



COS10025 Technology in an Indigenous Context Project unit

School of Science, Computing, and Engineering Technologies

Seminar Week 11: Indigenous Project: Case Studies

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Acknowledgement of Country

We respectfully acknowledge the Wurundjeri People of the Kulin Nation, who are the Traditional Owners of the land on which Swinburne's Australian campuses are located in Melbourne's east and outer-east, and pay our respect to their Elders past, present and emerging.

We are honoured to recognise our connection to Wurundjeri Country, history, culture, and spirituality through these locations, and strive to ensure that we operate in a manner that respects and honours the Elders and Ancestors of these lands.

We also respectfully acknowledge Swinburne's Aboriginal and Torres Strait Islander staff, students, alumni, partners and visitors.

We also acknowledge and respect the Traditional Owners of lands across Australia, their Elders, Ancestors, cultures, and heritage, and recognise the continuing sovereignties of all Aboriginal and Torres Strait Islander Nations.

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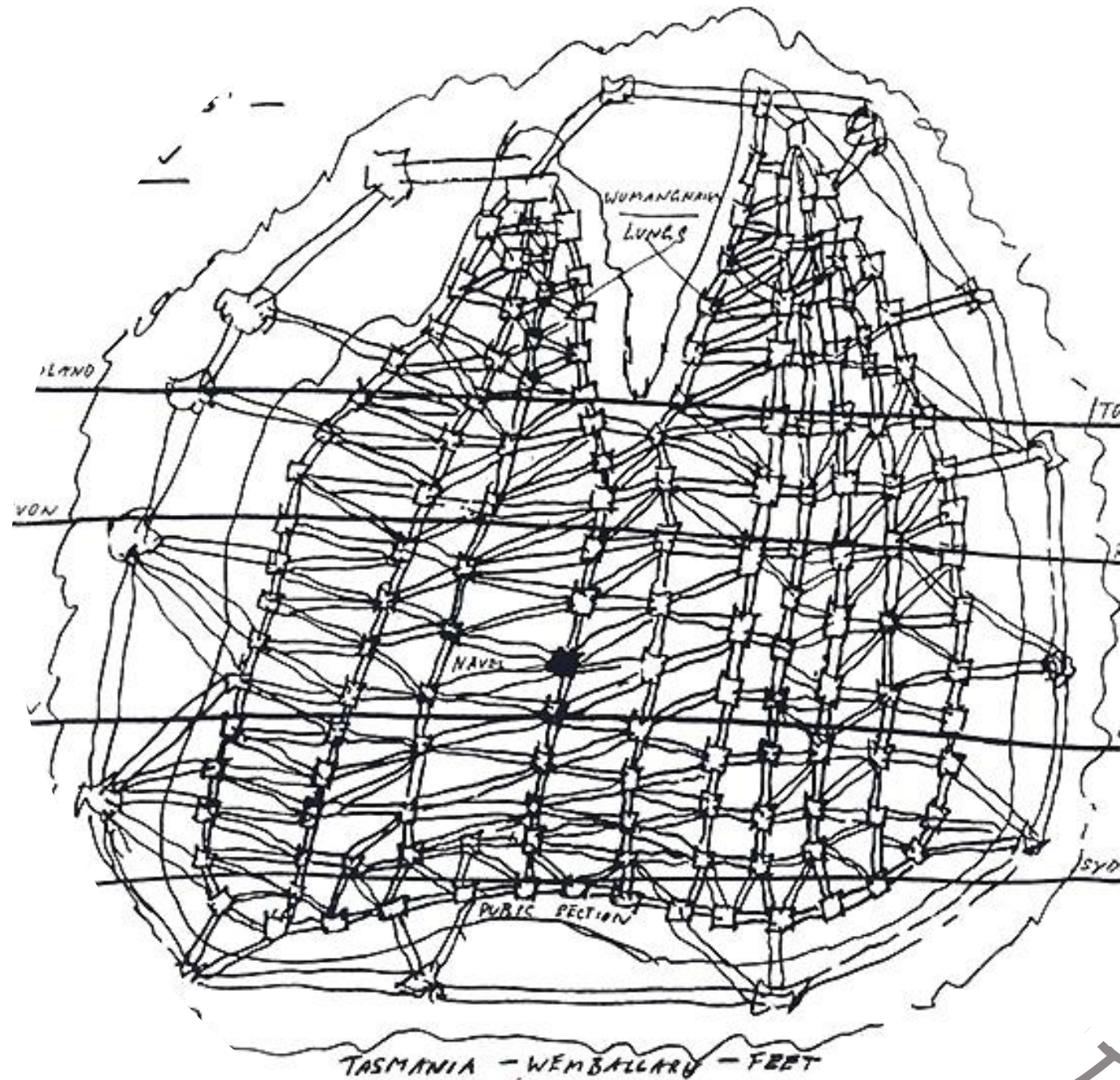


