	1	No	100.00	100	100
72	Take out and remove roller shutter door	1	No	150.00	150	150
73	External face blockwork in building up openings, including making good render on inside (paintwork msd. sep.)	6	m2	450.00	2,700	2,700
74	Demolish and remove toilet/shower cubicle, including door	3	No	50.00	150	150
75	Demolish and remove internal block walls	12	m2	40.00	480	480
76	Make good existing concrete ground floor slab where wall removed	4	m	40.00	160	160
77	Allow for demolishing and removing of all fixtures and fittings	100	m2	10.00	1,000	1,000
78	Sundry demolitions		Item		260	260
	Total					6,000
3.2	Internal walls					
79	Single skin internal face block wall with flush joints to all internal faces	10	m2	70.00	700	700
	Total					700
3.3	Internal screen and borrowed lights					
80	Toilet partition cubicle with frame and door	3	No	1,200.00	3,600	3,600
	Total					3,600
3.4	Internal doors					
81	Timber single doors including frame, paint and hardware	1	No	800.00	800	800
	Total					800
3.5	Wall Finishes					
82	Anti-graffiti paint to face block walls	250	m2	25.00	6,250	6,250
83	Render and ceramic tiles to face block walls (PC \$45/m2) (Showers and splashbacks)	30	m2	150.00	4,500	4,500
	Total					10,750
3.6	Floor Finishes					
84	Paint existing concrete floors	90	m2	20.00	1,800	1,800
	Total					1,800
3.7	Ceiling Finishes					
85	Flush plasterboard suspended ceiling including insulation and paint	90	m2	90.00	8,100	8,100
86	Ceiling access panels	3	No	300.00	900	900
	Total					9,000

Item	Description	Qty	Unit	Rate	Subtotal	Total
3	Upgrading of existing Changeroom facilities					<i>(Continued)</i>
3.8	Fitments					<i>(Continued)</i>
87	Changeroom benches	22	m	350.00	7,700	7,700
88	Mirrors to basins	9	No	250.00	2,250	2,250
89	Grab rails in UAT and Ambulatory WC's	7	No	300.00	2,100	2,100
90	Paper towel dispenser	1	No	50.00	50	50
91	Toilet paper dispenser	6	No	80.00	480	480
92	Soap dispenser	1	No	80.00	80	80
93	Bag hooks	50	No	30.00	1,500	1,500
94	Coat hooks	5	No	30.00	150	150
95	Waste bin	1	No	150.00	150	150
96	Shower seat	1	No	350.00	350	350
97	Fixed seating bench (Undercover area)	2	No	1,200.00	Excluded	Excluded
98	Allow for signage		Item		500	500
	Total					15,310
3.9	Sanitary Plumbing					
99	All sanitary fittings connected to existing pipework with minor modifications		Note			
100	WC pan & cistern	5	No.	1,000	5,000	5,000
101	Urinal	1	No	1,500	1,500	1,500
102	Vanity basin including tapware	6	No.	1,000	6,000	6,000
103	Shower and tapware	4	No.	1,000	4,000	4,000
	Total					16,500
3.10	Mechanical Services					
104	Estimates by WSP Group dated 5 May 2014		Note			
105	Mechanical ventilation to Change Rooms and Toilets		Item		5,000	5,000
106	Miscellaneous, Drawings and Manuals		Item		Excluded	Excluded
107	Builders work and margin		Item		250	250
	Total					5,250
3.11	Fire Protection					
108	Estimates by WSP Group dated 5 May 2014		Note			
109	Fire detection and alarm system including fire extinguisher	90	m2	80.00	7,200	7,200
110	Allow for builders work and margin		Item		400	400
	Total					7,600
3.12	Electrical Services					
111	Estimates as WSP Group dated 5 May 2014		Note			
112	Allow for demolitions and disconnections		Item		10,000	10,000
113	Power including work to main site switchboard		Item		14,700	14,700

Item	Description	Qty	Unit	Rate	Subtotal	Total
3	Upgrading of existing Changeroom facilities					<i>(Continued)</i>
3.12	Electrical Services					<i>(Continued)</i>
114	Internal lighting		Item		7,700	7,700
115	Builders work and margin		Item		1,600	1,600
	<u>Total</u>					<u>34,000</u>

Project: Millars Well Karratha Building: Dance Hall & Changerooms	Details: Dance Hall - Revision 4
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Item	Description	Qty	Unit	Rate	Total
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4 Provisional Sums - Headworks

4.1	Provisional sum amount for Headworks	1	Psum		7,500
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Item	Description	Rate		Total
<u>EXECUTIVE SUMMARY</u>				
1	New Changeroom Facility			418,090
2	External works and Services			110,910
3	Provisional Sums - Headworks			20,000
	Subtotal			<u>549,000</u>
4	Preliminaries (approx. 10%)	10	%	55,000
	Subtotal			<u>604,000</u>
5	Building Cost Escalation (up to July 2014 based on CCIF forecasts)	0.61	%	3,700
6	Design Contingency (approx 2%)	2	%	12,200
7	Building Contingency (approx 5%)	5	%	31,000
	<u>ESTIMATED TOTAL BUILDING COST</u>			<u>650,900</u>
8	Professional Fees (approx. 8%)	8	%	52,100
9	Approval and Survey Fees (approx. 0.7%)	0.7	%	4,600
	Subtotal			<u>707,600</u>
10	Locality Factor for Karratha (allowance)	0.55		332,400
	<u>ESTIMATED TOTAL BUILDING COST</u>			<u>1,040,000</u>
11	FECA	158	m²	
<u>NOTES & EXCLUSIONS</u>				
12	This Opinion of Probable Cost (OPC) is preliminary and can vary substantially based on the final scope and specification of work			
13	The rates used in this OPC are based on the works being procured via a conventional, competitive tendering process			
	<u>This OPC has been based on the following documentation and assumptions:</u>			
14	- Preliminary drawings and Brief Schedules as received from Formworks Architecture on the 10th April 2014.			
15	Budget figures as received from WSP Group for Electrical, Mechanical and Hydraulic Services.			
	<u>The following has been specifically excluded from this OPC for which separate provision should be made as required</u>			
16	- Artwork			
17	- Abnormal site conditions			
18	- Relocation of existing services			
19	- Works outside the site boundaries			
20	- Goods & Services Tax			

OPINION OF PROBABLE COST

Project: Millars Well Karratha
Building: Dance Hall & Changerooms

Details: New Change Rooms - Revision 4

Item	Description	Qty	Unit	Rate	Total
1	New Changeroom Facility				
1.1	Substructure			156.14	24,670
1.2	Columns			172.15	27,200
1.3	Roofs			627.85	99,200
1.4	External walls			437.34	69,100
1.5	External doors			86.08	13,600
1.6	Internal walls			110.76	17,500
1.7	Internal screen and borrowed lights			81.65	12,900
1.8	Internal doors			27.85	4,400
1.9	Wall Finishes			147.47	23,300
1.10	Floor Finishes			91.14	14,400
1.11	Ceiling Finishes			66.46	10,500
1.12	Fitments			145.38	22,970
1.13	Sanitary Plumbing			329.75	52,100
1.14	Mechanical Services			-	-
1.15	Fire Protection			73.10	11,550
1.16	Electrical Services			93.04	14,700
	Total	158		2,646.14	<u>418,090</u>

Item	Description	Qty	Unit	Rate	Subtotal	Total
1.16 New Changeroom Facility						
1.1 Substructure						
1	Strip footings	12	m3	490.00	5,880	5,880
2	Pad footings	8	m3	550.00	4,400	4,400
3	Concrete ground floor slab 100mm thick with 72 mesh	170	m2	55.00	9,350	9,350
4	Thickenings	12	m3	420.00	5,040	5,040
	Total					24,670
1.2 Columns						
5	100 x 6.0 SHS columns, including connections	160	m	170.00	27,200	27,200
	Total					27,200
1.3 Roofs						
6	Mono-pitched steel roof framing including including purlins and girts	410	m2	190.00	77,900	77,900
7	Colorbond roof sheeting to 12 degree pitch, including,flashings,cappings etc. (no insulation)	410	m2	50.00	20,500	20,500
8	Eaves treatment	80	m	10.00	800	800
9	Eaves gutters	80	m		Excluded	Excluded
10	Downpipes	50	m		Excluded	Excluded
	Total					99,200
1.4 External walls						
11	Single face brick wall including piers	70	m2	70.00	4,900	4,900
12	250 Cavity face brick walls including insulation	40	m2	210.00	8,400	8,400
13	External steel stud framed walls, including insulation with colorbond vertical cladding externally and plasterboard internally	110	m2	180.00	19,800	19,800
14	Extra over cost to allow for decorative/coloured/patterned colorbond	100	m2	40.00	4,000	4,000
15	Decorative mesh screens to HWU's	10	m2	350.00	3,500	3,500
16	Decorative mesh screens to spandrels	80	m2	350.00	28,000	28,000
17	Extra over decorative mesh screens for gates	2	No	250.00	500	500
	Total					69,100
1.5 External doors						
18	Timber single doors including frame, paint and hardware	5	No	800.00	4,000	4,000
19	Roller shutter doors to stores	12	m2	300.00	3,600	3,600
20	Security screens to all external doors	10	m2	300.00	3,000	3,000
21	Decorative mesh screen gates to Changerooms	2	No	1,500.00	3,000	3,000
	Total					10,600
1.6 Internal walls						
22	Single skin internal face brick wall	170	m2	70.00	11,900	11,900

Item	Description	Qty	Unit	Rate	Subtotal	Total
1.16 New Changeroom Facility						<i>(Continued)</i>
1.6 Internal walls						<i>(Continued)</i>
23	Internal stud framed wall with plasterboard both sides, including insulation	40	m2	140.00	5,600	5,600
	Total					17,500
1.7 Internal screen and borrowed lights						
24	Screens to changerooms	6	m2	350.00	2,100	2,100
25	Toilet partition cubicle with frame and door	5	No	1,200.00	6,000	6,000
26	Shower partition cubicle with frame and door	4	No	1,200.00	4,800	4,800
	Total					12,900
1.8 Internal doors						
27	Timber single doors including frame, paint and hardware	3	No	800.00	2,400	2,400
28	Timber sliding door including hardware and paint	1	No	2,000.00	2,000	2,000
	Total					4,400
1.9 Wall Finishes						
29	Anti-graffiti painting to face brick walls	420	m2	25.00	10,500	10,500
30	Tiling on render in showers and splash backs (PC \$45/m2)	30	m2	150.00	4,500	4,500
31	Tiling on plasterboard walls (PC \$45/m2)	50	m2	110.00	5,500	5,500
32	Paint to plasterboard walls	140	m2	20.00	2,800	2,800
	Total					23,300
1.1 Floor Finishes						
33	Painted concrete floors in storerooms	35	m2	20.00	700	700
34	Ceramic floor tiles in UAT, Umpire and First Aid (PC \$45/m2)	30	m2	130.00	3,900	3,900
35	Exposed aggregate concrete finish in Changerooms	110	m2	80.00	8,800	8,800
36	Allow for skirtings	40	m	25.00	1,000	1,000
	Total					14,400
1.11 Ceiling Finishes						
37	Flush plasterboard suspended ceiling including paint	60	m2	90.00	5,400	5,400
38	Allow for paint to steel structure	390	m2	10.00	3,900	3,900
39	Ceiling access panels	4	No	300.00	1,200	1,200
	Total					10,500
1.12 Fitments						
40	Storage cupboard in Cleaners	1	No	1,200.00	1,200	1,200
41	Storage cupboard in First Aid	1	No	2,400.00	2,400	2,400
42	Changeroom benches	20	m	350.00	7,000	7,000
43	Changeroom vanities	6	m	700.00	4,200	4,200

Item	Description	Qty	Unit	Rate	Subtotal	Total
1.16 New Changeroom Facility						<i>(Continued)</i>
1.12 Fitments						<i>(Continued)</i>
44	Mirrors to basins	7	No	250.00	1,750	1,750
45	Grab rails in UAT and Ambulatory WC's	5	No	300.00	1,500	1,500
46	Paper towel dispenser	1	No	50.00	50	50
47	Toilet paper dispenser	8	No	80.00	640	640
48	Soap dispenser	1	No	80.00	80	80
49	Bag hooks	50	No	30.00	1,500	1,500
50	Coat hooks	5	No	30.00	150	150
51	Waste bin	1	No	150.00	150	150
52	Shower seat	1	No	350.00	350	350
53	Fixed seating bench (Undercover area)	2	No		Excluded	Excluded
54	Allow for signage		Item		2,000	2,000
	Total					22,970
1.13 Sanitary Plumbing						
55	WC pan & cistern	7	No.	3,000	21,000	21,000
56	Urinal	1	No	2,800	2,800	2,800
57	Vanity basin including tapware	7	No.	1,500	10,500	10,500
58	Shower and tapware	4	No.	1,000	4,000	4,000
59	Stainless steel sink including tapware	1	No.	2,600	2,600	2,600
60	Cleaners trough	1	No	2,300	2,300	2,300
61	Water fountain	2	No	4,000.00	8,000	8,000
62	Install only hosecock (outside building)	2	No.	450.00	900	900
	Total					52,100
1.14 Mechanical Services						
63	Natural ventilation only		Item		Excluded	Excluded
	Total					=
1.15 Fire Protection						
64	Fire detection and alarm system	160	m2	70.00	11,200	11,200
65	Fire extinguishers	1	No	350.00	350	350
	Total					11,550
1.16 Electrical Services						
66	Estimates as WSP Group dated 5 May 2014		Note			
67	Internal lighting		Item		9,000	9,000
68	Internal power		Item		5,000	5,000
69	Security installation		Item		Excluded	Excluded
70	CCTV installation		Item		Excluded	Excluded
71	Builders work and margin		Item		700	700
	Total					14,700

