

Port Cities

A Review On The Restoration Plan of The Barangaroo Reserve Area

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Abstract | A city shape reflects historical interaction between human and his natural environment, and human perception of this natural context is urban landscape. In this view, study of historical and natural layers of landscape and human impacts on them, gives us the opportunity to understand and represent landscape in a more developed way. Sydney, in Australia is one of the remarkable examples of seaside cities. Influenced by the historical interaction between Sydney and Tasman Sea, the Barangaroo reserve restoration plan is a subset of human's relationship with nature and includes restoring promontory's natural shape in pre-industrial era in a symbolic way. The measures taken in this regard consist of rewriting the historical characteristics of the site in objective way, including morphological features of the natural context, and in subjective way such as the restoration of the local culture. Although the industrial background of the Barangaroo promontory plays a key role for its evolution from a natural edge belonging to the native Australian tribes to an industrial edge at 21st century, it should be noted that the purpose of urban landscape is to democratize public areas based on the dynamic essence of landscape. If urban landscape required by the Sydneysiders would be a space for linking city to nature far from its industrial harbors, shedding industrial maritime heritage will be acceptable, in favour of naturalistic approach of the landscape architect, Peter Walker. This historical return to pre-industrial morphology reconnects citizens and nature and also leads to connection of the city to a natural edge instead of continuous urban industrial context. with provided natural conditions, such as indigenous planting and morphological recreation in the form of sandstone blocks and reviving naturalistic native culture, Sydney's identity, in addition to being a harbor and industrial city, will be upgraded to the connection of nature and industry, concrete and sandstone, native and modern culture, and at last society and history through naturalistic landscape.

Keywords | Naturalistic Landscape, Restoration, Peter Walker, Barangaroo Reserve, Natural Morphology.

Introduction | Development of cities and their bilateral interactions with nature during different eras of human history, have shaped various peripheral edges and spaces and have affected the shape of cities. port cities reflect the evolution process of man's interaction with nature. Prior to the Industrial Revolution, natural features and surroundings affected the cities' structure and texture, and in many cases, natural potentials have contributed to formation and development of cities. With the beginning of industrialization, the natural morphology of cities and their surroundings are influenced by industrial factors. in the field of landscape design, as a reflection of human's perception of nature aesthetics, varied approaches are adopted. Barangaroo's original headland has evolved from an important fishing and hunting area belonging to the six thousand years old civilization of Cadigal's aboriginal people to a hub for Sydney's shipping industry (Pic. 2). During the latter half of the 19th century, with the development of merchant ships and the inability of the site to accommodate modern ships, harbor facilities were focused elsewhere. The result was an abandoned industrial site that disrupted the relation between the city and coastline. In 2010, after holding a competition by the government of New South Wales, the project employer, designing and building was started by American landscape architect, "Peter Walker1" and ended with its inauguration in 2016. By considering the disappeared and neglected historical track of the Sydney

waterfront, Peter Walker adopted a naturalistic approach. An approach by which industry was abandoned in favor of man and nature interaction, and formed a symbolic translation of the Sydney's historical nature. Although the approach adopted initially confronted some criticisms associated with fading-out the industrial layers, but public acclaim reveals the project's popularity among Sydney siders.

This article first addresses human perception of nature aesthetic during post-industrial era, and after comparing landscape architect's different approaches based on Authenticating nature's essence in opposition to human activities, specifies Peter Walker's naturalistic approach in restoration plan of Barangaroo reserve as a historical place for juxtaposition of man and nature in Sydney. Then, examines measures taken in assortment of morphological recreation and reviving forgotten aboriginal culture.

One problem and multiple approaches

In Western countries, with emergence of post-industrial era, many industrial sites, particularly those located on the shores of rivers and seas, became inoperative and turned into abandoned lands. For restoring and reviving these lands, various and sometimes contradictory approaches have been adopted which, various intellectual and theoretical trends have effected them.

Nowadays human interaction with nature and his perception of nature aesthetic play a significant role in urban landscape



Pic 1: A preindustrial site returns to its natural morphology and more sustainable past.

