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NSW Government
Department of Education
School Infrastructure NSW
Bankstown North Public School

'Skill with Honour'

Design Analysis Report

Education
School Infrastructure

AND

MAKING COMPLEX EASY

DOCUMENT CONTROL

Revision	Date	Approved by
Rev 1 – Draft Issued for Information	22/04/2020	GL
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INTRODUCTION

The following architectural design analysis report has been prepared for Bankstown North Public School by JDH Architects to summarise how design quality has been achieved for submission in concurrence with the State Significant Development Application. The report will cover aspects outlined in the contents page to address the following design principles outlined in Schedule 4 Schools – Design Quality Principles of the State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017:

- Principle 1— Context, Built Form and Landscape
- Principle 2— Sustainable, Efficient and Durable
- Principle 3— Accessible and Inclusive
- Principle 4— Health and Safety
- Principle 5— Amenity
- Principle 6— Whole of life, Flexible and Adaptive
- Principle 7— Aesthetics

JDH Architects have been engaged by NSW Department of Education to provide design and documentation for the redevelopment of Bankstown North Public School. This project provides an opportunity to deliver high quality schooling infrastructure to meet the current and future educational needs of Bankstown North Public School and aims to create activated spaces to enhance learning ability and student outcomes. The design of the buildings has been undertaken in accordance with the requirements of the Education Facilities Standards and Guidelines (EFSG) as published by the NSW Department of Education and has been reviewed against the GA NSW Design Guide for schools. The design is consistent with the requirements of the EFSG.

Project drivers

- To meet the immediate demand for schooling and assist in meeting the future projected enrolment growth
- Provide permanent accommodation that facilitates more flexible, future-focused learning spaces to accommodate new ways of teaching and learning; and

The design proposal for BNPS will provide one new school buildings with 2 wings that are bridged on the first and second floor, associated landscape works, and a new private internal road extension.

Block 4 will provide a new administration building and auditorium on ground floor, with the auditorium vertically connecting with the library and learning support spaces on the first floor. The second floor will consist of new classrooms and additional learning support spaces with amenities provided on all levels.

Block 2 is proposed to be a new block with three storeys of classroom and learning support spaces. Lower ground floor will comprise of amenities with further amenities supplied throughout all levels.

The landscaping work will accentuate the significant natural tree adjacent to the proposed buildings while also addressing accessibility requirements and provide opportunities for outdoor learning. Additional play spaces are intended to be created and the internal road will extend from Beresford Ave along the northern boundary and return down the western boundary until it connects with Davis Lane.

About Bankstown North Public School

History

Bankstown North Public School originally had its first building, Block A, established in 1924 with further extensions created in 1928. Following from that, Block I and Block J were constructed in 1953, with Block C and Block K in 1955. The current school admin building is located within a demountable installed in 1995. Block D and Block N were built and established in 2010 during the Building Education Revolution (BER).

During the 1970's much of the surrounding elements around the school were heavily based towards large scale industrial services and buildings which resulted in a reduction of student numbers. During the 1980's, the school had begun to be impacted by the increasing traffic noise generated by its proximity to the Hume Highway and relocated some of its core administration facilities in Block A further north into the site. The school-maintained use of the ground floor of Block A as the school hall along with Block B. The first floor of Block A was renovated as the location of the Bankstown Education Resource Centre. This space is currently used by the NSW Schools Sports Unit.

"Bankstown North Public School's purpose is to offer a wide variety of learning opportunities to students in an environment where they feel safe and secure. Students are encouraged to learn skills for life and demonstrate respect for others." – Bankstown North Public-School Plan 2018-2020

The school's motto, "Skill with Honour" stands as testament to the ethos of its students and teachers. The school takes great pride in their creative arts programs, with specialist dance groups performing at multiple venues throughout the year. The school's engagement with the NSW Primary Schools Sports Association through friendly competitions encourages students to engage in active play and developing sportsmanship as part of the learning experience. The school also offers its students an internal school competition, for activities such as swimming, cross country running, ball games and athletics once a year. The school facilitates multiple cultural activities including dance, choir, public speaking, arts and crafts, drama, and an all-inclusive talent quest for the benefit of the school community. Alongside the cultural activities, BNPS also encourages their students and parents to attend multiple various excursion programs throughout the year, including a school camp for Years 4 and 6.

Students are given the opportunity to engage in multiple facets of the learning experience as the school provides technology and services to augment these initiatives. Such technology includes interactive whiteboards, laptops, digital video, and camera study as well as makerspace and robotic courses. STEM education is also available to students and the technology within the school is constantly undergoing updates to keep up with the latest prospects in these industries. Learning support is also provided for students including, English as a Second Language (ESL), Learning and Support Teacher (LaST), Reading Recovery, Teachers / Librarians, and School Learning Support Officers.

The student population comprises of approximately 338 students (as defined in BNPS School Plan 2018-2020 dated 25 July 2018) with 93% of students from a non-native English-speaking background. Multiculturalism is celebrated at the school with more than 43 diverse national cultural backgrounds, with respect given to religious and cultural beliefs to encourage a harmonious setting.

The following existing facilities are currently used by the Community:

Facility	**External User**
Hall	GKR Karate Sydney Seong Shin Church Zumba
Block D	Merabi Association of NSW
Block N	Canteen
Demountables	Pre-Uni College Bankstown

There are five standard design principles for educational facilities in NSW schools which are considered part of the planning process for all major capital works. As part of the project development the educational design principles are developed into project specific principles in close collaboration with the Project Reference Group (PRG). Additional Educational Principles were also determined by BNPS in relation to their culture and context.

A full summary of BNPS Educational Principles can be found in ***Appendix A***.

