

# POST OCCUPANCY EVALUATION

## HOBSONVILLE POINT SECONDARY SCHOOL HOBSONVILLE POINT, AUCKLAND



**June 2015**

Opus International Consultants Ltd  
Auckland Property  
The Westhaven, 100 Beaumont St  
PO Box 5848, Auckland 1141  
New Zealand

Telephone: +64 9 355 9500  
Facsimile: +64 9 355 9583

Date: June 2015  
Reference: 1-46083.00  
Status: Ver 7

# CONTENTS

|          |   |           |
|----------|---|-----------|
| <b>1</b> | <b>EXECUTIVE SUMMARY .....</b>                                    | <b>3</b>  |
| 1.1      | KEY RECOMMENDATIONS – GENERAL MOE .....                           | 3         |
| 1.2      | KEY RECOMMENDATIONS – HOBSONVILLE POINT SECONDARY.....            | 3         |
| <b>2</b> | <b>BACKGROUND OF THE SCHOOL.....</b>                              | <b>5</b>  |
| <b>3</b> | <b>THE SURVEY METHODOLOGY.....</b>                                | <b>6</b>  |
| 3.1      | THE METHOD .....  | 6         |
| <b>4</b> | <b>EVALUATION .....</b>   | <b>7</b>  |
| 4.1      | ACCESSIBILITY .....   | 7         |
| 4.2      | HEALTH AND SAFETY .....   | 10        |
| 4.3      | MODERN LEARNING ENVIRONMENTS .....                                | 12        |
| 4.4      | SUSTAINABILITY.....   | 15        |
| <b>5</b> | <b>RECOMMENDATIONS &amp; FINDINGS .....</b>                       | <b>18</b> |
| 5.1      | GENERAL RECOMMENDATIONS .....                                     | 18        |
| 5.2      | HOBSONVILLE POINT SECONDARY SCHOOL SPECIFIC RECOMMENDATIONS ..... | 19        |
| <b>6</b> | <b>CONCLUSIONS .....</b>  | <b>19</b> |
| <b>7</b> | <b>APPENDICIES .....</b>  | <b>20</b> |
| 7.1      | DESIGN SITE PLAN .....  | 20        |
| 7.2      | DESIGN FLOOR PLAN - GROUND.....                                   | 21        |
| 7.3      | DESIGN FLOOR PLAN - FIRST.....                                    | 22        |
| 7.4      | DESIGN FLOOR PLAN - FIRST.....                                    | 23        |
| 7.5      | CLIENT SUPPLIED INFORMATION .....                                 | 24        |

# 1 EXECUTIVE SUMMARY

The Ministry of Education (MoE) commissioned Opus International Consultants Ltd to undertake a Post Occupancy Evaluation (POE) of Hobsonville Point Secondary School, Hobsonville Point, Auckland. The purpose of the review in accordance with the commissioning brief was to: -

Evaluate the effectiveness of the design and procurement *process*.

Evaluate the end *product* of the completed school facility in terms of its compliance with the MoE guidelines.

Evaluate the *performance* of the completed school as a suitable learning environment.

The evaluation survey aim is to identify the positive and negative aspects of the new school project and in doing so contribute towards increasing the effectiveness of future school development projects. The key recommendations identified have been categorised into two sections, general and school specific.

## 1.1 KEY RECOMMENDATIONS – GENERAL MOE

- Continual improvement: Post Occupancy Evaluations should be part of a longer term audit process as the school reaches full capacity and should continue to monitor the performance and use as the functionality of spaces changes over time to suit the schools operational needs.
- Auditing of the brief: The brief should include the operational needs of the school and be subject to an independent review for compliance with the MoE requirements. The lack of natural ventilation and storage and outdoor flow indicate a lack of understanding of the schools operational needs.
- Auditing of the design: The design should be subject to an independent design review of functionality and durability. This school has features that are of no functional merit contributing to complicated details and joints. The recommendations from the weather tightness report should be realised in the design solution.
- Quality of specification: Consider the introduction of approved products or systems. Avoid the use of profiled metal cladding pitched at angles and flat cladding panels with open joints.
- Whole life costs: Business case stage conclusions that a PPP procurement model provides a 1% Capital Value for Money advantage (VFM) over the Public Sector Comparator (PSC) requires real life benchmarking to test the assumptions made. Equally, the operating and life cycle cost projections need to be evaluated over time.
- Facilities management: Consider the outsourcing of the facilities management of school maintenance to remove the burden from the schools to manage properties. As school buildings become more complex it is going to become increasing difficult and costly for each school to manage all aspects of school facility management without additional assistance.

