

Landscape Design Approach in Heritage Context

Case study: Emmahaven Port Coal Storage Facilities Sawahlunto City, West Sumatra

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Abstract

Sawahlunto City was a famous Coal Mining City in West Sumatra dates back from the Dutch colonial period. However, The sharp decline of its mining productivity in 2000 posed a threat to the sustainability of city life. To overcome this problem, the Government changed the direction of the development of once a dominant mining city to become a tourism city, as stated in the city's vision on the Regional Regulation "Sawahlunto Becomes coal Mining heritage Tourism City by 2020 ". To get world recognition of its potential, the city of Sawahlunto is registered to UNESCO's world heritage city tentative list in 2015, and continued the process for final heritage list. As the part of that process, This research is dealing with how to transform the existing landscape area of the Emmahaven Port coal storage facilities as a part of an important heritage area in Sawahlunto, by applying the Outstanding Universal Value (O.U.V) of the area within its landscape design. The OUV in the form of tangible and intangible values are applied to create the place character of the industrial atmosphere by material selection, creating visual integrity and spatial character by using the Silo and the coal transportation catwalk supporting structures as points of interest, as well as providing facilities to promote cultural and social interaction.

Keywords: *world heritage list, UNESCO, outstanding universal value, Kota Pusaka Sawahlunto, sense of place, place character, landscape design form and space, infill design in heritage context*

INTRODUCTION

Sawahlunto City is geographically located in West Sumatra Province. The city is famous as the City of Heritage, this is because the city of Sawahlunto is considered to have many historical relics when Indonesia was still colonized by the Dutch. History of Sawahlunto City could be occupied by the Dutch colonizers because the city was rich in natural resources in the form of coal which could be used as vehicle fuel or industrial needs at that time. So that Sawahlunto City became one of the oldest coal mining cities in the Southeast Asian region,

which was built by the Dutch East Indies Colonial Government since the end of the 19th century (source: <https://portal.sawahluntokota.go.id/sejarah-kota-sawahlunto/>, akses pada tanggal 7/8/2019).

The city government and the DPRD along with the Stakeholders make the mining values that have become the long history of Sawahlunto City a vision in regional regulations. This is stated in Regional Regulation No. 2 of 2001 which reads "Sawahlunto City in 2020 Becomes Cultured Mining Tourism City". Of course, if cultural and historical values are included in regional regulations, it will become a strategic direction for the development of Sawahlunto City

Location of the Heritage City of Sawahlunto

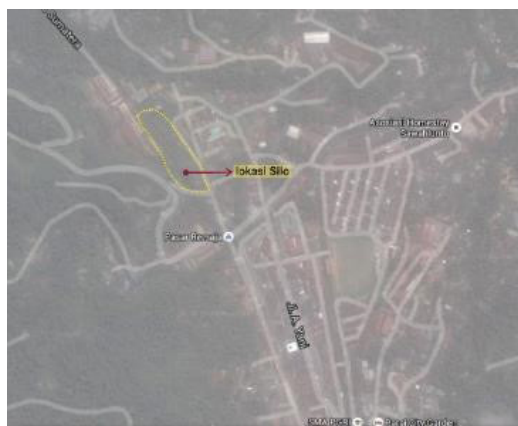
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City itself is in an area surrounded by hills

Figure 1. Map of Sawahlunto



Figure 2 . Satellite view of the site and neighbor area



The location of the site used to be a relic of mining carried out by the Dutch with native workers. There are mine relics in the form of Silos, Gudang Bengkel Utama, and rails for coal-transporting railway lines. This location will be used as a research location that aims to develop the region

Since this area has a high historical and cultural value, the Area Development is carried out by considering the Heritage Impact of development by UNESCO, and considering the region's Outstanding Universal Value (O.U.V).

GOAL

Design areas that have high cultural value must be developed with the appropriate approach. City of Heritage Sawahlunto City has these values and has been made a strategic plan in the City Government. For this reason, the

research objective is to formulating a design guidelines, for developing a concept design of the area that maintaining yet strengthen the sense of place character in landscape context that aims to bring up the original values which in line with the Sawahlunto OUV's.

