Please note:

This report contains confidential information intended for the exclusive use of Queensland Health. No confidentiality is waived or lost by mistaken transmission. Information contained within this report is valid as at the date of issue only.
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1. Key project team members

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2. Clinical and Architect’s report
   a) Scope
   b) Method
   c) Exclusions
   d) Standards used
   e) Issues
   f) Conclusions and recommendations
2a Scope

The scope of the Infrastructure Assessment was to incorporate a review of the general functional arrangements at the Ayr site in terms of overall effectiveness, efficiency and appropriateness. The general functional arrangements were reviewed to determine if requirements for delivering the minimum suite of health services are met at the site.

The assessment aimed at gathering information on the building viability in the short, medium and long term, including current condition and performance and also considered any land and building heritage issues of the campus.
2b Method

The architectural and clinical campus assessment involved an inspection of all buildings on the Ayr Hospital site. An initial site walk around was conducted with local and regional managers followed by an inspection of each internal clinical area. Local staff were questioned on clinical operational flows, storage and general issues in their area of work.

The investigation included:

- the overall state and condition of the materials and finishes;
- functional planning, and relationships of the facilities as a whole and the individual departments and or areas within departments; and
- the current master planning, site layout and massing of the hospital.
2c Exclusions

- Auditing and inspections were only sufficient for a general overview and impression of the hospital, facilities, departments and individual areas, supported by general discussions with staff.
- No in depth testing or analysis of the design and functionality, materials and finishes, medical flows, drawings and site plans, compliance and impression of findings.
- No removal of linings and ceiling tiles, access hatches, furniture, storage items to obtain behind impressions.

Note: overall, comments are generally applied to building condition, and the operational flow of the delivery of services within the existing infrastructure.
2d Standards used

A general listing of standards employed includes:

- Queensland Development Code
- Workplace Health and Safety Act
- Workplace Health and Safety Regulations
- Building Code of Australia
- Antidiscrimination Act (State)
- Disability Discrimination Act (Commonwealth)
- Building Act 1975
- Building Fire Safety Regulation 2008
- Building Regulation 2006
- Food Act 2006
- Food Regulation 2006
- Health Act 1937
- Health Regulation 1996
- Occupational Health and Safety (Commonwealth)
- Australasian Health Facility Guidelines
- A Definition of a rural model of health service delivery: A Hub and Spoke (service partner) model
- Medical Records – Management and Disposal Guidelines
- Infection Control Best Practice and Guidelines
- The Privacy Act 1988 – Medical Records Storage, and
- Schedule Australian and New Zealand standards.
2e Issues

This section highlights the defects and issues that were recognised during the site audit and inspection. The defects and issues listed below represent only an overview of the problems and are therefore not necessarily exhaustive.

Architecture

Hospital site layout and general condition

- The layout generally has some deficiencies that compromise operational flow. This is particularly evident in the Mental Health and Primary Health services areas.
- Maintenance to the hospital is consistent and only minor damage was detected that could be eliminated during general maintenance routines.
- Across a number of departments staff report storage and spatial issues that impact on their operational flow and general efficiency.
- Stormwater ingress into the plasterboard cardboard lining resulting in lifting (corridor area near X-ray department). This was reported by the Director of Nursing during the construction Defects Liability Period; however, the defect is still present.
- Overcrowding of patient waiting areas in the Emergency Department and the Primary and Mental Health departments.
- Inadequate security; identified area of concern is the Emergency Department (particularly after hours), and the clinical treatment rooms in the emergency department and general ward area.
- Inadequate provision of a safe and secure single room to manage aggressive and or confused patients in the general ward.

Former Nurses’ Quarters

- The Former Nurses’ Quarters were inspected due to advice that administrative services were earmarked for relocation to the building from the hospital. The building originally constructed in 1958 as Nurses’ Quarters was upgraded in 1984 – 5 with Nurses’ Quarters on the First Floor while Aged Care was introduced to the Ground Floor
- The building has a Lower Ground Floor where a large storage area provides storage for Payroll and Clinical Records and medical equipment. It is not air conditioned but maintains a fairly constant temperature.
- The building has asbestos sheeting and vinyl asbestos floor and wall tiles. There is damage to the ceilings resulting from condensate and some oil damage from the air conditioners.
- Staff accommodation has recently undergone refurbishment with asbestos sheeting left in place. There are a number of rooms that have not undergone refurbishment and these are currently used for accommodation for medical students.
- Some corrosion and damage was detected in the covered way that led to the old former nurses’ quarters.
- Some areas have significant damage to external timber doors and aluminium framed glazing.

Laundry

- The laundry servicing Ayr and Home Hill resides in a 1938 building.
- The building has been well-maintained; however, the team identified operational issues such as insufficient ventilation and no provision of a personal egress door (only roller doors have been provided).
The water pumped from the bore external to the laundry contains rust and is generally used for irrigation and general grounds and building cleaning. There is rust staining on the buildings where the water has regular contact (e.g. walls behind established garden beds).

The issue of wet weather covered access from the laundry to the hospital was raised. Staff report that Ayr does not have a great deal of rain and a water proof cover to the delivery cart was proposed.

Clinical

Summary of compromised operational flow for the delivery of medical and clinical services

Generally across the Ayr District Hospital service delivery is compromised due to the layout of existing departments and the deficiency in storage and available work areas. The main areas of concern include:

Emergency Department

- The Outpatients’ waiting room also accommodates patients accessing emergency room services, dental and primary and mental health services. The area has limited seating and does not meet current patient flow activity.
- The waiting room is not supervised by staff after hours. Staff report that after hours the monitoring of patients in this area is compromised due to the physical separation from the emergency department to the waiting room. A CCT camera has been installed and staff report that the CCT monitoring system has improved visual access to the area, however, these monitors do not record activity.
- The resuscitation area is well equipped and configured, and is adjacent to the triage room and the general consulting rooms for outpatients. There are minor overcrowding issues due to limitations in storage areas for equipment and medical supplies.
- The clinical treatment room stores medications (S8 and refrigerated medications) and other medical supplies. Access is via two (2) doors, one opening to the resuscitation room and the other to the corridor accessing medical consulting rooms. Neither of the treatment room doors is equipped with locking mechanisms. Staff report that security of the treatment room area is compromised and staff have on occasions found unauthorised persons in the room. Staff report one incident of staff finding a person in the treatment self injecting medications taken from the treatment room.

X-ray Department

- There is no provision of toilet amenities designated for patient use in the X Ray department. Staff report that patients are returned to the ward to access suitable amenities and this impacts on efficiency and patient flow through the department.

General Ward

- The clinical treatment room stores medications (S8 and refrigerated medications) and other medical supplies. Access is via two (2) doors, opening to either side of the general ward. Neither of the treatment room doors is equipped with locking mechanisms and therefore direct access is freely available. Staff report that security is compromised and staff have on occasions found patients and/or unauthorised persons in the room.
- There is no provision of a secure single room for the clinical management of patients requiring admission with aggressive mental health issues or for elderly patients with cognitive impairment with wandering tendencies (for example, conditions such as dementia). Staff report that they have had several incidents of disorientated elderly patients wandering about the ward and outside onto hospital grounds.
- There is no provision of a negative pressure air ventilation room used for patients presenting with contagious/infectious diseases (for example Swine Flu).

Operating Theatre
- The operating theatre does not have a private area for the purpose of receiving patients into the theatre. Nurse and anaesthetist staff engage in consultation with patients in the theatre entrance. Staff report that they are not able to maintain privacy with patient consultations.
- There is limited storage space for medical supplies and equipment. Storage cupboards and equipment are placed in the corridor opposite the entrance to theatre. The area is not suitable for storage as it narrows the corridor making it difficult for manoeuvring patients in and out of theatre.

Dental Services
- There is limited storage space for dental supplies and equipment.
- General working space for staff is limited and overcrowded.
- There is no provision of an exhaust fume in the dental laboratory area.
- There is only one sink provided in the dental laboratory, making the working area inefficient.
- Staff report that the limited working space causing overcrowding in the dental department is impacting on patient flows and efficiency in general.

Primary Health Services - General
- Overcrowding in the outpatient area is due to increased growth in primary and mental health services.
- Lack of available waiting room area to meet patient flow.
- Inadequate security and monitoring for patients in waiting area.
- Inadequate storage for clinical documents, records and equipment.

Mental Health Services
- Overcrowding in the outpatient area is due to increased growth in mental health services and an increase in primary health care funding.
- Existing infrastructure accommodating the mental health services is compromising patient flows and staff efficiency due to lack of interview rooms, secure rooms with dual access for staff safety, storage areas and patient waiting areas.
- Staff report that the limited working space in the Primary Health services area has resulted in the mental health team taking up office space in the co located (disused) nurses quarters. However, the mental health team continues to use consulting rooms in the outpatients’ area. This action is not ideal as the ability to integrate therapies and programs is comprised.

Administration
- Overcrowding in the administration area is due to lack of available storage and work stations.

Summary of security concerns for staff
General
- The perimeter fencing to the hospital is ineffective in keeping unwanted intruders out of hospital grounds.
- There is no security personnel assigned to Ayr District Hospital.
• There are surveillance monitors in place in the emergency department and the general ward that monitor the waiting room area, however, the surveillance system does not record activity.
• Inadequate security after hours due to **single barrier** entrance doors at outpatients/emergency department.
• There are no security cameras monitoring the ingress and egress areas of the hospital.
2f Conclusions and Recommendations

Generally across the Ayr Hospital the medical and clinical operational efficiency is compromised due to the layout of existing structures, the lack of disability access and the deficiency in storage areas. Staff safety is compromised due to the lack of security measures in place and the number of occupational health and safety risks associated with the existing infrastructure.