## 1.2 KEY RECOMMENDATIONS – HOBSONVILLE POINT SECONDARY

- The student storage issue will require a longer term solution. The current situation of students having nowhere to store bags due to the very small size of the lockers will be increasing difficult to manage as student numbers increase. The existing lockers should be removed and an alternative more robust and appropriate solution should be developed with the school to suit their operational needs.
- The use of exposed glass lamp bulbs to the theatre changing room mirror surrounds is a serious hazard. These should be removed and an alternative more robust fitting installed.
- The quality of the partitions and hardware to the gymnasium and theatre toilet areas are not suitable for the school environment. The partitions should be fitted with additional mid supports and commercial hardware should be installed.

- The reception is not easily located by visitors due to a lack of clear signs and the competing more visually prominent secondary entrance located on the upper level in the middle of the building. Way finding signage should be installed to direct visitors to reception.
- The ceiling tile system, light fittings and ceiling mounted heaters to the gymnasium are not protected from impact damage. Protective cages should be installed to all fixtures and the ceiling tiles replaced with an impact resistant ceiling.
- The metal angled profiled cladding is a hazard. The cladding should be provided with suitable edge protection to remove the hazard.
- Broken corners on the flat cladding panels are developing over time. Replace the broken flat cladding panels, protect their external corners and investigate the cause of failure of the cladding system.
- Investigate the electric shock concerns around the stainless steel benching in the Food Technology area and resolve any safety issues.



Figure 1

## 2 BACKGROUND OF THE SCHOOL

Construction of the Hobsonville Point Secondary School was completed in February 2014, providing the school with infrastructure suitable for 1350 students. At the time of the POE survey in June 2015 the school was in its second year of occupation with approximately 250 students.

The school has a striking appearance due to its colour and external form. Although a two storey building, the bulk of the school is laid out longitudinally on a single upper floor maximising the use of the natural contours of the ground.

Designed to achieve a 5-star NZ Greenstar rating signalling “New Zealand Excellence”, the design has established planting and substantial parking provision with robust perimeter fencing and access controlled entrances providing a secure environment for students.



Figure 2 - Rear elevation

## **3 THE SURVEY METHODOLOGY**

### **3.1 THE METHOD**

The evaluation methodology is based on the UK Building Research Establishment (BRE) early stage POE methodology combined with specific MoE design requirements as outlined in the MoE Development Compliance Framework 2014.2 June, covering the complete procurement process from inception to completion. The three main assessment criteria used for the investigation are Process, Product and Performance.

#### **PROCESS**

This aspect of the POE seeks to answer how well the project performed using both a generic construction industry assessment framework and the MoE design requirements. The information will be collated from contract documentation provided by the MoE and interviews with MoE project representatives.

#### **PRODUCT**

This aspect of the evaluation seeks to understand the extent to which the facilities meet the core elements of the MoE design requirements.

#### **PERFORMANCE**

The final element of the evaluation seeks to determine the contribution that the facilities make towards the MoE goal of excellent educational outcomes. Three key elements of this assessment are functionality and fitness for purpose.

The information gathered under the assessment criteria is then collated and grouped under four main headings: -

- Accessibility
- Health & Safety
- Modern Learning Environments
- Sustainability

## 4 EVALUATION

### 4.1 ACCESSIBILITY

#### Positives: -

- The site has level and ramped access to the entry, the perimeter of the school and the rear northern playing fields. See figure 1.
- Scooter racks are located at the front of the school for staff and at the rear northern courtyard for students. See Figure 3.
- A covered drop off zone is provided to a secondary entrance and a bus stop is located on the road frontage below. See Figure 4.
- The covered main entrance is lobby protected with automatic opening doors and is easily accessible from adjacent level access car parking. See Figure 5.
- The reception has a lowered countertop and space for both visitors and students.
- There is a lift located in the reception area for access to the upper floor.
- The upper floor concourse area runs centrally down the entire length of the school and provides very easy internal access to all areas.
- There are wheelchair access toilets in each learning space. These are of high quality specification and installation.