SITE LOCATION AND CONTEXT ANALYSIS

Bankstown North Public School is located at 322 Hume Highway, Bankstown, approximately 1.4 kilometres north of Bankstown Railway Station. The site is in the City of Canterbury Bankstown Local Government Area. The existing Bankstown North Public School is bound by Hume Highway to the south, Beresford Avenue to the west, and Stacey Street to the north. The campus area totals to approximately 2.86ha and compromises the following Lot and DPs:

- Lot 14, DP 1000689
- Lot 11, Lot 12, Lot 13, Lot 14, DP 132498
- Lot A, DP 444924
- Lot 1, DP 501320
- Lot A, DP 399940
- Lot 1, DP 441732
- Lot 7, Lot 8, DP 441703
- Lot 1, DP 772787
- Lot 1, DP 192509

The site sits on the ridge of the hill and is relatively flat (slight fall to north). The site is fenced with a 2.1m high black spear top fence. It has four (4) pedestrian entry gates and three (3) vehicular entry points. The main pedestrian and vehicular entries are off Beresford Avenue which is a cul-de-sac with a signalised intersection at the junction of Hume Highway and Beresford Avenue. One double gate provides vehicular and emergency access from Davis Lane to the sports oval. Access to the Dental Clinic is also off Beresford Avenue at the end of the cul-de-sac.
A substation exists in Beresford Avenue near the intersection with the Hume Highway.

The surrounding land uses comprise a mix of business/industrial, residential and infrastructure. To the north of the site, across Stacey Street is industrial development. On the northern boundary of the site is low density residential development. To the west of the site is residential and business uses (fronting Rookwood Road). To the south of the site, across the Hume Highway is residential development with small neighbourhood shops. To the south-west of the site is Apex Reserve, a public reserve for local residents. To the west of the site, across Beresford Avenue is the Bankstown Reservoir (Elevated) which is identified as an item of State heritage significance (SHR 01316). It is also listed in Sydney Water's Section 170 Heritage Register (Listing Number 120105).

The original school building (known as Block A) was built in 1924 and extended in 1928. It is a two storey Inter-war period face brick building with a single storey entry porch on the eastern (Beresford Avenue) elevation. At the western end of the building is a metal sheet clad fire staircase, which dates from after the Second World War. Many of the original features of the building have been retained such as the cement rendered window heads, the dark band of bricks (three courses high) at windowsill height and the rough cast rendered details. The original roof form comprising pitched and flat roof sections has been retained, although the original roof sheeting has been replaced. The original school building is not heritage listed under local or State legislation. The constraints and setback from boundary and surrounding buildings informs a potential build area on site, which causes less

disruption to adjacent buildings and landscape. This potential build zone is located between the current Blocks A & B and Blocks I & N.

NSW Education Sports Unit currently occupy part of Block A are in the process of relocating and as such, these facilities will not be a matter for consideration under this proposal.

Project Requirements

The proposed project scope is to redeveloped Bankstown North Public School as identified in the '*Business Case V 03',* to meet the requirements of a Core 35 size school. The proposed project will be developed in two subsequent stages consisting of:

- Block 4: Staff + Admin + Library + Special Programs + six (6) Home Base Units, 3-storey building
- Block 2: Eighteen (18) HBU + Student Amenities, 3-storey building
- Assembly Area
- Games Court
- Carpark (under separate R.E.F approval and not forming part of this submission)
- Kiss & Drop
- Landscaping
- Necessary infrastructure upgrades
- Air-conditioning
- Removal of temporary school demountables
- Demolition of Blocks C, D, K and COLA (under separate R.E.F approval and not forming part of this submission)
- Blocks A, N and I to be retained, no works.

Analysis of Options

Before analysing the final architectural design solution for Bankstown North Public School, it is important to note the following conceptual exploration of the design process to better understand the evolution of the masterplan. Through consultation with the community, the school, and all other relevant stakeholders, JDH Architects has presented masterplan options for review, comment and feedback and note the highlights below:

Previous masterplan options

These iterations of the masterplan were reached after continuous development and refinement during February 2019 after much consultation with the school and SINSW. We can note the identification of key elements in the design relating to the setbacks, Sydney water services and creating a focal point in the centre of the site. The identification of a need for parking on site was a long-standing consideration and retention of important existing buildings is consistent with the current approach.

As a continuation of the exploration of the idea of a central focal point, Option H was developed to explore the format of the central design presented in an alternate layout. Much of what is seen here forms the basis for the final approved masterplan, which undergoes continual development as the documentation develops into the SSDA submission.

Final Option

The final masterplan is what forms the basis of the SSDA submission plans, as the detail of the project develops further with input from additional stakeholders such as the Local Indigenous community, the Government Architects Office of New South Wales and the wider community of the Bankstown locale. Details of this feedback can be found below in the Summary of Government Architect Feedback, Summary of Community Consultation of this Architectural Design Analysis report and other reports formulating the SSDA submission.

Encouraging a north facing aspect to our proposed building, our proposal takes advantage of a significant tree on site by accentuating its position as both a softening feature as well as a natural shading device. Straddling the Sydney water service, we aim to reduce unnecessary impact on existing services and offer privacy and noise control to the Hume Highway to the south. Further separation from the busy public Stacey Street to the north is established by the proposed carpark and subsequent private road, softened by the biodiversity zone and extensive planting.

ARCHITECTURAL DESIGN STATEMENT

The architectural design statement is divided between the Education State Environmental Planning Policy (ESEPP) 2017 Design Principles established in the introduction and the responses are guided by the Government Architect New South Wales (GANSW) Design Guide for Schools.
Design Quality Principals:

- Principle 1— Context, Built Form and Landscape
- Principle 2— Sustainable, Efficient and Durable
- Principle 3— Accessible and Inclusive
- Principle 4— Health and Safety
- Principle 5— Amenity
- Principle 6— Whole of life, Flexible and Adaptive
- Principle 7— Aesthetics

Principle 1— Context, Built Form and Landscape

"Schools should be designed to respond to and enhance the positive qualities of their setting, landscape and heritage, including Aboriginal cultural heritage. The design and spatial organisation of buildings and the spaces between them should be informed by site conditions such as topography, orientation, and climate.

