Dear Paulo and Carol,

Thank you for the opportunity to present the Lake Cathie Public School (LCPS) project to the SDRP and for the subsequent advice & feedback that was received from both SDRP review sessions on the 8th August and the 28th November 2018. These design sessions have proven to be invaluable, prompting the review and re-evaluation of the design and the design strategy as a whole. The Design team have taken on board all of the advice and recommendations raised in these meetings.

Additional targeted ecological assessments are currently being undertaken on the site and are expected to be completed by the end of January 2019. We expect to lodge the SSD application shortly after this. All of the points raised in your letter/feedback dated 06.12.2018 have been carefully considered and incorporated into the final design where appropriate. Following is a breakdown of the key points and how these have been addressed in the design.

**Context and Site Strategy**

1. The location of new buildings towards the east of the site is supported as a welcoming gesture towards the future residential subdivision. However the masterplanning strategy for the site lacks a clear logic in the arrangement of new buildings in relation to existing buildings and does not recognise the layout of existing buildings. Further refinement is required.

2. The proposed masterplanning of classroom blocks prevents optimisation of the solar orientation of each classroom block.

3. The location of the double-story block G is problematic as it overshadows the outdoor learning area adjacent to the south. Consider reorganising the classroom blocks to achieve optimum solar access to outdoor areas.

Numerous site constraints, including the site shape, vegetation management zones, site drainage, access opportunities and existing built forms, has resulted in a very limited area available for the building footprints. A process of capturing existing forms and orientations and reflecting these in the new buildings has resulted in the current configuration with shared internal and external spaces. While we acknowledge that the progression of detailed classroom planning has lessened the impact of the splayed forms from an aerial site planning perspective, the angles between new and existing buildings are consistent and will be the discernible feature evident to users at a human scale, while the relationship between individual GPLA spaces and shared internal breakout zones reflect the current assembly and communal building relationship. The breaking down of the classroom building forms will ensure that they are more similar in perceived size to existing built forms on site while ensuring that the overall teaching spaces and strategies can still be implemented by way of larger, more open floor plates.
Individual building designs reflect an educational desire to create open, team teaching, stage-based learning environments. The deep floor plates are necessary in order to mass all explicit teaching spaces (GPLA’s) around shared full stage learning commons. In order to ensure natural light penetration and ventilation, the central ‘common area’ roof has been raised up, creating a central ‘lantern’ illuminating the central edges of the explicit teaching zones and providing an opportunity for hot air to exit the building. Stepping the GPLA’s provides more opportunity to vary the types of learning spaces created including providing more external walls and therefore natural light and ventilation opportunities for the learning spaces. All GPLA’s will have natural light provided by two different orientations, irrespective of the building orientation. The corners provide opportunities to push into the landscape, creating intimate corners for small group activities with the potential for micro-level cross ventilation.
A two-storey building is required to ensure that all future growth eventualities are considered and catered for on site, while maintaining the required open space for students. The two-storey building has been located to create a maturity-progression across the site, with younger (smaller) students being located close to the school entrance and administration building and older students travelling further through the site and culminating in the occupation of the first floor at the northern most end of the site. It’s inevitable that a two-storey building will have some level of overshadowing. Multiple outdoor spaces are provided such that staff and students have a choice of which external space to use in addition to external spaces directly attached to the GPLA’s. As the day progresses, the sun reaches the outdoor learning spaces previously in shade. The location of the two-storey Block G building is considered appropriate, as it limits overshadowing of core student play areas, even during the middle of winter, while allowing all of the staged classroom buildings to open-up to each other across the shared outdoor learning and activity corridor.
Aboriginal Heritage

SDRP

1. The panel note the scheme does not yet demonstrate a response to Aboriginal culture and heritage through the design. The panel encourages the project team to engage and consult with the local Aboriginal community to incorporate site specific histories and narratives into the design.

A complete Aboriginal Cultural Heritage Study is being undertaken as part of the SSD application. In addition to this, two Aboriginal and Heritage impact studies, undertaken by separate specialist consultants, have now been undertaken for the site, both of which have concluded that the site has minimal aboriginal significance.

Separate to these investigations, the school have engaged directly with the Biripi community, creating strong links and incorporating indigenous values and histories into student learning. This is specifically evident in the Gathang Language Pilot Program being run at the school and changes that were made to the schools sporting house names, making them more culturally appropriate and relevant to their context. The Gathang language names being used for the sporting houses have also been interpreted by a local aboriginal artist, with perforated metal motif panels being proudly incorporated into the entrance of the school.