Figure 3



Figure 4



Figure 5 - Rear view



Figure 6 - View of the central concourse



Figure 7 - Rear view outside cafeteria

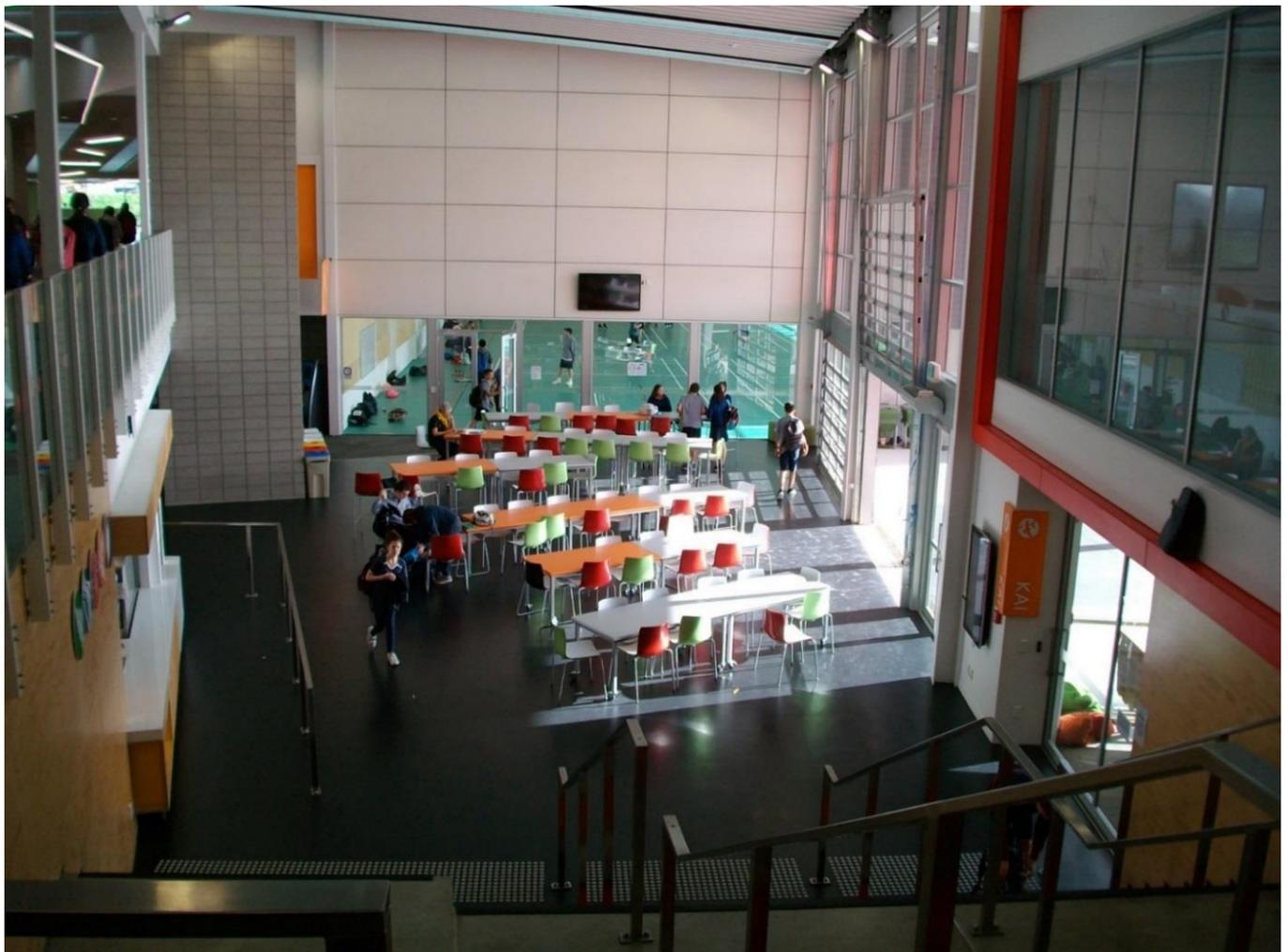


Figure 8 - View from first floor down into the cafeteria area

## Negatives: -

- Access to the vehicle drop off and visitor car park crosses through the pedestrian pathway to the main entrance. See Figure 10.
- The drop off zone vehicle access has been identified by the school as a potential safety issue when 1350 students attend the school. Discussions have commenced with Auckland transport in relation to the management of this safety risk.
- Visitors have trouble locating the main entrance and reception due to poor signage and the competing, more visually prominent secondary entrance also located on the road front. See Figure 11.
- The design concept was for silent signage. Once occupied it was evident that signage was required and this was retrofitted from the schools operational budget.
- Hard Technology materials delivery entrance has double gates and a roller door but no direct access from the road. Goods have to be manhandled a considerable distance to the store entrance.
- The main goods delivery entrance adjacent to the theatre is obstructed by the building form.
- Openable windows are provided to the gymnasium, however the mechanical controls are faulty and manual operation is not easy for all users to operate.
- The High Dependency Space is not provided with a general power outlet as may be required for the hoist/change table and adjacent to the WC.
- General power outlets and data outlets are not provided at 500mm above FFL for wheelchair user.
- The cafeteria seating area adjacent to the gymnasium is located within the central circulation area accessing the covered outdoor area and upper floor concourse.



Figure 10



Figure 11



Figure 12



Figure 13



Figure 9

## 4.2 HEALTH AND SAFETY

### Positives: -

- Galvanised metal fencing to the entire site provides effective segregation between the school site and the road.
- Internal and external entrance doors are secured with electronic access control and can be locked and unlocked at predetermined times.
- Mechanical plant are installed behind secure doors or are roof mounted.
- Mechanical extraction is installed within toilets and at point of source to specialist teaching areas.
- Student toilet facilities located between learning areas are separate enclosed cubicles of high quality.
- External lights illuminate exterior doorways.
- Public Address system is installed and used for emergency address when required.



Figure 14



Figure 15



Figure 16

## Negatives: -

- Oversight from the school building to all areas of the site is not possible, due to the irregular form and the raised playing field.