RESEARCH METHOD

Following the Outstanding Universal Value of Sawahlunto which find both in the form of physical elements (Tangible) and non-physical elements (Intangible), The process to find landscape design approach is done by a qualitative method, using a descriptive analysis approach, so in conducting this research field data and references is needed to analyze the area.

The implementation of this research is by studying the design strategies in heritage context provided by NSW heritage office, as well as theories and principles of space design in landscape. The next phase is identify the existing elements that holds up the spatial character in the region's and reflects its Outstanding Universal Value (O.U.V). The theoretical framework and existing condition then summarized and categorized to formulate a design guideline for conceptual development and implementation.

THEORITICAL FRAMEWORK

Outstanding Universal Values in Heritage context

In recent years the UNESCO World Heritage Committee has addressed considerable numbers of State of Conservation Reports related to threats to World Heritage properties from various forms of large-scale development. These developments include roads, bridges, tall buildings, "box" buildings (e.g. malls), inappropriate, acontextual or insensitive developments, renewals, demolitions and new infrastructure typologies like wind farms, as well as land-use policy changes and large scale urban frameworks (ICOMOS,2011).

The World Heritage Convention, for the protection of World's Cultural & Natural Heritage, which came into being in 1972, recognises properties of 'Outstanding Universal Value' which are part of the "world heritage of

mankind as a whole” and deserve “protection and transmission to future generations”. Such properties are recognised through inscription on the World Heritage list by the World Heritage Committee, which consists of representatives from 21 States Parties (ICOMOS,2011).

The term OUV was defined as “cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity” (UNESCO, 2005a). ICOMOS (ICOMOS, 2008) has complemented the definition of OUV, with an individual definition of its two main terms. Outstanding “means that in comparison with the generally documented cultural heritage, they belong to the very best or are ‘representative’ of the best”. Universal “means that these outstanding values can be acknowledged as such in general and worldwide” (ICOMOS, 2008).

The shift paradigm of Heritage categories has brought the new categories of Heritage list, which is the industrial heritage. As explained by Fraser, The Industrial Revolution profoundly modified landscapes and life styles. The massive means employed to extract raw materials and exploit the minerals and agricultural products resulted in great achievements and grandiose constructions, testifying to the creative genius of humankind. Rapid technological advances and the striping of certain deposits have rendered most industrial sites obsolete. To save them from abandonment or destruction, a number of mines, factories, forges and manufactures have been inscribed on the World Heritage List (Falser, 2001).

Design in heritage context

Global cultural heritage approach has changed from uniformity implicit activities of modernist organizations, challenged by cultural relativists (Logan, 2010, in World Heritage and Cultural Diversity) As an example, The Venice Charter, not a universal way to act in the term of heritage conservation, but become a supplemented by alternatives and modifications to other guide such as the Nara Document and Burra Charter (Logan, 2010, in World Heritage and Cultural Diversity).

Design in a historic context or infill design not merely preserve situation as it is, but give a character of place by respect to the old

character within new look, and meet the needs of amenity of its users (NSW HERITAGE OFFICE. 2005).

The Burra Charter provides guidance for the conservation and management of places of cultural significance (cultural heritage places), and is based on the knowledge and experience of Australia ICOMOS members (NSW HERITAGE OFFICE. 2005). The ICOMOS itself act as the technical committee for UNESCO.

Places of cultural significance enrich people’s lives, often providing a deep and inspirational sense of connection to community and landscape, to the past and to lived experiences. These places of cultural significance must be conserved for present and future generations in accordance with the principle of inter-generational equity. The Burra Charter advocates a cautious approach to change: do as much as necessary to care for the place and to make it useable, but otherwise change it as little as possible so that its cultural significance is retained (Australia ICOMOS, 2013).

Guided from Burra Charter, the Heritage Council of NSW and the Royal Australian Institute of Architects NSW Chapter tries to provide appropriate solution to the design of new buildings to fill gaps in an existing historic context. This coincides with growing awareness of the value of our heritage to the community and our built environment. It is for this reason that the Royal Australian Institute of Architects NSW Chapter and the Heritage Office have revised Infill: Guidelines for the Design of Infill Buildings, originally produced in partnership in 1988 (NSW HERITAGE OFFICE. 2005).

According to this guidelines, To achieve a successful infill design, new development must be appropriate under the following design criteria: 01. character; 02. scale; 03. form; 04. siting; 05. materials and colour; and 06. detailing.