Landscape should be integrated into the design of school developments to enhance on-site amenity, contribute to the streetscape, and mitigate negative impacts on neighbouring sites.
School buildings and their grounds on land that is identified in or under a local environmental plan as a scenic protection area should be designed to recognise and protect the special visual qualities and natural environment of the area, and located and designed to minimise the development's visual impact on those qualities and that natural environment." – Design Quality Principle 1, Schedule 4, ESEPP 2017

School Campus Context

Bankstown North Public School is characterised by single and double height buildings mostly located centrally within the campus. The design of the new buildings have taken into consideration the existing site context, location of existing buildings, neighbouring properties, natural landscape and the local community. The school boasts a large portion of grassy fields and has a central portion of the school entry off Beresford Avenue defined by the existing carpark. Fencing is located along all boundaries and the buildings are generally defined by masonry with either cement rendered or profiled sheet metal accents, and prefabricated permanent structures.

Local Heritage context

As described earlier in the report, BNPS has had a strong presence within the community as the community itself has evolved throughout the years. Since the building of Block A in 1924, the proposed building lends itself towards the school significant whilst also offering some relation to the Heritage listed Bankstown Reservoir opposite Beresford Avenue due to its materiality and orientation. Despite these significant local heritage factors, there will not be any impact to these structures due to the distance of the proposal from these school and community features.

Visual Impact Assessment

JDH Architects is of the opinion that the proposed building responds to its environment in an exemplary fashion. Establishing the longest elevation to the northern aspect, the building encourages natural light and ventilation through its design and does not dominate the street frontage due to its large setback from the main public roads. The building has been designed to maximise play areas on the site maintain lines of sight and connections from the existing buildings to the school oval. The building itself was praised by the GANSW office for incorporating and respecting the large natural tree to the south of the proposed building with the design and acts to further soften the building's impact on its surrounding context.

Built Form

The proposed building at BNPS is arranged in a linear form to with gesticulation splitting the length of the building in the middle portion. The ground level across both buildings is set at RL66.60 and as the site slopes to the west of the proposed building, the opportunity was created for a lower ground floor at RL63.60 for student toilets and plant room services.
The overall height of the building is approximately 12.5m at the eastern end and approximately 15m at the western end due to the aforementioned slope of the land. Refer to the Environment Impact Statement provided as part of this package for justification regarding building height limitations.

Landscaping

The school is well known for having extensive deep soil landscaping in the community and the proposal seeks to retain this commodity as much as possible. The landscape design includes opportunities for formal an informal learning to occur, while still retaining significant vegetation where possible.

The building design celebrates the large tree to the south of the proposal and seeks to balance it's built form with this significant tree. Other existing trees on site are being retained and untouched that border the school boundary and additional planting will occur to separate the internal road from the rest of the school by way of a biodiversity zone. This biodiversity zone can also double as a play / learning area for the school. The proposal aims to increase the total number of trees on the campus to encourage natural shading and protected play spaces, while also providing a climbing hill and formalised circulation for student play and movement. Play equipment is also intended to be provided for the student's active abilities and natural resting places are also included in the landscape documents.

The opportunity is available for the school to open its gates to the community to share the benefits of the space during times when school is not in session due to the large open spaces within the campus. This could help augment the open spaces already adjacent within the community, such as Apex Reserve, Graf Park, O'Neill Park and the adjacent Bankstown Reservoir area by providing additional gathering spaces for the Bankstown community.

Local Facilities

Located within approximately 10 blocks of the closest train line, the school manages the student arrivals and departures every day. Due to the school's location surrounded by main roads, it has good access to public transport services and has a school entry located adjacent to the closest bus stop on the Hume Highway. The school also shares is arts and culture performances with local nursing homes and district festivals by way of giving back to community.

Height and scale

The proposed building has been located within the centre of the site, reducing and mitigating the impact on neighbouring properties. The height of the structure will not be readily distinguished to nearby buildings due to visual separation and landscape screening existing and proposed.

Alternative options which are complaint with the 9m height standard have been investigated and resulted in greater separation, reduced play space and landscaped areas.

By consolidating classroom spaces into a three (3) and four (4) storey building, the proposal infact ensures play space and green areas are maximised across the site, and movements to/from facilities are minimised.

Principle 2— Sustainable, Efficient and Durable

"Good design combines positive environmental, social and economic outcomes. Schools and school buildings should be designed to minimise the consumption of energy, water and natural resources and reduce waste and encourage recycling.
Schools should be designed to be durable, resilient and adaptable, enabling them to evolve over time to meet future requirements." – Design Quality Principle 2, Schedule 4, ESEPP 2017

Ecological Sustainable Development (ESD)

The proposal has been developed using the principles of Ecologically Sustainable Design and has been appraised by an ESD consultant. The proposal was tested against the Green Star rating system which can be used to demonstrate best practises and evaluate the environmental initiative of the design including energy and water efficiency, indoor environmental quality and resource conservations. The building is targeting an equivalence to a 4 Star Australian Excellence rating under recommendations from the Green Star Design Review report.

Passive Design

The building has been designed in accordance with the NSW Department of Education "Education Facilities Standards and Guidelines" to incorporate passive environmental design elements that reduce the need for mechanical heating and cooling, including building orientation, sun-shading, natural ventilation, solar energy and thermal mass.

