

SYNTHETIC LANDSCAPES: New Strategies for Landscape, Infrastructure and Architecture.

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Abstract

The decommissioned infrastructure and their temporary new life-spans have been experimented by architects and designers by repurposing old existed structures and buildings. These precedents were mainly to explore their potentials while proposing new but short programmes for sustainable and economic concerns in local communities.

In addition to these concerns, our aim was to examine the gradient between naturalised architecture and industrial/synthetic natures around them. Examining apparent opposites, we have been looking at continuities rather than fractures between landscape and the human demands placed upon it. Locating our specific site in London, United Kingdom, we have started to work on New River which is an artificial waterway located in England, opened essentially in 1613 to supply London inhabitants with fresh drinking water. Using this 400-year-old, 32km long item of infrastructure as our vehicle, the studio investigated what forms & roles architecture might adopt along its length in this specific region. By examining the environments that are seemingly natural and finding them man-made, our studies aim to utilize the nature that we find in our city (London). Our pedagogical goal was to develop a project framework to enable synthetic architectural design methodologies with potential to mitigate contextual use with new programmes.

To explore this goal, BA architecture students at the London South Bank University, under studio one, have engaged in a series of design projects that have looked for novel and innovative approaches for integrating decommissioned infrastructure and new programmes that have highly complex but positive conditions. The students used contemporary surveying techniques that included extremely precise landscape and topographical details by using drones. Furthermore, contemporary computational techniques such as coding, spatial prototypes and finally design speculations that derived from the existed natural environments being studied.

The synthetic natures, as both practice and pedagogy, sought to extract both physical and social constraints of the natural environments and enable creative exploration of new programmes that might create new type of architectural interventions with infrastructure.

Research Questions

Can we treat ground with its topographical, geological and finally architectural features as one complete spatial medium?

Can we create synthetic natures where landscape and existing architecture within an infrastructural scheme could be developed into complex articulated organisations that can offer new spatial conditions?

Two forms of nonlinearity: Infrastructure and Landscape

The work of the studio is part of an ongoing research focused on the application of new architectural proposals on the New River (U.K.) and its starting point at the Gauge House at Ware. New Gauge House was constructed to house the current gauge that regulates the flow of water from the River Lee into the New River. This gauge replaced the 1770 Marble Gauge, which in turn replaced the original 17th century wooden device. (1)



Figure 1. The Drone image illustrating New River and Gauge house that built.

Originally, The New River was built between 1608-13 to bring water to London by using gravity forces. At first, the flow from the river was monitored by a wooden "balance engine" a rocking beam and float device. It was later replaced with the MARble Gauge, built by Robert Mylne inside a Portland stone chest. Our starting point in the research and the studio project is The Gauge house. It consists of two rectangular pontoons connected by a wrought iron bowstring girder. A 2.39m wide metal sluice is suspended from the girder, spanning the channel. It rises and falls with the changes in level in the river, keeping a constant depth over the sill.(2) The Gauge House today still maintains a steady water flow and delivers water into the New River. However, the water only flows into the Stoke Newington Reservoir.

Infrastructure



Figure 2. The Drone image illustrating Gauge house and its filtration system.

In order to understand the complex nature of landscape, given existed infrastructure (Gauge House) and its current function, students have been given a site/field trip to observe the area. Durin this day long field trip, students have assembled a travel diary with notes by collecting analytic information such as proportions of the existed building and its structure while also using much more precise tools such as drone and 3d scanning to create an evidence of interest that would aid for the next stages of their research.

After having this research, the students prepared arhitecural drawings of the Gauge House to illustrate both construction system and its mechanical features that related to water filtration. This analysis has been processed to understand material systems of the time, inhabitation, and finally the infrastructure that actually blends the landscape into the structure and use of the building.