Further consultation with the Biripi community has identified the shared desire to incorporate a bush tucker walk through the site along with a number of outdoor learning opportunities, including suitable spaces connected to the environment for yarning circles. These have all been incorporated into the design, with an indicative path and outdoor learning areas identified for the bush-tucker walk and potential yarning circles. The Biripi community will work directly with the school to identify the final location and construction of these zones once the buildings are located on site and they can better understand the relationship between built form, trees, traffic movement and solar orientation.

Building Form and Materiality

SDRP

1. The location of the hall and the provision of a pedestrian access point which engages with council’s assets to the south are supported.
2. The double-story block G is problematic in its bulk and scale in relationship to the smaller classroom blocks and existing buildings. The effective depth of this building is currently approximately 30m and will increase to 38m with the future expansion of homebases. This particular block requires further articulation and break-up of the massing.
3. The form and scale of the classroom buildings should be broken down through façade treatments and clearly articulated.
4. Documentation should be included to illustrate the building form and scale of the classroom blocks once these buildings expand to six homebases per block. This material should also be presented at any future Stakeholder Engagement Process so that the community has a clear understanding of the strategy for expansion and future scale of the school.

New buildings have been designed to respond to existing buildings on the site, without being a direct copy. Successful elements, including roof pitch and high-level FC cladding, have been adopted to ensure that the new buildings combine with existing structures to create a whole, cohesive campus. Increased glazing, the inclusion of more student scale materials (bricks in lieu of blocks), and coloured sunhoods are combined to contrast with the communal buildings and highlight the more private nature of the classroom buildings. Refer diagram below.

![Figure 7: Built form comparison](image-url)
The SDRP comments regarding the bulk and scale of the two-storey building have been noted. As a result, the mass has been further broken down with increased articulation to separate forms. These amendments will be evident in the SSD application documentation.

While the site and buildings have been designed to accommodate future expansion, this has primarily been done from a due diligence perspective. At the request of the PRG, SINSW demographers have carefully reviewed the demand in the area and categorically concluded that the school is to be designed as a Core 14 school. As such, we are unable to highlight the future expansion opportunities to the general public in order to avoid giving them the wrong impression about the direction and size of the school.

**Circulation, Access and Arrival**

SDRP 1. Circulation routes in general require further clarification and emphasis, either through the use of landscape or the arrangement of built forms.
2. The student entry plaza lacks a clear and direct connection to the student assembly area.
3. The whole entry sequence should be considered from the user-experience point of view and a wayfinding hierarchy developed so that pathways and assembly areas are easily discernible.

The site circulation strategy includes two clearly defined undercover circulation routes linking the student entrances on the boundaries to the centre of the circulation system which is characterised by a landmark tower forming a wayfinding element on the site. These primary circulation paths are approx. 5m wide to service peak demand times, being predominantly before and after school. It is expected that students will access the site via these major paths before dropping their bags off at their rooms and then circulating via the paths to either the external assembly area, landscaped assembly area, or the hall for wet weather assembly.

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*Figure 8 - Site circulation diagram*  
*Figure 9 - Site gathering diagram*
The central external assembly area (existing) is located at the heart of the school and uses existing buildings to clearly define the space. Parents will use the same central paths (when permitted for special events) prior to peeling off to the existing COLA where they can witness the outdoor assembly, or similarly make their way to the hall for special events. Once the school day is underway, all visitors will need to enter the school via the administration buildings which provides controlled access to the school site.

Internal Amenity and Sustainability

SDRP 1. The panel remains concerned about the depth of classroom block floor plates and the ability for these buildings to achieve suitable internal amenity. Provide modelling of a typical classroom block demonstrating that passive design features will work as intended.
2. The proposed natural ventilation strategy is unlikely to be successfully implemented for much of the year. A mechanically-assisted/hybrid natural ventilation strategy should be investigated and details provided of the proposed system.
3. Due to the varying orientations of the classroom blocks there are large windows facing into every direction without clear indication of sunshading and glare control. Details should be provided to demonstrate heat-gain and glare have been attenuated through building elements.
4. The panel supports a whole range of sustainability initiatives presented at the first SDRP. Further details should be provided to confirm their inclusion in the project.

The current proposal includes high level louvres to the central learning common to vent hot air from the building, with fresh air being made up via the external GPLA wall openings with opportunities for cross ventilation pending the orientation of the prevailing wind. We agree with the panel’s comments regarding the limitations of the natural ventilation strategy given the size and width of the floor plate, especially in the event of the GPLA’s being shut-down from the learning common.