The proposal includes such passive design features as:

- Natural ventilation through louvred windows
- High windows allowing natural sunlight
- Thermal insulation in accordance with NCC Section J requirements
- Vertical sunshade blades
- Window hoods
- External materials that are durable and low maintenance
- Acoustic separation between learning spaces
- Roof shading extension

Energy Efficiency

The proposal captures the following energy efficiency protocols:

- LED based lighting and smart control systems
- Light, power, A/C and lift consumption monitoring on separate data recording

- Efficient air-conditioning units (i.e. VRV/VRF units)
- Building fabric performance in accordance with Section J of the NCC
- Solar Photovoltaic System (intended to reduce peak energy consumption by a minimum of 20%)

Water Efficiency

The following water efficiency initiative are included in the proposal:

- Water-consumption efficient fixtures, fittings, and appliances
- An On-Site-Detention tank is proposed as part of a separate approval to this submission
- Rainwater tanks are proposed to irrigate landscaping and recycle stormwater
- Garden beds will contain appropriate mulches, soil mixes and ground preparation to match the needs of the proposed landscape design

Waste and Recycling

The project construction and ongoing use of the site will adopt the following waste management and recycling opportunities:

- Reduced waste during construction will be targeted throughout proposal
- Recycling of materials where possible will be integrated
- Re-use of existing school furniture and equipment where possible
- The building will separate waste and recycling and likely adopt a learning program throughout the school life to educate students to these benefits

Transport

The school is currently serviced by bus linkages and proximity to the train network. Pedestrian paths and numerous site pedestrian entry points are all provided for environmentally efficient travel to the school. The Green Travel Plan provided by a certified Traffic Consultant for the benefit of the school suggests:

- Information pack issued to current and future students and staff
- Advocating for the construction of a pedestrian bridge over the Hume Highway
- Distribution of a Transport Access Guide to all students and staff
- School website transport recommendations
- Student safety programs
- School assemblies to reiterate the importance of safety and sustainable travel
- School initiatives such as annual assemblies, classroom competitions, pedometer-based walking programs, walking, and cycling buddy schemes to encourage student's engagement with sustainable travel

For a full summary of the requirements, refer to the Green Travel Plan provided as part of this submission.

Principle 3— Accessible and Inclusive

"School buildings and their grounds should provide good wayfinding and be welcoming, accessible and inclusive to people with differing needs and capabilities.
Note – Wayfinding refers to information systems that guide people through a physical environment and enhance their understanding and experience of the space.
Schools should actively seek opportunities for their facilities to be shared with the community and cater for activities outside of school hours." – Design Quality Principle 3, Schedule 4, ESEPP 2017

Security & Accessibility

Bankstown North Public School believes in an open and welcoming environment that promotes safety and accessibility for students, parents, teachers, and community of all different backgrounds. The design considers the existing points of access carefully and has considered the siting of the building to enhance safety and security by providing improved school entry and visibility through the site. The school has secure fencing separating the campus from the main roads either side of the site. Planting is encouraged along the perimeter to soften the security fencing and provide acoustic benefits. There are multiple secure entry points to the site with the main entry providing an accessible path of travel to the proposed buildings and especially the administration building.
All areas of the building are designed to promote accessibility and to foster inclusion for people with varying needs and capabilities. The proposed building also is fully AS1428.1-2009 compliant with additional ramping and accessible paths of travel to help those in need to navigate the landscaped portion of the school. The parking section of the proposal will also comply with AS2890.6 and comply with Disability Discrimination Act through engagement and communication with an Access Consultant. The project will not be limited to the above Australian Standards, the "Education Facilities Standards and Guidelines" and will also comply with the NCC with input from a BCA consultant.
Wi-Fi for student connectivity will also be included in all learning areas.

Access provisions as part of the project include, but are not limited to:

- Accessible and ambulant WC facilities
- Stairs, ramps, and landings all in accordance with AS1428.1-2009
- Double handrails to all stairs for student benefit
- Circulation widths and door clearances
- Switches and interactive items between 900-1100mm AFFL
- Visual indicators for full height windows and doors
- Signage indicators

Summary of Community Consultation

A full summary of the community consultation can be found in the Stakeholder Consultant Report prepared by the town planner as part of this submission, however JDH and the project team engaged the following groups and encouraged feedback from all relevant stakeholders:

- City of Canterbury Bankstown Council
- Government Architect NSW
- Roads and Maritime Services

- BNPS teachers and administration staff
- BNPS parent representatives
- Local Aboriginal land council and registered Aboriginal stakeholders
- Affected landowners

These stakeholders assisted in developing the design and integrating the comments which reflects the community's requirements of the space. The community consultation is expected to continue with additional comments being welcomed prior to construction and for at least an addition 12 months after building occupation.

Passive & Dynamic play

The proposal includes a detailed landscape design which allows for both active and passive play for all ages in the school.
Such features include playground slides, student climbing walls, synthetic grass, rubber soft-fall and natural grass. Natural elements include interactive building play equipment, stone boulders for climbing and sitting, as well as logs in mulch bedding for sitting and climbing.
Refer to the Landscape Architects drawings forming part of this submission for full scope of passive and active play design.

School Entries

A new and improved school main entry off Beresford Avenue is being developed as part of this submission with landscaped setbacks, planter boxes and the like. This entry is designed to encourage a welcoming presence which acts sympathetically with the Bankstown Reservoir opposite Beresford Avenue. Much of the new school entry is aimed to soften the separation between the reservoir and the school campus and the new private Kiss + Drop internal road with school parking. The site currently does not have a clearly defined entry, and it is difficult for visitors to locate the administration facilities which are located in a demountable building on the site. The location of the new administration building has been carefully considered to provide a welcoming and inclusive entry for staff, students, parents, and the community.

After Hours Community Engagement

As detailed in the '*About Bankstown North Public School'* section of the report, the school already has a vibrant and active community and currently shares its facilities with local church groups, a karate club, Zumba classes and a pre-university school on Saturdays. The project aims to strengthen community ties and school identity more and develop the culture of welcome and inclusion. Further opportunity of community engagement will be created at the completion of the proposed works.