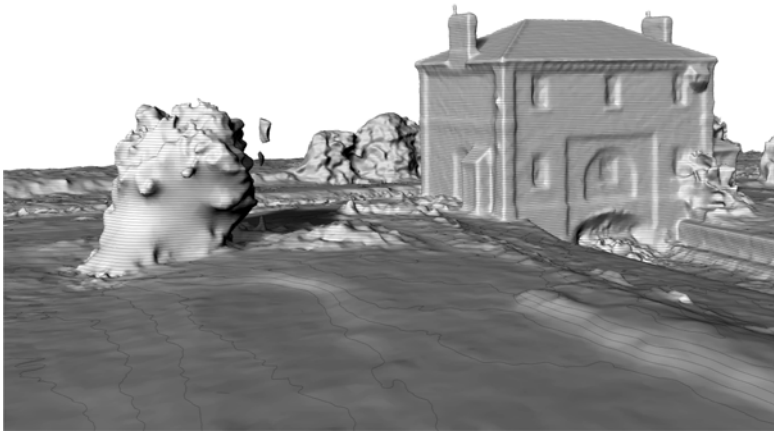


Figure 3. The Drone 3d scan, illustrating the building and landscape in 3d CAD

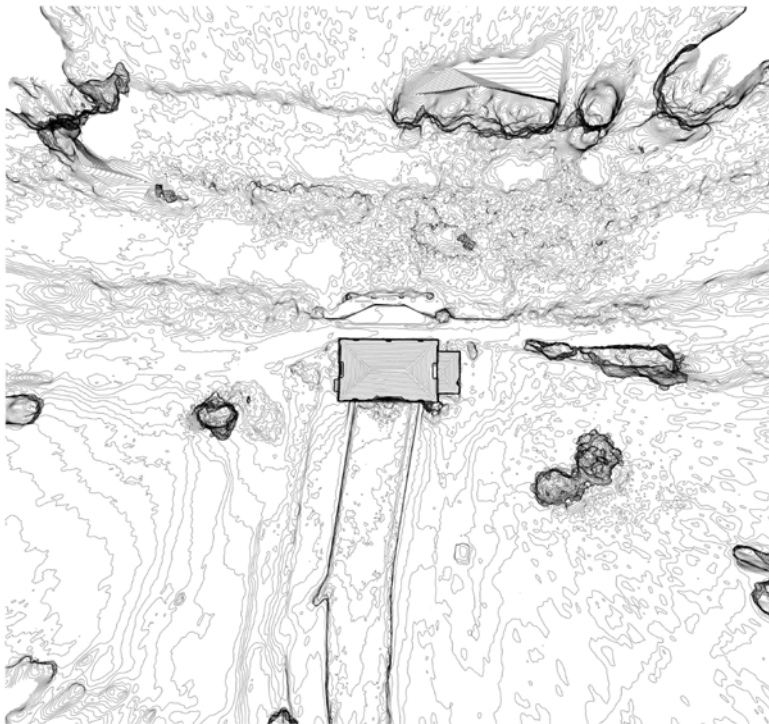


Figure 4. The Drone 3d scan, illustrating the building and landscape in 3d CAD

Landscape



Figure 5. Satellite map and contour drawing, illustrating the building and landscape in Ware, U.K.

Landscape has been our crucial focus from the beginning of this project. The formal understanding of its topographical and geographical features was also a key point for the development of New River Water facilities and Gauge House to use land-form for its performative aspect and gravitational prospects. As D'arcy Thompson (1961) highlights that *'Everything is what it is because it got that way.'* Our research started to appreciate the fact that how the landform has achieved its current formal qualities while being exposed to several climatic and physical exposures over the years. This natural evolution of the land gives us clues how to manipulate it rather than going against it while implementing any architectural or programmatic aspect. While having careful studies on the existed infrastructure's building features of Gauge House, our aim was to argue that in order to understand landscape as a major spatial element above and beyond formal programmatic gestures, it might not be sufficient to only render landscape continuous, to multiply it or to enfold space within it. However, we could embed various traits of local specificity, provisional character and finally the current infrastructure that occupies within the given boundaries to understand its potentials.

In relation to our studies on the landscape, students have started focus on architectural proposals that might enhance the use and inhabitation of the given site by re-conditioning its infrastructural heritage. However, as a strategy, rather than using predictable and uniform column/slab system, the idea of the landscape has been revisited by also moving away from traditional figure/ground arrangements.

Deploying and arranging a wider aspect of sectional technique, the given site landscape has been continuously articulated by using both vertical and horizontal contour lines. This method gave a further understanding of the given site, not only for its natural setting but also a field that can associate both infrastructure, building and context in different spatial conditions.