Project: Millars Well Karratha Building: Dance Hall & Changerooms	Details: New Change Rooms - Revision 4
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Item	Description	Qty	Unit	Rate	Total
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2 External works and Services

2.1	Site Preparation				9,000
2.2	Services Roads and Paved Areas				21,400
2.3	Landscaping and Improvements				20,000
2.4	External Stormwater Drainage				10,000
2.5	External Sewer Drainage				20,000
2.6	External Water Supply				10,000
2.7	External Fire Protection				Excl
2.8	External Electrical Light and Power				20,500

Item	Description	Qty	Unit	Rate	Subtotal	Total
3	External works and Services					
2.1	Site Preparation					
72	Clear site and prepare building pad	600	m2	15.00	9,000	9,000
	Total					9,000
2.2	Services Roads and Paved Areas					
73	75 Coloured concrete paving to footpaths and around building	210	m2	60.00	12,600	12,600
74	Soft fall foot paths in bitumen road including cutting away bitumen and earth preparation	40	m2	220.00	8,800	8,800
	Total					21,400
2.3	Landscaping and Improvements					
75	Allow for soft landscaping and trees	1	Item		20,000	20,000
	Total					20,000
2.4	External Stormwater Drainage					
76	Allow for stormwater drainage		Item		10,000	10,000
77	Allow for relocation of existing services		Item		Excluded	Excluded
	Total					10,000
2.5	External Sewer Drainage					
78	Allow for external Sewer Drainage		Item		20,000	20,000
79	Allow for relocation of existing services		Item		Excluded	Excluded
	Total					20,000
2.6	External Water Supply					
80	Allow for external Water Supply		Item		10,000	10,000
81	Allow for relocation of existing services		Item		Excluded	Excluded
	Total					10,000
3	External Electrical Light and Power					
82	Estimates as WSP Group dated 5 May 2014		Note			
83	Allow for external Electrical services		Item		10,000	10,000
84	Allow for relocation of existing services		Item		10,000	10,000
85	Builders work and margin		Item		500	500
	Total					20,500

OPINION OF PROBABLE COST

Project: Millars Well Karratha Building: Dance Hall & Changerooms	Details: New Change Rooms - Revision 4
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Item	Description	Qty	Unit	Rate	Total
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3 Provisional Sums - Headworks

3.1	Provisional sum amount for Headworks	1	Psum		20,000
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project	Millars Well Dance Hall	job no.	649
date	23-06-2014	page	23 of 26

APPENDIX FIVE

SAFETY IN DESIGN SUMMARY

project	Millars Well Dance Hall		
job no.	649		
date	23/05/2014	page	1 of 9
issued for	Schematic design		
revision			

REF NO	ELEMENT OF DESIGN/ACTIVITY	DESCRIPTION OF HAZARD	DEGREE OF RISK		RISK RATING 1, 2 or 3	ACTION TAKEN BY DESIGNER TO REDUCE RISK	RESIDUAL RISK RATING 1, 2 or 3	RESIDUAL RISK TO BE ADDRESSED BY CONTRACTOR / ANY SPECIAL INSTRUCTIONS
			Severity	Likelihood				
A1	CONCEPT DESIGN / FEASIBILITY					- Health and Safety issues have been assessed and reviewed as part of the design development. Potential risks have been designed out where possible. Remaining risks have been revaluated and alternative design proposals adopted wherever possible to reduce the risk.		
A2	GENERAL SITE CONDITIONS							
2.2	Previous / Existing use of site / Contamination	- An existing pavilion space exists on the site. This is to be retained and renovated. The oval is currently in use and the KATS football club occupies the existing clubroom facility. The local fire brigade utilises an existing storage facility and training road on the site.	L	L	1	- Identified as part of Designer Hazard and Risk Assessment.	1	- Contractor to ensure adequate security to building site to ensure users of other facilities are safe from hazards and supply method statement. - Activities within the existing pavilion to be relocated or suspended until facility refurbishment is complete.

SEVERITY	H	M	L
	3	2	1
	3	2	1
	2	1	1

SEVERITY
H – Fatality, major injury causing long term disability
M – Injury or illness causing short term disability
L – Other injury or illness

LIKELIHOOD
H – Certain or near certain
M – Reasonably likely
L – Very seldom or never

RISK RATING
3 = High risk – Action required
2 = Medium risk – Action required unless good reason.
1 = Low risk – No action required

project	Millars Well Dance Hall & Changing Rooms	job no.	649
date	23/05/2014	page	2 of 9

REF NO	ELEMENT OF DESIGN/ACTIVITY	DESCRIPTION OF HAZARD	DEGREE OF RISK		RISK RATING 1, 2 or 3	ACTION TAKEN BY DESIGNER TO REDUCE RISK	RESIDUAL RISK RATING 1, 2 or 3	RESIDUAL RISK TO BE ADDRESSED BY CONTRACTOR / ANY SPECIAL INSTRUCTIONS
			Severity	Likelihood				
2.3	Extreme weather	- The site is in a Severe Category Region D Cyclone Zone and may be subject to extreme weather conditions. Karratha is also subject to heavy rainfall and high temperatures.	M	H	3	- Design is to be cyclone rated and surfaces graded to provide adequate stormwater runoff.	2	- Structural Engineer is to make an inspection during construction to ensure design for cyclonic conditions is being met. - Contractor to provide a Cyclone Management Plan. - Contractor method statements required for extreme weather conditions and stormwater management.
2.9	Children / Playgrounds	- There is an existing playground structure on site and a primary school adjacent. There is a child care facility directly adjacent to the existing pavilion. Risk to children from falling or dangerous materials, earthworks and dust.	M	L	1	- Identified as part of Designer Hazard and Risk Assessment.	1	- Contractor to ensure adequate security to building site to ensure users of other facilities are safe from hazards and supply method statement. - Consideration of scheduling of demolition, removal of materials and dust control during construction.
2.11	Adjoining structures / Party structures	- There is an existing KATS clubroom and Fire Brigade training centre on site.	L	L	1	- Identified as part of Designer Hazard and Risk Assessment.	1	- Contractor to ensure adequate security to building site to ensure users of other facilities are safe from hazards and supply method statement.
2.12	Water services	- The water corporation has found a critical pipeline in the area and contact may need to be made prior to digging. Risk of burst pipe.	L	L	1	- Identified as part of Designer Hazard and Risk Assessment and Dial Before You Dig investigation performed.	1	- Contractor to provide method statements.
2.13	Electricity cables – underground / overhead	- There is an underground power network throughout the site. Risk of electrocution.	M	H	3	- Identified as part of Designer Hazard and Risk Assessment and Dial Before You Dig investigation performed.	1	- Contractor to provide method statements.

SEVERITY	H	M	L
	3	2	1
	3	2	1
	2	1	1

SEVERITY		
H	3	Fatality, major injury causing long term disability
M	2	Injury or illness causing short term disability
L	1	Other injury or illness

LIKELIHOOD		
H	3	Certain or near certain
M	2	Reasonably likely
L	1	Very seldom or never

RISK RATING		
3	High risk	Action required
2	Medium risk	Action required unless good reason.
1	Low risk	No action required

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REF NO	ELEMENT OF DESIGN/ACTIVITY	DESCRIPTION OF HAZARD	DEGREE OF RISK		RISK RATING 1, 2 or 3	ACTION TAKEN BY DESIGNER TO REDUCE RISK	RESIDUAL RISK RATING 1, 2 or 3	RESIDUAL RISK TO BE ADDRESSED BY CONTRACTOR / ANY SPECIAL INSTRUCTIONS
			Severity	Likelihood				
2.16	Communications (Telstra, Cable, etc.)	- There are no fibre optic cables in the area, however, a major network is present in the plot area. Risk of interfering with cables.	L	L	1	- Identified as part of Designer Hazard and Risk Assessment and Dial Before You Dig investigation performed.	1	- Contractor to provide method statements.
2.17	Sewers	- The existing building is connected to mains sewerage. Risk of contact with contaminated sewerage water.	M	L	2	- Identified as part of Designer Hazard and Risk Assessment.	1	- Contractor to provide method statements.
2.18	Existing roads and access to site	- The site is currently accessed from Tillbrook Place or Teesdale Place. A traffic management plan will be required during construction.	L	L	1	- Traffic Management Plan to be agreed with Shire of Roebourne prior to commencement	1	- Contractor method statements required, including details of all site and construction traffic access proposals & access restrictions.
2.19	Traffic management	- A traffic management plan will be required during construction.	L	L	1	- Traffic Management Plan to be agreed with Shire of Roebourne prior to commencement	1	- Contractor method statements required, including details of all temporary public rights of ways. - Contractor to agree segregation of public rights of ways / road closures with Shire of Roebourne. - Contractor to provide Traffic Management Plan.
2.20	Public roads and footpaths (right of way)	- Tillbrook Place and Teesdale place are public roads and there are a number of footpaths around the site. A traffic management plan will be required during construction.	H	L	2	- Traffic Management Plan to be agreed with Shire of Roebourne prior to commencement	1	- Contractor method statements required, including details of all temporary public rights of ways. - Contractor to agree segregation of public rights of ways / road closures with Shire of Roebourne. - Contractor to provide Traffic Management Plan.

SEVERITY	H	M	L
	3	3	2
	3	2	1
	2	1	1

SEVERITY
H – Fatality, major injury causing long term disability
M – Injury or illness causing short term disability
L – Other injury or illness

LIKELIHOOD
H – Certain or near certain
M – Reasonably likely
L – Very seldom or never

RISK RATING
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REF NO	ELEMENT OF DESIGN/ACTIVITY	DESCRIPTION OF HAZARD	DEGREE OF RISK		RISK RATING 1, 2 or 3	ACTION TAKEN BY DESIGNER TO REDUCE RISK	RESIDUAL RISK RATING 1, 2 or 3	RESIDUAL RISK TO BE ADDRESSED BY CONTRACTOR / ANY SPECIAL INSTRUCTIONS
			Severity	Likelihood				
A3	WORK TO EXISTING BUILDINGS / STRUCTURES							
3.1	Demolition	- There will be some internal demolition of walls in existing pavilion structure.	M	L	1	- Identified as part of Designer Hazard and Risk Assessment.	1	- Contractor to provide method statements.
3.2	Previous use of building – state use	- Community Pavilion with a kitchenette and change rooms/wet areas, suitable for activities including dancing, tutoring, church group activities, celebrations, meeting, school functions and youth groups.	L	L	1	- Activities to be relocated or suspended until facility refurbishment is complete.	1	- Contractor to provide method statements.
3.5	Existing Services	- The building is currently connected to electricity, water, sewers and telecommunications. Risk of burst water/sewerage pipes and electrocution.	L	H	2	- Identified as part of Designer Hazard and Risk Assessment.	1	- Contractor to provide method statements.
3.14	Asbestos	- Significant amounts of Asbestos are identified in the existing pavilion building.	H	L	2	- An updated Asbestos Register and HazMat removal plan will need to be formulated as part of construction documentation.		- Contractor to provide method statements.
3.15	Fibre cement sheets	- Fibre Cement sheets are currently used in the construction of the existing change rooms.	M	L	1	- A removal plan will need to be formulated as part of construction documentation.		- Contractor to provide method statements.
3.15	High alumina cement	- Possible high alumina cement				- Risk to be determined upon further investigation.		
3.16	Lead paints	- Possible lead paints				- Risk to be determined upon further investigation.		
3.26	Other	- Snakes are present in the area. Design solutions are considered to mitigate the presence of snakes, in, around and under proposed structures.	L	M	2	- Identified as part of Designer Hazard and Risk Assessment.	1	- Contractor to provide method statements.

SEVERITY	H	M	L
	3	3	2
	3	2	1
	2	1	1

SEVERITY

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1 = Low risk – No action required

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REF NO	ELEMENT OF DESIGN/ACTIVITY	DESCRIPTION OF HAZARD	DEGREE OF RISK		RISK RATING 1, 2 or 3	ACTION TAKEN BY DESIGNER TO REDUCE RISK	RESIDUAL RISK RATING 1, 2 or 3	RESIDUAL RISK TO BE ADDRESSED BY CONTRACTOR / ANY SPECIAL INSTRUCTIONS
			Severity	Likelihood				
B	DESIGN FOR CONSTRUCTION							
4.2	Deep trenches > 1.2m deep	- Earthworks for building footings and risk of collapse.	M	L	1	- Structural Engineers to design foundation to avoid the need for deep trenches.	1	- Structural engineer to provide risk assessment. Contractor Method Statements required.
4.3	Scaffolding and access / Boundary Condition	- Working at height. Contractor to provide method statements. - Risk of Collapse. - Risk of Falling from Height. - Risk of Falling Objects.	M	L	1	- Extent of high level trades reduced to minimize extent of scaffolding works required.	1	- Contractor to provide method statements.
4.7	Height of works	- Working at height.	H	L	2	- Provision of scaffolding, scissors platform lifts etc. to be provided where working at height.	2	- Contractor to provide method statements.
4.8	Alteration to existing structures	- The existing pavilion will be refurbished. Risk of collapse and falling materials.	M	L	1	- Identified as part of Designer Hazard and Risk Assessment.	1	- Contractor to provide method statements.
4.9	Lifting operations	- Injury from handling heavy objects/lifting. - Falls from height & falling objects. - Sharp edges.	M	L	2	- Lifting of steel and hydraulic/mechanical equipment to be carried out by mechanical means/specialised lifting apparatus. - Provision of scaffolding, scissors platform lifts etc. to be provided where working at height.	1	- Contractor to provide method statements.
4.12	COSHH – Hazardous substances	- Cement burns - Adhesives - Toxins	M	M	2	- Avoid using hazardous substances. - Substitute with a safer substance e.g. specify water-based paint, glues etc., which are generally safer than solvent based ones. - Specify off-site production e.g.	1	- Contractor to assess tenders for safe procedures. - Contractor to provide method statements.