- There would be great difficulty and expense to improve the master planning design, functionality, and efficiency in the existing structures.
- There is available Greenfield land within the site to allow for a staged redevelopment of new infrastructure.
3. Structural engineer’s report
   a) Scope
   b) Method
   c) Exclusions
   d) Standards used
   e) Issues
   f) Conclusions and recommendations
   g) Photos
3a Scope

The scope of the Infrastructure Assessment was to incorporate a review of the general functional arrangements at the Ayr site in terms of overall effectiveness, efficiency and appropriateness. The general functional arrangements were reviewed to determine if requirements for delivering the minimum suite of health services are met at the site.

The assessment aimed at gathering information on the building viability in the short, medium and long term, including current condition and performance and also considered any land and building heritage issues of the campus.
3b Method

The structural campus assessment involved an inspection of all buildings on the Ayr Hospital site. Initial site walk around was conducted with local and regional health managers and the Director of Nursing followed by a detailed inspection of each area within every building. Local staff were questioned on structural issues in their area of work and each area of building structure was discussed with the building maintenance manager.
3c Exclusions

- Level of inspection was sufficient for a general overview of building structural condition.
- No testing of materials was undertaken.
- No linings were removed to inspect structural elements. Only elements visible in-situ were examined. Existing floor, wall and ceiling linings were examined for evidence of structural distress.
- No detailed check calculations were carried out.
- Elements near to elevated edges (working from heights) were not inspected.
3d Standards used

The inspection of structural elements was undertaken with reference to current versions of the following Australian Standards for design of structures. Many of these standards were not in publication at the time of construction of the buildings and therefore there is no strict requirement for the existing buildings to comply with these codes. However these publications provide a useful reference for examination of the buildings against currently acceptable practice.

- AS 1170 parts 0, 1 and 2 – Australian Standard for Structural Design Actions
- AS 1684 – Australian Standard for Domestic Timber Structures
- AS 1720 – Australian Standard for Timber Structures
- AS 3600 – Australian Standard for Concrete Structures
- AS 4100 – Australian Standard for Steel Structures
- Building Code of Australia
3e Issues

The hospital site comprises several main buildings of various ages. The Main Hospital Building was constructed in 2004 (based on drawing dates) and is the most recent major addition to the site. It is single level plus a plant level, with slab on ground floors, masonry and steel walls and a steel framed roof.

The ex-Aged Care Building is one of the oldest buildings on the site. No drawings are available of the original construction to accurately determine construction date however it is estimated to be between 30 and 50 years old, with a renovation and extension constructed in the early 1980’s (current mental health). This is a three storey building with suspended concrete slabs and concrete column framing and a timber truss roof. The building is currently used for nurse’s quarters on the top level and is largely vacant on the ground level. The basement is used for storage of equipment and records. Mental Health occupies the ground level extension area of the building.

The on-site residences are a mix of houses ranging from a timber Queenslander approximately 70-90 years old, relocatable prefabricated kit homes approximately 10 years old (2 No.), four bedroom shared accommodation houses built with the new main hospital building (slab on ground and masonry walls – 2 No.) and recently added relocatable prefabricated kit homes (2 No.).

This section details issues that were identified during the site inspection. The defects listed below represent only a typical sample of the issues, not a comprehensive schedule of all defects. These details are given to provide an overall impression of the typical structural issues encountered.

Main Hospital Building

This building is generally in good condition consistent with its age. No major structural issues were observed. Defects identified during the inspection include:

- Very minor cracking observed in external walls in two locations, however not believed to be a major structural issue. Articulation is generally good with expansion/control joints present in external walls, floors and internal plasterboard.
- Minor splitting of plasterboard found in several areas, however not believed to indicate a major structural issue.
- Walkway grating appears to have been installed in wrong orientation in plant room; long direction of opening in mesh should be oriented in the short direction of the span. This makes the walkways more flexible than they should be, however this is not believed to be a major safety issue.

Ex-Aged Care Building

This building is generally in a good condition consistent with its age. No major structural issues were observed. Defects identified during the inspection include:

- Cracking in masonry walls around external covered walkways.
- Severe corrosion of structural steel posts supporting roof over covered walkways. It is understood these columns are soon to be replaced/repaired.
- One instance of moderate cracking of external wall render was observed, on southern side of building.

Laundry

Building is generally in good condition consistent with its age. No major structural issues were observed.
Residences (7 No.)

All the residences are generally in a good condition consistent with their age. No major structural issues were observed. The old timber Queenslander house will need maintenance and inspection at frequent intervals to identify degradation of the timber (from rot, termites etc.) early.
3f Conclusions and Recommendations

All the buildings at the Ayr Hospital campus were found to be in a sound structural condition. No major structural issues were identified in any part of the buildings.

Continuous monitoring, investigation and timely repair of structural defects is recommended as part of a thorough maintenance program in order to keep the buildings in good condition.

The Ex-Aged Care building appears to be structurally suitable for refurbishment and re-use as ward or office space as there was no indication of degradation of the base structure of this building.
3g Photos

1 - Isolated/minor cracking to external walls – Main Hospital Building
2 - Isolated/minor splitting of internal walls – Main Hospital Building
3 - Walkway mesh orientation – Main Hospital Building plant rooms
4 - Cracking of covered walkway masonry walls – Ex-Aged Care building.
5 - Corrosion of steel posts supporting covered walkway roof – Ex-Aged Care Building.
4. Building surveyor’s report
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   b) Method
   c) Exclusions
   d) Standards used
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4a Scope

The scope of the Infrastructure Assessment was to incorporate a review of the general functional arrangements at the Ayr site in terms of overall effectiveness, efficiency and appropriateness. The general functional arrangements were reviewed to determine if requirements for delivering the minimum suite of health services are met at the site. The assessment aimed at gathering information on the building viability in the short, medium and long term, including current condition and performance and also considered any land and building heritage issues of the campus.
4b Method

The building certification campus assessment involved an inspection of all buildings on the Ayr Hospital site. Initial site walk around was conducted with local and regional health managers and the Director of Nursing followed by a detailed inspection of each area within every building. Local staff were questioned on building issues in their area of work and each area of buildings were discussed with the building maintenance manager.
4c Exclusions

- Level of inspection was sufficient for a general overview of buildings
- No testing of materials was undertaken
- No detailed check calculations were carried out
- Elements near to elevated edges (working from heights) were not inspected.
4d Standards used

The buildings were evaluated utilizing the current Building Code of Australia (BCA 2009), applicable referenced Standards and the principles of universal access. Code references include:

- A 3.2 Classifications
- C 1.1 and 1.2 Calculation of Rise in Storey’s and Type of Construction Required
- C 2.5 Class 9a & 9c buildings
- C 2.7 Separation by fire walls
- C 3.8 Openings in fire-isolated exits
- C 3.15 Openings for service installations
- Specification C 1.1 Fire Resisting Construction
- D 1.4 Exit travel distances
- D 2.8 Enclosure of space under stairs and ramps
- D 2.16 Balustrades or other barriers
- D 2.19 Doorways and Doors
- D 2.21 Operation of Latch
- D 2.23 Signs on doors
- D 3.2, 3.3, 3.4 Access to buildings (people with disabilities) parts to be accessible, concessions
- D 3.6 Identification of Accessible Facilities, Services & Features
- D 3.7 Carparking
- D 3.8 Tactile Indicators
- E 1.4 Fire Hose Reels
- E 1.6 Portable Fire Extinguishers
- E 4.2 – 4.6 Emergency Lighting requirements, Exit signs and Directional signage.
- F 1.7 Damp and Weatherproofing
- F 4.5 Ventilation of rooms
- MP 5.1 Workplaces
4e Issues

A3.2 Classifications

Ayr Hospital

- Wards, theatres etc – Class 9b
- Administration – Class 5

Proposed administration Centre (former aged care facility)

- Offices – class 5

C1.1 Type of Construction Required

C1.2 Calculation of Rise in Storey’s

All hospital buildings are single storey type C constructions

The proposed administration centre is 3 storeys - type A

C 2.5 Class 9a & 9c buildings

The ward and theatre areas of the hospital have had fire walls and fire/smoke doors installed, however the fire wall has a breach where the fire door to the public toilet area has been fitted with a return air grill in the bottom of the door. This grill has no fire protection.

C 2.7 Separation by fire walls

As mentioned above, walls require penetrations to be properly addressed provide full compliance.

C 3.8 Openings in fire-isolated exits

The stair connection the 3 storey in the proposed administration building is to be fitted with -/60/30 fire doors on all levels.

C 3.15 Openings for service installations

There are a number of penetrations through the floor above the sub-floor area that have not been fire protected. Retrofit fire collars or similar must be installed.

Specification C 1.1 Fire Resisting Construction

The units in the top floor of the proposed administration centre are not defined as budget accommodation and as such fire separation of 60 minutes must be provided between units and between units and the corridor as well as ceilings throughout. It is recommended that the use be discontinued as soon as possible as there are no provisions to limit the spread of fire. As offices, no fire separation would be required.

D1.4 Exit travel distances

The travel distances in the sub-floor storage area exceeds 20m to a single exit. An additional PA door must be provided a minimum of 9m from the current exit door beside the 3 storey stair.

D 2.8 Enclosure of space under stairs and ramps

The store room in the stair that connects the 3 storey section of the proposed administration centre is to be removed as storage cupboards are not permitted in fire isolated stairs.

D 2.16 Balustrades or other barriers

The stairs in the proposed administration centre will require and additional rail at 150 mm above the nosing line of the stair treads.
D 2.19 Doorways and Doors
The laundry building is greater than 200m² in floor area; as such the roller shutters currently used as exits are not permitted for this use. A minimum of one PA door must be installed so that all points on the floor are within 20m of this new exit. The door must open in the direction of egress and be fitted with a lever exit door handle.