Source: <http://www.arquitectes.cat>.



Pic 2: A painted lithograph of 1823, naturalistic lifestyle of indigenous people and location of Barangaroo headland among constellation of Sydney's naturalistic headlands.
Source: Gwenet Leigh, ASLA.

quality and confrontation of industry and nature. On this matter, there is a varied range of opinions, which includes authenticating the natural essence of nature as a subject in a mental-conceptual point of view and authenticating human action as an object in a scientific-cognitive perspective (Table 1).

The naturalistic approaches of landscape architects like Olmsted includes creating natural spaces in middle of cites. They believed in preserving unique natural characteristics entitled "the Genuine of place".

"restoration" could be considered equivalent to naturalistic approach in post-industrial sites, which includes restoring the natural conditions of post-industrial sites in pre-industrial era. In this case, all physical features, including natural elements, topography and planting belonging to a certain period of site's history, are carefully restored and all traces associated with other times, especially industrial era are removed.

On the other hand, landscape architects such as Peter Latz believe in a Structuralism and paying equal and simultaneous attention to nature and man without discrimination. In this approach natural elements have no priority over the constructed forms and both are kept together. This approach as a way of reviving pre-industrial sites is called "reclamation".

In between Olmsted and Latz theories designers such as Ian McHarg describe urban landscape as human and nature integration which defines its natural aesthetic. In this view, city's natural context as a result of geological evolution shapes city's natural identity and city is a result of a series of continuous adaptations to nature. In this definition, urban landscape is composed of "natural elements" and "artificial elements". The relationship between these two, signifies its dynamic essence and defines the natural aesthetics through the lens of culture.

Due to its natural and historical features, Barangaroo reserve could respond to naturalistic needs of citizens and reunite

them with nature at Sydney's previously natural edge. The Barangaroo reserve landscape is among integrated landscape approaches, where signs of the industrial era, provide a structural deck for restoring Sydney's disappearing natural and historical morphology and in a functional and symbolic way (Pic. 1).

Accordingly, the Barangaroo restoration plan, restores the relationship between the natural archipelago and headlands of the Sydney Harbor and reflects the importance of naturalistic aboriginal culture before the arrival of Europeans. The public domain of Barangaroo, provides a wide variety of public activities and facilities, such as natural paths and interactive entertainment such as picnics and festivals, concerts and special events for the New Year which are integrated by recreational foreshore. In addition to recreational water activities, restoring the disrupted physical connection between the city and coastline has been considered as a part of the naturalistic approach (<http://www.pwpla.com/barangaroo/barangaroo-reserve>).

Peter Walker's naturalistic approach in Barangaroo's restoration plan

The beginning of public concerns about uncontrolled industrialization in Sydney and its neglected waterfronts including Barangaroo reserve is associated with former Prime Minister "Paul Keating" political campaign. "Keating" has been aware of colonial period negative impact on destroying aboriginal traditions, He emphasized the importance of natural potentials and believed that "for a city of five million people, to be able to recover that natural intimacy, which no other great city has, is a thing to do." In addition to restoring the natural features of the site, Keating insisted on the importance of Barangaroo's headland in connecting urban fabric to shoreline and increasing social interactions. Due to the historical relationship between people and nature at headland, native culture was also of his concerns (Leigh, 2016).

Table 1: nature Aesthetics and its compatibility with landscape approaches. Source: Author, 2017.

model	theory	Landscape approach
The conceptual-cognitive model Berleant, Dewey	Based on intrinsic beauty of nature and ignoring the role of man	Olmsted's Naturalistic theory "the Genuine of place" "restoration" approach in pre-industrial sites Taking measures to restore the natural essence of place
environmental aesthetic model Gobster, Nassauer, Thayer	Emphasizing the mutual relationship between man and nature through integrated beauty of nature, comprehending nature beauty through the lens of culture	Ian McHarg and Peter Walker integrated approach including authentication of nature through human relationship with it
The nonconceptual-imaginative Carlson, Rolston, Saito, Eaton	Scientific understanding of nature and ecosystems, with emphasising human presence in shaping landscape aesthetic aspects	Peter latz "reclamation" approach Including preservation of all layers associated with human activity as a part of nature beauty