Wayfinding

The school campus is fairly simple to navigate with much of the building footprints centralised around the middle focal point in the site between the main roads. Large portions of the site encourage easy sightlines and does not have a complicated layout. Additional signage will be provided for the

students, staff, and visitors to the site at the completion of works, with internal signage to buildings as part of the proposed works.

Vertical movement

Vertical movement within the building is addressed by fully compliant stairs and lifts for those with special access requirements. Much of the vertical movement discharges to open areas to reduce the impact of 'bump-spaces' where possible.
The site is serviced by an integrated ramping system within the landscape design to allow campus navigation to flow unhindered from one space to another.

Principle 4— Health and Safety

"Good school development optimises health, safety and security within its boundaries and the surrounding public domain, and balances this with the need to create a welcoming and accessible environment." – Design Quality Principle 4, Schedule 4, ESEPP 2017

Natural Amenity

The proposed building is oriented to encourage as much natural light and ventilation as possible due to the long elevation facing north and south. Combined with appropriate shading this provides the best solution for designing learning walls that are not affected by low level morning or afternoon sunlight. Practical activity spaces are designed to open to common balconies and open space to allow for external learning opportunities. Furthering to the building orientation, the proposed landscaped play area is also situated north of the building and has full access to a balanced sunlight and shading experience for student and teachers.

Vehicles on site

All of the traffic being welcomed into the site is immediately separated from the student body and active areas. The internal road as part of this proposal is separated from the school via fencing and a biodiversity zone long the north of the campus. The vehicular traffic zone will likely be imposed with a strict speed limit to reduce dangerous driving and as such, prioritises pedestrians over vehicles.

Covered Outdoor Learning Areas (COLA)

Currently there are no proposed COLA's as part of this proposal as the school currently has existing COLA's that provide shading and congregation areas. As the masterplan develops further, these COLA's will be appraised for replacement or reparation, reducing the environmental impact of the new build where possible. A sheltered undercroft area will be provided with the new building, providing additional protected assembly space for playing and learning during hot and wet weather.

Pedestrian and bicycle access

As noted above when referencing the Green Travel plan, students will be encouraged to transport to school through environmentally conscious ways. No end of trip facilities are proposed as part of this submission but will likely be a consideration as the masterplan develops further and the school grows within its community and develops more need for such services.

Passive surveillance of common areas

Noted previously in the report regarding the slope of the land, the lower ground wet area amenities offers passive surveillance from multiple angles as it is can be directly supervised from the active areas to the west and north of the building. Due to the large open spaces within the campus and significant sightlines, much of the school encourages teachers to share the responsibility of supervision and further opportunities for additional passive surveillance will present itself as the masterplan develops.

Crime Prevention Through Environmental Design (CPTED)

As established in the town planner's Environmental Impact Statement, the CPTED principles can be divided into four main categories:

- Territorial reinforcement
- Surveillance
- Access Control
- Space / Activity Management

Territorial reinforcement is managed by identifying the separation between vehicle and pedestrian interference within the site. The only vehicle entry point established for the site will be along Beresford Avenue and discharge to Davis Lane via the proposed private road. No vehicle entry points will be established along the main road of Hume Highway and Stacey Street, and as such, focuses supervision during the peak morning and afternoon hours. Pedestrian entrances are established are available at a few differing points on the site to be managed by the school with the main entrance located along Beresford Avenue. The school fencing and landscaping serves as a clear delineation of private and public use along these frontages.

Surveillance is a key deterrent when managing security within a public space and the design exemplifies this. The design of the school and subsequent internal private road creates a central focal point in the centre of the campus which minimises concerns for obstructed views or hidden corners with a strong visual connection to the main entry along Beresford Avenue. The location of the school is contextually within a high traffic area which remains busy at most times, supplemented by its residential development surrounds, and acts as a passive and consistent form of surveillance for the school through its strong bond with the community.

Access control serves to channel people and vehicles through key entry and egress points by way of physical barriers like fencing and gates. Vehicular access to the site with be restricted by a boom gate and monitored and managed by the school. Pedestrians will observe natural landscaping barriers supplemented by fencing which does not fully restrict visual connection with directional signage to guide towards key access points.

Space and activity management is an integration of shared ownership of the school between the students, parents, teachers, and community. Graffiti resistant treatment will be encouraged where practical, with external lighting to deter undesirable behaviour along the boundary and within the school. Balanced by the additional community activities within the school outside of school hours, the campus encourages joint ownership of the space to ensure the community and school share the space in a respectful manner.

After School Hours Access

After school hours access and community sharing will be managed by the school, such activities will include those mentioned previously in the report however organised to prevent interruption during

weekday peak traffic times and lean towards weekend access. The onsite parking can be controlled to allow those community members engaging in the school grounds to use these facilities at the school's direction.

Separation of Wet Areas

Students and staff have separated wet areas as a standard across the school and do not share these facilities. Male and Female student WC's are provided in consolidated areas with signage to indicate their gendered use. Unisex accessible WC's are also provided with alternating left-hand and right-hand configurations.

Principle 5— Amenity

"Schools should provide pleasant and engaging spaces that are accessible for a wide range of educational, informal and community activities, while also considering the amenity of adjacent development and the local neighbourhood.
Schools located near busy roads or near rail corridors should incorporate appropriate noise mitigation measures to ensure a high level of amenity for occupants.
Schools should include appropriate, efficient, stage and age appropriate indoor and outdoor learning and play spaces, access to sunlight, natural ventilation, outlook, visual and acoustic privacy, storage and service areas." – Design Quality Principle 5, Schedule 4, ESEPP 2017

Natural Environmental Integration

As mentioned previously in the report, the building integrated itself into the existing landscape by paying homage to the large tree to the south of the proposed building. By further proposing additional landscaping works such as trees and play areas, the building is softened on all fronts to help reduce the impact on the surrounding natural elements. Refer to the landscape documents for a greater understanding of the natural elements for learning and play within the proposal, augmenting the natural light, ventilation and visual outlook.