Below is the explanation quoted from Guidelines for the Design of Infill Buildings, the Royal Australian Institute of Architects NSW Chapter and the Heritage Office:

Character

Design needs to retain important shapes that characterized the heritage historic context, to the sense of place. Some examples of

contributing factors to the character described in the guideline, such as: “the underlying natural landform; distinctive landscape elements; the date and style of the buildings; the scale and form of the buildings; street and subdivision patterns; setbacks of the buildings; materials, building techniques and details; and views, vistas and skylines”.

Scale

To retain the character of the place, design needs to respond sympathetically to the pattern of arrangements of the context. Design needs to recognize the predominant scale such as between buildings and its landscape and with the nearby buildings within the area.

Form

The building form (shape and volume) needs to respond sympathetically with its neighborhood buildings, in order to keep it relates with the place context.

Sitting

Design needs to respond sympathetically with the pattern of setback, and enhance the quality of streetscape’s character by conforming the existing front and side, and the complementary treatment of street edges.

Material and colour

Design should recognise the character of local materials, colours, and textures as a point of reference, and apply them not necessarily copy, but in a way to create harmonious with its context, where modern building also possible to apply as unifying tonal contrast.

Detailing

Design needs to be inspired by details found in the heritage context, where modern design and new interpretation can be introduced, to have positive contribution to the visual interest and the character of place.

We can conclude that place character brings main consideration in order to maintain the cultural significance. Connection to the community and its context landscape, and to past and lived experience needs to be realized in physical form of places, therefore the guidelines for infill design new development suggest the considerations to embrace in many ways the key design criteria, to keep the character of place be conserved. Some aspects need to be considered within the design approach which

are the scale and form; street and subdivision patterns; setbacks of the buildings; materials, building techniques and details; and views, vistas and skylines.

Place character in the elements of Landscape Architecture design

Landscape elements and sense of place

Landscape plays a significant role to bring the sense of place, correlated to the place character to be sensed by people. As Tilley (1994) stated: “precisely because locales and their landscapes are drawn on in the day-to-day lives and encounters of individuals they possess powers. The spirit of a place may be held to reside in a landscape” (Tilley, 1994). The meaning and understanding of sense of place concluded by Lewis Mumford, J.B. Jackson, Roger Trancik and Amos Rapoport as remain important figures in practice and education nationally emerges as a wide-ranging scholar of the processes describing the place identity within the landscape in the cultural setting (Lewis, 1961).

Regarding the important role of cultural landscape in building the sense of place, Patricia M. O’Donnell suggested that our urban cultural landscape is a shared heritage resource. The urban landscape is one of the strongest communicators of the character of a village, town or city. This inherited urban landscape expresses both tangible and intangible values (O’Donnell, 2008).

Physical factors in space can form the character of place. Nik Mastura Nik Mohammad suggested that Cultural landscape has developed system of orientation that facilitates a clear environmental image and concept of “identification” and “character”. The strong combination of visual, physical and spiritual dimensions of the place contribute tremendously in creating the Sense of Place (Mohammad, Nik et al, 2013). According to Edward Relph, Physical Factors can form a Place character, with elements such as material, form, texture and color and they define character of environment (Relph, 1976).

The importance of gathering places and landmark in relation with how people perceived a place also suggest by Rasoul Rafat. He suggest that Character of place as the general atmosphere of the place can increase place

attachment which is defined as an emotional bond between place and people and causes vitality, involvement, safety and sense of responsibility. Thus, a space can be turned into a place of with a higher quality by reviving its character (Rafat, 2017).

Place character and Point, focal point and Foci

Simon Bell suggest that "In order to make sense of our surroundings we need to be able to separate each constituent part and then to identify it and to relate it back to the whole scene". Dividing the landscape into four basic elements, he suggested that "a point, as one of the very first elements to simplify the pattern, has no dimension but marks a position in space". Therefore, "it can be indicated by some secondary means such as crossed or focusing lines or a point of light" (Bell, 2004). In the design reality, dimensions are needed to make attention to the point, which can be a small or distant objects in landscape (Bell, 2004).