SEVERITY	H	3	3	2
	M	3	2	1
	L	2	1	1
	LIKELIHOOD			

SEVERITY				
H – Fatality, major injury causing long term disability				
M – Injury or illness causing short term disability				
L – Other injury or illness				

LIKELIHOOD				
H – Certain or near certain				
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RISK RATING				
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REF NO	ELEMENT OF DESIGN/ACTIVITY	DESCRIPTION OF HAZARD	DEGREE OF RISK		RISK RATING 1, 2 or 3	ACTION TAKEN BY DESIGNER TO REDUCE RISK	RESIDUAL RISK RATING 1, 2 or 3	RESIDUAL RISK TO BE ADDRESSED BY CONTRACTOR / ANY SPECIAL INSTRUCTIONS
			Severity	Likelihood				
						factory decoration of components where possible.		
						- Avoid dust-producing processes, e.g. designing to provide ducts and conduits routing pipes and wires through voids rather than wall thickness or using surface fixed conduit.		
						- Avoid dust producing processes, e.g. avoid causing by designing to provide ducts and conduits routing pipes and wires through voids rather than wall thickness or using surface fixed conduit		
						- Specify substances and application methods which minimise atmospheric contamination e.g. paints which can be brushed rather than sprayed, fire protection board or sheet rather than firespray.		
						- Specify durable materials which require less frequent maintenance.		
4.13	Large dimensions (height / width / depth)	- Large dimensions of steel frame, roof/wall cladding. - Injury from handling heavy objects. - Falls from height & falling objects.	M	L	1	- Size of all components to be kept to minimum where possible. - Specialist equipment used for moving/lifting of heavy objects.	1	- Contractor Method Statements required.

SEVERITY	H	M	L
	3	3	2
	3	2	1
	2	1	1

SEVERITY			
H	3	3	2
M	3	2	1
L	2	1	1

LIKELIHOOD			
H	3	3	2
M	3	2	1
L	2	1	1

RISK RATING			
3	3	3	2
2	2	2	1
1	1	1	1

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REF NO	ELEMENT OF DESIGN/ACTIVITY	DESCRIPTION OF HAZARD	DEGREE OF RISK		RISK RATING 1, 2 or 3	ACTION TAKEN BY DESIGNER TO REDUCE RISK	RESIDUAL RISK RATING 1, 2 or 3	RESIDUAL RISK TO BE ADDRESSED BY CONTRACTOR / ANY SPECIAL INSTRUCTIONS
			Severity	Likelihood				
4.14	Excessive weights	<ul style="list-style-type: none"> - Excessive weights of steel frame and mechanical/hydraulic equipment. - Vehicular accidents. - Falling equipment. 	M	M	2	<ul style="list-style-type: none"> - Air handling equipment kept on ground level. Refer to Mechanical and Electrical Consultants Risk Assessments. - Lifting of steelwork and concrete sewerage pipework/pits to be carried out by mechanical/specialized lifting apparatus. 	1	<ul style="list-style-type: none"> - Contractor to obtain method statement and drawings from crane sub-contractor. - Contractor Method Statements required.
4.15	Erection of steelwork	<ul style="list-style-type: none"> - Erection of steelwork - Injury from handling heavy objects. - Falls from height & falling objects 	M	L	1	<ul style="list-style-type: none"> - Size of all components to be kept to minimum where possible. 	1	<ul style="list-style-type: none"> - Structural Engineers risk assessments method statement required. - Contractor to use specialist sub-contractors. Methods Statements to be provided.
4.16	Crane location	<ul style="list-style-type: none"> - Crane location - Risk of collision with construction works and staff. 	H	L	2	<ul style="list-style-type: none"> - Identified as part of Designer Hazard and Risk Assessment. 	1	<ul style="list-style-type: none"> - Contractor method statements required
4.20	Cladding and Roofing operations	<ul style="list-style-type: none"> - Specialised lifting apparatus for roofing operations due to height of roof and cladding of side walls. - Injury from handling heavy objects. - Falls from height & falling objects. 	H	L	2	<ul style="list-style-type: none"> - Large, heavy panels to be avoided. - Specialised lifting apparatus. 	1	<ul style="list-style-type: none"> - Contractor to obtain Method Statement & drawings from crane sub-contractor.
4.22	Access to site	<ul style="list-style-type: none"> - Usual risks associated with site access, contractor to implement traffic management system. - Vehicular accidents. - Accidents on foot. - Conflict between construction traffic and public. 	M	M	3	<ul style="list-style-type: none"> - Provision of appropriate hoardings, signage, protection, road cleaning etc. - Wheel cleaning apparatus to be provided. 	1	<ul style="list-style-type: none"> - Contractor Method Statements required, including details of all site & construction traffic access proposals & access restrictions. - Segregation to be provided between construction sites & staff areas. - Qualified supervisory staff to be provided by contractor.

SEVERITY	H	M	L
	3	2	1
	3	2	1
	2	1	1

SEVERITY
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			Severity	Likelihood				
C1	DESIGN FOR OPERATIONS AND MAINTENANCE							
5.2	Access for maintenance adequate?	<ul style="list-style-type: none">- Roof attachment points and eaves access connections to be provided and specified at construction documentation stage.- Working at height.- Falls from height & falling objects	M	H	3	<ul style="list-style-type: none">- Air handling equipment located on ground.- Location of lighting to allow for easy access for maintenance.- Energy efficient lighting to be provided to minimize frequency of maintenance/ replacement.	2	<ul style="list-style-type: none">- No access other than trained personnel.- Maintenance to be carried out by an approved contractor with suitable equipment.- Access to high levels via cherry picker or scissor platform.
5.5	Safe cleaning arrangements, i.e. glazing	<ul style="list-style-type: none">- Cleaning arrangements to be established by Shire of Roebourne.- Working at height.- Falls from height & falling objects	M	L	1	<ul style="list-style-type: none">- Identified as part of Designer Hazard and Risk Assessment.	1	<ul style="list-style-type: none">- No access other than trained personnel.- Maintenance to be carried out by an approved contractor with suitable equipment.- Access to high levels via cherry picker or scissor platform.
5.6	Vehicle access / deliveries	<ul style="list-style-type: none">- Access to continue from Tillbrook Place or Teesdale Place.- Vehicular accidents- Conflicts between facility traffic & public traffic.	M	L	1	<ul style="list-style-type: none">- A traffic management plan to be developed by Shire of Roebourne for all deliveries and waste management.- Provision of delivery area and bin pickup separated from carparking.	1	<ul style="list-style-type: none">- Landlord to prepare Management Health & Safety Plan for delivery vehicles & Car Park Management Plan.
C2	DESIGN FOR DEMOLITION							
6.2	Removal of hazardous objects (size, type, contamination, etc.)	<ul style="list-style-type: none">- Disturbance of asbestos.	H	L	2	<ul style="list-style-type: none">- Design has been developed to minimise the disturbance of Asbestos material on site. HazMat register and removal strategy to be confirmed at construction documentation and specification stage.	1	<ul style="list-style-type: none">- Contractor to provide method statements.

SEVERITY	H	M	L
	3	2	1
	3	2	1
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APPROVAL RECORD							
Prepared By		Nick Juniper		Date	23/05/2014		distribution
Checked By (Director)				Date		employer	main contractor
						structural engineer	project extranet
Rev	Date	Sign		Rev	Date	Sign	
A				D			services engineer
B				E			file
C				F			quantity surveyor
							cdm coordinator
							project manager

SEVERITY	H	M	L
	3	3	2
	3	2	1
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APPENDIX SIX

BUILDING SERVICES – LIFE CYCLE COST SUMMARY



LIFE CYCLE COSTING ANALYSIS REPORT

BUILDING SERVICES

MILLARS WELL DANCE HALL AND CHANGE ROOMS

Prepared for Shire of Roebourne

On 22nd May 2014

Prepared by Nick Juniper
Formworks Architecture

Version 1.0
Project Stage – Schematic Design Phase

DOCUMENT DEVELOPMENT HISTORY

Build Status:

Version	Date	Author	Reason	Sections
V 1.0	22-05-2014	NJ	Schematic Design	

Amendments in this Release:

Section Title	Section Number	Amendment Summary

Distribution:

Copy No.	Version	Issue Date	Issued To
1	V1.0	22-05-2014	Shire of Roebourne

Hard drive location:

N:\02_Projects\648_Tambrey Pavilion\Admin\02_Reports_Brief_Scope of Works\Formworks\2014-04-11_Life Cycle Costing Report\PR3.32_Life Cycle Costing Report_2014-04-24_NJ.docx

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Project Scope	5
Electrical Supply	7
Internal Plumbing and Hydraulic services	11
Lighting	12
Heating, Ventilation and Air Conditioning	16

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EXECUTIVE SUMMARY

Formworks Architecture are engaged to provide Concept Design and Schematic Design Architectural services for the redevelopment the existing Millars Well Pavilion and the provision of new change room facilities at the Kevin Richards Memorial Oval, Millars Well, Karratha.

The following Life Cycle Cost Report details the Building Services components of the project and outlines recommendations for use and life cycle costs of the proposed systems including:

- Electrical Supply
- Water Supply
- Internal Plumbing – Hydraulic Services
- Lighting
- HVAC Services

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PROJECT SCOPE

Project Summary

PROJECT NAME	Millars Well Dance Hall and Changing Rooms				
ORGANISATION NAME	Shire of Roebourne				
CITY	Karratha	STATE	WA	POSTCODE	
BUILDING TYPE	Community Hall and Change Rooms	BUILDING AREA	GFA - TBC		
NUMBER OF FLOORS	Single storey	ESTIMATE NO. OCCUPANTS			
SLAB-ON-GROUND	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	LEVELS BELOW GROUND	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
MECHANICAL COOLING	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	MECHANICAL VENTILATION	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
RENEWABLE RESOURCES USED	Yes <input type="checkbox"/>	No <input type="checkbox"/>	ON-SITE POWER GENERATION	Yes <input type="checkbox"/>	No <input type="checkbox"/>
ESTIMATED ANNUAL OCCUPANCY HOURS	1770 hours / year				

Organisation Contact

CONTACT PERSON	Samantha Stewart – Shire of Roebourne, Project Officer		
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Design Professional Contacts

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HYDRAULIC ENGINEER	Brynn Jarrett	EMAIL	brynn.jarrett@wspgroup.com.au		

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TELEPHONE	(08) 9301 5200	FAX	(08) 9301 1522	

ELECTRICAL SUPPLY

Cost Drivers

- Cost of equipment
- Cyclone rated equipment
- Labour costs in NW
- Reducing running costs

Assumptions

Photovoltaic (PV) Array Production

The most comprehensive source of information for PVs and other renewable technology in Australia is the [Clean Energy Council](#) (the body that the Australian Government charges with accrediting solar cells, inverters and installers). They have published the following table for average daily electricity production:

Average Daily Production					
City	1 kW system	1.5 kW system	2.0 kW system	3.0 kW system	4.0 kW system
Adelaide	4.2 kWh	6.3 kWh	8.4 kWh	12.6 kWh	16.8 kWh
Alice Springs	5.0 kWh	7.5 kWh	10.0 kWh	15.0 kWh	20.0 kWh
Brisbane	4.2 kWh	6.3 kWh	8.4 kWh	12.6 kWh	16.8 kWh
Cairns	4.2 kWh	6.3 kWh	8.4 kWh	12.6 kWh	16.8 kWh
Canberra	4.3 kWh	6.45 kWh	8.6 kWh	12.9 kWh	17.2 kWh
Darwin	4.4 kWh	6.6 kWh	8.8 kWh	13.2 kWh	17.6 kWh
Hobart	3.5 kWh	5.25 kWh	7.0 kWh	10.5 kWh	14.0 kWh
Melbourne	3.6 kWh	5.4 kWh	7.2 kWh	10.8 kWh	14.4 kWh
Perth	4.4 kWh	6.6 kWh	8.8 kWh	13.2 kWh	17.6 kWh
Sydney	3.9 kWh	5.85 kWh	7.8 kWh	11.7 kWh	15.6 kWh

Costs

WSP has contacted an electrical contractor located in Karratha to obtain indicative prices and local knowledge.

Installation/Hardware Costs

Installation costs are dependent on the size of the system and the following table presents "rule-of-thumb" prices:

System Size	Installation costs (per watt)
0 – 5 kW	\$1.25
5 – 30 kW	\$1.00
30 kW and above	\$0.80

Evidently there are economies of scale with larger scale systems. However, there are other factors that will influence the cost of the installation; namely the size/structure of the building (e.g. height, roof pitch,

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accessibility) and the time of year when the system is installed (there is a big difference in labour productivity between February and July).

Equipment costs

The “rule-of-thumb” for the cost of PV array equipment is \$2.00 per watt.

The buildings are located in a ‘Cyclone Region D’ area and as such, the racking and materials have to be able to withstand these conditions. Furthermore, it is highly recommended to use premium equipment (such as the highly regarded SMA inverters) that are able to handle the heat and humidity.

In addition to the standard PV equipment (e.g. inverter, panels and racking), Horizon Power require energy smoothing equipment for PV systems that have capacities of 5 kW and above. These consist of batteries which will compensate for the drop in power generation during periods of cloud cover. The contractor has estimated the cost of the energy smoothing equipment to be \$2.00 per watt.

Small-scale Technology Certificates (STCs)

The Small-scale Renewable Energy Scheme (SRES) creates a financial incentive for owners to install eligible small-scale installations including PV systems. It does this by legislating demand for Small-scale Technology Certificates (STCs). The STCs created will depend on the amount of electricity the system can produce. For PV systems, it is based on the amount of electricity in megawatt hours (MWh) generated over its lifetime (up to 15 years – it is noted that the array may still function past 15 years but for the purposes of the STCs it is limited at 15). The number of STCs also depends on eligibility, geographical location and what type/capacity of system is being installed.