The educational approach identified by the school is for an open, team teaching environment where all doors remain fixed in the open position. Closing down the doors separating the GPLA’s from the learning common will obviously impact on any cross-ventilation opportunities, much the same way closing windows will impact airflow. Natural ventilation will therefore be supplemented by a mechanically assisted system to ensure that suitable levels of fresh, thermally comfortable air, is provided to maximise student learning.

To discourage the unnecessary use of this system, real-time usage/metering will compare power consumption and production and communicate this to students in the learning common via a graphic signage system (final graphics to be determined during documentation). At the request of the SDRP, further daylight modelling has taken place, with no adverse findings. The results will be included in the SSD application documentation package.

![Figure 10 - indicative energy use signage](image)

The panels concern regarding solar orientation, sun shading and glare control are all valid and have factored into discussions throughout the design process. These controls are complicated by the varying orientations of the buildings, however they can be addressed using a combination of external and internal window protection measures and as such, the priority has been given to ensuring that the relationship between the buildings and external landscaped areas meets the educational objectives. Integrated sunhoods have been documented for all window opening. These provide a level of articulation and colour to the built forms, but are also extended where required on the northern elevations to provide functional sun protection.
The three north western windows not protected by deck overhangs will be provided with vertical battens to protect them from the low western sun. The four eastern windows are less of a concern, given the hours of operation at the school and their proximity to existing perimeter trees. These will be further modelled during the final 33% documentation phase of works to ensure that heat-gain is controlled, even outside of school hours.

The numerous sustainability initiatives presented at the first SDRP meeting have continued to evolve and have now been incorporated into the D&C tender documentation. These include, the provision of solar panels and digital real-time monitoring of consumption v’s production, colour coding of rainwater collection-storage-reuse system, inclusion of bio swale and frog pond, integration of vegetation management zones along with ecological educational signage and outdoor learning areas, inclusion of the bush tucker walk/gardens and yarning circles, community accessible food production gardens, the use of natural materials and textures throughout the natural and man-made landscaped areas and the prioritising of pedestrian and public means of transport through crossing, bus and bicycle parking locations.

**Landscape Integration**

**SDRP**

1. Provide a detailed landscape plan clearly indicating existing and new planting, shade structures, materials and finishes proposed.
2. The proposed north-south circulation spine should be further emphasized by the use of trees.
3. The open space between the hall and block E lacks unity and should

Following preliminary SDRP feedback, the central landscaped area has been extended to the south to provide coherence across the site and to link core circulation routes. While we agree with the suggestion to provide additional groves of trees in order to better define/emphasise major circulation spines, SINSW Maintenance are very clear in their desire to maintain 5m from tree canopies to any roofs for maintenance purposes. Given their importance, we’ve included trees through the central landscaped spine in order to provide a controlled outdoor learning and play zone that integrates the buildings into the environment/landscape. Providing further trees in such close proximity to the covered walkways is not considered appropriate from a maintenance perspective. At the panels suggestion we’ve provided rows of trees to each side of the central grassed oval to help define this space and to provide natural goals for student games.

A landscape plan will be provided as part of the SSD package that clearly indicates the existing trees on site along with the additional planting and garden areas proposed as part of the works. This plan will highlight existing screening trees being retained and enhanced/adjusted, reforestation and vegetation management zones (natural landscape) and central learning and play zones (man-made).

**Project Procurement**

**SDRP**

1. The panel request further information relating to the proposed procurement process and how this will ensure high quality design, which may include retention of the architectural design team for the duration of the project.

Please be advised that given the programme for this project the design team have now designed and documented the works to a 66% documentation level. This package will be used to tender for a D&C contractor to finalise the design and documentation works. As the head design consultant, the architect will be novated to the contractor and has an agreed role to finalise the design and documentation package for construction and then to review works and provide construction phase services throughout the construction period. The engagement of the remainder of the design team will be at the discretion of the successful contractor.
We appreciate the recommendations raised in the panels feedback and have incorporated these into the project. Any deviation from these recommendations is not due to a lack of consideration, but rather it is a reflection of the numerous other constraints or opportunities that impact/inform the final design solution. SHAC appreciate the limited timeframes associated with the SDRP presentations and note that the information provided needs to be succinct in order to address the concerns raised by the panel. We are confident that the full SSD application package will resolve any ongoing concerns and justify the final design outcome. We've found the SDRP process to be rewarding and have no doubt that the overall quality of the project has improved as a result of its inclusion in this program.

We would like to again thank you and both panels for their time and their invaluable contribution to this project. This is an important project for the Lake Cathie and Bonny Hills communities and we look forward to moving forward and working with a builder to deliver this project. If you have any questions, or require any additional information prior to the submission of the SSD application, please don’t hesitate to contact us.

Regards,

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