The importance of point to create a place also argues by Bernard Stephen, et al. He suggest that "Focal points are created on the basis of their special position or their special character within the context. every special point, every intervention is intelligible only in connection with the spatial conditions" (Stephen, et al, 2013). He continous suggested that "the fact people look for connections all the time, categorize phenomena, relate them to each other is important for focal points as well: focal points identify special, extraordinary areas within a certain spatial context" (Stephen, et al, 2013). Furthermore, he suggest that "In comparison to space, as an independent (if need be self-sufficient) phenomenon, focal points cannot be understood out of context. Their effect, their character, their fate is inseparably linked with the spatial peculiarities that surround them" (Stephen, et al, 2013).

Figure 3. Relation between space and point



Similar to that, Catherine Dee use the terminology of 'foci' as a collective term used to describe focal forms and places in the landscape. The definition here includes landmarks but is not limited to referring to these. Foci describes both forms and places in the landscape that attract people or are visually dominant and distinctive – differentiated from their context. Foci play a significant role in human use and experience of landscape. As the definitions of the term suggest, foci mark places of cultural significance, help people to orient themselves and attract people as places of differentiation (Dee, 2001).

We can conclude that cultural landscape brings identification and character, and contributing to create a sense of place. Furthermore, Point, as a basic element of landscape design element also plays an important role to related with the place people perceived. People tend to relate their experience with the focal point, yet to create foci as a whole of form and space. This configuration within design will lead to the character of space and be recognize as the character of place.

RESULT AND DISCUSSION

From the results of direct observations in the City of Heritage Sawahlunto City, the area includes for many activities such as the economy to performances. Development that has been carried out in the area, namely:

- Tent
- Toilet
- Chess plaza
- Foodcourt
- Stage
- Halte
- Wall Climbing

However, these development consider as "not met" with the values of Sawahlunto and not presenting the Place character.

(Figure 4)

Figure 4. Existing Siteplan

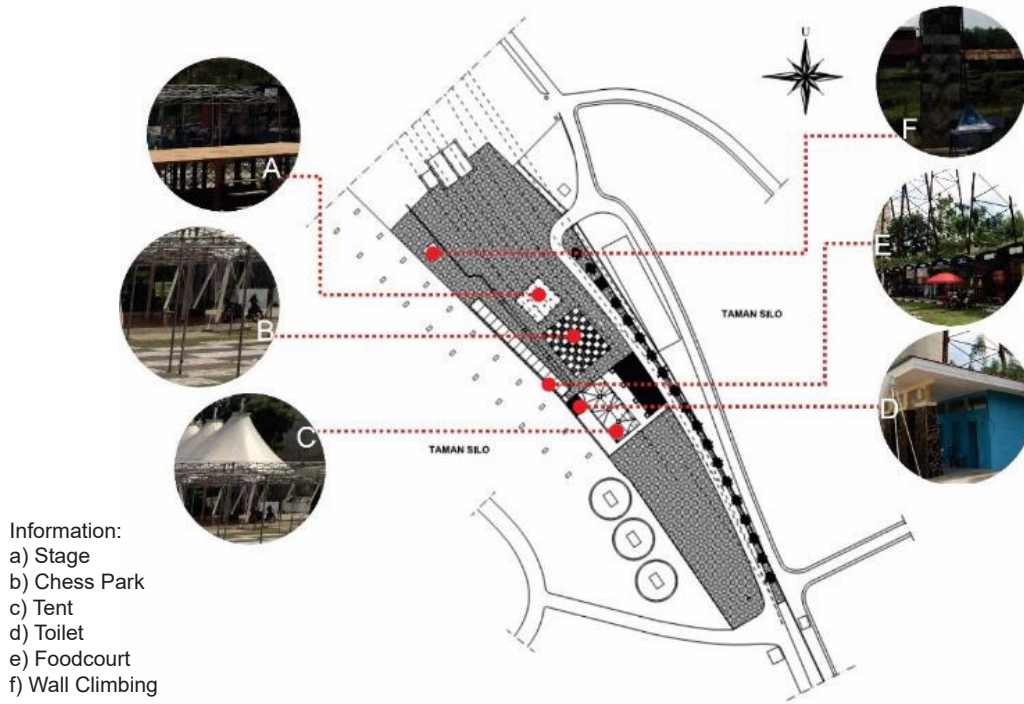


Figure 5. Aerial view of Existing



Figure 6. View around the area



Existing historical elements

According to the documentation and inventory of the Heritage priority area of Sawahlunto, some existing objects categorized to be historic and have related with the Value of Sawahlunto as The city of Coal Mining industry, such as Silo and its surrounding structures, the sizing plant and the old building of “zeefhuis / Ombilin coal storage facility (Pemerintah Kota Sawahlunto, 2012).