PV systems are eligible to be part of SRES if:

- the system is new;
- Its components are listed in the Clean Energy Council list of accredited components;
- It is installed correctly by a Clean Energy Council accredited installer;
- It is installed on an eligible premises; and
- it complies with all local, State, and Federal requirements for its type of installation.

STC ownership is generally vested in the owner of the small-scale system being installed, but can be assigned using a STC Assignment Form to a third party agency, such as a retailer or installer. These agencies must be registered with the Clean Energy Regulator and are known as “Registered Agents”.

“Registered Agents” co-ordinate the purchase and installation of systems for the owners. They provide a financial benefit (such as a discount off the invoiced price of purchase and installation) to owners in exchange for the right to create and sell the STCs.

The financial benefit supplied to the owner by an agent, or the total price given to the owner by a certificate broker or trader, can vary from day to day. This is because STCs are traded in the STC market (like the stock market) and so prices vary depending on supply and demand. As of 16th April 2014, the market STC price is \$36.50 per certificate (from green-bank.com.au) and this will be the number assumed for the analysis.

Usage Pattern

WSP understands the approximate power usage is as follows:

- Two evenings per week – 2 pm to 9 pm
- Two days per week – 7 am to 5 pm

Tariffs

The following tariffs have been obtained from Horizon Power for power imported from the grid. Being a community hall, it is assumed that it will be charged at the C2 tariff¹ as follows:

	Cents per unit (kWh)
Electricity charge for first 20 units (kWh) per day	23.6276
Electricity charge for next 1630 units (kWh) per day	29.0041
Electricity charge for more than 1650 units (kWh) per day	26.4030

Horizon Power Renewable Energy Buyback offers rewards to eligible Western Australians who install renewable energy systems by paying them for the excess electricity they generate. The scheme has a net feed-in tariff which means the owner of the PV array is paid for the excess electricity their system feeds back into the grid at any time during the day that is surplus to the electricity the owner uses.

In the Karratha area, Horizon Power has declared the feed-in tariff at 10 cents per kWh² and this number can change.

Analysis

SCENARIO 1: Assuming a 5 kW PV array

Class 1 systems (up to and including 5 kW systems) generally do not require energy smoothing hardware, that is, battery storage. The only situation where the hardware is required is when hosting capacity has been reached in the customer's town or the customer is on a commercial contract.

The PV array installation and equipment is estimated to cost \$3.25 per watt totalling \$16250. The STCs can be sold at an estimated price of \$4380³ reducing effective capital expenditure to \$11870.

For 5 days of the week, the PV array can be assumed to be completely feeding back into the grid as the halls are not being utilised during daylight hours.

From the average daily production table a 5 kW system is estimated to produce 22 kWh / day and therefore 110 kWh / week and over 52 weeks, 5720 kWh. At the current feed in tariff rate of 10 cents / kWh the return is \$572 per year.

For 2 days of the week, the PV array can be assumed to offset a proportion of the building's power consumption/demand to simplify calculations.

Again to simplify calculations we assume the significant power consumers in the building are:

- Electric hot water demand: 16kWh per day
- Electric driven cooling system to the dance hall – say 7.5kWe for 8 hours per day – 60kWh per day

¹ From http://www.horizonpower.com.au/business_electricity_prices.html

² From http://www.horizonpower.com.au/documents/RENEWABLE_ENERGY_BUYBACK_PRICE_LIST_EFFECTIVE_FROM_1_JULY_20123503450.PDF

³ STCs are priced at \$36.50/MWh as of 16th April 2014

Total MWh over 15 years = (4400W/kW system x 5 kW system x 365 days/year x 15 years / 1 000 000) =120 MWh)

Total STCs = \$36.50 x 120 = \$4380

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Evidently, the total power consumption is 76 kWh per day, of which 22 kWh is offset by the array. Hence Horizon Power will still charge for 54 units per day. The savings due to the array are 22 kWh x 29.0041 cents/kWh = \$6.38 per day and \$663.52 over the year.

Based on these calculations the saving is \$572 + \$663.52 = **\$1235.52 per year.**

The payback period is then \$11870 / \$1235 = 9.6 years

SCENARIO 2: Assuming a 20 kW PV array

Keeping in mind the typical usage pattern of 76 units per day, the power consumption of the air-conditioning and water heaters can be completely offset with a 20 kW PV array which on average produces 88 units per day.

The PV array installation and equipment is estimated to cost \$5 per watt totalling \$100000. The STCs can be sold at an estimated price of \$17500 making the effective capital expenditure is **\$82500.**

As with scenario 1, for five days of the week the hall is not utilised during daylight hours and all power is assumed to be fed back to the grid. This equates to 88 units per day being exported. Over 5 days a week, this would equate to a return of \$2288 per year.

For the two days of the week where the building is being used during daylight hours, the cost saving is 88kWh x 29.0041 cents / kWh = \$25.52 / day. With a saving of \$25.52 a day, a saving of \$2642 per year can be made.

The total return is therefore **\$4930 per year.**

The payback period is then \$82500 / \$4930 = 16.7 years

Conclusion/Recommendation

Based on the payback periods computed, the 5 kW array is feasible given the payback period. This payback period is reduced if the usage of the venue increases during daylight hours (i.e. above the baseline usage pattern assumed in the calculation). It should be noted that the installation of the PV array and the 'Horizon Power Renewable Energy Buyback offer' is conditional on Horizon Power.

Systems above 5 kW is not feasible given the energy smoothing requirements by Horizon Power and that usage of the venue is not during daylight hours. Furthermore, energy smoothing hardware has not yet matured which may cause difficulties meeting the technical requirements of Horizon Power



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INTERNAL PLUMBING AND HYDRAULIC SERVICES

Cost Drivers

TBC

Assumptions

TBC

Analysis

TBC

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LIGHTING

Cost Drivers

- Cost of equipment
- Labour costs in NW
- Minimising running costs

Assumptions

Usage Pattern

WSP understands that the building is to be utilised during these times:

- Two evenings per week – 2 pm to 9 pm
- Two days per week – 7 am to 5 pm

Tariff

The building would be classified under a 'C2 Tariff' and Horizon Power charges 29.0041 cents / kWh for power that the customer imports from the grid.

Fluorescent Lamp Changes

We can factor in the cost of re-lamping using compact fluorescent lamps (CFL) technology as follows:

Say 100 light fittings (i.e. 100 lamps) require 1 man 1 day (8 hours) to change the lamps:

- 8 hours = 480 minutes. Less than 5 minutes per fitting to change 1 lamp
- 1 man working at \$85/hour /day would result in a labour cost of \$680/100 = \$6.8 per lamp
- Let us assume lamp costs of \$8 per lamp

Therefore, the additional costs of re-lamping totals \$14.80/lamp.

Osram states the average lifetime of a CFL is 15000 hours and T5 lamps is 180000 hours and these numbers will be used to determine how many lamp replacements are required.

Limitations

As this analysis is being performed at the concept stage, lighting calculations have not been performed in the rooms to determine the correct number of fittings required. A better determination of the total cost of ownership can only be done in the later stages of design where the number of fittings per room can be computed. For the analysis below, the numbers of LED or fluorescent light fittings are determined by computing the number fittings required to achieve an arbitrary lumen output.

Analysis

Downlights



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A typical fitting to use in the bathroom/changing areas are downlights. For these buildings, a surface mounted downlight would be used in conjunction with an inclinor adaptor to ensure that downlights are directed downwards on a sloped ceiling.

To compare LED against fluorescent, we have chosen the Thorn Chalice 190 (18W compact fluorescent) and the Thorn Chalice LED (11 W LED). This is to make the comparison fair (e.g. both downlights have the same dimensions and only the lamp technology is different).

Lumen Output

Despite the higher wattage of the compact fluorescent model (18W lamp) the luminaire lumens (the true light output from the light fitting) is 767 lumens. On the other hand, the 11W LED version has luminaire lumens of 991 lumens.

Suppose 4 LED downlights were required for a room, the total luminaire lumens would be 4 downlights x 991 lumens = 3988 lumens. With the compact fluorescent version, 5 downlights would be required to reach approximately the same light output (5 downlights x 767 lumens = 3835 lumens).

Running Costs

Using the example above (4 No. Chalice LED and 5 No. Chalice 190 CFL to get similar light output) and the following usage times and tariff stated in the assumptions we can compute the running costs per year.

The Thorn Chalice LED consumes 15W total (11W LED + 4W for control gear) and the Thorn Chalice 190 consumes 19W total (18W for CFL + 1W for control gear).

Therefore:

- 4 No. Thorn Chalice LED downlights will consume 106.08kWh for a cost of \$30.76 per year
- 5 No. Thorn Chalice 190 downlights will consume 167.96kWh for a cost of \$48.71 per year

Evidently there is a cost saving using LED downlights over the fluorescent alternative.

Light Fitting Costs:

Light Fitting	Manufacturer	Lamp Technology	Approx. Cost/Unit
Chalice LED ECO	Thorn	11W LED	\$180
Chalice 190	Thorn	18W CFL	\$95

Total Cost of Ownership:

Over a 10 year period we can compute the following total cost of ownership:

Thorn Chalice LED ECO:

- Purchase cost = 4 x \$180 = \$720
- Energy consumption cost: \$30.76/year x 10 years = \$307.60
- Total cost of ownership = \$1027.60 over 10 years

Thorn Chalice 190 (CFL):

- Purchase cost = 5 x \$95 = \$475
- Energy consumption cost: \$48.71/year x 10 years = \$487.10
- Re-lamping cost: \$14.80/lamp x 5 = \$74
- Total cost of ownership = \$1036.10 over 10 years

Performing similar calculations over 15 and 20 year periods gives the following results:

Fitting	10 years	15 years	20 years
Thorn Chalice LED	\$1027	\$1182	\$1335
Thorn Chalice 190 (CFL)	\$1036	\$1280	\$1597

The above results indicate that LED downlights are the better choice financially. Based on the baseline usage pattern it is estimated that only a single relamping is required up to 15 years, this will obviously change with further usage.

Battens



A typical fitting to use in the store rooms and hall room is a diffused surface mounted batten fitting.

To compare LED against fluorescent, we have chosen the Thorn Maxibatten LED (49W LED) and the Thorn Maxibatten T5 (2x28W T5). This is to make the comparison fair (e.g. both battens have the similar dimensions and only the lamp technology is different).

Lumen Output

The luminaire lumens of the LED is 4244 lumens and selecting the twin T5 version outputs 4053 luminaire lumens which is the most equivalent fluorescent combination to the LED.

Running Costs

Using the assumptions made we get the following results:

- Thorn Maxibatten LED will consume 86.6kWh/year for a cost of \$25/year.
- Thorn Maxibatten (2x28W T5) will consume 109.6kWh/year for a cost of \$31.79/year.

Light Fitting Costs:

Light Fitting	Manufacturer	Lamp Technology	Approx. Cost/Unit
Maxibatten LED	Thorn	49W LED	\$230
Maxibatten T5 (2x28W)	Thorn	2 x 28W T5	\$75

Total Cost of Ownership:

Over a 10 year period we compute the following total cost of ownership:

Thorn Maxibatten LED:

- (1) Purchase cost = \$230
- (2) Energy consumption cost: \$25.13/year x 10 years = \$251.30
- Total cost of ownership [(1) + (2)] = \$481 over 10 years

Thorn Maxibatten T5 (2 x 28W T5):

- (1) Purchase cost = \$75
- (2) Energy consumption cost: \$31.79/year x 10 years = \$317.90
- At baseline usage, no relamping is required (lamps are on for 17680 hours)
- Total cost of ownership [(1) + (2)] = \$393 over 10 years

Performing similar calculations over 15 and 20 year periods gives the following results:

Fitting	10 years	15 years	20 years
Thorn Maxibatten LED	\$481	\$607	\$733
Thorn Maxibatten T5	\$393	\$581.50	\$740

The results above indicate that the fluorescent batten is the better choice financially but it will depend on the usage pattern as relamping may be necessary within the first 10 years.

Recommendations/Conclusion

An analysis of typical light fittings used in bathrooms, store rooms and halls have been performed. Based on the total cost of ownership calculations it is advisable that where downlights are to be used (e.g. bathroom/change room) that they be based on LED technology and where battens are to be used (e.g. store rooms and halls) that they be based on fluorescent technology.

It should be noted that the calculations above have been made on the baseline usage pattern. If there is further use of the venue throughout the week, the relamping may have to be performed more frequently which will impact the total cost of ownership. In this case the fluorescent batten may not be the best solution.

Furthermore, it is too early in the design phase to determine the true total cost of ownership of either technology as the quantities and actual model/type of fittings for each room has yet to be calculated.

HEATING, VENTILATION AND AIR CONDITIONING

Cost Drivers

Regarding the air conditioning of the relevant spaces of the building, the main cost drivers are as follows;

- I. The type of system being installed i.e. single split reverse cycle AC system, multi split variable refrigerant volume (VRV) type system, evaporative cooling, packaged air handling plant and distribution ductwork
- II. The required heating and/or cooling capacity of the system(s)
- III. Client requirements on energy efficiency, system coefficient of performance (COP) and energy usage.
- IV. The hours of occupancy and frequency of operation of the system(s)
- V. The type of and cost of service which feeds the A/C plant (electricity, gas), taking into account annual cost increases and inflation.
- VI. The frequency and cost of maintenance of the installed systems, taking into account annual cost increases and inflation.
- VII. Client requirements on system redundancy and back-up in the event of primary system failure.
- VIII. The allocated budget for mechanical services air conditioning

Based on the assumptions listed below, a life cycle cost analysis has been prepared for the mechanical air conditioning systems for a period of 25 years. This takes into account the initial capital cost of new plant and equipment, the running costs for new and existing equipment, the maintenance costs for new and existing equipment and the periodic replacement of air conditioning systems as anticipated.