D 2.21 Operation of Latch
The current Mental Health offices require a lever handle to be fitted to the exit door.

D 2.23 Signs on doors
The fire doors that have been provided in the plant in the ceiling areas are not labelled. Doors that are not in fire door have been labelled in error, Labelling should be as follows:

The signs must be in capital letters not less than 20 mm high in a colour contrasting with the background and state—

(i) for an automatic door held open by an automatic hold-open device—
“FIRE SAFETY DOOR—DO NOT OBSTRUCT”;

(ii) for a self-closing door—
“FIRE SAFETY DOOR
DO NOT OBSTRUCT
DO NOT KEEP OPEN”

D3.2, 3.3, 3.4 Access to buildings (people with disabilities) parts to be accessible, concessions
The ramp to the rear of the open area in the hospital from the staff carpark does not comply with section 5 of AS 1428.1, with regards to incline, transitions, landing and width.

Disable facilities in the proposed administration building are non-compliant and reconfiguration will be required.

Coat hooks and shelves are required to all disable toilet facilities

The shower facility in the theatre area does not have all compliant grabrails fitted.

The ward area accessible room shower facility has the soap dispenser incorrectly located.

The light switch heights throughout the accessible ground floor of proposed administration centre must be located within 900-1100 mm to the centre of the switch.

The short grabrail beside the cistern in the public disable facility is greater than 50 mm off the cistern and must be relocated.

D 3.6 Identification of Accessible Facilities, Services & Features
Braille/tactile signs are required to be provided to all toilets throughout both buildings. The disable facility in the main hospital administration area is to be indicated as a unisex facility for able bodied persons as well as people with disabilities.

D3.5 Carparking
The carparks for people with disabilities provided on-site have been incorrectly labelled. The ground marking must be a 900 mm x 900m aquamarine square with the universal access symbol in white.
D 3.8 Tactile Indicators

Tactile ground surface indicators are required to the edge of the road way on the open covered area side to warn pedestrians that they are approaching a vehicular pathway.

E 1.4 Fire Hose Reels

There is a hosereel beside stair 2 on the top floor in the proposed administration centre that is not installed correctly in the box provided with the incorrect clearance to the perimeter. A minimum of 100 mm is required.

Due to the reconfiguration of dorm’s 24 and 25 to create unit 5 in the proposed administration centre, the hosereel to that end of the building is no longer accessible by the remainder of the building. This reel is to be repositioned to be available by all occupants of the building.

The firehose reel box beside the exit door near the child’s play area in the wards is not signed. The doors must be marked with the words FIRE HOSE REEL in 50 mm high contrasting lettering.

E 1.6 Portable Fire Extinguishers

Recommend a specialist consultant be engaged to determine whether sufficient number and type of extinguishers have been provided in both buildings.

E 4.2 – 4.6 Emergency Lighting requirements, Exit signs and Directional signage.

The stairs in the proposed administration centre are required to be fitted with emergency lighting. Emergency lighting should also be extended into the partly enclosed front entry walkway. A full review of emergency lighting should be undertaken to verify compliance.

An illuminated exit sign is required over the door beside the fire indicator panel to indicate a path of egress from the main corridor in the Northern end of the proposed administration centre.

The sub-floor records area is greater than 300m$^2$ in floor area and as such must be fitted with emergency lighting and illuminated exit signs.

F 1.7 Damp and Weatherproofing

The waterproofing in the disable facility showers is to be extended to 1500 mm from the shower rose per AS 3740.

F 4.5 Ventilation of rooms

The sub-floor storage area has insufficient openings to be naturally ventilated. Mechanical ventilation to AS 1668.2 and AS/NZS 3666.1.

MP 5.1 Workplaces

Staff numbers “required” (i.e. unable to eat at their workstations) to utilize the staff dining area in the Main hospital have not been provided. The minimum floor area required is 11m$^2$ for 6-11 employees and then an additional 0.92m$^2$ per employee up to 25 and then 0.75m$^2$ per employee thereafter.
4f Conclusions and Recommendations

The following matters are required to be addressed due to non-compliance with the Building Code of Australia:

C 2.5 Class 9a & 9c buildings

The ward and theatre areas of the hospital have had fire walls and fire/smoke doors installed, however the fire wall has a breach where the fire door to the public toilet area has been fitted with a return air grill in the bottom of the door. This grill has no fire protection.

C 2.7 Separation by fire walls

As mentioned above, walls require penetrations to be properly addressed provide full compliance.

C 3.8 Openings in fire-isolated exits

The stair connection the 3 storey in the proposed administration building is to be fitted with -/60/30 fire doors on all levels.

C 3.15 Openings for service installations

There are a number of penetrations through the floor above the sub-floor area that have not been fire protected. Retrofit fire collars or similar must be installed.

Specification C 1.1 Fire Resisting Construction

The units in the top floor of the proposed administration centre are not defined as budget accommodation and as such fire separation of 60 minutes must be provided between units and between units and the corridor as well as ceilings throughout. It is recommended that the use be discontinued as soon as possible as there are no provisions to limit the spread of fire. As offices, no fire separation would be required.

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The store room in the stair that connects the 3 storey section of the proposed administration centre is to be removed as storage cupboards are not permitted in fire isolated stairs.

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The stairs in the proposed administration centre will require and additional rail at 150 mm above the nosing line of the stair treads.

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The light switch heights throughout the accessible ground floor of proposed administration centre must be located within 900-1100 mm to the centre of the switch.

The short grabrail beside the cistern in the public disable facility is greater than 50 mm off the cistern and must be relocated.

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**D 3.8 Tactile Indicators**

Tactile ground surface indicators are required to the edge of the road way on the open covered area side to warn pedestrians that they are approaching a vehicular pathway.

**E 1.4 Fire Hose Reels**

There is a hosereel beside stair 2 on the top floor in the proposed administration centre that is not installed correctly in the box provided with the incorrect clearance to the perimeter. A minimum of 100 mm is required.

Due to the reconfiguration of dorm’s 24 and 25 to create unit 5 in the proposed administration centre, the hosereel to that end of the building is no longer accessible by the remainder of the building. This reel is to be repositioned to be available by all occupants of the building.

The firehose reel box beside the exit door near the child’s play area in the wards is not signed. The doors must be marked with the words FIRE HOSE REEL in 50 mm high contrasting lettering.
E 1.6 Portable Fire Extinguishers

Recommend a specialist consultant be engaged to determine whether sufficient number and type of extinguishers have been provided in both buildings.

E 4.2 – 4.6 Emergency Lighting requirements, Exit signs and Directional signage.

The stairs in the proposed administration centre are required to be fitted with emergency lighting. Emergency lighting should also be extended into the partly enclosed front entry walkway. A full review of emergency lighting should be undertaken to verify compliance.

An illuminated exit sign is required over the door beside the fire indicator panel to indicate a path of egress from the main corridor in the Northern end of the proposed administration centre.

The sub-floor records area is greater than 300m² in floor area and as such must be fitted with emergency lighting and illuminated exit signs.

F 1.7 Damp and Weatherproofing

The waterproofing in the disable facility showers is to be extended to 1500 mm from the shower rose per AS 3740.

F 4.5 Ventilation of rooms

The sub-floor storage area has insufficient openings to be naturally ventilated. Mechanical ventilation to AS 1668.2 and AS/NZS 3666.1.

MP 5.1 Workplaces

Staff numbers “required” (i.e. unable to eat at their workstations) to utilize the staff dining area in the Main hospital have not been provided. The minimum floor area required is 11m² for 6-11 employees and then an additional 0.92m² per employee up to 25 and then 0.75m² per employee thereafter.
4g Photos

1 - Short grab-rail greater than 50 mm from cistern in public disabled access facility.

2 - Staff disabled facility to be indicated as unisex accessible facility.
3 - Hose-reel with less than 100 mm clearance to drum in “proposed” administration building.

4 - Third rail required at 150 mm above nosing line of treads to all stairs in “proposed” administration building.
<table>
<thead>
<tr>
<th></th>
<th>Store room to be removed from stair connection 3 storeys.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>![Image of a door with a bicycle next to it]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Light switch heights not between 900 – 1100 mm above floor level (AFL) in the “proposed” administration building.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>![Image of a light switch]</td>
</tr>
</tbody>
</table>
7 - No exit signage.

8 - No emergency lighting.
9 - Roller shutter not permitted as exit in laundry building as greater than 200m2 in floor area.

10 - Incorrectly marked car spaces for people with disabilities.
11 - Non-complying access walkway to rear of building.

12 - No Braille/tactile signage to toilets throughout.
13 - Vertical grab-rail not provided, signage incorrect and not Braille/tactile, horizontal handrail too short, no soap holder and waterproofing not extended to 1500 mm from the shower rose in the disabled access facility in the theatre area.

14 - Grille in fire door to public toilet airlock comprises integrity of door.
15 - Fire hose reel cupboard not signed near child’s play area in wards.

16 - Soap holder incorrectly placed and waterproofing not to 1500 mm from shower rose in disabled shower in ward area.
17 - Fire door to ward area not self-closing correctly.

18 - Insufficient contrast to fire door signage.
5. Hydraulic and Civil engineer’s report
   a) Scope
   b) Method
   c) Exclusions
   d) Standards used
   e) Issues
   f) Conclusions and recommendations
   g) Photos
5a Scope

The scope of the Infrastructure Assessment was to incorporate a review of the general functional arrangements at the Ayr site in terms of overall effectiveness, efficiency and appropriateness. The general functional arrangements were reviewed to determine if requirements for delivering the minimum suite of health services are met at the site.