Recap Week 7

Navigation & Astronomy



Songlines & Dreaming Tracks



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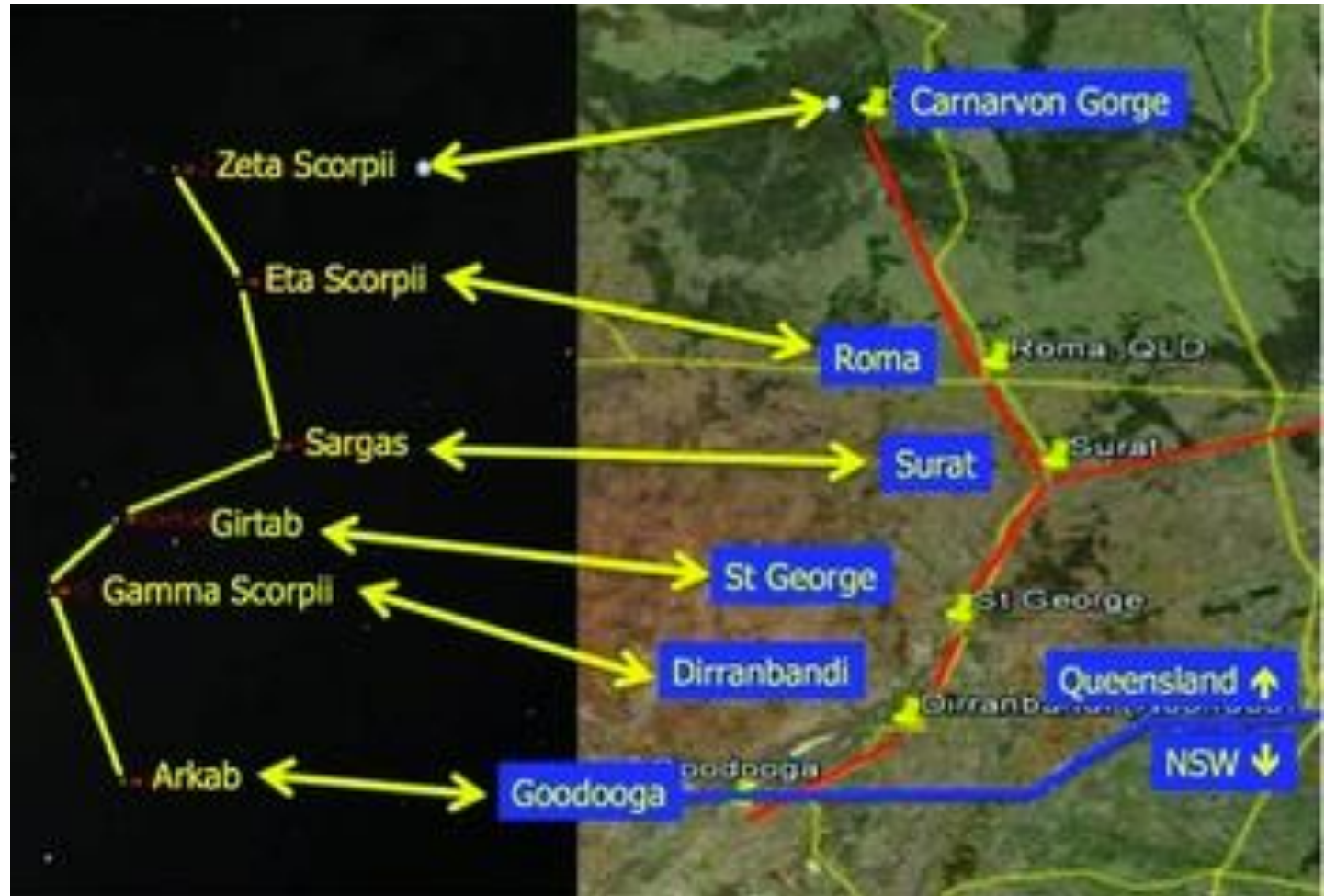


“Songlines are epic creation songs passed to present generations by a line of singers continuous since the dreamtime. These songs, or song-cycles, have various names according to which language group they belong to, and tell the story of the creation of the land, provide maps for the country, and hand down law as decreed by the creation heroes of the dreamtime. Some songlines describe a path crossing the entire Australian continent.”