Regarding the ventilation of the relevant spaces of the building, the main cost drivers are as follows;

- I. The type of system being installed i.e. mechanical ventilation, natural ventilation, mixed mode ventilation.
- II. The required ventilation rates (outside air and exhaust air) and system capacities.
- III. Client requirements on energy efficiency, system coefficient of performance (COP) and energy usage.
- IV. The hours of occupancy and frequency of operation of the system(s)
- V. The cost of electricity which runs the mechanical ventilation plant taking into account annual cost increases and inflation.
- VI. The frequency and cost of maintenance of the installed systems, taking into account annual cost increases and inflation.
- VII. Client requirements on system redundancy and back-up in the event of primary system failure.
- VIII. The allocated budget for mechanical services ventilation

Based on the assumptions listed below, a life cycle cost analysis has been prepared for the mechanical ventilation systems for a period of 25 years. This takes into account the initial capital cost of new plant and equipment, the running costs for new and existing equipment, the maintenance costs for new and existing equipment and the periodic replacement of mechanical ventilation systems as anticipated.

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Assumptions

- I. Lifecycle cost analysis has been prepared based on the latest set of architectural drawings and client requirements.
- II. Based on discussions with the architect and client, the changing room areas will be naturally ventilated by means of openings in the building façade at high level. This proposed system is a passive type system which does not incorporate any items of mechanical plant and therefore has no capital or running costs.
- III. Existing mechanical air conditioning units which are to be retained and re-used are in good condition and have the capability to operate for the next 10 to 12 years.
- IV. Air conditioning will be provided to the hall and kitchen areas by means of single split reverse cycle wall mounted air conditioning units. Outside air to these spaces shall be provided by means of natural ventilation openings via doors and windows, weatherproof louvres and/or openings in the building façade.
- V. The kitchen will be provided with kitchen exhaust ventilation hood discharging to atmosphere via roof cowl for removal of heat and odours from cooking processes.
- VI. Areas requiring exhaust ventilation (toilet, cleaner's store, etc.) will be provided by ceiling mounted mechanical exhaust fan with exhaust air being discharged to atmosphere via exhaust ductwork and roof cowl.
- VII. Make-up air to the areas served with mechanical ventilation systems shall be provided by means of a weatherproof and vandal proof door transfer grille.
- VIII. Maintenance of the A/C and ventilation systems shall be performed on a monthly basis and continue for the duration of the serviceable life of the plant. Labour costs are indicative only and assumed based on previous experience.
- IX. Electricity cost in \$/kWh is based on the latest cost and tariff information available from Horizon power.
- X. No redundancy of air conditioning or ventilation plant has been allowed for.
- XI. All new store rooms provided with mechanical exhaust ventilation

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Analysis

A Lifecycle cost Analysis of the air conditioning and ventilation systems has been performed for a period of 25 years based on the assumptions detailed in the above section. The basis of the analysis is to determine the net present value (NPV) of the associated systems and examine the system capital, running and maintenance costs taking into account annual cost increases and inflation.

The single split mechanical air conditioning systems have a serviceable lifespan of approximately 10-12 years and will require replacement after this time. Replacement of the systems, incorporating predicted increases in system capital costs have been incorporated into the analysis.

The mechanical ventilation fans have a serviceable lifespan of approximately 15 years and will require replacement after this time. Replacement of the fans, incorporating predicted increases in capital costs have been incorporated into the analysis.

To ensure the predicted systems' lifespan is achieved, routine maintenance and servicing is required to be performed by a competent service technician on a monthly basis. The annual costs associated with routine maintenance and servicing also forms part of the lifecycle cost analysis.

The current cost of energy and predicted increases in electricity tariffs over a 25 year period have been incorporated into the lifecycle cost analysis to determine the ongoing running cost of the mechanical air conditioning and ventilation systems for the building.

For a detailed breakdown of the mechanical services lifecycle cost analysis and costs data, refer to Appendix 3 of this report.

APPENDIX SEVEN

BCA COMPLIANCE SUMMARY

The recommendations contained in the BCA Report and Mark ups, are to be incorporated in the documents during the Construction Documentation stage.

1.0 DESCRIPTION OF BUILDING AND USES

Millars Well Development – Refurbishment Dance Hall & Associated Change/Sanitary Facility Rooms 1 & 2 and =New Changrooms 1 & 2.

For the purpose of the NCC/BCA 2014 review, the proposal has been assessed on the following basis:

- | | |
|--|---|
| • Classification | Dance Hall – Class 9b
Change/Sanitary Amenities – Class 10a |
| • Rise in storeys | 1 |
| • Construction | Type C required |
| • Floor Area (excl. Verandah)
(approx.) | Changeroom Dance Hall Block - 370m ² ;
New Changeroom Block 1&2 – 170m ² |
| • Effective height | Less than 12m |
| • NCC/BCA Referenced | Volume 1 2014 |

2.0 QUALIFICATIONS/LIMITATIONS

This BCA assessment of the preliminary drawing is based on the Building Surveyor's interpretation of the deemed-to-satisfy provisions of the NCC/Building Code of Australia 2014. The recommendations contained in this report are those, which in the opinion of the author are necessary to meet the minimum requirements of the relevant statutory provisions. Because the drawings assessed are limited in detail, this report should not be regarded as all-inclusive. It should be noted that the Local Government having jurisdiction may interpret some BCA provisions differently.

The dimensions given throughout this are in millimetres unless shown otherwise. All dimensions are net and should not be reduced by projecting skirtings, kerbs, handrails, paving or other fixtures.

3.0 EXCLUSIONS

Except where specifically mentioned, this report does not consider the following;

- Structural integrity.
- The Disability Discrimination Act 1992.
- Food Act WA 2008.
- Health (Public Buildings) Regulations 1992.
- BCA Section I and J – Conditioned space requires an accredited assessor's compliance report.

4.0 BUILDING CODE OF AUSTRALIA

NCC/BCA Specification C1.1 Table 5 'Type C Construction: FRL of Building Elements':

Building element	Class of building—FRL: (in minutes)			
	<i>Structural adequacy/Integrity/Insulation</i>			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any <i>fire-source feature</i> to which it is exposed is—				
Less than 1.5 m	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
1.5 to less than 3 m	- / - / -	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
3 m or more	- / - / -	- / - / -	- / - / -	- / - / -
EXTERNAL COLUMN not incorporated in an <i>external wall</i> , where the distance from any <i>fire-source feature</i> to which it is exposed is—				
Less than 1.5 m	90/ - / -	90/ - / -	90/ - / -	90/ - / -
1.5 to less than 3 m	- / - / -	60/ - / -	60/ - / -	60/ - / -
3 m or more	- / - / -	- / - / -	- / - / -	- / - / -
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90

Millars Well - BCA Review

Millars Well NCC/BCA Review	ILA Comments – June 2014
FRLs – Building Elements	<p>All building elements must have FRL's in accordance BCA Table 5.</p> <p>However, our assessment has determined that none of the above fire resistance levels are applicable to this building as the whole building is considered as a single fire compartment and there is no fire source feature within 3 metres of the proposed Pavilion centre.</p>
Compartmentation and Separation	Fire Resistance and Stability - BCA C1.10 requires that the fire hazard properties of materials (floor, wall coverings etc.) within the Pavilion comply with Specification C1.10. Ensure the selected relevant materials comply with Specification C1.10.
Protection of Openings	Not applicable
Egress	<p>BCA D1.4(c) specifies that no point on a floor must be more than 20 metres from an exit or a point from which travel in different directions to 2 exits is available, in which case the maximum distance to one of those exits must not exceed 40 metres. Our assessment of the drawing reveals that the maximum exit travel distances within the building are achieved in accordance with this provision.</p> <p>Any ladder, walkway, etc. must comply with the requirements of AS 1657 "Fixed platforms, walkways, stairways and ladders – Design, construction And installation", if applicable.</p> <p>Nominated services or equipment (electrical distributions boards, communications cupboards etc) in paths of travel to exits must be enclosed by non-combustible construction or a fire-protective covering with doorways or openings suitably sealed against smoke spread in accordance with BCA D2.7.</p> <p>In accordance with BCA D2.21, ensure all exit doors, within the Hall, are readily openable without a key from the side that faces a person seeking egress:</p> <ul style="list-style-type: none"> (i) without a key from the side that faces a person seeking egress; and (ii) by a single hand pushing action on a single device such as a panic bar located between 900 mm and 1.1 m from the floor; and (iii) where a two-leaf door is fitted, the provisions of (i) and (ii) need only apply to one door leaf if the appropriate requirements of D1.6 are satisfied by the opening of that one leaf.
Access for People With a Disability	<p>Access for people with a disability must be provided to and within all buildings in accordance with BCA D3 and AS 1428.1.</p> <p>Doorways, on an accessible path of travel, must have a clear opening width of 850mm with hinge-side and latch-side clearances in accordance with AS 1428. Also, where a doorway on an accessway has multiple leaves, (except an automatic opening door) one of those leaves must have a clear opening width of not less than 850 mm in accordance with AS 1428.1.</p> <p>Circulation spaces throughout the public areas must comply with AS 1428.1-2009.</p> <p>Ensure that framed or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway on accessways within the buildings (if applicable) are clearly marked in accordance with AS 1428.1.</p> <p>Ensure the ground surface on the continuous accessible paths of travel between the buildings does not exceed the construction tolerance listed in AS 1428.1 Clause 7.</p> <p>Carparking and shared bays, not shown, must be provided and accessible to and from the Hall and Changeroom Blocks. Ensure carparking bays are provided in accordance with AS/NZS 2890.</p>

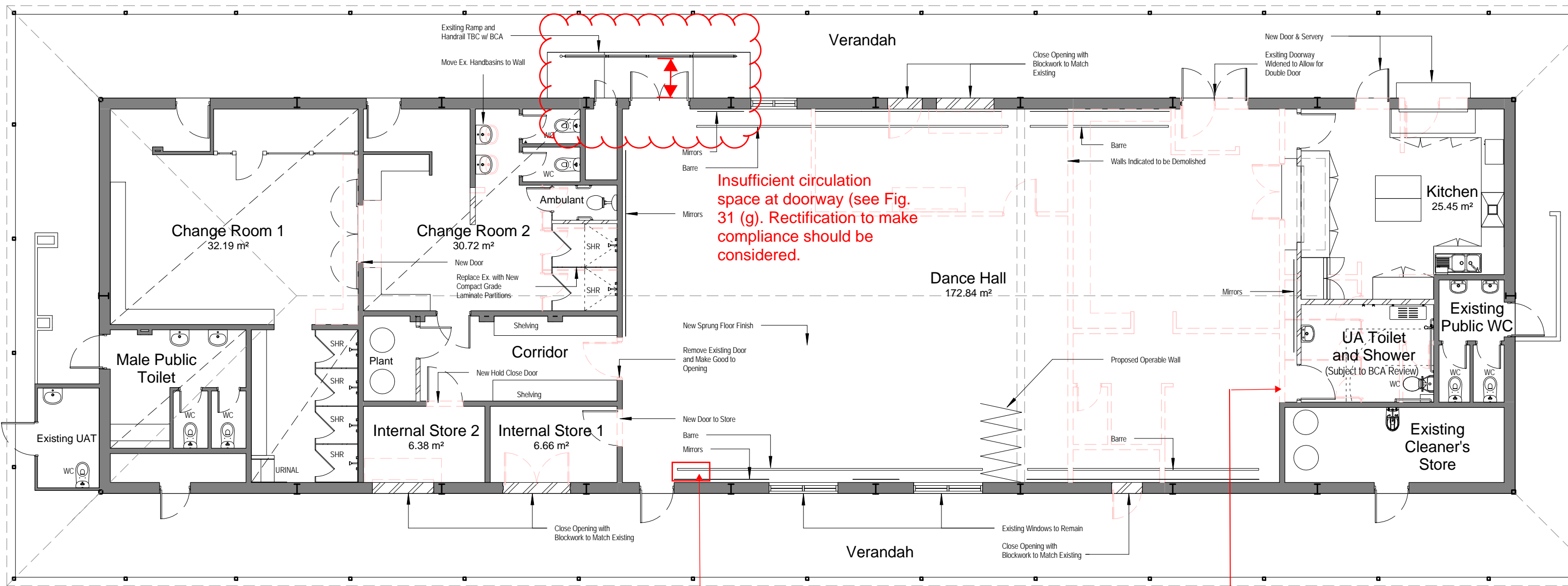
Fire Hydrant System	Not applicable.
Fire Hose Reels	Not applicable.
Sprinklers	Not applicable.
Portable Extinguishers	BCA E1.6 requires the provision of fire extinguishers in accordance with BCA Table E1.6 and AS 2444.
Fire Control Centre Facility	Not applicable
Smoke Hazard Management	Not applicable.
Lift Installations	Not applicable.
Emergency Lighting, Exit Signs and Warning Systems	Emergency lighting and exit signage must be provided in accordance with BCA E4.2 and E4.5. Design and operation of the emergency lighting and exit signs must comply with AS 2293.1. To be designed and certified compliance with AS 2293.1 by Electrical Consultant.
Sanitary and Other Facilities	<p>The construction and layout of sanitary facilities for people with disabilities must comply with AS 1428.1-2009.</p> <p>Braille and tactile signage complying with BCA Specification D3.6 and AS 1428 must be provided to identify the accessible sanitary facilities including indication whether the facility is suitable for left or right handed use.</p> <p>To be designed and certified compliance with BCA and Australian Standard by Hydraulic Consultant.</p>
Light and Ventilation	Ventilation of habitable rooms must be either natural complying with BCA F4.6 or mechanical or air-conditioning system complying with AS 1668.2 and AS/NZS 3666.1.
Sound Transmission and Insulation	Not applicable.
Minor Structures and Components	Not applicable.
Energy Efficiency Installations	BCA I2.2 requires the nominated components of services to be maintained to ensure they perform to a standard not less than they were originally required to achieve. Services for the purpose of Part I2 means a mechanical or electrical system that uses energy to provide air-conditioning, mechanical ventilation, hot water supply, artificial lighting, and the like within a building but does not include systems solely for emergency purposes and cooking facilities.
Energy Efficiency	Compliance certification/report with BCA Part J from an Accredited Energy Efficiency Assessor is required. (Except Changerooms)
Drawings Provided	Relevant Architectural drawings – SK100A, SK010A, SK102B, SK103B, SK203A, SK204A, SK301A.