The assessment aimed at gathering information on the building viability in the short, medium and long term, including current condition and performance and also considered any land and building heritage issues of the campus.
5b Method

The Civil and Hydraulic services campus assessment involved an inspection of the site and all buildings on the Ayr Hospital site. Initial site walk around was conducted with local and regional health managers and the Director of Nursing followed by a detailed inspection of each area within every building. Local staff were questioned on hydraulic services issues in their related work area. The site and each building’s hydraulic services were discussed with the building maintenance manager.
5c Exclusions

- Inspection sufficient for a general overview of site and building services condition only.
- No testing of services or materials was undertaken.
- No linings were removed or buried services excavated during the inspection. Only existing visible services were examined.
- Elevated services (roofs, gutters, services and vents) were generally only inspected from ground level or other safe vantage points.
5d Standards used

- QDC MP 4.2 – Water Saving Targets.
- Building Code of Australia.
5e Issues

The following section presents a detailed list of major civil and hydraulic services defects identified during the condition assessment inspections.

Main Hospital Building

- Single storey plus upper plant room approximately 6 years old. Concrete construction, metal roof sheeting and gutters, PVC downpipes. Copper water services. PVC waste drains. Gas hot water units.
- Kitchen wash up area lack lever handles (Health care facilities recommended).
- In several staff areas the wall mounted boiling water unit overflow pipe discharges over the sink. This is a non-compliant OHS issue.
- Upper plant room lacked fire hose reel protection.

Ex-Aged Care Building

- Two storey concrete construction, timber floors, asbestos high level roof, metal low level roof sheeting. Metal gutters and downpipes. Gas hot water units. Copper domestic water service, galvanised fire hose reel service, PVC and galvanised waste drains. Some areas recently renovated. Approximately 25 years old.
- Gutters and downpipes are in poor condition (rusted).
- The location of several fire hose reels is non-compliant (distance from exit). Fire hoses are well past the recommended effective life.
- Lack of health care facilities compliant tapware i.e. Lever type handles.
- Tapware and associated service are in average to poor condition. No Queensland Health recommended water saving (flow restrictors) devices fitted. Old 11 litre single flush cisterns.

Laundry

- Construction: Low set slab on ground brick building. Metal roof sheeting and gutters, PVC downpipes. Single storey approximately 50 years old. Gas hot water unit and gas boiler.
- Lack (in some areas) of health care facilities compliant tapware i.e. Lever type handles.
- Tapware and associated services are in average condition. No Queensland Health recommended water saving (flow restrictors) devices fitted.
- No backflow prevention devices provided to water services to prevent possible cross contamination between dirty and clean areas.

Maintenance Workshop

- Construction: Low set slab on ground brick building. Metal roof sheeting and gutters, PVC downpipes. Single storey approximately 6 years old. Copper water service, PVC waste drains.
- No reported or observed problems.

Residences (7 No)

- New Units (2 No) - Construction: Low set slab on ground, brick veneer external walls. Metal roof sheeting and gutters, PVC downpipes. Single storey approximately 6 years old. Copper water service and PVC waste pipes. Electric and gas hot water units.
• New Houses (2 No) - Construction: Low set on stumps, brick veneer external walls. Metal roof sheeting and gutters, PVC downpipes. Single storey approximately 5 years old. Copper water service and PVC waste pipes. Electric hot water unit.


• Prefabricated Houses (2 No) - Construction: Low set prefabricated on metal stumps. Metal roof sheeting and gutters, PVC downpipes. Single storey approximately 6 years old. Copper water service and PVC waste pipes. Electric hot water unit.

Civil and Hydraulic External Site Services

• Generally good site surface drainage. Staff reported past minor flooding in south east corner but recent works seem to have resolved this.

• No rainwater collection tanks on site.

• Staff reported lack of security fencing to south east residence area from public space.

• Carpark and road pavements are in good condition.
5f Conclusions and Recommendations

- Maintain a maintenance program for all hydraulic services.
- Provide fire hose reel to upper plant room.
- Provide backflow prevention devices where required.
- Relocate existing fire hose reels as necessary to meet current code requirements including local fire brigade requirements.
- Replace old fire hose reels.
- Provide where necessary tapware, fittings and fixtures to meet current code and health care requirements.
- Progressively repair or replace corroded roof sheeting, gutters, downpipes etc.
- Consider provision of rainwater storage tanks.
### Photos

1. Old Nurses Quarters – Old 11 litre cistern. No lever tap handles.

![Old Nurses Quarters](image1.jpg)

2. Old Nurses Quarters – Boiling water unit overflow discharge over sink. OHS issue. Not lever tap handles.

![Boiling water unit](image2.jpg)
3 - Old Nurses Quarters – poor roof gutters rusted – failed brackets.

4 - Laundry – No lever tap handles.
5 - Laundry – No back flow prevention valves.

6 - Main Hospital - Boiling water unit overflow discharge over sink. OHS issue. Not lever tap handles.
6. Mechanical engineer’s report
   a) Scope
   b) Method
   c) Exclusions
   d) Standards used
   e) Issues
   f) Conclusions and recommendations
   g) Photos
6a Scope

The scope of the Infrastructure Assessment was to incorporate a review of the general functional arrangements at the Ayr site in terms of overall effectiveness, efficiency and appropriateness. The general functional arrangements were reviewed to determine if requirements for delivering the minimum suite of health services are met at the site.

The assessment aimed at gathering information on the building viability in the short, medium and long term, including current condition and performance and also considered any land and building heritage issues of the campus.
6b Method

The Mechanical services campus assessment involved an inspection of the site and all buildings on the Ayr Hospital site. Initial site walk around was conducted with local and regional health managers and the Director of Nursing followed by a detailed inspection of each area within every building. Local staff were questioned on mechanical services issues in their related work area. The site and each building’s mechanical services were discussed with the building maintenance manager.
6c Exclusions

- Inspection sufficient for a general overview of site and building services condition only.
- No testing of services or materials was undertaken.
- No linings were removed or buried services excavated during the inspection. Only existing visible services were examined.
- Elevated services (e.g. Contained within ceiling spaces) were only inspected from ground level or other safe vantage points.
- No calculations or design were undertaken to verify capacities, equipment sizing, etc.
- No interruption of the system operation was undertaken for the inspection. All items were inspected while operating in their normal operation.
- No internal inspection of the ductwork was undertaken.
- No review of the effectiveness of the air conditioning and ventilation controls was undertaken.
- No measurement of air quantities or air pressures was undertaken.
6d Standards used

- BCA 2010 - Building Code of Australia
- AS 1470:1986 - Health and Safety at Work – Principles and Practice
- AHFG - Australasian Heath Facilities Guidelines
- Queensland Fire and Rescue Services – QFRS
- S 1668.1 1998 - The use of mechanical ventilation and air-conditioning in buildings - Fire and smoke control
- AS 1668.2 1991 - The use of ventilation and air conditioning in buildings - Ventilation design for indoor air contaminant control
- AS 3666 - Air-handling and water systems of buildings - Microbial control - Design, installation and commissioning
- AS 1677.2 - Refrigerating systems - Safety requirements for fixed applications
- AS 2243 Series - Safety in Laboratories
- AS 2982 - Laboratory design and construction - General requirements
- AS 1324 - Air filters for use in general ventilation and air conditioning - Application, performance and construction
- AS 2896 - Medical Gas Systems – Installation and testing of non-flammable medical gas pipeline systems
- QHealth Infection Control Guidelines
- QMech Standard specifications for Mechanical Services
- HB260 - Handbook Hospital acquired infections – Engineering down the risk
6e Issues

General

The following issues have been identified from the site inspections and evaluations to provide an identification of the important issues that have been identified at this site. A limited analysis and evaluation has been carried out in order to identify and provide a limited understanding of the issues. A more thorough analysis and evaluation may be required to some of the identified issues to fully understand the issues and for implementing remedial action however this is beyond the scope of this report.

General Description

The redevelopment of Ayr hospital was carried out approximately six (6) years ago with a new building complex to house the theatres, in-patient wards, emergency, administration, kitchen, community health, mortuary and the associated services for these areas. Two (2) dedicated air conditioning plant areas are provided in mezzanine areas above the single level hospital areas that house the air handling units, (AHU), exhaust fans, mechanical services electrical switchboards and building management system (BMS). A ground floor plant room is provided for the chillers, chilled water storage vessel, medical suction plant, central vacuum system, compressed air compressor/refrigerated air drier, chilled water and condenser water pumps and the main mechanical services electrical switchboard. Two (2) cooling towers are located external to the plant room.

A separate external plant room is provided for the oxygen, Nitrous oxide and medical air gas systems.

All areas of the hospital are air conditioned by ducted type air conditioning with eighteen (18) air handling units installed across the two (2) plant areas. Critical areas of the hospital such as operating theatres and the isolation room have a dedicated air conditioning system. Chilled water is the cooling medium with electric operated duct mounted heater banks providing the heating requirements. Humidifiers using the steam injection method into the supply air ductwork are installed to the AHUs for the critical areas where close control of temperature and humidity is required.

Control of all air conditioning systems in the hospital is via a building management system of “tac” manufacture.

The original aged care facility ceased operation as an age care facility in 2007. Level 1 of the western end has recently been upgraded as accommodation units with wall split air conditioning systems installed. The remaining areas of this building are air conditioned via ducted systems from air handling units that utilised chilled water as the cooling medium. A small air cooled chiller set is provided for the facility. Upgrade of the area is planned for the future as administration areas and currently it is still setup as accommodation areas from the original aged care facility.

In 2006 a Mental Health facility was added to the former aged care building and is air conditioned via a ducted air conditioning system.