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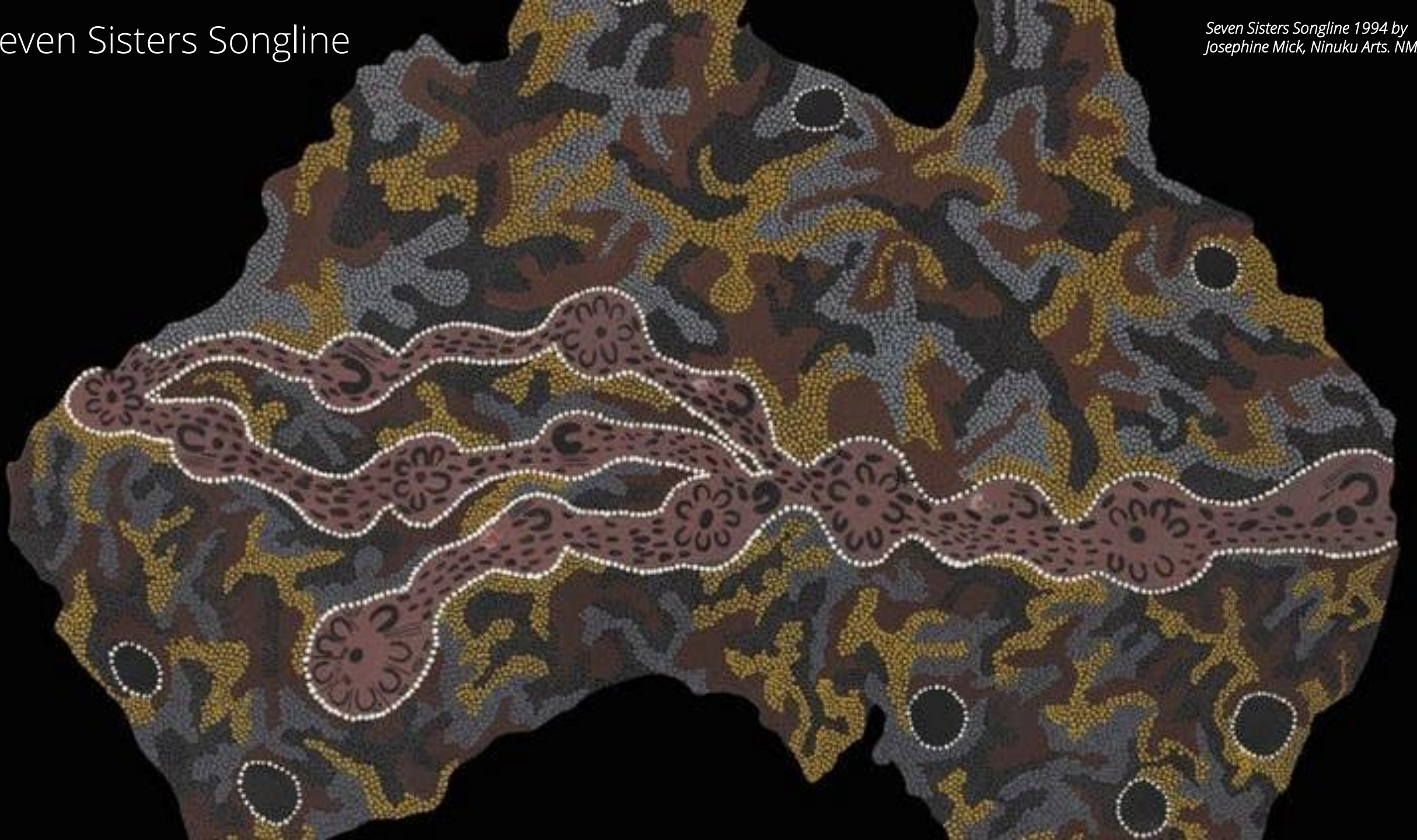
(Wositsky & Harney 1999, p.301)

Euahlayi
Songline:
between QLD
and NSW.



Seven Sisters Songline

*Seven Sisters Songline 1994 by
Josephine Mick, Ninuku Arts. NMA*



Seven Sisters – Pleiades



The image features decorative celestial illustrations in the top right and bottom left corners. The top right corner shows a crescent moon, a planet with rings, and a star with radiating lines. The bottom left corner shows a comet, a star, and a small planet. The central text is a paragraph about the Seven Sisters constellation in Australia.

Within Australia, the dreaming stories of the Seven Sisters are among the most common astronomy story told.

Star navigation & moon shadow travel






Songlines were used for long haul navigations:

"Not just songline trail, walking trail, trade routes. You sing a song, then you follow your song, in that track you go along singing the song, like a blazed mark"

(Norris & Harney 2014).

When no songline existed, or for much shorter travel, mob would use **the moon and stars** alone for patterns and directions.





Indigenous Project Case studies in STEM

Case study: Spinifex

Scientists at the University of Queensland worked with the local Injalanj Didanu community in central Australia to identify and harvest specific spinifex species to extract nanofibers and resin. The project team will combine indigenous knowledge of Spinifex and its resin applications, manufacture, structure, and properties with controlled laboratory refining, modification, and testing to develop resins and fibres into renewable materials. We evaluated the possibility of developing as Principal investigator Professor Martin says the finding is unique stating:

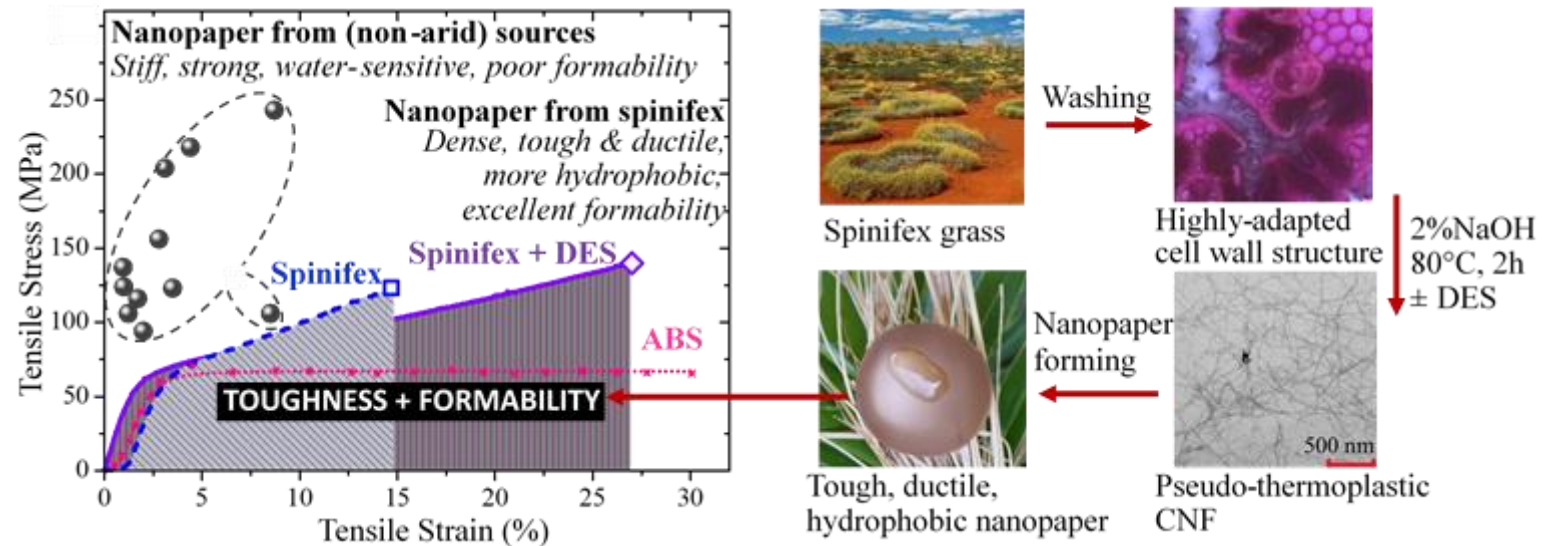
The nanofibres that we can extract are long, thin and stretchy – only a few nanometres wide but thousands of nanometres in length...As a materials scientist, this is exactly what we look for when we want to reinforce flexible materials...

The technology is expected to be of great interest to applied materials science industries, including the [multi-billion dollar condom market](#), and in carbon fibre and composites manufacturing (used for example, in aircraft, high-end cars and bikes).

This project has the potential to significantly improve prospects for employment and economic development for Indigenous people. Harvesting and initial processing of the spinifex will be undertaken in the community, with local rangers managing the environment where the spinifex grows. Colin Saltmere, Managing Director of the Dugalunji Aboriginal Corporation, said 'It's about providing jobs to our people and reclaiming some integrity'.



Formation of nano paper

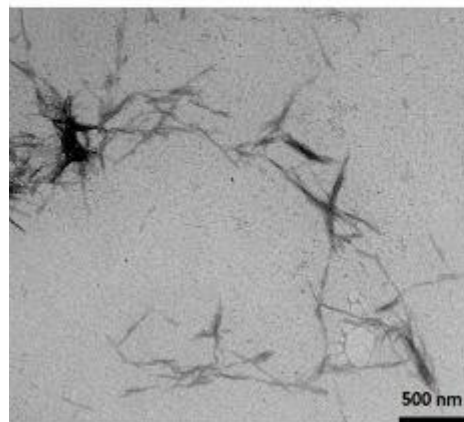


Producing nanofibres from spinifex

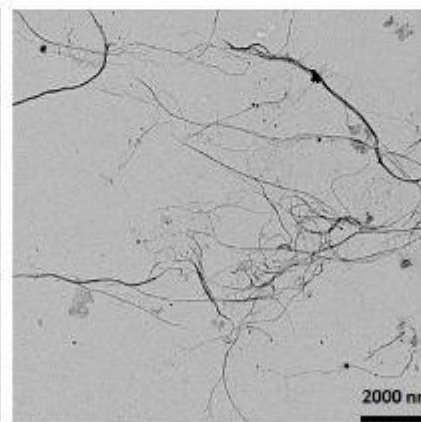
First, the grass is washed with hot water, dried and ground into a powder. Then, we isolate the nanofibres.

The grass powder is treated with a mild alkaline solution to loosen its structure before it is deconstructed using a high-pressure homogeniser, the same instrument used for homogenising milk.

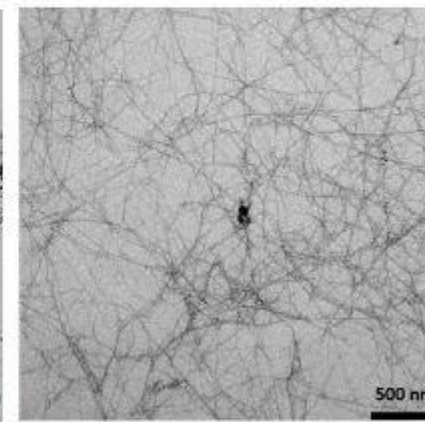
These nanofibres, either in powder form or dispersed in water, are then mixed with other materials such as rubbers, latex or cardboards to improve their strength while retaining flexibility and stretchiness.