- The profiled metal cladding has very sharp external corners below head height and the lower finishing trim channels the concrete leaving damp patches on which algae are growing causing slip hazards on the paths.
- Reception has no visibility to the front of the school with no way of monitoring visitors entering the school grounds undetected. The second entrance is unmonitored and is locked at all times.
- The open internal layout has not considered the use of parts of the school by others outside of operational hours. It is very difficult to restrict access to specific areas such as the library without the provision of security staff.
- External lights do not illuminate external walkways or the perimeter of the building
- Floor boxes for electrical outlets are a constant trip hazard with covers often left open or broken and outlets damaged.
- General power outlets located above sink benches are not RCD protected. In the Food Technology area staff have reported electric shocks when cleaning the bench.
- Theatre changing rooms have light fittings that are easily damaged by students
- Food Technology range hoods above the domestic stoves do not provide adequate extraction and are installed at a height not suitable for all users with potential to cause head injury.
- Food Technology had hot water at maximum 40 degrees Celsius which is too low for effective cleaning and considered a health risk. This has been adjusted however is still not satisfactory.
- Gymnasium radiant heaters and light fittings have no impact protection. The suspended ceiling is inappropriate for this location with tiles constantly dislodged.



Figure 17



Figure 18



Figure 19



Figure 20



Figure 21



Figure 22 - Main gymnasium ceiling

### 4.3 MODERN LEARNING ENVIRONMENTS

**Positives: -**

- Hard courts with high fencing are located with fixed seating and drinking fountains.
- Outdoor learning areas are located adjacent to teaching spaces with shaded fixed seating.
- The buildings are generally sealed with no opening windows. Fresh air is provided through the air conditioning system
- Hard Technology has emergency isolating switches and a bag storage lobby providing effective acoustic, dust and debris separation from the general learning area.
- Food Technology has commercial quality equipment and laundry facilities.
- Generous teacher support areas with glazed partitions provide oversight to learning areas
- General light level is good measured at 350 to 500 lux away from natural light.
- Wi-Fi is generally used with more data outlets than required.
- Skylights and windows provide good daylighting throughout and blinds to windows provide some protection from glare.