Figure 7. View of historic elements around the site. Top left: sizing plant, Top right: Zeehuis, use as firefighter and tourism office, bottom left: Silo, Bottom right: catwalk structures



Design area itself was the railtracks of coal transportation. But due to the recent development, the existing railways is buried beneath the ground.

Figure 8. Old view (left) vs existing view(right)



Outstanding Universal Value and place significance

The prominent character of mining city and its heritage is reflecting the Outstanding values of Sawahlunto. From the Regulation for Action Plan of Sawahlunto heritage city (Rencana Aksi Penataan Kota Pusaka Sawahlunto) , some points are concluded as follow:

1. General Characteristics of Sawahlunto as a successful mining city to penetrate into all aspects. Railroad tracks, processing plants, office buildings, until the emergence of a new culture. The new culture resulted from the attraction of the mine which resulted in the arrival of workers from outside the area and outside the island. As a result there is a mixing of cultures which one of them produces a new language that is the creole language (Tangsi language)
2. Tangible (physical) elements in and around the site design boundaries that are considered to have significance to the Sawahlunto value are:
 - Mining rails
 - Silos, catwalk structure and sizzling plants
 - Firefighter and Tourism office building
3. The intangible (non-physical) element that is of significant value is: the intermingling process between ethnic groups, which gives birth to new cultures. It presented the existing situation character of gathered and socialized of people.

Formulating the Design Guidelines

To get a design that is contextual to the concept of a heritage city, design guidelines are needed in determining the direction of design. Design guidelines cover various aspects of design. These aspects are: material, basic activity, and

design orientation to the important points to create focal point in foci.

Material alignment is considered necessary so that the new design has a connection with the surrounding cultural heritage buildings. As previously explained, materials such as gravel, dark gray concrete stamp, light gray concrete stamp, wood motif concrete stamp, grass block, paving, split stone and unpolish ceramics are materials that characterize the building area relics of the colonial era.

So it is important to make a material that is in line with the surrounding environment. The use of materials that are in harmony with the surrounding environment will make the presence of the new design that not distract from the building of cultural heritage.

Basic Activity is one important point in design considerations. The things contained in it have a direct influence on the design so that the design is expected to meet the concept of an environmentally friendly park and brings the intangible value of socialization between people on cultural events. Basic activity can be a link between concept and design. Based on the value to maintain, Basic activity for this region, such as:

- Mining tourism education park zone in the form of Bajamba (culinary tourism area)
- Plaza zone in the form of Sitimbago Station and information center (supporting area).
- Cultural and cultural performance zones found in Plataran Siguntu and Galanggang.

These basic activities will later be used as a link between design and heritage buildings. For this reason, the points of this basic activity will be placed in the area of the site that can expose heritage buildings well.

Orientation becomes the last important element that is taken into consideration in preparing the design guidelines. In this filter area, it has been previously established that the Sawahlunto City Government wants the existing heritage buildings to be exposed.

Orientation of the design is headed to the important points around the site, in order to create special focal points and gaining the strong character of the place.

On the site of the physical arrangement of

the heritage city of Sawahlunto, the design orientation is divided into 3 parts. The parts are:

- To the transport building (now the Damkar building)
- Towards the workshop warehouse
- Towards 3 silos

Each part of the design orientation is placed on the basic activity that has been described previously. Placement of basic activity points is selected based on the type and area that is most likely to be placed the basic activity.

Guide Implementation in landscape design

The physical arrangement area of the heritage city of Sawahlunto is a former coal industry screening area. Image as an industrial area has become the identity of this heritage area. The presence of this new design will become a support area and provide added value to the colonial heritage building area. The design of the area is expected to increase the attractiveness of these heritage buildings. However, the new design is expected to not cover up heritage buildings that have existed before.