LEGEND

New construction

Demolished

Existing



1

Floor Plan

A00.200

1:100

Protruding into 510mm latchside circulation space

Toilet doorway opening directly to public area. Adequate screening is required. (BCA F4.8 & F4.9)

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B	23/05/2014	Schematic Design Issue
A	06/05/2014	Issue for Comment
Rev	Date	Amendment

Project:

MILLARS WELL - DANCE HALL & N CHANGE ROOMS

Proprietor:

Shire of Roebourne

Architect:

19 Jewell Parade
North Fremantle, WA 6159
Postal Address:
PO Box 291
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Phone (618) 9335 5220
Fax (618) 9335 5287

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Status:

Schematic Design

Title:

GA Plan - Ground Floor

Drawn: RN

Date Created: 25/03/14

Job no: 649

Scale @ A3 1:100

0 2 4 6

Do Not Amend This Drawing Manually

Approved: NJ

Drawing no: SK.103

Rev: B

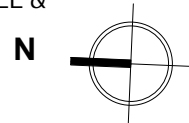
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B	23/05/2014	Schematic Design Issue
A	06/05/2014	Issue For Comment
Rev	Date	Amendment

Project:
**MILLARS WELL - DANCE HALL &
CHANGE ROOMS**

Proprietor:
Shire of Roebourne



Architect:
19 Jewell Parade
North Fremantle, WA 6159
Postal Address:
PO Box 291
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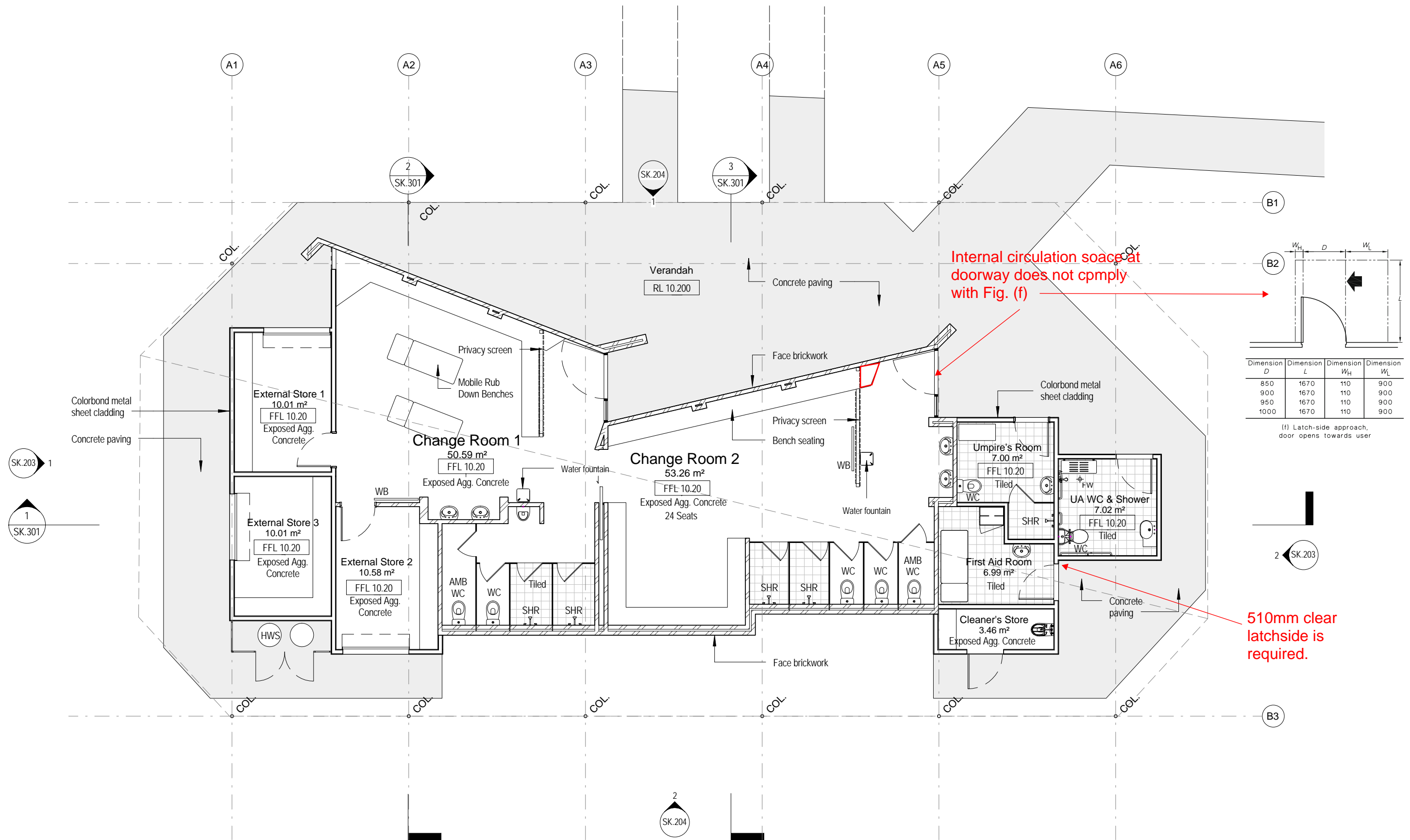
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Status:
Schematic Design

Title:
Ground Floor Plan - Change Rooms

Drawn: KR Approved: NJ
Date Created: 01/05/2014
Job no: 649 Drawing no: **SK.102** Rev: **B**
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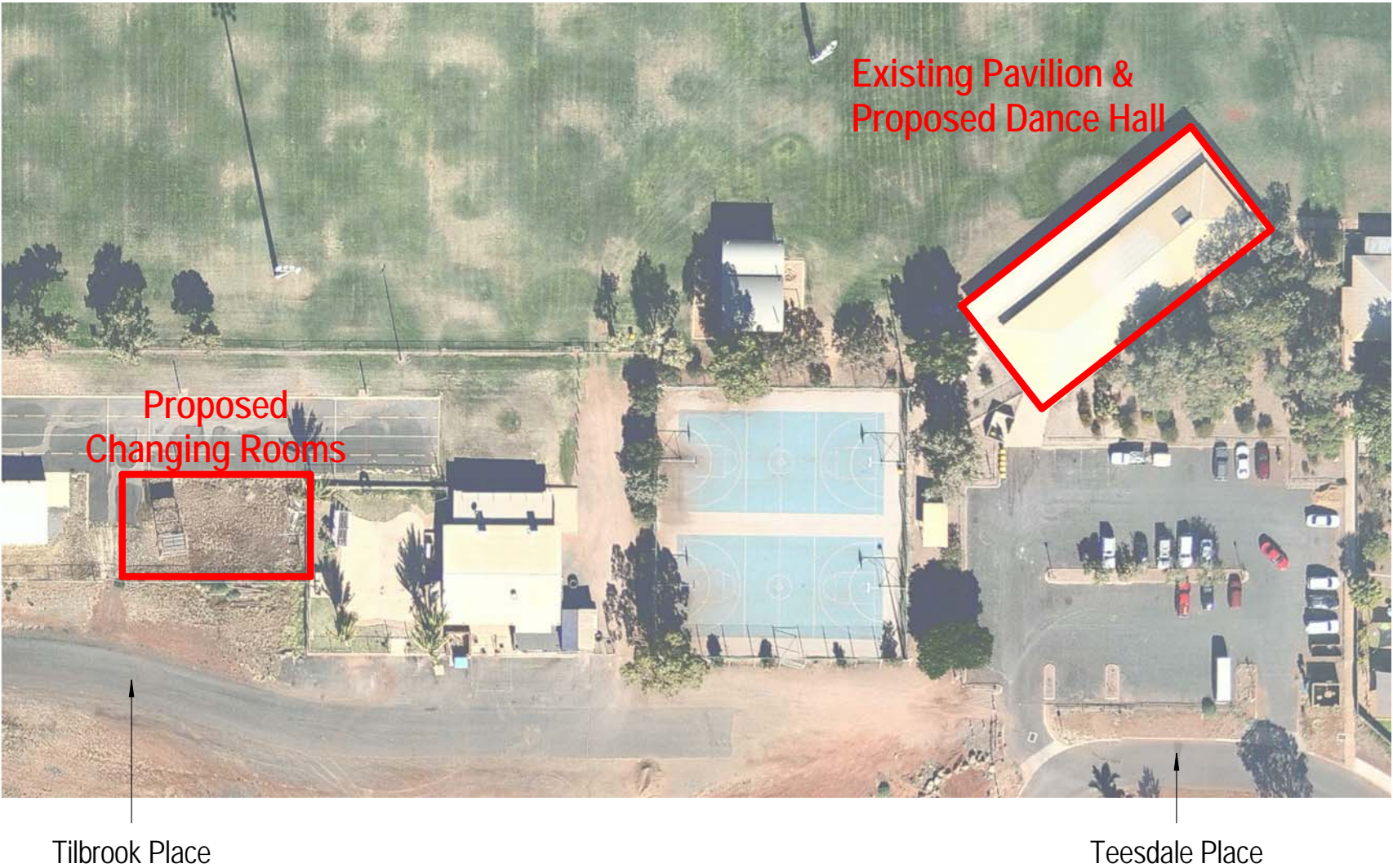
schematic design report		PR3.34	
project	Millars Well Dance Hall	job no.	649
date	23-06-2014	page	26 of 26

APPENDIX EIGHT

SCHEMATIC DESIGN DRAWINGS

Millars Well Dance Hall & Change Rooms

LOT 4611 Tilbrook Place, Karratha



Tilbrook Place

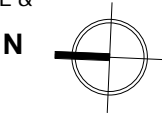
Teesdale Place

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Rev	Date	Amendment
B	22/05/2014	Schematic Design Issue

Project:
MILLARS WELL - DANCE HALL &
CHANGE ROOMS

Proprietor:
Shire of Roebourne



Architect:
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Fax (618) 9335 5287

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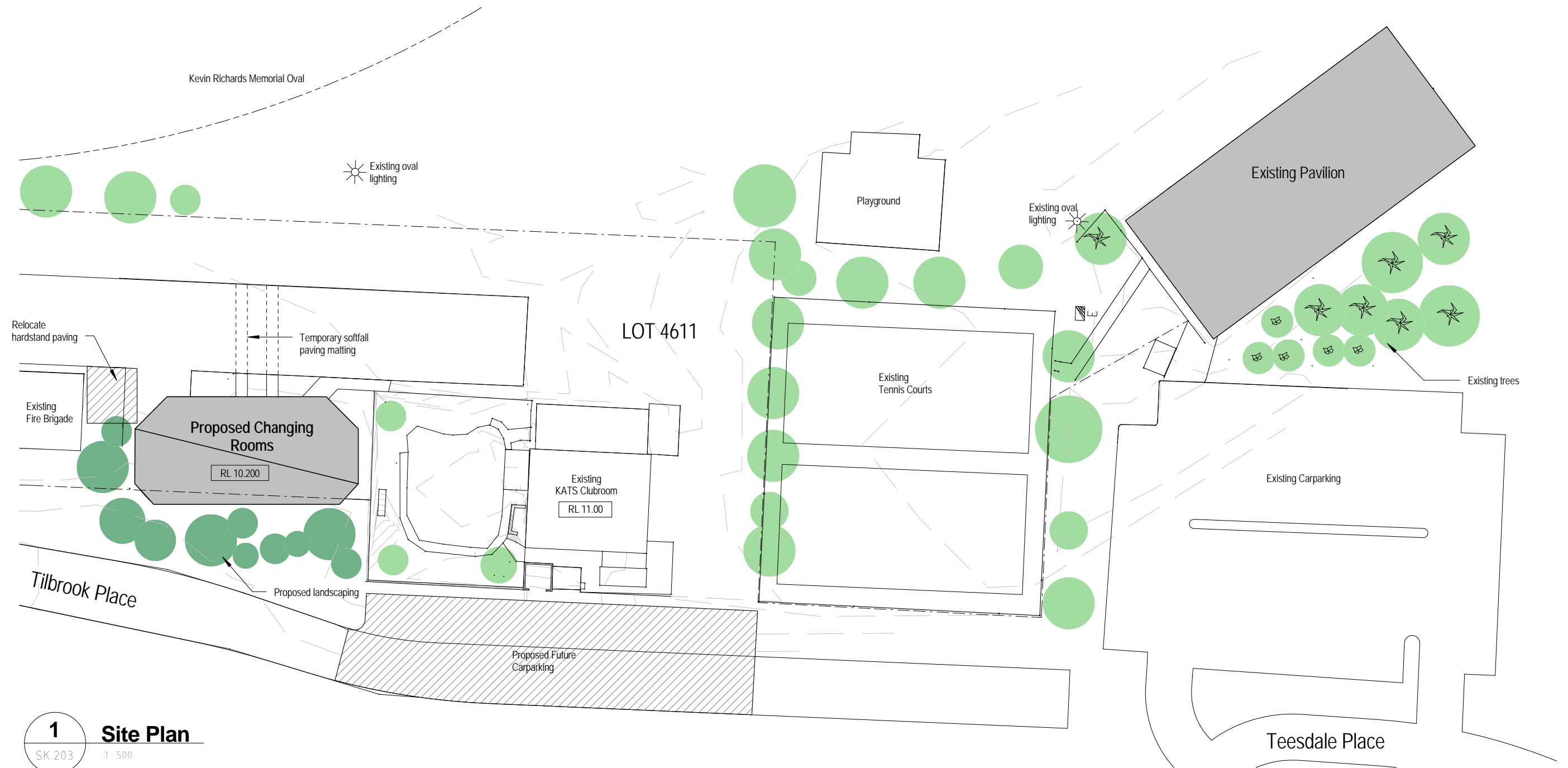