Cellulose Nanocrystals from cotton



Cellulose Nanofiber from wood



Cellulose Nanofiber from spinifex



Case study: Kakadu Plum

The Kakadu plum is native to the top end of Northern Australia and is the richest known source of Vitamin C in the world, with multiple potential applications in the food, beauty and health industries.

The Gundjeihmi Aboriginal Corporation, representing the Mirarr people, says:

The Kakadu plum has been an important source of food and medicine for the Mirarr...It also features in oral histories and 'dreaming' stories.

Local Indigenous people are now beginning to trial commercial plantations of the fruit, however there were concerns in the past that Indigenous communities had little or no recognition, control or benefit-sharing from the commercialisation of their knowledge.

Wendy Morgan, chair of the Gandangara Local Aboriginal Land Council, said:

You'll have the big pharmaceutical companies coming out and talking to [Indigenous communities] and taking samples of their medicines. They might acknowledge where they got it from, but there is no money going back into that community they got the information from.

In a 2016 episode of Landline, Margo Northey, leader at the Wadeye Women's Centre noted:

This is knowledge that's been around for a long time, and it's great that it's being exploited to some extent, but recognition...is really important. There is no priority given to Indigenous people. Anyone, including big companies, can currently put in place patents on processing bush foods, making it difficult for Indigenous people to commercialise them.

The program also notes that 'the Northern Land Council...represents traditional owners and is calling for a blanket moratorium on all patents over native foods and plants until a legal framework protecting Indigenous interests can be enforced.'

Case study: Case study – Tiger Brennan Drive, NT

- BMD Constructions collaborated with the Northern Territory Government Department of Infrastructure and delivered the \$88 million Tiger Brennan Drive Duplication in Darwin.
- The project vision was focused on 'Driving growth in the Terri; the significant focus was placed on enhancing local capacity, value for money and Indigenous engagement that had minimal impact on local traffic disruption whilst also engaging the community's support.
- With significant non-cost criteria stipulated by the client during the tender phase, BMD Constructions invested substantial time and resources in upskilling and training local contractors, ensuring that the project met Indigenous engagement, training, program and cost targets.
- BMD Constructions met with the Traditional Owners before the start of construction and undertook cultural awareness training to understand and appreciate the context of the region



Case study: Tully Alliance, QLD

- Prior to the commencement of the Tully Alliance project, the Alliance adopted BMD's culture of "supporting the local communities in which they operate". This was done by engaging 80 plant hire and earth moving operators, 33 subcontractors and their staff and 41 material and service providers from the Tully region.
- The implementation of training for Indigenous employees on the Tully Alliance project was so successful that the Girringun Aboriginal Corporation recommended the engagement model to be utilised as a template for engagement of traditional owners for all future construction projects.
- The Girringun Aboriginal Corporation stated that the Tully Alliance had "contributed to the self-esteem and self-worth of our Indigenous employees, that wearing the Alliance shirt had instilled in our guys a sense of pride and achievement" and recommended that the Tully Alliance experience be carried forward to develop a best practice model.



Science Pathways for Indigenous Communities

- CSIRO implemented the science pathways program for Indigenous Communities
- The program was found to establish strong and effective partnerships with local schools and various stakeholders
- It also increased both student and community engagement in education
- Increased educator confidence as well as the capacity to plan and undertake Two-way science, which utilises on Country concepts
- Whilst improving school capacity to embed local Indigenous ecological knowledge to the Australian curriculum



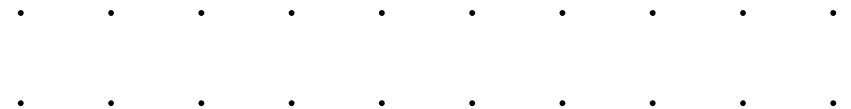
Ngarrindjeri Pipi Harvesting

- The Ngarrindjeri people have been harvesting pipis (also know as 'kutis' in the local Ngarrindjeri language) in the region for over 10,000 years
- This is evident by the numerous 'middens' found in and around the nearby sandhills in the Coorong and adjacent beaches. (Going back to Indigenous STEM knowledge on Middens)
- They are based in the Lower River Murray, Lakes and Coorong Region of South Australia
- Goolwa Pipi Co Pty Ltd is known as one of Australia's most progressive seafood companies whilst also being the largest pipi processing and marketing company in Australia.
- The shareholders have over 100 years of collective pipi harvesting and marketing experience spanning three generations.
- Utilising certified sustainable hand harvesting techniques with a 'beach to plate' philosophy, using a state-of-the-art processing facility and are committed to a sustainable long-term future working with the Ngarrindjeri people to honour Yarlumar-Rue (Sea Country)
- They also help to create a secure future for Ngarrindjeri people through commercial operations and employment. In 2016, Goolwa Pipi Co approached Ngarrindjeri leaders to explore the potential for a partnership with the Ngarrindjeri Nation.
- Two years later and with the support of a multi-million dollar investment from the Indigenous Land & Sea Corporation (ILSC), a three-way partnership with Ngopamuldi Aboriginal Corporation and Ngarrindjeri Aboriginal Corporation (NAC), Kuti Co was established as a key shareholder of Goolwa Pipi Co, acquiring a fishing license with a goal to purchase 25% of the Lakes and Coorong Pipi Quota Units over 3 years, with a current holding of 15%. Working with Goolwa Pipi Co employment of Ngarrindjeri will result in approximately 12 jobs for the community in both harvesting and processing jobs, and provide significant economic, cultural and environmental benefits for the Ngarrindjeri Nation