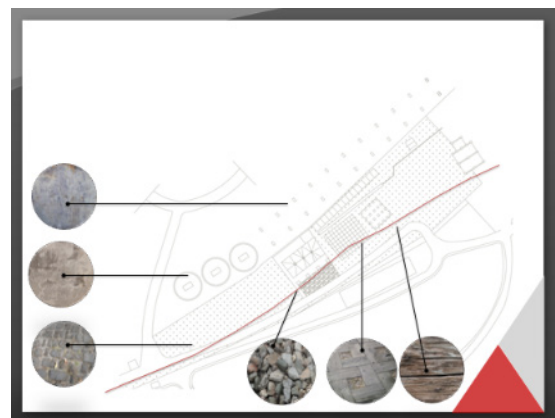
Therefore, the concept raised in the physical arrangement work of the city of Sawahlunto Heritage City emphasizes the connection between the new design and the old design. The new design connection with the surrounding

buildings is done through various approaches such as:

- Material
- Basic Activity
- Design orientation

As previously explained that in approaching the surrounding environment, material selection is based on elements found in heritage buildings around the planning area. So the use of materials such as concrete, steel, rocks will be applied to this new design.

Figure 9. Existing materials



Basic activity is divided into zones that exist in the planning site. Placement of basic activity points based on the potential of each of these points can efficiently expose heritage buildings

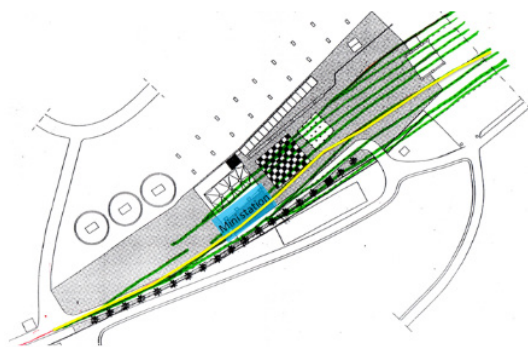
Table 1. OUV of designed area related to Heritage element & Place character in landscape design

NSW Heritage office	Place character in landscape design		Guidance for Design implementation
	Place character	Foci / focal point	
character	Tangible: industrial, mining facility & railway Intangible: Activity of social mixture	Silo, catwalk steel structure, sizzling plant & old building	Design oriented towards foci such as silo, catwalk, old building and sizzling plant, & provide social spaces for cultural interaction. Brings back the railway
scale	Human scale surrounded by building size scale	Silo & catwalk : megastructure size scale Sizzling plant & old building : 2 stories size	Plaza and its element needs to be smaller in size comparing to foci
form	solid geometry & vertical-horizontal lines, rounded in silo's area		Design with straight line style, curvy around silo
sitting	open area		Keep the open area portion bigger than buildings
Material & color	Exposed concrete, steel & iron in mining facilities		Using the tone of concrete, steel & iron material character
detailing	No specific detailing shape / ornament found Old lamp shape of the mining industry		Not using complex and detailed articulation. Resemble the old lamp character

that are around the site. Activities that require a strong background such as arts and cultural performances, educational tourism mining sites and Bajamba (culinary festival area) are placed in areas that provide the best view heritage. As in the cultural arts performance zone (galanggang and siguntu court) with a high silo background looming giving a strong impression to the zone. Then, the mining tourism education park zone (which includes the Bajamba area which consists of open areas and roofed areas) as a zone in which various activities such as family activities, camping activities and others will have a background of the damkar building (transportation building). The view will give a distinct impression of the Wista mine education park zone. Then the plaza as a transition zone, has a more varied background because it is located in the middle so that the surrounding Heritage buildings can be exposed.

In addition to basic activity, design orientation will be the next consideration point. Discourse to bring back the railroad tracks and turn them into materials to become one of the design orientations. so that the existence of this rail line is expected to be more value than the physical arrangement site of the heritage city of Sawahlunto.