Flexible learning – technology

Currently the school boasts in-depth technology driven learning approaches with all school students from Kindergarten to Year 6 having access to a personal laptop. This program will continue to provide these benefits to the students. The school also currently offers STEM (Science, Technology, Engineering and Mathematics) lessons for K-6 to further strengthen their evidence-based teaching pedagogy. The formal learning spaces will be provided with, further in this development, wall-mounted, height-adjustable Interactive screens for each Homebase as well as the Library spaces. Mobile charging stations will also be re-used within the school to reduce environmental impact of new appliances.

Internal, External, Formal and Informal Learning Spaces

Learning spaces designed to cater for a range of learning styles and group sizes. Private, retreat and small group meeting rooms have been designed with appropriate acoustic for quiet/focused work in the withdrawal rooms. All new classrooms have been paired to provide opportunity of team teaching, and the layout has been designed to allow for future focused teaching opportunities or closing off for traditional teaching styles when required. Adaptable spaces for teacher meeting areas, practical activity areas have been designed as shared opportunity learning spaces.
Further in the development of this proposal, the building will be provided with the opportunity to have almost every accessible surface within the building to be a learning wall. This is provided by whiteboards, pinboard lining, and glass partitions (such as full height windows and sliding glass door panels) allowing students and teachers to gather at intermediate points to collate their learning and collaborate interactively. Writable surfaces can also be introduced for the student furniture to spread the learning throughout the entire building should it be appropriate.

The landscape design will also provide opportunities for learning to occur within the play spaces by way of the climbing wall and interactive natural play elements. Students will have the opportunity to express their creative freedom in parts of the landscape design as this is supported by the school's approach to evidence-based learning. Refer to the landscape documents for further information regarding the external proposals.

Landscape setbacks

As shown on the landscape plans, numerous trees are proposed as part of this development, especially along the site boundary to help alleviate the noise, pollution and wind impact of the main roads bounding the school. This is in addition to the existing landscape setback trees already established on site and will be Australian endemic species. New native species such as the Eucalyptus Crebra (Narrow-leaved Ironbark) are intended along Beresford Ave and Eucalyptus Sideroxylon (Ironbark) along the Stacey Street frontage. The Hume Highway will have Cupaaniopsis Anacardioides (Tuckeroo), Eucalyptus Saligna (Sydney Blue Gum) and Melaleuca Quinquenervia (Broad Leaf Paperbark) in addition to the existing trees along the school boundary.

Overshadowing

Due to the height of the building, there would normally be a shadow impact on the neighbouring properties, however due to the size of the campus and the building being located within the central focal point of the school, there is no impact on neighbouring properties as a result of this development. Refer to the Shadow Diagrams as part of the Architectural Drawing Package for further information. The shadow impact on the school active spaces is also limited, as most of the active spaces are north of our proposed building and the existing school oval to the west of our proposal is only impacted during the early hours of the morning with no great detrimental impact during the school morning tea and lunchtime activities.

Playground Future growth

As mentioned previously, the Bankstown North Public-School campus has potential for further growth in the schools open space and external learning possibilities due to the abundance of open space. Projected student population growth should be easily accommodated due to the extensive school site size.

Acoustic separation of buildings

As noted previously, the proposed building is located within the centre of the site to reduce the impact of acoustic interruption from the main busy roads to the north and south of the site. An acoustic report has been obtained and its recommendations adopted to help increase the amenity of the learning spaces for both internal acoustic separation and reduction in external noise factors. Statements and reports have also been obtained from a Wind engineer (subset of mechanical engineering) to help alleviate concerns regarding windy conditions and its impact on the learning capability of the proposal.

These two above investigations have been augmented by the introduction of natural vegetative separation between the proposed building and the Hume highway to the south of the proposal. The separation from the busy Stacey Street to the north is treated by the existing school buildings and the introduction of the private road and biodiversity zone to also alleviate these concerns.

Principle 6— Whole of life, Flexible and Adaptive

"School design should consider future needs and take a whole-of-life-cycle approach underpinned by site wide strategic and spatial planning. Good design for schools should deliver high environmental performance, ease of adaptation and maximise multi-use facilities." – Design Quality Principle 6, Schedule 4, ESEPP 2017

Future Proofing Design

As evidenced in the Analysis of Options, there has been an extensive Master planning process developed with the school and local community for the benefit of Bankstown North Public School. The Masterplan is always intended to be a working-in-progress document that evolves as the masterplan develops, uncovering and re-evaluating requirements as they emerge, with further input integrated from all relevant stakeholders. Currently the masterplan for the school has considerations for future growth that is not included in this submission, however providing benefits for the school and community is always a foremost consideration when reviewing the Masterplan.
Whole of life-cycle considerations include durable, low maintenance materials, great consideration for recyclability of existing services including furniture and vegetation, photovoltaic panels and harvesting for re-use. Future adaptations to the internal and external spaces of the building are integrated within the design as a method of keeping up with the evolving nature of pedagogy and design, by allowing for flexibility within the spaces.