Figure 24



Figure 25



Figure 23 - General rear view from the building towards the open seating area



Figure 26 - Music room



Figure 27 - Teacher support area

#### Negatives: -

- Outdoor learning areas are not protected from the prevailing wind.
- The air conditioning system restricts opening to outdoor learning areas.
- The school have retrofitted additional display board and are using areas of painted wall with the risk of potential damage to surfaces.
- The design concept has combined male and female toilet facilities. The school has retrofitted separation of toilet facilities with signage for separate male and female toilets.
- Toilet basins do not have overflows.
- The student lockers are too small, easily damaged and have socket outlets that are not used.
- Theatre green room and office spaces are used for storage.
- Hard Technology storage has inadequate racks and shelving for materials and students work.
- Hard Technology vinyl flooring has been removed and the concrete flooring exposed to the metal working area.
- Hard Technology stainless sink has no chemical dilution trap or chemical resistant waste resulting in blockages.



Figure 28



Figure 29

- Food Technology has been retrofitted with stainless steel covers to cooker units to create more benching and has more sinks than necessary.
- Food Technology has under bench storage making it difficult to monitor equipment.
- Gymnasium has been retrofitted with basketball hoops for "skill stations," to supplement the two hoops provided.
- The skylights throughout have resulted in glare and restrict the use of ICT.



Figure 30



Figure 31



Figure 32

## 4.4 SUSTAINABILITY

### Positives: -

- The facilities management by external providers has transferred the responsibility for property management away from the Principal.
- The main entrance doors are fully automatic and open into a lobby which is effective in reducing draughts and heat loss
- Lighting has "on", "off" and "automatic" settings with light and motion sensor automatic control supplementing the use of natural light.
- Water supply has isolating valves, back flow prevention and adequate pressure.
- Distribution board has a maximum demand meter.
- Landscaping provides water run off attenuation. See Figure 34
- Designed to achieve a 5 star rated Green Star building.



Figure 33



Figure 34



Figure 35

**Negatives: -**

- Roofing has concealed fascia and gutters and internal rainwater downpipes resulting in access issues for maintenance. See Figure 39
- Roof leaks have been constant, the reported number of leaks has reduced from 20 leaks per heavy rainfall at occupation, down to 11 leaks per heavy rainfall.
- Balconies and membrane roofing systems are located over internal spaces creating a risk of water penetration. See Figure 38
- External cladding panels of wood fibre resin are presenting a significant number of broken corners, exposed external corners are unprotected.
- The multiple cladding systems and complex form has resulted in a building facade with greater than necessary perimeter and junctions.
- Due to the complexity of the mechanical and electrical systems specialist external contractors are required to attend to all ongoing issues.
- Light fittings and heaters are installed within a suspended ceiling system in the gymnasium and are not protected from impact damage.
- Toilets generally cannot flush without power. There is no resilience in terms of back up built into the system therefore the school cannot continue to operate in a power outage.
- Gymnasium toilet and changing partitions have inadequate supports, locks and domestic quality coat hooks are broken. Toilets generally cannot flush without power.
- Fire extinguishers cupboards are surface wall mounted a number are already coming away from the walls. See Figure 41
- Student locker doors are easily removed and damaged constantly requiring repair.
- External balustrades are corroding.
- There is a lack of irrigation to planting resulting in the loss of original plants requiring replacement.



Figure 36



Figure 37



Figure 38



Figure 39



Figure 40



Figure 41



Figure 42



Typical high quality sanitation installation

## **5 RECOMMENDATIONS & FINDINGS**

### **5.1 GENERAL RECOMMENDATIONS**

#### **5.1.1 QUALITY OF SPECIFICATION**

The material specification needs to be suitable in its durability and appropriate in its location for the school environment.

**BENEFIT:**

The appropriate selection of materials and systems will reduce maintenance costs and injury risks.