Figure 10. Overlay image of Existing railways beneath the site

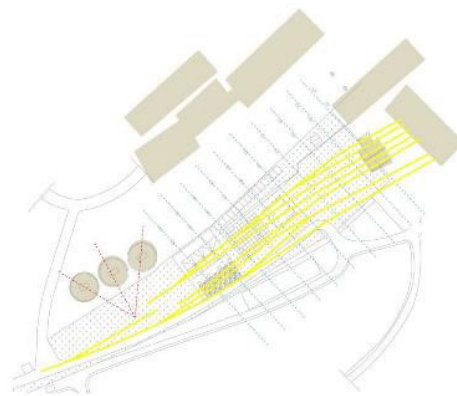


Rail lines will be an additional orientation at the site planning. The railroad track that will be activated will take the outer rail line from the site. The active line will pass through a mini station in the planning area. The active pathway will become a new dimension in the design of this heritage area and can become an iconic activity. Whereas the other railway lines in the planning area will be used as accents in landscape design.

The new design is expected to have a strong connection to the surrounding heritage

buildings. By paying attention to the heritage buildings around the site it is hoped that this relationship can be obtained. One effort to get it is to use imaginary lines that are directly related to the surrounding heritage buildings. The imaginary line is used as a guide in determining landscape design. It also includes the orientation of the design itself.

Figure 11. Implementing the historic element as "focal point" using imaginary orientation grid



Orientation becomes an important aspect in planning this time. Associated with the concept of heritage carried by connecting with heritage buildings around the planning site. As has been explained in the previous explanation, that the design orientation will be centered on 3 parts of the series of heritage buildings around the design site including silos, workshop buildings, damkar-filter buildings. These 3 sections are best explored as far as possible through the focus of design that leads to these heritage buildings.

Table 2. Material concept

Aspect	Description	Design application
Materials	• Steel & iron	<i>Sitimbago Station (Tourism train), Bajamba</i>
	• Loose pebbles	Silo area, Railways
	• Paving block (21x10,5 cm: height 6/8/10 cm)	<i>Pathway</i> in parking area
	• Concrete stamp (dark grey, light grey, wood motif)	<i>Pathway</i> in garden area
	• Unpolished tiles with dark brown color (40x40 cm)	Information center area, Bajamba and Sitimbago station
• Split Rocks	Railways	

Design Illustration

Figure 12. Siteplan

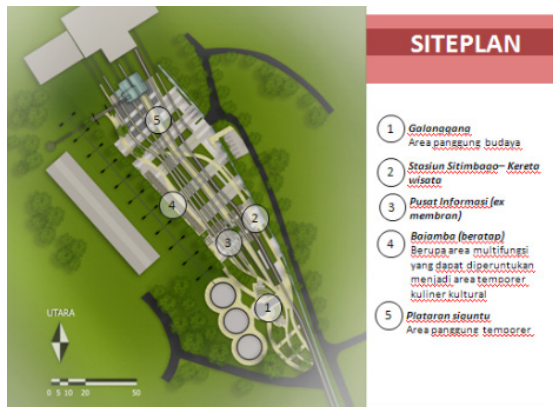


Figure 13. Aerial elevation



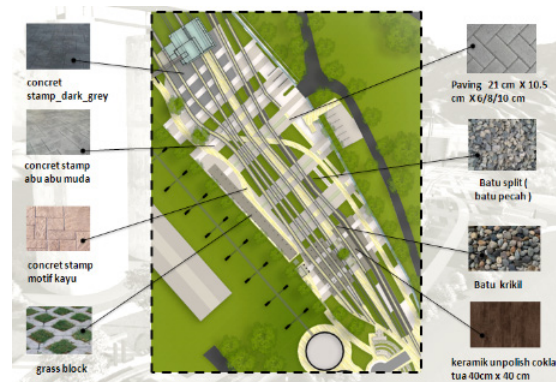
Figure 14. Design visualization of Aerial view



Figure 15. Comparison between old view vs design view



Figure 16. Material implementation framework



CONCLUSION AND RECOMMENDATION

Conclusion

From the results of the analysis, the Implementation of Outstanding Universal Value in the Heritage Area of through landscape design will bring the original image and historical values of the region, and becoming the place character. The designer expect that the strategic value contained in the area will not be lost and can become a leading tourist attraction in the city of Sawahlunto.

Recommendation

The understanding of the heritage context and its Outstanding Universal value both physical and non Physical is very important in order to maintain the lace character. The infill design strategies need to implement carefully. Its also important to understand the strategies of design in landscape architecture, to be able to strengthen the context value into the successful space design and bring the sense of place that relevant to the intended values.

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