Flexible Spaces

The proposed building offers multiple adaptable spaces within the numerous uses of the building. Balancing and separating the Admin, Library and Homebases, as well as the support spaces allows the building to define its use through materials and wayfinding.
Within the defined uses of the building, there exists a high level of flexibility that allows students and teachers to customise the learning and teaching experience to suit their preferred approach. The project connects collaborative learning spaces to larger shared spaces which enables different learning activities and combined class activities. Furniture is a key example of flexibility within a space, as all student furniture is designed to interlock in various ways to encourage a varied and engaging learning experience. Group sizes may vary based on the needs of the assigned task or activity and the furniture will assist is accommodating.
The room spaces have the opportunity to open into one another by way of sliding door configurations allowing team-teaching exercises and collaborative learning to share their flexible spaces. The connectivity is not limited to just homebases however, these linkages also occur between homebases, circulation, practical activity areas and balcony spaces. Withdrawal rooms also offer focused learning support opportunities such as reading recovery, English as a Second Language (ESL) tutoring and Learning and Support Teacher (LaST) classes.
The Administration wing also has collaborative and flexible spaces as evidenced by the large rooms offered to the clerical staff, the deputy principals, the staff room and staff annexe. The interview rooms in the Administration also share the same function as the staff room and staff annexe by allowing the spaces to open into each other for larger gatherings.

The library, while acting as a centralised hub for learning and information, can also share its use by flexing into a gathering space for student, parents and teachers. Connecting to the ground floor Auditorium Foyer by tiered seating and steps, the library and Auditorium functions both individually and collaboratively with each other with a high level of adaptability and great access to natural light and ventilation.

Site Investigation Responses

CONSTRAINT	DETAIL	JDH Architects Response
Contamination	Contamination determined present on site after Phase 1 and Phase 2 soil investigation	A Remedial Action plan was prepared by a certified Geotechnical Engineer and its practises and recommendations adopted.
Flora and Fauna	Biodiversity zone present on site	Biodiversity zone retained, protected, and augmented by additional planting on site. Refer to landscape Architects documents for additional information.
Easements	Sydney Water Main within school grounds	Building position confirmed with Sydney Water to not impact the water main.
Noise	Significant noise pollution due to main road to both North and South of the campus.	Landscape screening and acoustic separation established along main street frontages. Refer to landscape Architects documents for additional information.
Traffic	Due to main roads surrounding school, peak hours of traffic were exacerbated by Pick-up and Drop-off school times.	Introduction of internal parking and traffic circulation within school grounds alleviates congestion on public roads.

Potential Community Growth

As noted previously in the report, Bankstown North Public School has great potential and flexibility for future developments due to the large size of the campus and the minimal impact of the school buildings when comparing the ground floor area. We believe the school responds well to its community context and will be able to accommodate the future growth of the community and the design proposal as part of this submission is only the first step in providing the necessary resources for both the school and local community. As the community grows, so does the masterplan alongside it, with consultations and all relevant stakeholders integrated in the response.

Principle 7— Aesthetics

"School buildings and their landscape setting should be aesthetically pleasing by achieving a built form that has good proportions and a balanced composition of elements. Schools should respond to positive elements from the site and surrounding neighbourhood and have a positive impact on the quality and character of a neighbourhood.

The built form should respond to the existing or desired future context, particularly, positive elements from the site and surrounding neighbourhood, and have a positive impact on the quality and sense of identity of the neighbourhood." – Design Quality Principle 7, Schedule 4, ESEPP 2017

Design Excellence

JDH Architects has invested a great amount of time into the current proposal to ensure design excellence is achieved and holds regular internal design reviews both before and after stakeholder input to ensure the best outcome for Bankstown North Public School, School Infrastructure NSW and the Bankstown community is achieved. The project team is fully committed towards exemplary work that responds to its context, and JDH Architects' company ethos of 'Environments that enable people to shine' is permeated through all aspects of this proposal.

Material Composition

The proposal includes a range of material that have low maintenance, are durable and complement the character of the school. The composition of materials and finishes have been rigorously selected to connect with the existing facilities in a modern way. The variety of materials represent the playful and inquisitive aspect of learning.
External materials include brickwork for the ground floor, to establish a strong base for the building and to pay homage to the significant heritage aspects of the school, exemplified by the choice of Austral Bricks – Gertrudis Brown. The upper levels of the building are characterised by white and green pre-finished cladding panels to lighten the tone of the structure, and to balance the glazing over the façade. Vertical screening elements will be powder coated in different shades of green and white, with window hoods providing a feature in a lighter green. The façade creates a visually rich screen of patterns of light and movement, expressing its internal functions. The palette of materials and colours creates an impression of quality and longevity and enhance the identification of the building.
Refer to **Appendix B** for Finishes / Mood Board.

Street Frontages

Street frontages are intended to have large setbacks to the proposed building development as shown on the architectural plans to lessen the impact of imposing new building on the streetscape. Approximately 37.9m from the Hume Highway to the south, and also separated by the school significant Block A the new building proposal is not deemed to have a negative impact on the streetscape as it is further softened by large trees proposed along all boundaries.
Approximately 90m-120m from the northern Stacey Street boundary, and further separated again by the existing Block N and Block I buildings, the proposed building will have no perceivable impact on the streetscape along the northern boundary.

The bulk and scale of the proposed building will not have a large impact on Beresford Avenue as the orientation of the building is perpendicular to the Eastern Boundary an as such is also softened by new significant trees planted along this frontage.

Integrated Building Services

The services within the building are intended to be fully coordinated between the necessary core elements of structure, electrical, hydraulic, mechanical, civil while also integrating the sub-elements of accessibility, acoustics, ecology, heritage, landscaping, thermal comfort, vertical transport, waste and wind impacts. A waste management area is introduced to augment the recyclability of the school waste produce off Beresford Avenue with a new gate and using the existing driveway as shown on the plans.
The coordination of all disciplines is not limited to those mentioned above, however such critical elements as the communications rooms, electrical and mechanical distribution boards, and the mechanical AC plant room have all been coordinated and allowed for within the design, without negative impacts such as roof mounted or otherwise visible services.