When we build cities in beautiful and remarkable places, their advantages are often a result of maintaining, utilizing and improving those features rather than destroying them. Utilizing these features properly could be considered benefiting from inherent qualities across the whole place. In this case human's exploitation as a conscious compatibility will improve these inherent qualities (McHarg, 2007: 175). Fully understanding of what relationship the Australasian aboriginals had with nature in the past - and lost - needed a symbolic landscape intervention. So Walker began recreating the natural form of the promontory with a naturalistic approach. According to Peter Walker naturalistic is a term that does not describe nature, but explains the nature's essence. In this view, instead of copying, the nature is recreated in a symbolic way (www.architectureau.com).

Analysis of the Barangaroo's promontory restoration project

The goal of restoration strategies should be a combination of redefining features in ecological, aesthetic and cultural terms by multifaceted management in a manageable, continuous and dynamic form (Naveh, 1998). According to Peter Walker's naturalistic approach, design strategies were chosen based on restoration of pre-industrial morphology and reunite city with nature. Nowadays, to meet the challenges of the post-industrial era, it is accepted that ecological restoration should be ruled out of one-dimensional disciplines, and upgraded from an interdisciplinary subject to a transdisciplinary one. In other words, integrating natural science, humanities, and the arts with close coordination and participation can make the coexisting of society and nature possible during the post-industrial era, and assures better development of natural and cultural landscape, (Ibid). In general, measures taken in line with the Walker's naturalistic approach can be followed in two branches of geographically (natural) rewriting and cultural (indigenous) rewriting:

Geographical (natural) Rewriting

According to Peter Walker's approach in representing

the nature and its flow and process at the beach rather than duplicating nature, at first glance the product is not reminiscent of the pristine nature of the region which in the works of Olmsted, Gilles Clément, George Hargreavs and other naturalistic landscape architects could be found. It is a new interpretation and recreation of historical relationship between man and nature along Sydney shoreline. In Peter Walker's design, some components play a key role in the representation:

- Tessellated pavement:

In order to emulate the previous form of the headland in addition to unite coastline and city through the site, the design team began to create a tiered structure which maintains the connection, and meanwhile provides its structural stability from the existing industrial structure. Therefore, by creating a series of precast concrete hollow terraces, the site was heightened about 18 meters above its original level (Leigh, 2016). At the edge of this tessellated structure, is the shoreline constituted of large sandstone blocks which connects the downhill tidal area to water and provides the opportunity for people to join the tidal ponds and rocky shores (Pic. 3).

- Sandstone Blocks:

Form and process are two inseparable aspects of a single phenomenon and what is seen is considered as an important aspect of what it really is. If we consider the beauty as means to truly displaying the actual essence of everything, the use of existing stones on the site can also be an expression of beauty with natural origin while human intervention. Sandstone blocks, of which foreshore constituted, are directly derived from the lower part of the site which contains 48,000 square yards of sandstone. Components have been distinguished by a large variety of specific symptoms, such as pure iron streaks, prehistoric shells, and other unknown stone fossils (<http://www.pwpla.com/barangaroo/barangaroo-reserve>).

-Restoration of the city and shoreline connection:



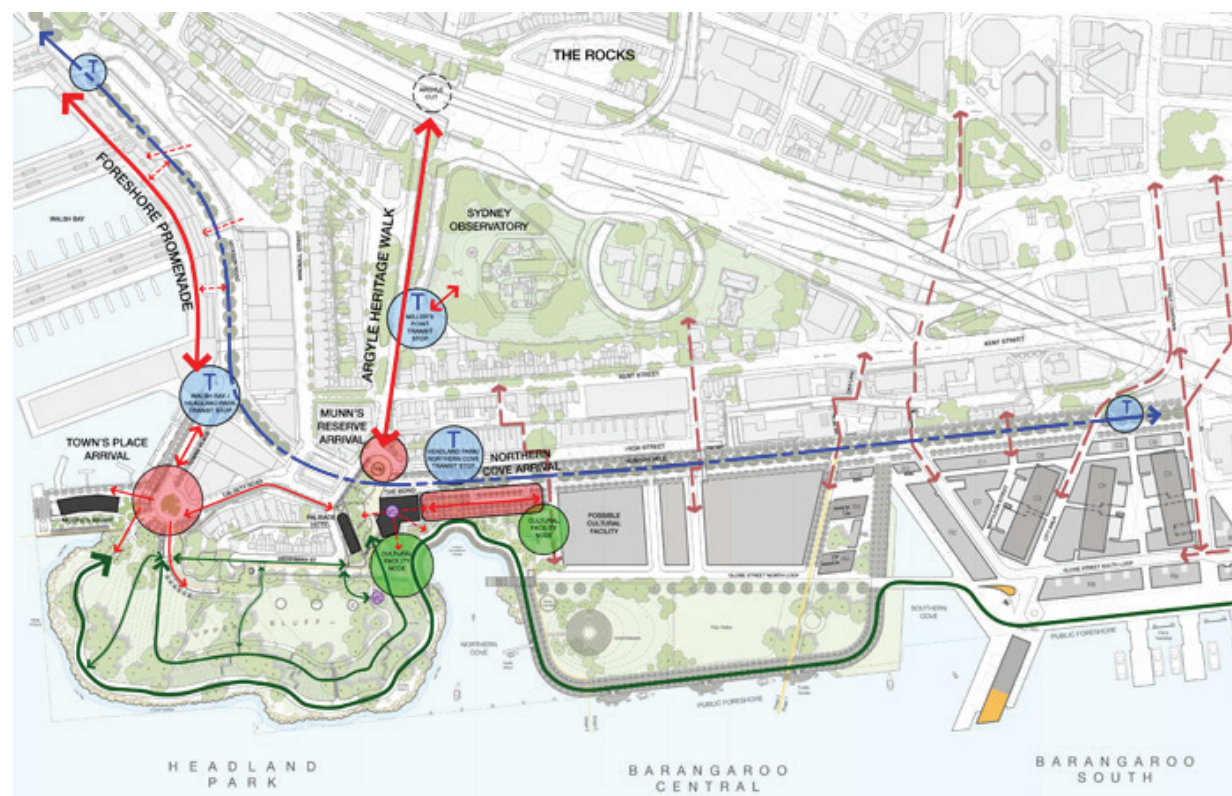
Pic 3: Excavated sandstone blocks recreate land form, along with providing the opportunity of engaging people with the natural edge. Source: <http://www.arquitectes.cat>.



Pic 4: Project adjacency to high rise building in city center highlights its role as a natural refuge on the edge of industrial Sydney. Source: <http://www.arquitectes.cat>.



Pic 5: The wall in 1836 separating pedestrian and bicycle pathway along with defining shoreline in the beginning of industrial domination era. Source: <http://www.arquitectes.cat>.



Pic 6: Using the cutaway caused by excavating sandstone blocks as an art center. Source: <http://www.arquitectes.cat>.

Barangaroo reserve gathers all parts of Sydney together: East, West, North and South. Especially continuous foreshore repairs the missing east-west connection within the city (Pic. 9). Regain access of upstream urban texture to the waterfront has been gradually possible in three steps: 1- entries with square spaces which have also applications as urban plaza. 2- park-promontory by which the urban network extension and restored landscape of the beach's edge are merged. 3- foreshore that provides opportunities for direct connection between the site and the coastline and recreates its historical position as the first neighborhood of the Sydney (Pics. 4 & 8); (<http://www.pwpla.com/barangaroo/barangaroo-reserve>).

- Indigenous planting:

“Many factors can enhance the sense of a space being inspired by nature, one being the vegetation. At Barangaroo, the vegetation is a fairly genuine representation of the genera, species and forms of the Sydney local sandstone landscape. Vegetation plan in Barangaroo reseve includes more than 75000 native trees and shrubs” (Leigh, 2016).