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Kimberly Land Council Fire Management

- The Kimberley Land Council (KLC) seeks to support its members and Aboriginal communities throughout the Kimberley with access to opportunities. KLC leads an ambitious empowerment agenda drive to create self-sustainability and enable self-determination, and pursues opportunities with vigour both nationally and internationally to overcome barriers and challenges in the region including lack of industry opportunities and competition for resources.
- As an organisation that has “emerged from land rights protests to enterprise creation”, innovation is key for KLC. Despite winning a long and costly struggle for native title determination, KLC, like many “prescribed body corporates” (PBCs), struggles to find the revenue and resources necessary to support itself and its constituent communities. Native title is not fungible, which means raising capital is hard, and it is very common for PBCs to rely solely on government funding.
- KLC has been a partner of Jawun since 2012, and approximately 100 skilled corporate and government employees have supported the organisation with its ranger network, cultural enterprise hub, leadership and education initiatives, and other strategic pieces of organisational development. Guided by the leadership and vision of KLC management, Jawun secondees have often worked in sequence finding innovative ways to ensure the organisation’s Indigenous-led empowerment initiatives find the right policy or market context to be viable.



Casino Aboriginal Medical Centre – Casino NSW

- Client – Office of Aboriginal and Torres Strait Islander Health (OATSIH) and Bulgarr Ngaru Medical Aboriginal Corporation
- Architects – Kevin O'Brien Architects in association with AECOM
- The project brief was to provide a dedicated building to service the medical needs of local Aboriginal communities in the area.
- An understanding of the social role of the medical centre for the community was an important consideration.
- The building has a vigorous street presence that asserts its place in the town centre.
- Bricks made from the earth of Bundjalung Country feature heavily in the design to incorporate on-Country design methods.
- They were used selectively and contained subtle details and patterns incorporating cultural meaning into specific building parts.
- Ways of engaging with all of the senses are employed throughout the design, which helps express an understanding of “listening to Country” and “sensing Country”.
- Being able to translate these ideas into the design resulted in the project being grounded in its space within the local community



Wilcannia Health Service – Wilcannia NSW

- Client – Far West Local Health District
- Aboriginal Custodians – Barkindji
- Project team – ARCHITECT Government Architect's Office Merrima Aboriginal Design Unit LANDSCAPE ARCHITECTURE AND ENGINEERING NSW Department of Public Works and Services
- The original Wilcannia Hospital building was designed by Cyril Blacket and built in 1879.
- It was located on the edge of the town, on a bend in the Darling River; it was positioned north towards the street, away from the river.
- The building was inadequate as a modern health facility, with its site providing the starting point for a new approach to community health and wellbeing.
- The design was not constrained by the limitations of the original building, instead rethinking how the existing building could best be valued and re-used, and recognising the opportunity to deliver the complex functional requirements of the new facilities in a purpose-built form that could both build on the old while optimising the benefits of the site with its riverside location. Services are designed to support Aboriginal people in a holistic way – providing integrated healthcare in one place. The new centre addresses and connects with the river – the Barka – acknowledging the river's spiritual and cultural significance for the local Barkindji community. The buildings and landscape have been designed to create an expression of identity and place that is appropriate and respectful
- The key to this design approach is to include Aboriginal people in decision-making regarding their built environment, from the outset and throughout the project. This self-determination was enabled by a sustained dialogue with the community to create an architecture that respects and sustains cultural practices and pays close attention to the significance and meaning of Country. The project was facilitated by the Wilcannia Community Working Party with representation from community Elders, youth, government agencies and the local land council. The Merrima Aboriginal Design Unit consisted of Aboriginal Architects and designers who were able to contribute cultural expertise and sensitivity as well as architectural and design excellence.

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Kamay Botany Bay National Park, Kurnell Draft Masterplan – Sydney NSW

- Client – Office of Environment and Heritage NSW
- Project team – ARCHITECT Neeson Murcutt Architects Pty Ltd
- LANDSCAPE ARCHITECT Sue Barnsley Design
- INTERPRETATION CONSULTANT Freeman Ryan Design
- COMMUNITY ENGAGEMENT SPECIALIST Context
- This is a highly significant site in Australia
- Located where the endeavour 1770 first made contact with First Nations people.
- Yet, its physical experience is underwhelming and disproportionate to this significance.
- It aims to provide a balanced view that equally recognises Indigenous stories and perspectives alongside the European version of what happened. The foundation of the master plan is respect for all cultures and heritage, for both natural and built environments, and for time past, present and future.
- It also aims to rebalance the perspectives and recognition of Indigenous stories that are currently significantly underplayed and under-acknowledged by comparison due to colonial construct.
- A healing process is also sought after to acknowledge past actions by both colonisation and current governments, bridge cultures, regenerate the landscape and return the voice to the Indigenous people of the area
- The former Office of Environment and Heritage commissioned a community engagement specialist to work with National Parks & Wildlife Services (NPWS) on a community and stakeholder engagement program for the master plan project.
- A Community Reference Panel was also developed prior to starting the masterplan project to provide input into the project brief, the site analysis and the overall masterplan design. The Community Reference Panel included Aboriginal community members, representatives from the offices of state and federal members of parliament, local government and community interest groups. NPWS acknowledges the role of the Aboriginal community in telling its stories at Kamay Botany Bay National Park. It is anticipated that the Aboriginal community will play a key role in the detailed design and delivery of new facilities and educational and interpretation programmes and resources in the national park, including the new exhibition visitor building