**FINDINGS:**

The external resin cladding panels are vulnerable to damage. Flat roof details will require wall cladding to be removed before they can be properly replaced. The profiled metal cladding system has high maintenance requirements where fixed horizontally and is a health and safety risk where fixed vertically below head height.

#### **5.1.2 DESIGN BRIEF & PROCESS:**

The design brief and process needs to be independently monitored for compliance with the MoE requirements.

**BENEFIT:**

The independently assessed brief will clarify the schools operational needs and ensure compliance with the MoE requirements. The ongoing monitoring of the process will ensure the MoE requirements are implemented as the design develops.

**FINDINGS:**

The weather-tightness report at concept design highlighted issues with the complex form. These issues have not been resolved as the design progressed and are evident in the building.

The form of the building requires mechanically reliant systems that do not accommodate the operational needs of the school such as connection with outdoor learning opportunities and resilience in the event of power outages.

#### **5.1.3 HANDOVER**

Schools with complex systems requiring specialist management would benefit from improved operational systems support by outsourcing the management role to a specialist Facilities Management provider.

**BENEFIT:**

More effective use of the building so that it performs in accordance with the design. Decreased operational expenditure and more reliable data when auditing the building performance.

**FINDINGS:**

The school staff were able to refer any system or building issues to the FM provider which was identified by the Principal as a very significant benefit.

## **5.2 HOBSONVILLE POINT SECONDARY SCHOOL SPECIFIC RECOMMENDATIONS**

### **5.2.1 SUSTAINABILITY :**

Monitoring and replacement of building materials and systems for components to achieve their operational life.

#### **FINDINGS:**

External cladding panels are broken.

Wash hand basins are without overflows, changing room cubicles are without adequate support, stainless sinks are without chemical waste traps in specialist areas.

### **5.2.2 MODERN LEARNING ENVIRONMENT :**

Plan for a change of use for spaces currently used for learning environments, circulation, teacher and student work areas.

#### **FINDINGS:**

Lack of interaction with the outdoor learning environment. The sealed heating and ventilation system has created a barrier to the outdoor learning areas as all doors and windows are to remain closed. As the concentration of students increases an overuse of the internal environment and underutilisation of the external may occur.

The school is currently at only a tenth of its potential capacity. Existing learning space such as the theatre green room has already been reassigned for storage and circulation areas are being utilised for dance.

The student lockers are currently undersized for student needs. The lack of appropriate student storage capacity may compromise the functionality of other spaces as student numbers increase.

### **5.2.3 HEALTH & SAFETY:**

Modify the building to enhance safety for all occupants.

#### **FINDINGS:**

The sloping metal profile cladding presents hazards to occupants, especially at external corners that are lower than head height.

The exposed light fittings around the mirrors in the changing rooms are broken. Floor boxes are not secured and broken. Electrical shocks are reported in the Food Technology area, suspected lack of RCD protection or earth bonding to stainless steel sinks.