Status:
Schematic Design

Title:
Project Cover Sheet

Drawn: AM
Date Created: 20/05/2014
Job no: 649
Approved: NJ
Drawing no: SK.000
Rev: B

Do Not Amend This Drawing Manually
Date Printed: 23/06/2014 11:17:37 AM



1 Site Plan

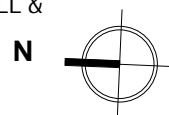
SK.203 1:500

C:\local Real Files\49_Millars Well_Changing Rooms_2013_Central_Kath Bednort

Rev	Date	Amendment
B	22/05/2014	Schematic Design Issue

Project:
MILLARS WELL - DANCE HALL &
CHANGE ROOMS

Proprietor:
Shire of Roebourne



Architect:
19 Jewell Parade
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Status:
Schematic Design

Title:
Site Plan

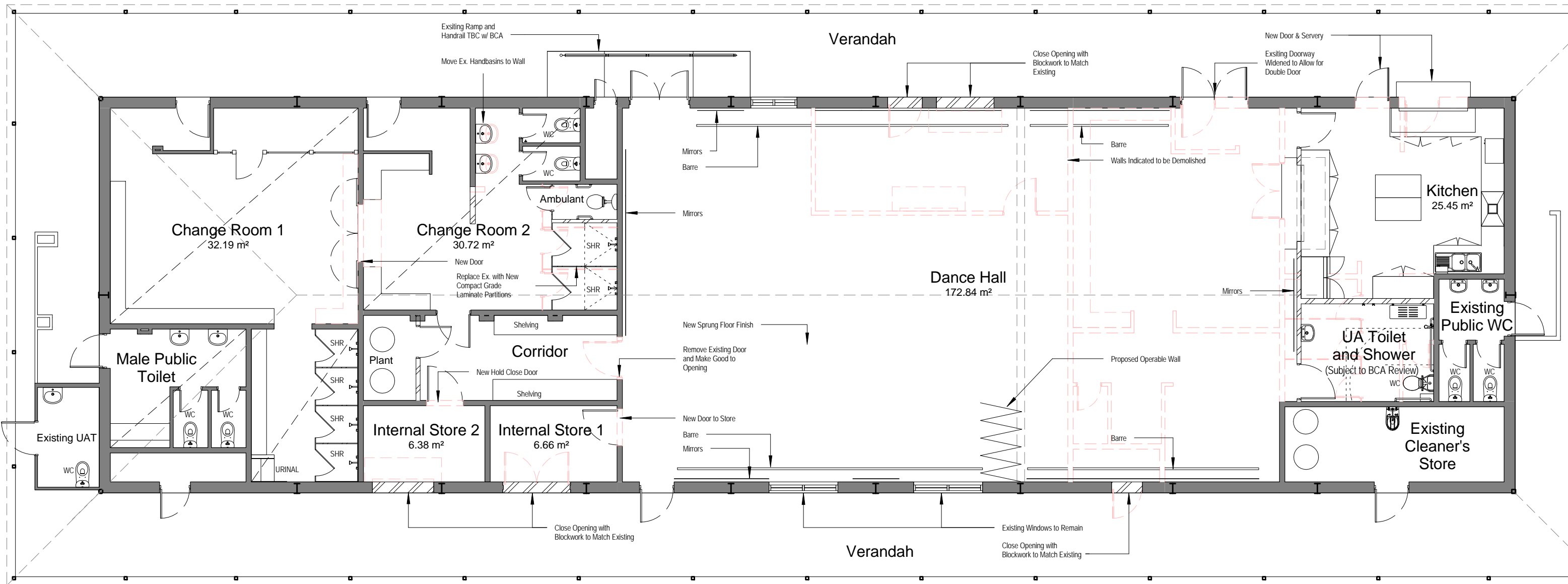
Drawn: RN Approved: NJ
Date Created: 14/05/2014
Job no: 649 Drawing no: SK.010 Rev: B
Scale @ A3 1:500
0 10 20 30
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LEGEND

New construction

Demolished

Existing



1

Floor Plan

A00.200

1 : 100

C:\Local Real Files\649_Millars Well Dance Hall_2013_Central_Akira Monaghan\nt

B	23/05/2014	Schematic Design Issue
A	06/05/2014	Issue for Comment
Rev	Date	Amendment

Project:
MILLARS WELL - DANCE HALL & N
CHANGE ROOMS

Proprietor:
Shire of Roebourne



Architect:
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Status:
Schematic Design

Title:
GA Plan - Ground Floor

Drawn: RN Approved: NJ

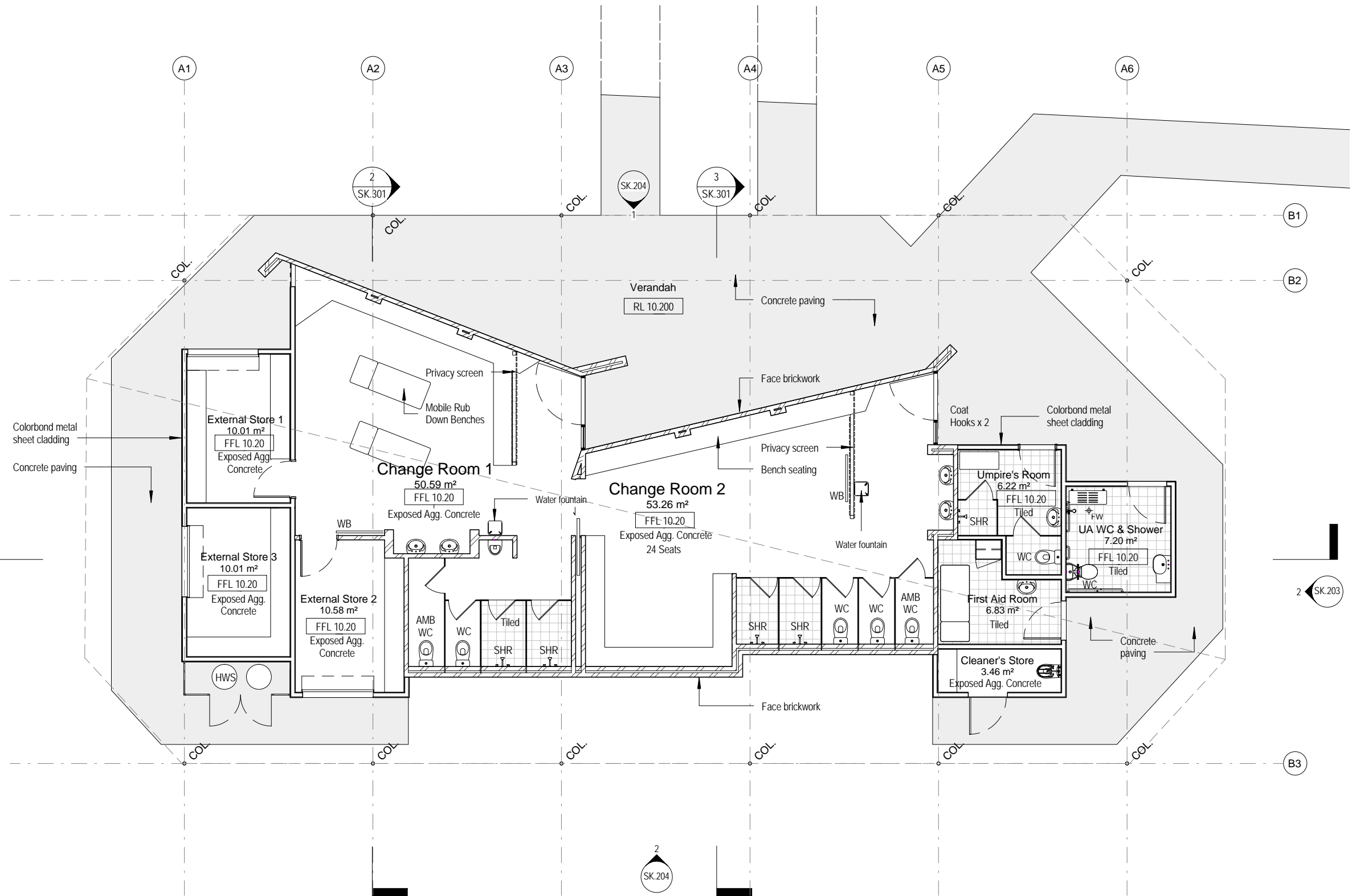
Date Created: 25/03/14

Job no: 649 Drawing no: SK.103 Rev: B

Scale @ A3 1 : 100

0 2 4 6

Do Not Amend This Drawing Manually Date Printed: 23/05/2014 2:35:22 PM



C:\local Real Files\69_Millars Well_Changing Rooms_2013_Central_Kath Redford

Rev	Date	Amendment
C	23/06/2014	Client feedback
B	22/05/2014	Schematic Design Issue
A	06/05/2014	Issue For Comment

Project:
**MILLARS WELL - DANCE HALL &
CHANGE ROOMS**

Proprietor:
Shire of Roebourne



Architect:
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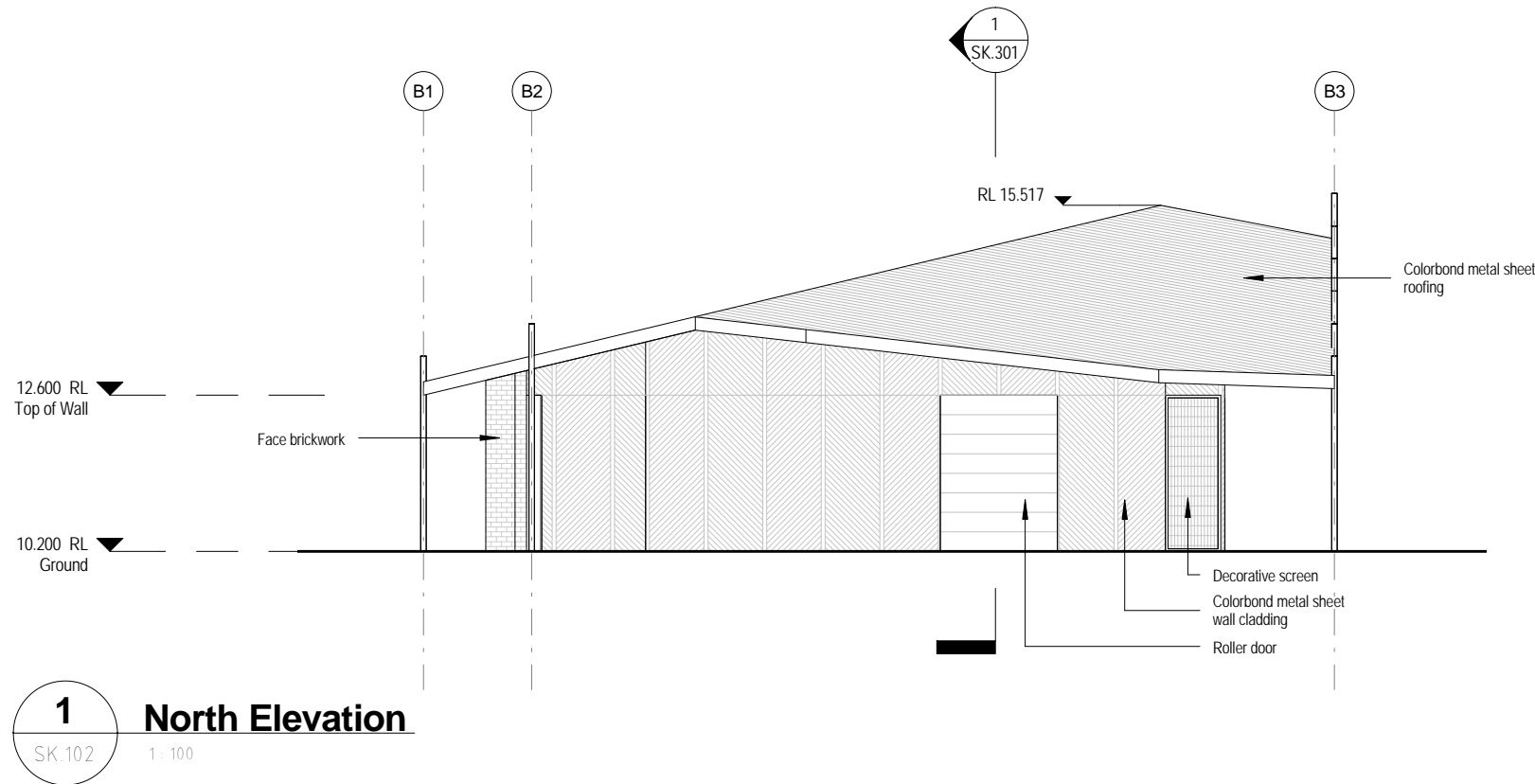
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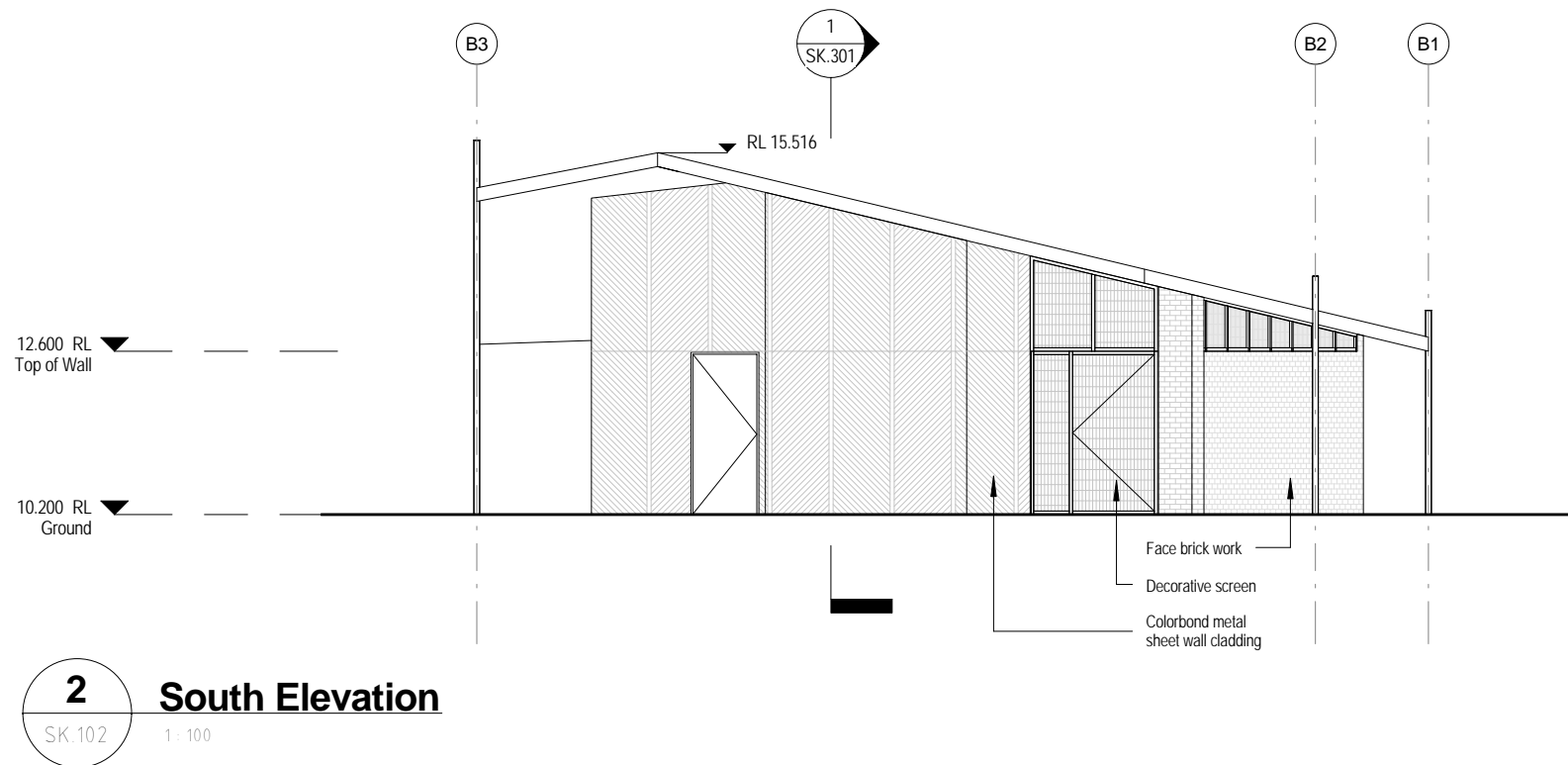
Status:
Schematic Design