-Resorting to symbolic historical references:
across different parts of the site historical references have blended with natural processes. An examples of such approach can be seen at historical wall of 1836, representing the coastline at that date and separating the walking and cycling paths from each other (<http://www.pwpla.com/barangaroo/barangaroo-reserve>); (Pic. 5). Another example is the remnants industrial maritime heritage which are



Pic 7: Barangaroo headland location among constellation of Sydney's naturalistic headlands. Source: <http://www.pwpla.com/>.



Pic 8: Pedestrian routes connecting Barangaroo reserve to Sydney city center. Source: <http://www.pwpla.com/>.

considered as industrial heritage and are discovered while walking on the edges.

Cultural (Aboriginal) Rewriting

In the 1990s, indigenous person's yearly income was half the national average, infant mortality was three times higher, and jails had 29 times more Aborigines than non-Aborigines in custody (Leigh, 2016). Given the role of landscape in social development of urban life and in line with the expansion of human-nature interaction and aesthetic attitude to it through the lens of culture, one of the design goals of Barangaroo complex was to revitalize the native culture.

Using the modern technology, a unique indigenous cultural experience in the form of five videos to introduce the world's oldest living culture to the visitors is used, that can be displayed on intelligent electronic devices such as mobile phones, at the site location. These five inspiring films have been produced by the five engravings found on the sandstone walls of Barangaroo (<http://www.barangaroo.com/discover-barangaroo/arts-and-culture/barangaroo-ngangamay.aspx>). Among other measures taken to revive

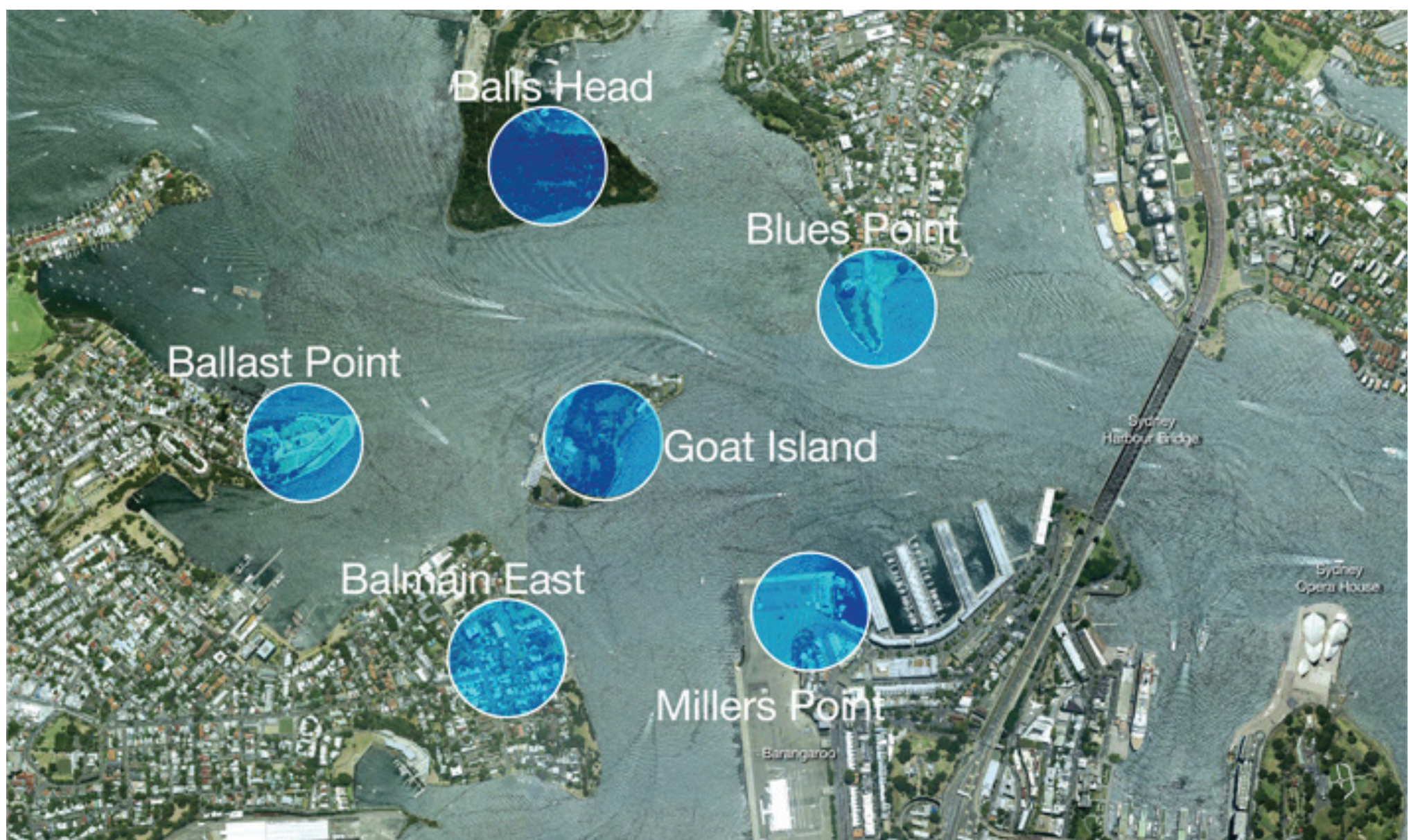
indigenous culture, is naming the site space with indigenous ones such as the native names of plants, fish, seabirds and hiring and trade practices among the natives.