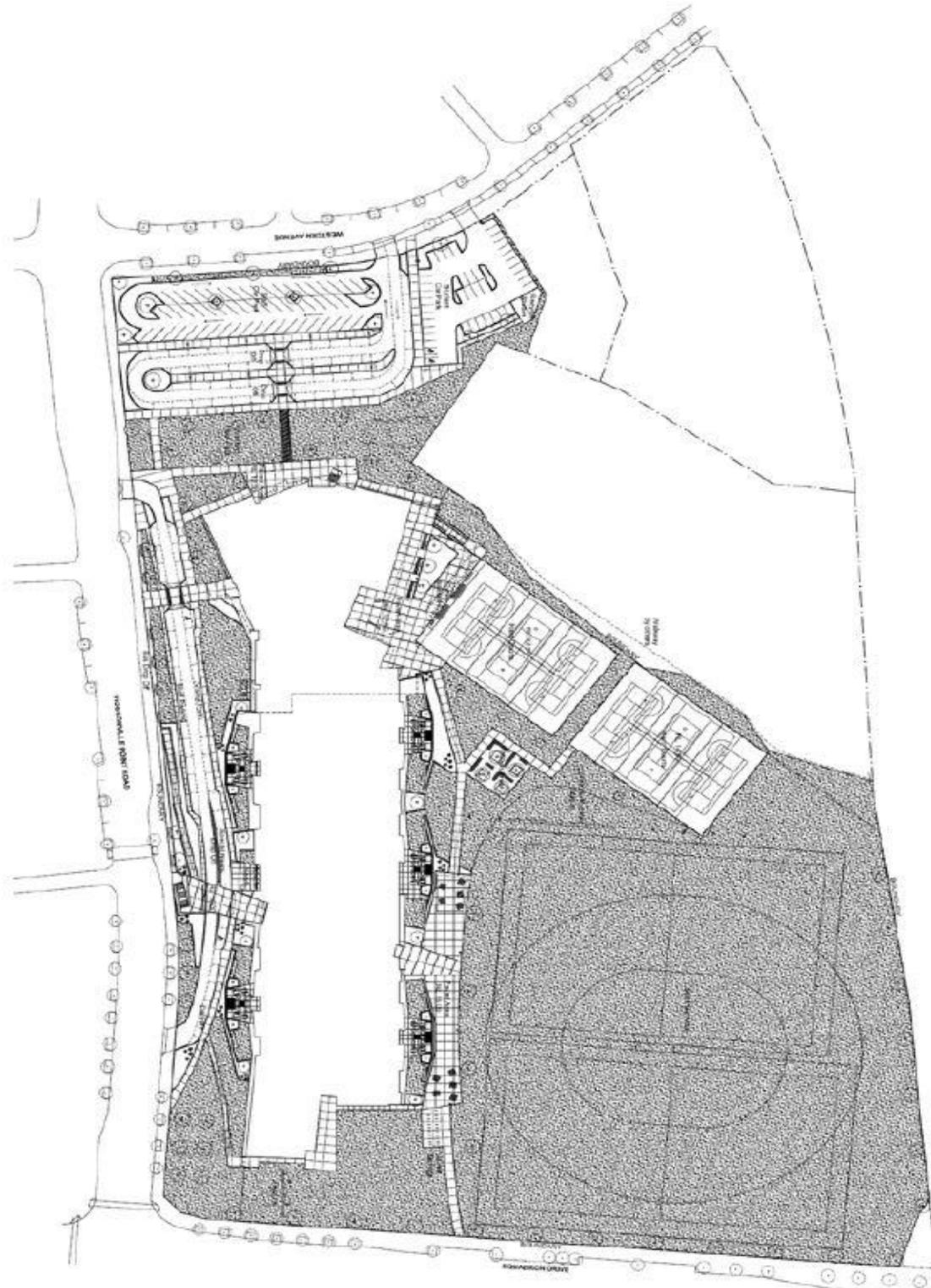
## **6 CONCLUSIONS**

A striking building, it stands out within the community with a dynamic, varied and bright façade. The specification of materials and components is generally high as are certain aspects of the design such as the toilets and specialist spaces. There are however aspects of the design that do not meet MoE requirements, the main concerns are the overly complex external envelope, the barrier to the outdoor learning environment and the lack of storage.

The maintenance costs of this building is likely to be high due to its complex form and heavy reliance on automated systems. The responsibility for maintenance with an external FM provider is a significant benefit for the school.

# 7 APPENDICIES

## 7.1 DESIGN SITE PLAN



General Grounds Map – Secondary School (DIA-HPS-102-402)

## 7.2 DESIGN FLOOR PLAN - GROUND



### 7.3 DESIGN FLOOR PLAN - FIRST



## 7.4 DESIGN FLOOR PLAN - FIRST



## 7.5 CLIENT SUPPLIED INFORMATION

### **List of Information – Hobsonville Secondary School, Pegasus, Christchurch.**

- O & M Manual
- Close out report
- Design Development Plan
- Demographic report
- Ground floor plan as included in this report
- First floor plan as included in this report
- Hobsonville project agreement
- PMIS screen shot
- Draft ratio report
- Detailed business case
- Project contacts



**Opus International Consultants Ltd**  
The Westhaven, 100 Beaumont St  
PO Box 5848, Auckland 1141  
New Zealand

t: +64 9 355 9500  
f: +64 9 355 9583  
w: [www.opus.co.nz](http://www.opus.co.nz)