A building containing the laundry is located separate to the hospital with the building housing a plant area at one end for the steam boiler, pumps, condensate return tank, etc. The building is ventilated via roof mounted fans with ceiling mounted fans also aiding the ventilation. Hot air from the rear of the clothes driers is exhausted separately to above the roof. A room air conditioner is provided for one of the rooms in the building.

The site also contains accommodation in the form of units and houses. These are air conditioned via wall split air conditioning systems with the exception of two old houses that have room air conditioners.
Air conditioning and Ventilation

The air conditioning for the main hospital is nearing six (6) years old and appears to have been commissioned in late 2004 or early 2005. Majority of the installation is in very good condition.

The following items have been identified from the analysis and evaluation from the site inspection.

Hospital Complex

Return Air/Filter Plenum Corrosion

Corrosion is evident to the perforated metal covering of the internal insulation in the return air/filter plenums for AHU-7, AHU-9 and AHU-10. Potential internal corrosion may also exist to the internals of the outdoor air intake ducts as well (not inspected). AHU-7, AHU-9 and AHU-10 units have a higher outdoor air quantity than the other units with each directly drawing its outdoor air from directly above the roof of the plant area. The corrosion appears to be with the air quality and moisture levels of the outdoor air that is drawn into the units. Replacement of the worst affected areas of metal with corrosion treatment recommended to the effected areas. On going inspection and treatment will be required.

AHU-12 Contamination of Supply Air Chamber

AHU-12 has an accumulation of dust/foreign matter on the light fitting, controls, switches and damper casings in the supply air chamber for the air off the coil chamber. This area is after the air filtration for the unit and the condition of the surface area of the AHU is not in compliance with AS 666.2 requirements. AHU-12 provides air conditioning to the accident and emergency areas of the hospital and hence it is necessary in maintaining the internal condition of the supply air ductwork in a clean condition. Inspection procedures as per AS 3666.2 should be followed.

AHU-15 Filtration

AHU-15 has a high pressure reading for the differential pressure across the air filters with a reading of 177 Pa identified on the magnehelic gauge. The indicator for the magnehelic gauge is set at 133 Pa for the recommended filter change. The efficiency of the system may be affected with the high reading being identified. The air filters are recommended to be replaced. The total air quantity of the unit is recommended to be checked to verify that the system is not running above the design air flow for the unit as this will affect the filtration efficiency and result in a high pressure difference across the filters.

Sterile Stock Room Temperature

Staff have identified that the Sterile Stock Room in Theatre complex feels warm on a regular basis. At the time of the inspection the area did feel warmer than the other areas of the theatre complex however no temperature were taken and no verification of the air flow was undertaken. Often the feeling of being warm in an area is a by product of lack of air flow and the actual temperature may be at the correct level. This room may suffer from a low air movement. A HEPA filter terminal unit is connected for the supply air into the room. Review of air quantities entering the room is recommended.

CSD Area – Theatre Complex

Staff have identified that there have been complaints of acid odours in the CSD area of Theatre complex from staff close to area when satchels of “Steris 20 Sterilant concentrate” are in use. Review of air conditioning and ventilation is recommended.
Noisy Operation of Kitchen Exhaust Canopy

The kitchen exhaust canopy system is not operated regularly during cooking operations. The kitchen staff consider that the canopy exhaust system is too noisy when it is operating. The drawings indicate that sound attenuators are installed for the outdoor air canopy makeup air and for the exhaust air system from the canopy. Staff have advised that due to its noisy operation, the system is only operated for when the steam convection oven door is opened after it has been used. This is to capture the steam release from the oven door. The exhaust system is then turned off. The exhaust canopy hood system is of the self cleaning type and when turned off releases all of the cleaning water to waste. This is occurring each time it is turned off. When running in normal operation it would drain at the end of the day when the system was shut down. Staff have also advised that the automatic operation of the system has never been set up (i.e. time clock settings, etc). With the exhaust system not being used during the majority of the cooking periods, (i.e. pots boiling on top of the target tops) higher levels of humidity are occurring in the kitchen and this can result in mould growth of the surfaces of the walls, ceilings, under benches, etc.

Incorrect surface material or damage to the internals of the attenuators may be the issue. The non operation of the kitchen self cleaning system may have resulted in contamination of the attenuator internal linings. This could not be verified at the time of the inspection. A review of the performance of the attenuators, inspection to the internals of the attenuators and exhaust system’s operation is recommended.

Kitchen Exhaust Canopy Ventilation

The kitchen exhaust system appears to be drawing excess air from the kitchen area and in addition air from the adjacent corridors area is being drawn into the kitchen when the exhaust system is in operation. The volume of air from the corridors is causing the kitchen’s entry doors to be pulled in towards the kitchen. The exhaust canopy has an outdoor air make up system inbuilt into the canopy. The canopy exhaust system at present when in operation is exhausting all of the conditioned air in the kitchen as well as conditioned air from the corridors. The canopy exhaust system and outdoor air make up systems require review and the correct air quantities obtained to allow effective and energy efficient operation.

Former Aged Care Facility

A major upgrade of the existing ducted air conditioning systems is required should the building be refurbished for office areas, etc. Upgrade of the chilled water system may also be required to meet the increased heat loads due to occupancy levels, equipment loads, etc. This can only be further evaluated when the future used and the requirements associated with this intended use have been identified.

Emergency Generator Operation

The following items have been identified from the analysis and evaluation of the site inspection.

Generator Fuel Storage

A 450 kVA emergency generator set is installed for the complex. A 9,000 litre underground fuel tank is installed to allow extended running of the emergency power supply. This will allow for 90 hours of operation of the emergency generator set. Under normal maintenance test operation of the generator set only a small quantity of this fuel is used. Prolonged storage of diesel fuel is a problem and contamination can occur. If untreated the contamination can result in blocked fuel filters and hence failure of the emergency generator set when it is required to operate during a power outage. A treatment system for the fuel is required to ensure the quality of the fuel is maintained. The maintenance staff has identified that a treatment system is being considered. To ensure reliable emergency power supplies a treatment system is required.
6f Conclusions and Recommendations

General
The analysis and evaluations from the information obtained from the site inspection has resulted in several issues being identified. The issues have been identified in clauses 3.3 and 3.4. For the majority of the issues identified recommendations have been provided in order to overcome the issue. Some of the issues identified either more complex and will require additional investigation and or site testing to fully develop recommended action.

Hospital Complex

Return Air/Filter Plenum Corrosion
Replace the badly effected corrosion areas of the perforated metal covering of the internal insulation in the return air/filter plenums for AHU-7, AHU-9 and AHU-10. Provide corrosion treatment to the remaining corrosion effected areas.

Inspect the internals of all outdoor air intake ducts and provide corrosion treatment as required.

AHU-12 Contamination of Supply Air Chamber
Clean the internals of the conditioner chambers for AHU-12 with particular attention to the areas after the cooling coil. Inspect the condition of the supply air ducts and clean as required.

Provide inspections/servicing as per the requirements of AS 3666.2.

AHU-15 Filtration
Replace the air filters for AHU-15 and checked the total air quantities for the system to verify that the system is not running above the design air flow for the unit. Adjust the air quantities as required.

Sterile Stock Room Temperature
Investigate the apparent warmer conditions within the sterile stock room. The investigation to include verification of the supply air quantity to the room and the condition of the HEPA filter terminal unit.

CSD Area – Theatre Complex
Investigate the air conditioning and ventilation for the CSD area due to complaints of acid odours in the CSD area of Theatre complex from staff close to area when satchels of “Steris 20 Sterilant concentrate” are in use.

Kitchen Exhaust Canopy
Inspect the condition and effectiveness of the sound attenuators on the supply and exhaust systems.

Verify the operation of the make up air system and the exhaust air system for the kitchen exhaust canopy. The operation of AHU-10 that air conditions the kitchen will also need to be reviewed. The review will need to include on site air quantity testing of the units to enable a full understanding of the potential issues that may exist. Modify/rebalance the systems as per the finding of the review.

The operation of the self cleaning exhaust canopy needs to be correctly set up for automatic operation.
Internal Condition of Air Handling Units and Ductwork

AS 3666.2 identifies a range of inspections and frequency of these tests. The internal condition of a limited number of the internal of the conditioner units on the air off the coil side has identified that these have some contamination. An inspection of these units and the ductwork as per the requirements of AS 3666.2 needs to be undertaken.

Former Aged Care Facility

Major alterations and upgrade of the air conditioning systems will be required if the building is to be refurbished. Majority of the existing ductwork, air handling plant, controls, etc will need to be replaced.

Emergency Generator Fuel Storage

A 9,000 litre underground fuel tank is installed to allow extended running of the emergency power supply. This will allow for 90 hours of operation of the emergency generator set. Under normal maintenance test operation of the generator set only a small quantity of this fuel is used. Prolonged storage of diesel fuel is a problem and contamination can occur. If untreated the contamination can result in blocked fuel filters and hence failure of the emergency generator set when it is required to operate during a power outage. A treatment system for the fuel is required to ensure the quality of the fuel is maintained. The maintenance staff has identified that a treatment system is being considered. To ensure reliable emergency power supplies a treatment system is required.
6g Photos

1 - AHU – 7 – Corrosion to the perforated metal internal lining to return air/filter plenum

2 - AHU – 10 – Corrosion to the perforated metal internal lining to return air/filter plenum
3 - AHU – 9 – Corrosion to perforated metal internal lining to return air/filter plenum

4 - AHU – 12 – Supply air chamber for ‘air off coil’ showing build up of particulates to controls, light fitting, and damper frames. This system supplies air conditioning to Accident & Emergency area.
7. Electrical, Communications, and Security engineer’s report

a) Scope
b) Method
c) Exclusions
d) Standards used
e) Issues
f) Conclusions and recommendations
g) Photos
7a Scope

The scope of the Infrastructure Assessment was to incorporate a review of the general functional arrangements at the Ayr site in terms of overall effectiveness, efficiency and appropriateness. The general functional arrangements were reviewed to determine if requirements for delivering the minimum suite of health services are met at the site.