Connecting With Country – GANSW

Connecting with Country Draft Framework is a framework for developing connections with Country that can inform the planning, design, and delivery of built environment projects in NSW.

The ambition of Connecting with Country is that everyone who is involved in delivering government projects will adopt the following commitment:

Through our projects, we commit to helping support the health and wellbeing of Country by valuing, respecting, and being guided by Aboriginal people, who know that if we care for Country – it will care for us.

The ambition of the commitment to improving health and wellbeing of Country is to help realise three long-term strategic goals:

- reduce the impacts of natural events such as fire, drought, and flooding through sustainable land and water use practices
- value and respect Aboriginal cultural knowledge with Aboriginal people co-leading design and development of all NSW infrastructure projects
- ensure Country is cared for appropriately and sensitive sites are protected by Aboriginal people having access to their homelands to continue their cultural practices.

Connecting with Country Draft Framework is intended to be the starting point to improve and inform current processes that will help to achieve these goals and to deliver on the Connecting with Country commitments mentioned above. The framework also aims to help both Indigenous and non-Indigenous people – to work collectively and respectfully to transfer knowledge. The framework is set to be tested and piloted over a 12-month period

Connecting with Country is informed largely by the experiences and knowledges of people who are working on, and who are from, Countries in and around the Sydney harbour area.

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Heirisson Island Pedestrian Bridge – IPV Delft

- WSP's Indigenous Specialist Services facilitated a co-design session with the Noongar Reference Group and Dutch bridge designers IPV Delft
- This was required to help the client to consider the potential impact of this development on Noongar Country,
- Also set to establish a cultural context for the project and to understand how local knowledge, stories and Country can help to inform the design of the future pedestrian bridge.
- The Noongar Traditional Owners are powerful people. They each hold knowledge of Country, lore and culture
- This can make operating in this area difficult for clients trying to juggle competing interests.
- With this project it was found that it was beneficial to have an external Indigenous designer as part of the project to ensure that the relationship between the elders, community and the design team landed in a respectful and culturally safe way.
- Therefore, allowing for meaningful conversation and dodging the potential cultural complications or politics that come with any highly engaged community.
- The co-design gatherings resulted in a concept that considered the island from a Noongar perspective.
- It was considered not only how the Country would be impacted but how the bridge might celebrate and honour the importance of the Noongar people, such as Fanny Balbuk, who lived during the early days of the Swan River Colony and is remembered for her resistance to colonial expansion, and Noongar man Yagan, famed for his resistance to British colonial settlement in the early nineteenth century.

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Western Sydney Aerotropolis by Hassell

- Wianamatta is the original name of the cultural landscape on which the Western Sydney Aerotropolis is located.
- As confirmed by Traditional Custodians and Dharug language Knowledge Holders, the name Wianamatta means that this place is a female landscape that is important to women (womens business) – in particular, mothers, the meaning of the name is “the place of the mother creek.”
- The Aerotropolis – a new central business district and industry hub in western Sydney– is being constructed to be the beating heart of Western Parkland City. Plans for the Aerotropolis establish a 100-year-vision for a new city of 34,000 residents and 120,000 new jobs across 11,000 hectares.
- It is an urban design, landscape and public realm framework for a sustainable, liveable and prosperous city.
- Based on this 100-year mindset, the Aerotropolis plan has several key elements:–Country and landscape form a key structuring element. Ridgetops, creeks, streams, remnant vegetation, culture and heritage are retained and enhanced through the blue-green infrastructure framework.
- Country soars high into the atmosphere, deep into the planet’s crust and far into the oceans. Country incorporates both built and natural environments – for instance, all the knowledge and cultural practices associated with land. Indigenous people are part of Country, and our identity is derived in a large way in relation to Country.
- Our belonging, nurturing and reciprocal relationships come through our connection to Country. In this way, Country is vital to our health and wellbeing. (Danièle Hromek, Indigenous design consultant)–Wianamatta/South Creek and its tributaries define the Environment and Recreation Zone of the Aerotropolis.
- Its corridors carry critical environmental, cultural and recreational functions to boost liveability and establish the primary elements of a cool, parkland city. –Jobs and mixed-use intensity are highest around the Sydney Metro–Western Sydney Airport line stations at the Aerotropolis Core and Luddenham. Here, the centres focus amenities on open space and the creek corridors, embedding place at the city’s heart.