By using site's land to emulate the headland's former morphology and to extract sandstone pieces required to construct the tessellated part, hollow space of approximately 490,000 square yards and walls of 60 feet height are created around the rocky surface of the wharf which was used as Art Center (Pic. 6); (Leigh, 2016).

- Project evaluation:

As mentioned above, Peter Walker's naturalistic approach in the design of Barangaroo reserve is among environmental aesthetics model based on comprehending landscape through human interaction with nature and cultural characteristics. The following table contains

evaluating Barangaroo project measures with the standards of environmental aesthetics outlined by Thayer. Thayer believes that new aesthetic principles should include a wide range of persistent cultural aspects according to landscape ecology. He enumerates five levels of landscape aesthetics as a framework of visual ecology. The first level is associated with direct perceptual dimensions of landscape experience such as color, line, form, scale, rhythm, and harmony; the second level refers to the aesthetic of origins or uses of landscape's objects or spaces; the third level creates emotional response; the fourth level addresses the importance of summarized or symbolic expressions of environmental value and the fifth level is a combination of previous levels which finally encourages us to behave in a special and predetermined manner (Porteous, 2010: 67).



Pic 9: Connection of Barangaroo pedestrian shoreline pathway to main pathway. Source: <http://www.pwpla.com/>.

Conclusion | For restoring Barangaroo reserve based on a naturalistic approach, Peter Walker began pursuing natural flows of Sydney shoreline and representing natural features with a modern instruction and in accordance with sydneyiders cultural needs. His proceedings include shedding industrial heritage and highlighting natural layer which was previously concealed by industry. This approach represents superiority of nature over industry which is needed by developing city of Sydney. This approach creates

a type of landscape in which industry is an infrastructure for nature and in favor of human interaction with nature, rather than pluralistic and anthropocentric approaches like that of Latz, or extreme bias toward pristine nature like that of Olmsted. Peter Walker aim is to reinvestigate and reorganize the functional, aesthetical, and identical dimensions of the site through highlighting the natural character in a symbolic way. Reuniting people with nature and reviving the aboriginal naturalistic culture, justify this approach to a large extent.

Table 2: Evaluation of landscape design of the protected complex of Barangaroo according to criteria outlined by Thayer in the context of ecological landscape aesthetics. Source: Author, 2017.

	Concrete or presentational	Associative or representational	The emotive or affective	The rational or symbolic	The behavioral Or activating
Tiered Structure	*	*			
Sandstone Blocks	*				
restoration of city connection		*			*
Indigenous planting	*			*	
historical references	*		*	*	
Introducing indigenous culture					*
Art center		*			*
native names				*	

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