The assessment aimed at gathering information on the building viability in the short, medium and long term, including current condition and performance and also considered any land and building heritage issues of the campus.
7b Method

The Electrical and Communications services campus assessment involved an inspection of the site and all buildings on the Ayr Hospital site. Initial site walk around was conducted with local and regional health managers and the Director of Nursing followed by a detailed inspection of each area within every building. Local staff were questioned on electrical and communications services issues in their related work area. The site and each building’s electrical and communications services were discussed with the building maintenance manager.
7c Exclusions

- Inspection sufficient for a general overview of site and building services condition only.
- No testing of services or materials was undertaken.
- No linings were removed or buried services excavated during the inspection. Only existing visible services were examined.
- Elevated services (e.g. Contained within ceiling spaces) were only inspected from ground level or other safe vantage points.
- No calculations or design were undertaken to verify capacities, equipment sizing, etc.
- No interruption of the system operation was undertaken for the inspection. All items were inspected while operating in their normal operation.
- No functional operation tests were carried out to verify the operations of any of the systems with full reliance on the information as supplied by the maintenance staff.
7d Standards used

- BCA 2010 - Building Code of Australia
- AS 1470:1986 - Health and Safety at Work – Principles and Practice
- AHFG - Australasian Heath Facilities Guidelines
- Queensland Fire and Rescue Services – QFRS
- AS/NZS 3000:2007 - Wiring Rules
- AS/NZS 3003:2003 - Electrical installations in Patient treatment areas for hospitals and medical, dental practices and dialyzing locations
- AS/NZS 3008.1.1 - Electrical Installations selection of cables – Cables for Alternating Voltages up to and Including 0.6/1 kV typical Australian Conditions.
- AS/NZS 3010:2005 - Electrical Installation – Generating Sets
- AS 1680 – All relevant parts including AS 1680.2.5 1997 (interior lighting for Hospital and Medical tasks - Interior Lighting Standards
- AS/NZS 3491 - Switch panel Construction
- AS 4806 parts 1-4 Where applicable - CCTV Application Guidelines
- AS/NZS 1158 – All Relevant sections - Lighting of Roads and External Spaces.
- AS 1768 - Lightning Protection
- AS 2201 (All relevant parts) - Intruder Alarm systems
- AS/NZS 3080 – 2003 - Telecommunications Installations – Generic cabling for commercial buildings
- IS0934 – 2006 - Information and Communications Technology Cabling Standard
7e Issues

General

The following issues have been identified from the site inspections and evaluations to provide an identification of the important issues that have been identified at this site. A limited analysis and evaluation has been carried out in order to identify and provide a limited understanding of the issues. A more thorough analysis and evaluation may be required to some of the identified issues to fully understand the issues and for implementing remedial action however this is beyond the scope of this report.

Electrical

General

The redevelopment of Ayr hospital was carried out approximately six (6) years ago with a new building complex to house the theatres, in-patient wards, emergency, administration, kitchen, community health, mortuary and the associated services for these areas. New emergency power system and main switchboard were installed with the redevelopment and are housed within the new complex.

The original aged care facility ceased operation as an age care facility in 2007. Level 1 of the western end has recently been upgraded as accommodation units with the electrical and fire services upgraded to suit this upgrade only. The remainder of the building is from its original use with the electrical and fire services as per its usage as an aged care facility.

A building containing the laundry is located separate to the hospital with the building housing a plant area at one end for the steam boiler, pumps, condensate return tank, etc.

The following items have been identified from the analysis and evaluation from the site inspection.

Hospital Complex

Close Circuit Television (CCTV)

A limited close circuit television (CCTV) monitoring system is provided that has four (4) cameras with the monitor screen in the nurse’s station. This does not provide sufficient coverage of the hospital areas for the hospital staff in the complex. It is recommended that the CCTV system be expanded with increased monitors and cameras to cover all waiting areas, building access doors and corridors, etc, to assist the medical staff in carryout their duties and provide further security in the complex.

Electronic Security

No electronic type security system such as “Cardex” is provided to secure areas of the hospital from access from unauthorised people. A limited number of doors are alarmed back to the nurse’s station however these alarmed doors do not prevent unauthorised people from entering but only indicated that the door has been opened. An electronic security system should be considered.

Relocatable House

The rear screen door prevents the switchboard from being fully opened. This results in several of the circuit breakers that cannot be worked on as a result. Modification to the mounting of the screen door is required to allow full access to the switchboard.
**Former Aged Care Facility**

Should this building be refurbished for office areas, etc, replacement of the switchboards, general lighting, emergency and exit lighting and switch socket outlets will be required including the installation of earth leakage protection. Replacement of the existing fire detection system and fire indicator panel will also be required with an addressable type system recommended to be installed.

**Call / Alarm Systems**

**Accident and Emergency Nurse’s Area**

The wall mounted duress alarm button is hidden behind books located on shelves that are mounted on the wall above the workstation. Relocation of the duress alarm to an accessible location is recommended.

The present Duress alarm system is local only when alarms in the nurse’s station for the wards and mental health are activated. Response from the nurses is not always possible. Duress alarms are also in the mental health area of the hospital with this building not directly attached to the hospital building. A review and upgrade of the systems as well as required response personnel is recommended.
7f Conclusions and Recommendations

General

The analysis and evaluations from the information obtained from the site inspection has resulted in several issues being identified.

Recommendations have been provided in the following clauses. These are based on preliminary evaluations. To provide more detailed recommendations would require additional investigation and or site testing to fully develop recommended action.

Close Circuit Television (CCTV)

Upgrade/expand the existing close circuit television (CCTV) monitoring system with increased monitors and cameras to cover all waiting areas, building access doors and corridors, etc, to assist the medical staff in carryout their duties and provide further security in the complex.

Electronic Security

Install an electronic type security system similar to “Cardex” to secure areas of the hospital from access from unauthorised people.

Relocatable House

Modification to the mounting of the screen door is required to allow full access to the switchboard.

Former Aged Care Facility

Should this building be refurbished for office areas, etc, replacement of the switchboards, general lighting, emergency and exit lighting and switch socket outlets will be required including the installation of earth leakage protection. Replacement of the existing fire detection system and fire indicator panel will also be required with an addressable type system recommended to be installed.

Accident and Emergency Nurse’s Area

The wall mounted duress alarm button is hidden behind books located on shelves that are mounted on the wall above the workstation. Relocate the duress alarm to an accessible location is recommended.

Duress Alarm

The present Duress alarm system is local only when alarms in the nurse’s station for the wards and mental health are activated. Response from the nurses is not always possible. Duress alarms are also in the mental health area of the hospital with this building not directly attached to the hospital building. A review and upgrade of the systems as well as required response personnel is recommended.
7g  Photos

1 - Relocatable House – Switchboard not fully accessible due to screen door

2 - Former Aged Care Facility – Old fire indicator panel
3 - Former Aged Care Facility – Old light fittings

4 - Accident & Emergency Nurses Area – Duress alarm hidden behind books
8. Comparison of options to Australasian Health Facility Guidelines

<table>
<thead>
<tr>
<th>Department</th>
<th>AusHFG</th>
<th>Option 1</th>
<th>Option 2</th>
<th>Option 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ayr Hospital</td>
<td>Refer to function Table below</td>
<td>Refer to Function Table below</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

AHFG Comparison Table

1. Critical – high or extreme (>10) number of operational inefficiencies | 2. Poor – medium (=/>7) number of operational inefficiencies | 3. Satisfactory – low/medium (=/>3) number of operational inefficiencies

Condition of Services – meaning electrical, mechanical, hydraulic services eg power sockets, air conditioning, water services etc