Title:
Ground Floor Plan - Change Rooms

Drawn: **KR** Approved: **NJ**
Date Created: **01/05/2014**
Job no: **649** Drawing no: **SK.102** Rev: **C**
Scale @ A3 1 : 100
0 2 4 6
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LEGEND	
	Face brickwork type 1
	Face brickwork type 2
	Decorative screen
	Colorbond @ 45° angle



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Rev	Date	Amendment
B	22/05/2014	Schematic Design Issue

Project:
MILLARS WELL - DANCE HALL &
CHANGE ROOMS

Proprietor:
Shire of Roebourne

Architect:
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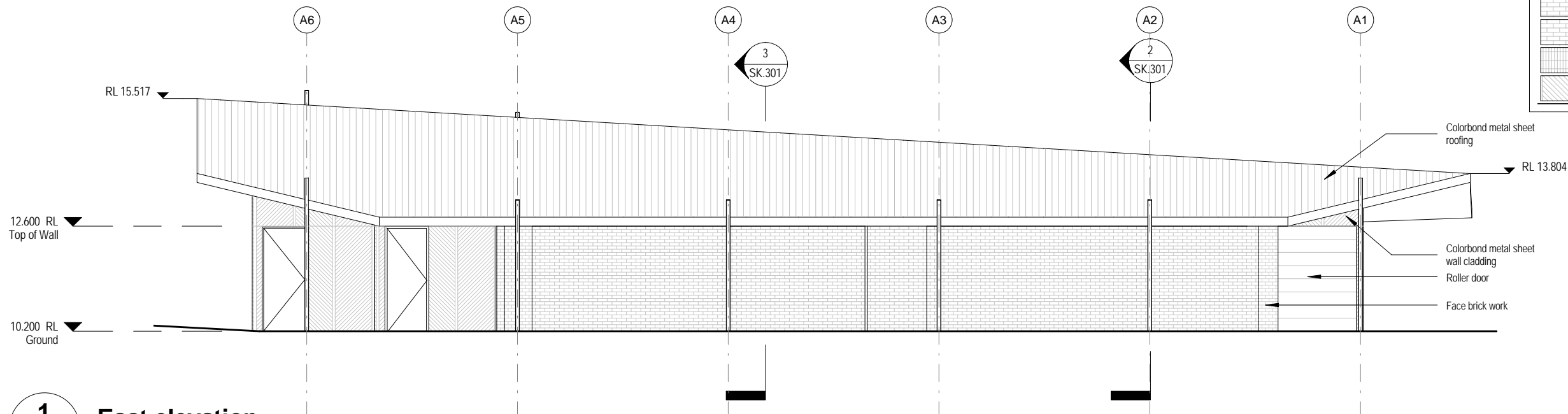


Status:
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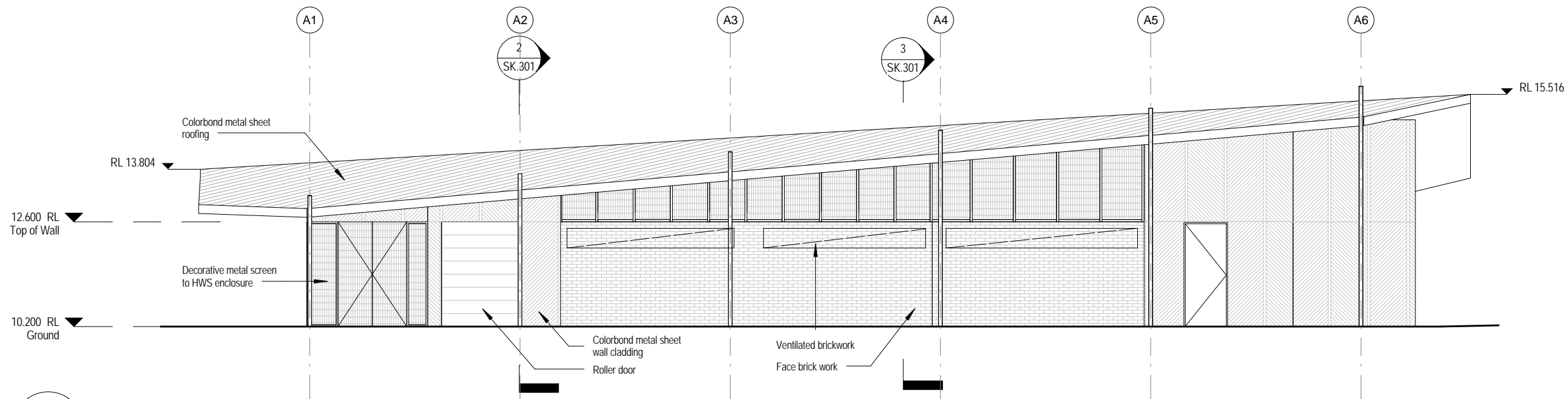
Title:
Elevations - Change Rooms

Drawn: KR Approved: NJ
Date Created: 14/05/2014
Job no: 649 Drawing no: SK.203 Rev: B
Scale @ A3 1:100
0 2 4 6
Do Not Amend This Drawing Manually Date Printed: 23/06/2014 11:18:22 AM

LEGEND	
	Face brickwork type 1
	Face brickwork type 2
	Decorative screen
	Colorbond @ 45° angle



1 East elevation
SK.102 1:100



2 West elevation
SK.102 1:100

C:\council\Revit\Files\449_Millars Well_Changing Rooms_2013_Central_Kath.Bellini

C	23/06/2014	Client feedback
B	22/05/2014	Schematic Design Issue
Rev	Date	Amendment

Project:
**MILLARS WELL - DANCE HALL &
CHANGE ROOMS**

Proprietor:
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Architect:
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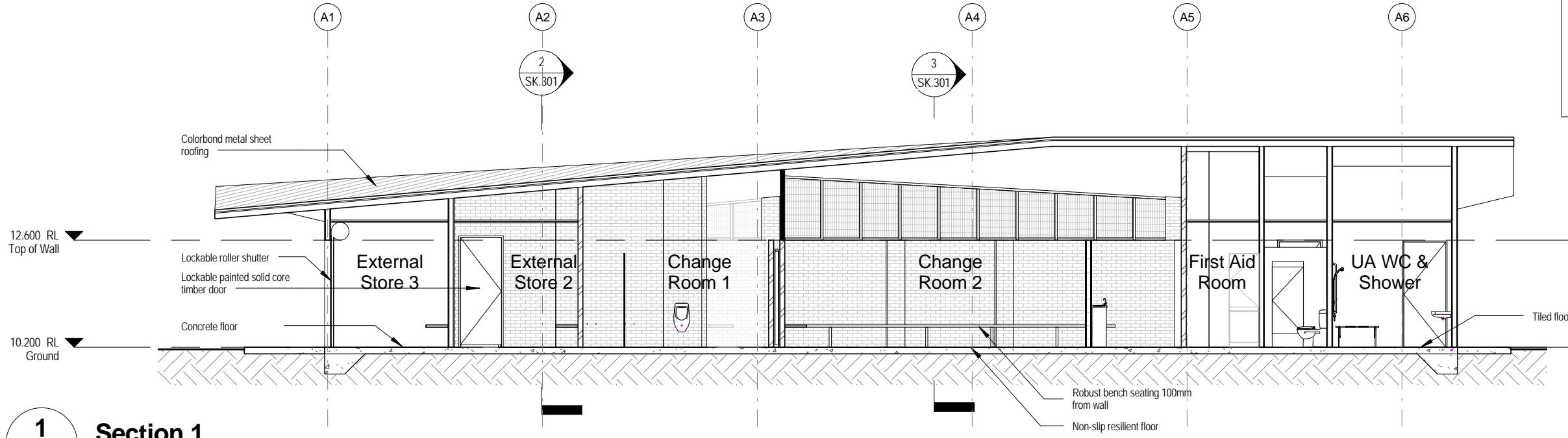


Status:
Schematic Design

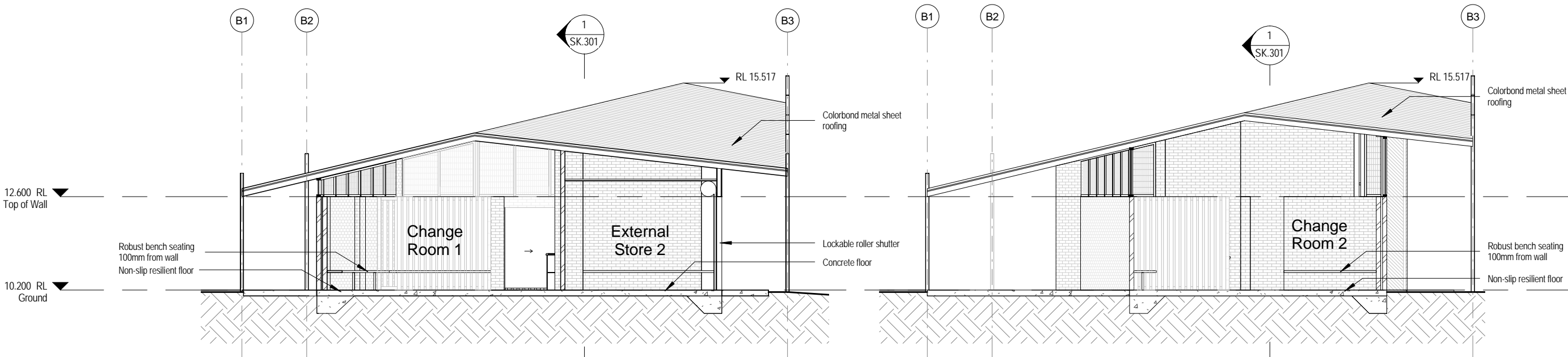
Title:
Elevations - Change Rooms

Drawn: **KR** Approved: **NJ**
Date Created: **14/05/2014**
Job no: **649** Drawing no: **SK.204** Rev: **C**
Scale @ A3 1:100
0 2 4 6
Do Not Amend This Drawing Manually Date Printed: 23/06/2014 11:18:30 AM

LEGEND	
	Face brickwork type 1
	Face brickwork type 2
	Decorative screen
	Colorbond @ 45° angle



1 Section 1
SK 102 1 : 100



2 Section 2
SK 102 1 : 100

3 Section 3
SK 102 1 : 100

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Rev	Date	Amendment
B	22/05/2014	Schematic Design Issue

Project:
MILLARS WELL - DANCE HALL & CHANGE ROOMS

Proprietor:
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Status:
Schematic Design

Title:
Sections - Change Rooms

Drawn: **KR** Approved: **NJ**
Date Created: **14/05/2014**
Job no: **649** Drawing no: **SK.301** Rev: **B**
Scale @ A3 1 : 100

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