Environmental Design Responses

As noted previously in the report and shown in the architectural floor plans, elements of the building design connect indoor and outdoor spaces through such aspects as balconies, external stairs and voids within the vertical circulation.
The main school entry has created a welcome forecourt with natural elements to soften the fencing introduced for the safety of the school occupants. Minimal intervention was included within the scope to change the existing fence on the site and the proposal encompasses relocating some entry gates and introducing new entry points to be managed by the school. Automatic power sliding gates are also included in the proposed for controlling the vehicular entry and egress points for safety and controlled traffic purposes.

Summary of Government Architect Feedback #1

Email correspondence dated Monday 6th May 2019 from Rory Toomey, Principal Design Excellence, NSW Arch. Reg. 7743, Government Architect NSW. Responses by JDH Architects as shown.

GOVERNMENT ARCHITECT NSW	JDH Architects Response
Future plans of the proposal should include key dimensions, RLs and indicative layouts of key spaces, sufficient to explain the scheme.	Included in current drawings
Provide sections and elevations of the proposal incorporating site context, key dimensions, proposed finishes and RLs	Included in current drawings
Introduce articulation to the architecture: look at the building from all angles. Pull out the 'Cola' to emphasise entry points. Explore materiality that reflects local character and context.	Noted – New design improves building articulation. COLA not included in new design
Develop and provide a detailed Landscape Plan explaining existing and new planting – please bring the Landscape Consultant to the next meeting	Will be included in new presentation. Landscape Architect confirmed attendance to the next meeting
Review the fencing and edging – encourage soft fencing, reduction of fencing, and use of building edges as the secure line in lieu of fences where possible	Noted – Where applicable will be included during Schematic Design
Provide site and context plans that demonstrate active transport strategies and linkages with existing, proposed and potential foot and bicycle paths	Included in current drawings
Provide circulation diagrams explaining movement of school population within the campus and to and from the entrances/exits at peak times	Included in current drawings
Provide 3D studies to demonstrate developed response to scale, materiality and detailing of buildings and hard landscape elements	Included in current drawings

Engage with local Aboriginal community representatives to develop a strategy to incorporate site specific histories and narratives into the design – place naming, landscaping, building integrated artworks all present opportunities within the spatial design phase	Noted – Will be addressed during Schematic Design
The intent to include ESD principles in the form and mass of the buildings needs to be further explored, with particular attention to solar shading and the depth of the classrooms for cross ventilation and daylighting.	Included in current drawings – refer to building section. ESD principles will be further developed during Schematic Design

Summary of Government Architect Feedback #2

Email correspondence dated Friday, 22 November 2019 from George Savoulis, Senior Design Advisor, Government Architect NSW. Responses by JDH Architects as shown.

GOVERNMENT ARCHITECT NSW	JDH Architects Response
Masterplan The changes made to the proposed Master plan are supported. The locations of the proposed stage 1 buildings, the carpark and central 'heart' are logical given the site conditions and constraints. Diversity of outdoor spaces and the handling of level changes have been noted and are supported. The Public Forecourt that is accessible as a public space to the wider community and the gradient of open spaces from public to private (school heart) are credible and will contribute to a hierarchy of highly useable spaces. The rational introduction of an internal road and kiss-and-drop is a clever solution to reducing traffic congestion on Beresford Ave and the Hume Highway. The impact of traffic on Davis Lane will require further consideration and consultation with the local community and traffic consultants.	Noted, an upgraded signal system between Davis Lane and Rookwood Road is being considered by RMS and Council as a result of consultation with RMS, the traffic engineer and Council.
Landscape The increase in tree numbers and the retention of the bio-diversity zone is supported. Encroachments on the biodiversity zone are not. The use of trees for visual and noise mitigation is encouraged with further development of the tree canopy in the north-east corner and carpark required. Alternative carpark layouts should be explored to promote additional tree canopy opportunities.	Carpark design adjusted to be more functional and include a more natural element by providing a row of new endemic trees along carpark edge.
Architecture The architecture presented is schematic at present, however the massing and block planning is supported. We look forward to seeing an architectural language develop through detailed design. We encourage the maximum visual permeability across the campus, in particular through the void between Blocks 2 and 4, with the school heart and feature tree as focal points.	Noted

We encourage the team to consider a clerestory on the upper levels of the proposed new blocks for cross ventilation up and through the building, as well as promoting opportunities in section for passive natural and cross ventilation.	We have provided windows above 2m high on south side to improve natural light and ventilation and 1.7 high windows to the north side to assist in controlling the natural light. The design allows for cross ventilation between north and south elevations via door and window openings.
A nuanced response to heritage with material and façade design is required, one that responds to the form and architecture of the adjacent heritage building on site and to the formal language of the water tower. Culture and Heritage consultation should continue during the development of the Architecture and Landscape designs; this includes both Indigenous and Migrant histories with relevance to the location.	We have been in consultation with an Archaeologist and the Indigenous Aboriginal Community and have provided a design which responds to its environment with the use of brick on ground level being sympathetic with the neighbouring heritage items of significance.

CONCLUSION

The preceding architectural design analysis report was prepared by JDH Architects to assist Bankstown North Public School and NSW Education School Infrastructure with the State Significant Development Application and summarised how design quality was achieved. The Design Quality Principles outlined in Schedule 4 Schools – Design Quality Principles of the State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 were satisfied or otherwise addressed and the report adopted principles established in the Government Architect NSW Design Guide for Schools. It is our professional opinion that this proposal will provide the school and local community a great opportunity to lift the quality of schooling infrastructure in the area and aims to meet the current and future education needs of Bankstown North Public School and its surrounding community by providing activated spaces to enhance learning ability and student outcomes.

Jayne Harrison

Managing Director

APPENDICES

Appendix A – BNPS Educational Principles

Appendix B – Internal & External Finishes / Mood Boards