<table>
<thead>
<tr>
<th>Department or Building</th>
<th>Function</th>
<th>Functionality Rating (see rating table)</th>
<th>Condition of Internal Services</th>
<th>Condition of Services</th>
<th>Disability Access</th>
<th>AHFG Non-compliance Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Department</td>
<td>Emergency Department</td>
<td>2 - Poor</td>
<td>fair</td>
<td>fair</td>
<td>poor</td>
<td>Security for staff - inadequate</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Security for medical equipment - inadequate</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Lack of storage</td>
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<td></td>
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<td></td>
<td></td>
<td>Inadequate disability access</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Obstruction of corridors</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Overcrowding of work and patient waiting areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lack of a consulting room configured for isolation</td>
</tr>
<tr>
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<td>fair</td>
<td>fair</td>
<td>fair</td>
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<td>Security for medical equipment - inadequate</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Lack of storage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inadequate disability Access</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lack of consulting rooms – mental health, isolation room</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Inadequate nurse call system</td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td>Compromised Infection control – no provision of an isolation room</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inadequate patient waiting area</td>
</tr>
<tr>
<td>Medical Records</td>
<td>3 - Satisfactory</td>
<td>fair</td>
<td>fair</td>
<td>poor</td>
<td></td>
<td>Lack of seating</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Toilet amenities inadequate – no disability access</td>
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<td></td>
<td></td>
<td>Security for staff - inadequate</td>
</tr>
<tr>
<td>Entry Foyer/admin</td>
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<td>fair</td>
<td>fair</td>
<td>poor</td>
<td></td>
<td>Lack of seating</td>
</tr>
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<td>Toilet amenities inadequate – no disability access</td>
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<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
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80
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<tr>
<th>Department or Building</th>
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<th>Functionality Rating (see rating table)</th>
<th>Condition of Internal</th>
<th>Condition of Services</th>
<th>Disability Access</th>
<th>AHFG Non-compliance Issues</th>
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<tr>
<td>Endoscopy Theatre</td>
<td></td>
<td>3 - Satisfactory</td>
<td>fair</td>
<td>fair</td>
<td>fair</td>
<td>Inadequate patient waiting area – pre op</td>
</tr>
<tr>
<td>X-ray</td>
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<td>fair</td>
<td>fair</td>
<td>fair</td>
<td>Toilet amenities inadequate</td>
</tr>
<tr>
<td>Dental</td>
<td></td>
<td>2 - Poor</td>
<td>fair</td>
<td>fair</td>
<td>fair</td>
<td>Overcrowding of work areas Lack of Storage Inadequate layout Exhaust system not effective</td>
</tr>
<tr>
<td>Operating Theatre</td>
<td></td>
<td>3-Satisfactory</td>
<td>fair</td>
<td>fair</td>
<td>fair</td>
<td>Lack of Storage Lack of Privacy – for receiving patients Inadequate patient waiting area – pre op</td>
</tr>
<tr>
<td>Maternity</td>
<td></td>
<td>3-Satisfactory</td>
<td>fair</td>
<td>fair</td>
<td>poor</td>
<td>Lack of Storage</td>
</tr>
<tr>
<td>General Wards</td>
<td></td>
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<td>fair</td>
<td>fair</td>
<td>Security for staff - inadequate Security for medical equipment - inadequate Security treatment rooms - inadequate Lack of Storage Infection control – no isolation room Obstruction of corridors</td>
</tr>
<tr>
<td>Primary Health Services</td>
<td></td>
<td>2 - Poor</td>
<td>fair</td>
<td>fair</td>
<td>fair</td>
<td>Security for staff - inadequate Security for medical equipment - inadequate Lack of Storage Inadequate Pt Observation Inadequate Disability Access Obstruction of corridors Overcrowding of work areas</td>
</tr>
</tbody>
</table>
9. Risk Identification Methodology

The identification of risks at the Ayr Hospital was consistent with the, AS/NZ 4360 Risk Management Framework (refer to Figure 1). For the purposes of this project, not all steps of Framework have been addressed (i.e. the decision of whether to tolerate the risk is at the discretion of Queensland Health). The information informing the identification for each risk associated with the hospital is further detailed in below and captured in each consultant’s Campus Assessment Studies (refer to Appendix 2 to 7)

Figure 1 Risk Management Framework (as per AS/NZS 4360 – Risk Management)

The risks identified in below, have captured information such as the potential impact / consequence of the risk, with possible treatment strategies identified. It should be noted that where infrastructure and resulting operational risks where identified, GHD did not investigate mitigation strategies deployed by or planned Queensland Health to manage risk impact.

In undertaking the risk assessment, each risk was rated by allocating likelihood and consequence ratings using criteria, which can be seen in Table 1 and Table 2. As depicted in Risk Matrix ( }
Table 3, each consequence and likelihood rating aligns with a corresponding risk rating. Those risks which were identified to have a risk rating greater than medium have been addressed below.

**Table 1  Risk Consequence Descriptors**

<table>
<thead>
<tr>
<th>Risk Consequence</th>
<th>Consequence Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Safety</td>
</tr>
<tr>
<td>E - CATASTROPHIC</td>
<td>Fatality</td>
</tr>
<tr>
<td>D - CRITICAL</td>
<td>Severe irreversible damage or severe impairment.</td>
</tr>
<tr>
<td></td>
<td>Can include progressive chronic conditions and/or acute / short-term high-risk effects.</td>
</tr>
<tr>
<td>C - SEVERE</td>
<td>A significant lost time injury. Eg. Significant fracture (other than digits), amputations, dislocations; loss of sight, electric shock or injuries requiring admittance to hospital.</td>
</tr>
<tr>
<td></td>
<td>Can include acute / short-term effects associated with extreme temperature effects; or musculo-skeletal effects; vibration effects; nervous system effects; some infectious diseases.</td>
</tr>
<tr>
<td>B - MAJOR</td>
<td>A medical treatment or minor lost time injury. Eg. Sprains and strains and minor fracture (including fingers, thumbs and toes).</td>
</tr>
<tr>
<td></td>
<td>Can include temperature effects; travel effects; stress; and sunburn.</td>
</tr>
<tr>
<td>A - MINOR</td>
<td>A first aid and no medical treatment.</td>
</tr>
<tr>
<td></td>
<td>Minor irritations of eyes, throat, nose and or skin, or minor unaccustomed muscular discomfort.</td>
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</tbody>
</table>

**Table 2  Risk Likelihood Descriptors**

<table>
<thead>
<tr>
<th>Likelihood Descriptor</th>
<th>Source of Risk Frequency</th>
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</thead>
<tbody>
<tr>
<td>5 - ALMOST CERTAIN</td>
<td>Between 80%-100% chance of occurring</td>
</tr>
<tr>
<td>4 - LIKELY</td>
<td>Between 60%-80% chance of occurring</td>
</tr>
<tr>
<td>3 - POSSIBLE</td>
<td>Between 40%-60% chance of occurring</td>
</tr>
<tr>
<td>2 - UNLIKELY</td>
<td>Between 10%-40% chance of occurring</td>
</tr>
<tr>
<td>1 - VERY UNLIKELY</td>
<td>Less than 10% chance of occurring</td>
</tr>
</tbody>
</table>
### Table 3  Risk Assessment Matrix

<table>
<thead>
<tr>
<th>LIKELIHOOD</th>
<th>MINOR</th>
<th>MAJOR</th>
<th>SEVERE</th>
<th>CRITICAL</th>
<th>CATASTROPIC</th>
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</thead>
<tbody>
<tr>
<td>VERY UNLIKELY</td>
<td>1</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>Medium</td>
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<tr>
<td>UNLIKELY</td>
<td>2</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>POSSIBLE</td>
<td>3</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>LIKELY</td>
<td>4</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>Extreme</td>
</tr>
<tr>
<td>ALMOST CERTAIN</td>
<td>5</td>
<td>Medium</td>
<td>High</td>
<td>Extreme</td>
<td>Extreme</td>
</tr>
</tbody>
</table>
### Building Life Risks