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Redfern Community Facility by Aileen Sage Architects

- Despite colonial impacts, the site of the Redfern Community Facility holds heritage values and narratives for Indigenous communities, and maintaining those connections is vital to achieving a sense of place and cultural identity.
- Working collaboratively with Danièle Hromek of Djinjama Indigenous Corporation and building heritage specialists Jean Rice and Noni Boyd of Jean Rice Architect, the approach of this project seeks to celebrate and honour a cultural reading of place that is founded on Indigenous knowledge and ground in Country.
- This approach seeks to design specifically for this place, not only through the materials utilised, but equally through the design strategy, which provides a framework for the current upgrade works as well as any other work in the future.
- While the existing building is a heritage colonial building, it is recognized that it used materials of this Country (local sandstone and bricks).
- These have since been rendered and painted over, but the new additions seek to uncover these original materials, and honour and respectfully build on them.
- Similarly, the additions seek to maximize the use of recycled building materials – bricks, stone and timber reclaimed from nearby demolished sites – as well as locally produced materials, trades and training programs.
- Using the same materials as the existing building but in a contemporary way that respectfully acknowledges and celebrates their origins from this Country, the entry finds a new way of moving into a colonial space through a new, dedicated pathway.
- Blue-tongued skinks, eastern froglets, grey-headed flying foxes and powerful owls once inhabited the Redfern area. The design approach seeks to recognize and honour that more-than-humans belong equally within our cities (eco-centric world view). The striking patterns of the powerful owl's plumage inspire the patterns of the brickwork and paving, and selected materials and textures throughout draw on other references and features of the Sydney Turpentine-Ironbark Forest that previously characterized the area – a habitat and community that is now critically endangered.

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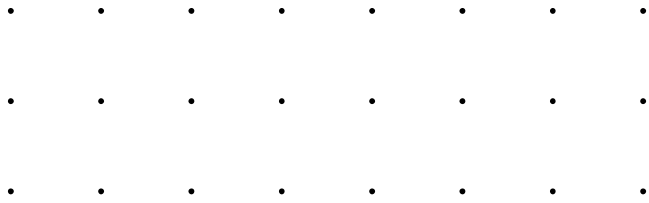
Kimberwalli by BVN

- Kimberwalli, meaning “many stars,” is a new Indigenous Centre of Excellence located on Dharug Country at the previously decommissioned Whalan High School, located in Western Sydney.
- In conceptual terms, the design of the Kimberwalli project was approached through the way Country is seen as a living, omnipresent condition that sustains Indigenous people.
- The project embodies the idea of “designing with Country” through three primary moves that essentially articulate cultural settings for fire, an outdoor room and external connectivity.
- The first move: The campus sits upon a hill that enjoys views of Colomatta (Blue Mountains). This aspect to a culturally significant entity is celebrated through the careful landscape location of the fire pit as a social setting for both formal (smoking ceremonies) and informal (storytelling) events.
- The second move: The existing 1970s brick and concrete school buildings provided no mediating space between inside and outside. The insertion of a two-storey verandah enables a covered, occupiable gathering space and defines a colonnade edge to the landscaped performance space.
- The third move: The existing buildings were a series of introverted spaces linked by internal corridors. These spaces lacked light and a relationship to the outside. Within the two-storey former classrooms building, the removal of half of the first-floor slabs, the opening of the butterfly ridge and the enlarging of ground-floor openings all worked to provide direct connectivity to the outside in terms of both light and view.
- The influence of these moves is in the spatial ambitions that seek to enable experiences of Country. These moves are not symbolic in that they do not rely on art as signifiers of the “other.” The ideas informing these moves are also part of a much larger set of possibilities that continue to develop through the specificity of each architectural project encountered – the nature of the Country the project belongs to – with guidance from people of that Country

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New Student Precinct by Lyons-led consortium

- The New Student Precinct is a 2.5-hectare site on the University of Melbourne's Parkville campus that will transform five existing buildings and add two new buildings, with an overarching urban and landscape design stitching the development together.
- A signature project for the university's RAP, it is backed by a deeply immersive engagement strategy that maps to the university's reconciliation agenda.
- Through a carefully calibrated engagement piece with four Traditional Owner groups over the course of 18 months, the requisite permissions were given to tell their stories in particular ways
- In addition to this, engagement with Indigenous staff, leaders and students of the university provided valuable feedback and insights from a range of voices representing more than 45 Indigenous language groups.
- The methodology employed by Greenaway Architects and Greenshoot Consulting was captured to embed authentic expressions of Country, culture and connections – exploring the designing with country applications
- The purpose of this culturally respectful process was to foreground Indigenous agency to weave through a cultural narrative connected to University of Melbourne.
- The project was led by one of Australia's handful of Indigenous-owned and -led architectural practices, the process carved out the requisite time and space to engage in meaningful ways and to infuse a cultural sensitivity that was embraced and amplified by the whole design team,
- This then provided both depth of meaning and design inspiration to the concept.
- As a result of this process, the “river of no sound” – which is a metaphor for the erasure of culture experienced in many places across our country, including the dramatic disturbance and manipulation of the landscape to conceal the stories and echoes of Country – is no more. Instead, a powerful water story has been brought to light, and will be fully revealed and experienced as this transformative project is further unveiled.



18th October 2022