**Table 4  Building Life Risks**

<table>
<thead>
<tr>
<th>Department or Building</th>
<th>Risk Broad Issues</th>
<th>Risk (see above risk matrix for risk determination)</th>
<th>Issues</th>
</tr>
</thead>
</table>
Risk of fire spreading throughout the hospital campus due to lack of containment (i.e. inadequate fire separation between departments)  
High - Likelihood (P) | Consequence (CR)  
Risk of harm to patients, staff, and visitors due to being trapped inside building in the event of a fire (i.e. incorrect door hardware on fire exit doors, locked fire exit doors, inconsistent exit signage)  
High - Likelihood (P) | Consequence (CR)  
Risk of injury or death to patients, staff, and visitors due to existing evacuation maps/procedures leading to trapped areas between existing infrastructure.  
High - Likelihood (P) | Consequence (CR)  
Harm to property, patients, visitors, or staff by intruders gaining unauthorised access (i.e. no perimeter fence, single barrier entry door, no security system in place)  
High - Likelihood (P) | Consequence (CR)  
Potential risk of injury or death to staff, patients and visitors related to degeneration of building structures (i.e. Precast panels collapsing without warning due to corroded fixings).  
High - Likelihood (P) | Consequence (CR)  
Functional inefficiencies across departments are negatively impacting on staffing models. | See attached Building Certification and consultant’s studies for more detailed information on these generic issues across the hospital campus |
| Emergency Department | Fire Risk Security OH&S Operational Infection Control | High - Likelihood (P) | Consequence (CR)  
Potential for patient injury or death in the ED as patient monitoring is compromised by existing infrastructure (i.e. Staff in the resuscitation area cannot view patients in the waiting area and treatments areas of Emergency Department).  
High - Likelihood (P) | Consequence (CR)  
Potential risk of harm to patients due to overcrowding and/or congestion of ward, outpatients and emergency areas.  
High - Likelihood (P) | Consequence (CR)  
Potential risk of harm to patients due to lack of staffs’ ability to access services, equipment or supplies in a timely manner due to current layout of services.  
High - Likelihood (P) | Consequence (CR)  
Potential risk for cross contamination of infectious diseases related to inadequate provision of separate dirty utility room to patient toilet in the emergency department. | Security for staff - - inadequate  
Security for medical equipment - - inadequate  
Security medical records - - inadequate  
Lack of Storage  
Poor Pt Observation  
Poor Disability Access  
Infection control  
Lack of Privacy  
Lack of consulting rooms  
Obstruction of corridors  
Overcrowding of work areas |
<table>
<thead>
<tr>
<th>Department or Building</th>
<th>Risk Broad Issues</th>
<th>Risk (see above risk matrix for risk determination)</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outpatients</td>
<td>Fire Risk Security OH&amp;S Operational Infection Control</td>
<td>Medium - - Likelihood (P)</td>
<td>Consequence (M)</td>
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<tr>
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<td></td>
<td>Potential risk of harm to patients due to overcrowding and/or congestion of ward, outpatients and emergency areas. Medium - - Likelihood (P)</td>
<td>Consequence (M)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Potential risk of harm to patients due to lack of staffs’ ability to access services, equipment or supplies in a timely manner due to current layout of services. Medium - - Likelihood (P)</td>
<td>Consequence (M)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Risk of injury to staff and/or patients in relation to obstructed access to amenities for wheelchair or those persons with disabilities (i.e. incorrectly configured and circulation of space, incorrect grab rails and controls, incorrect swing of doors). High - Likelihood (P)</td>
<td>Consequence (CR)</td>
</tr>
<tr>
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<td></td>
<td>Potential risk for cross contamination of infectious diseases related to inadequate provision of isolation room in the emergency department (that is negative pressure).</td>
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</tr>
<tr>
<td>Medical Records</td>
<td>OH&amp;S Operational</td>
<td>High - Likelihood (P)</td>
<td>Consequence (CR)</td>
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<td>Risk of injury to staff due to overcrowding of workstations and storage areas.</td>
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</tr>
<tr>
<td>Entry Foyer/admin</td>
<td>OH&amp;S Operational</td>
<td>High - Likelihood (P)</td>
<td>Consequence (CR)</td>
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<tr>
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<td>Risk of injury to staff and/or patients in relation to obstructed access to amenities for wheelchair or those persons with disabilities (i.e. incorrectly configured and circulation of space, incorrect grab rails and controls, incorrect swing of doors).</td>
<td></td>
</tr>
<tr>
<td>X-ray</td>
<td></td>
<td>No significant risk identified</td>
<td>Lack of Storage</td>
</tr>
<tr>
<td>Dental</td>
<td>OH&amp;S Operational</td>
<td>Medium - - Likelihood (P)</td>
<td>Consequence (M)</td>
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<tr>
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<td>Risk of injury to staff due to overcrowding of workstations and storage areas.</td>
<td></td>
</tr>
<tr>
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<td>Overcrowding of work areas</td>
<td>Lack of Storage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Exhaust system not effective</td>
<td></td>
</tr>
<tr>
<td>Department or Building</td>
<td>Risk Broad Issues</td>
<td>Risk (see above risk matrix for risk determination)</td>
<td>Issues</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------</td>
<td>--------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Operating Theatre</td>
<td>OH&amp;S Operational</td>
<td>Medium - - Likelihood (P)</td>
<td>Consequence (M)</td>
</tr>
<tr>
<td></td>
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<td>Risk of injury to staff due to overcrowding of workstations and lack of storage areas.</td>
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</tr>
<tr>
<td>Maternity</td>
<td></td>
<td>No significant risk identified</td>
<td>Security for staff - - inadequate</td>
</tr>
<tr>
<td>General Ward</td>
<td>Security OH&amp;S</td>
<td>Medium - - Likelihood (P)</td>
<td>Consequence (M)</td>
</tr>
<tr>
<td></td>
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<td>Risk of injury to staff and/or patients in relation to obstructed access to amenities for wheelchair or those persons with disabilities (i.e. incorrectly configured and circulation of space, incorrect grab rails and controls, incorrect swing of doors).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium - - Likelihood (P)</td>
<td>Consequence (M)</td>
</tr>
<tr>
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<td></td>
<td>Risk of injury to staff due to overcrowding of workstations and storage areas.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium - - Likelihood (P)</td>
<td>Consequence (M)</td>
</tr>
<tr>
<td>Primary Health</td>
<td>Fire Risk Security OH&amp;S Operational</td>
<td>High - Likelihood (P)</td>
<td>Consequence (CR)</td>
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<td>Risk of injury to staff and/or patients in relation to obstructed access to amenities for wheelchair or those persons with disabilities (i.e. incorrectly configured and circulation of space, incorrect grab rails and controls, incorrect swing of doors).</td>
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<tr>
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<td>High - Likelihood (P)</td>
<td>Consequence (CR)</td>
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<td>Risk of injury to staff due to overcrowding of workstations and storage areas.</td>
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<tr>
<td></td>
<td></td>
<td>High - Likelihood (P)</td>
<td>Consequence (CR)</td>
</tr>
<tr>
<td>Staff Accommodation : Fire Risk Security OH&amp;S</td>
<td>High - Likelihood (P)</td>
<td>Consequence (CR)</td>
<td>Inadequate privacy</td>
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<td>Potential risk of injury staff to staff due to inadequate fire separation of existing structure.</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>High - Likelihood (P)</td>
<td>Consequence (CR)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Risk of staff dissatisfaction due to poor condition of accommodation, inadequate privacy and inadequate storage areas.</td>
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<td>Extreme – Financial</td>
<td>Likelihood (AC)</td>
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10. Concept Plans

a) SK400: Existing Site Plan  
b) SK401: Option 1 Site Plan  
c) SK402: Option 1 Floor Plans  
d) SK403: Option 2 Site Plan  
e) SK404: Option 1 Floor Plans  
f) SK405: Option 3 Site Plan  
g) SK406: Option 3 Floor Plan
NEW CARPARK ENTRY
ALLIED HEALTH

LINK TO EXISTING HOSPITAL

BEACH ROAD
CHIPENDALE STREET
WILMINTON STREET

ALLEO HEALTH
- MAIN ENTRANCE
- OCCUPATIONAL THERAPY
- PHYSIOTHERAPY (OFFICE & TREATMENT)
- PODIATRY
- GYMNASIUM
- COUNSELLING ROOMS
- INDIGENOUS HEALTH
- CHILD HEALTH
- NEONATAL CLINICS
- IMMUNISATION CLINICS
- STORE
- INTERVIEW ROOM
- STAFF FACILITIES
- DIRTY UTILITY
- CLEAN UTILITY
- MEDICAL RECORDS

LEGEND
- RECEPTION
- EXISTING ROOMS
- CORRIDORS
- NEW BUILDING

GROUND FLOOR PLAN

PROJECT SERVICES FOR QUEENSLAND HEALTH
AYR HOSPITAL REDEVELOPMENT - OPTION 3 FLOOR PLAN

GHD

www.ghd.com

Plot Date: 06/16/10
File Path: G:\71\1081528\CADD\Drawings\Revit\AYR SITE PLAN.rvt

SK406
41-22688
AYR HOSPITAL REDEVELOPMENT
PROJECT SERVICES FOR QUEENSLAND HEALTH

CONCEPT DESIGN

06/16/10
drawings
job no.

0 200 400 600 800 1000
0 2000 4000 6000 8000 10000 mm

SCALE 1:200 @ A1; 1:400 @ A3
11. Broad Order of Costs
   a) Option 1: Status Quo
   b) Option 2: Refurbishment
   c) Option 3: Significant Redevelopment
# Ayr Hospital

## Broad Order of Costs

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<thead>
<tr>
<th>Option</th>
<th>GFA (m²)</th>
<th>Carpark (m²)</th>
<th>Courtyard (m²)</th>
<th>PREPARATION DATE:</th>
<th>ISSUE:</th>
<th>ANALYSIS:</th>
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<td>18 June 2010</td>
<td>02</td>
<td>Infrastructure Renew</td>
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### Preliminary Project Analysis

<table>
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<th></th>
<th>OPTION 1</th>
<th>OPTION 2</th>
<th>OPTION 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Works &amp; Services</td>
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<td>6,501,000</td>
<td>4,925,000</td>
</tr>
<tr>
<td>Carparking &amp; Hardstand</td>
<td>-</td>
<td>-</td>
<td>160,000</td>
</tr>
<tr>
<td>Central Energy Plant</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Covered Bridge &amp; Helipad</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Siteworks &amp; Site Services</td>
<td>-</td>
<td>-</td>
<td>500,000</td>
</tr>
<tr>
<td>ESD Allowance</td>
<td>-</td>
<td>-</td>
<td>336,000</td>
</tr>
<tr>
<td>Location Factor</td>
<td>89,000</td>
<td>651,000</td>
<td>593,000</td>
</tr>
<tr>
<td>Contingency - Design</td>
<td>98,000</td>
<td>716,000</td>
<td>652,000</td>
</tr>
<tr>
<td>Contingency - Project</td>
<td>108,000</td>
<td>787,000</td>
<td>717,000</td>
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### Project Cost - Building

<table>
<thead>
<tr>
<th></th>
<th>OPTION 1</th>
<th>OPTION 2</th>
<th>OPTION 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statutory Fees (assumes designated site)</td>
<td>18,000</td>
<td>130,000</td>
<td>119,000</td>
</tr>
<tr>
<td>Relocation Costs, Decanting, Commissioning, HSD</td>
<td>30,000</td>
<td>217,000</td>
<td>198,000</td>
</tr>
<tr>
<td>FF&amp;E</td>
<td>167,000</td>
<td>1,529,000</td>
<td>443,000</td>
</tr>
<tr>
<td>ICT</td>
<td>29,000</td>
<td>208,000</td>
<td>190,000</td>
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</tbody>
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### Project Cost - Site

<table>
<thead>
<tr>
<th></th>
<th>OPTION 1</th>
<th>OPTION 2</th>
<th>OPTION 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Fees (estimate of fees only)</td>
<td>154,000</td>
<td>1,126,000</td>
<td>946,000</td>
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<tr>
<td>Project Services Fee (estimate of fees only)</td>
<td>15,000</td>
<td>104,000</td>
<td>79,000</td>
</tr>
<tr>
<td>Qld Health Costs (estimate of fees only)</td>
<td>12,000</td>
<td>84,000</td>
<td>52,000</td>
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<tr>
<td>Public Art (2% of Common Area)</td>
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</tbody>
</table>

### Project Cost - Fees

<table>
<thead>
<tr>
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### Gross Project Cost (Excl GST)

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<td>208,000</td>
<td>190,000</td>
</tr>
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### Exclusions:

1. Infrastructure works outside boundary of site
2. Land and legal costs
3. Finance costs
4. Removal of in-ground contaminated material
5. Costs associated with heritage or indigenous findings
6. Perimeter fencing
7. Escalation
8. Staff Accommodation of approximately 2,000m², currently estimated at $7.7 million

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Prepared by DCWC (Qld) Pty Ltd
Commercial In Confidence

Ayr Hospital Option Analysis

[DCWC2010/480_100618_Ayr Option Analysis]