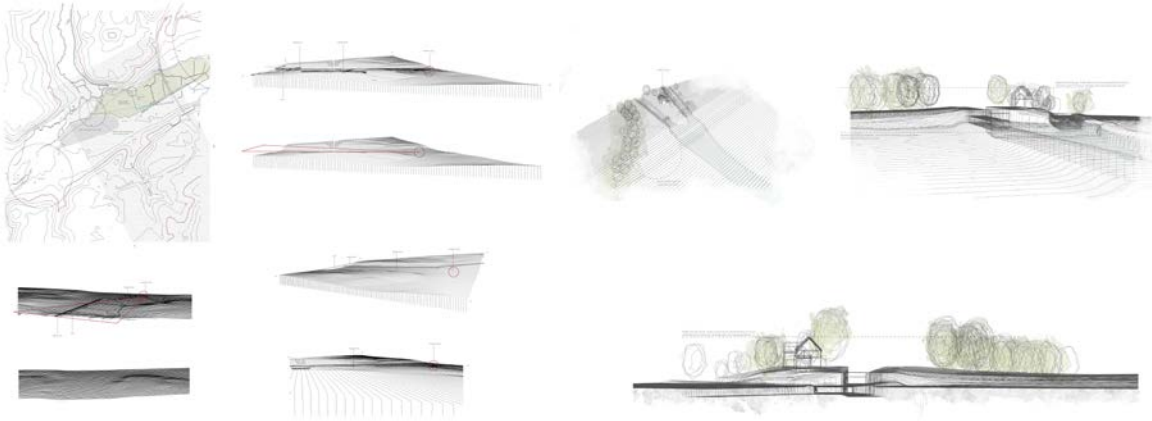


Figure 6. Sectional studies on both horizontal and vertical level, exploring the building and landscape in Ware

The programme: Fusion of topography, surface and structure

Topography

In order to define spatial conditions that can be offered on the focused area, “visitor centre” programme has been investigated and studied by the students. This programme proposal was not only to give a basic building identity, but also the further need of the site’s natural and historical heritage. The Gauge House, New River and the further function of the semi-used infrastructure was mostly neglected even though the area has been used by local inhabitants and users for its natural offerings.

By focusing on the use of the building programme, where visitors can both inhabit the building while experiencing the natural habitat and its infrastructural aspect. The basic programme offered to experiment with the users possible behaviours and inhabitation conditions on the given space as the natural offerings of the site was already articulating outdoor spaces on a differentiated volume due to its geographical conditions.

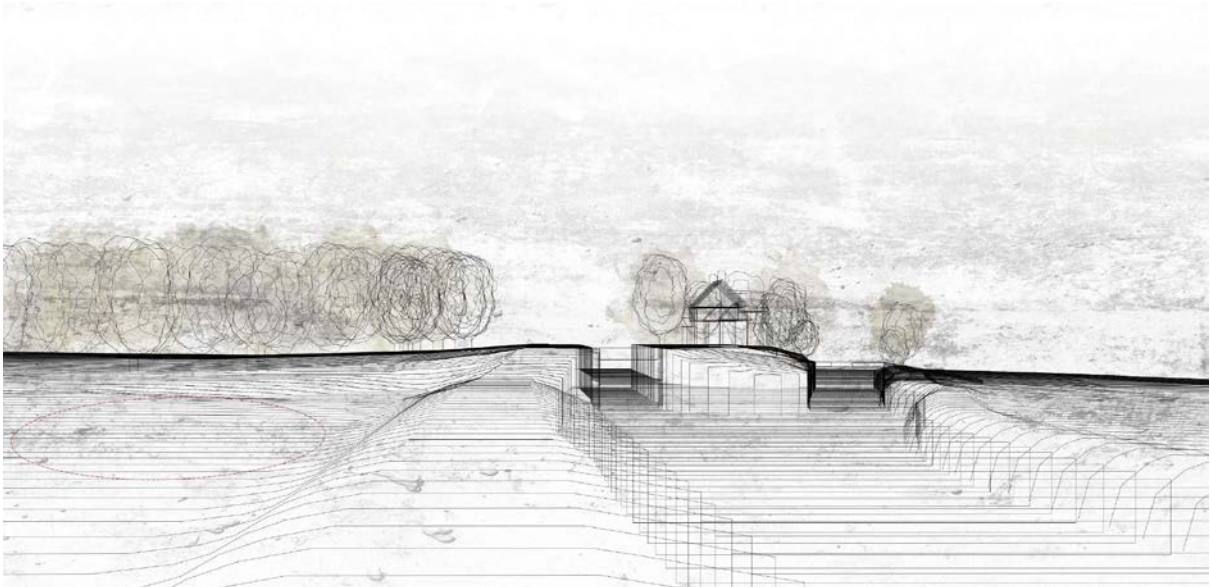


Figure 7. Sectional studies on topography, exploring the possible articulation of new river, landscape and programme.

While using advanced techniques and technologies such as 3d scanning with drone or any other advanced surveying techniques, the studio has found the use of sectional method of analysing the space (both landscape and existed architecture) is quite important in order to explore much complex spatial conditions between physical constraints and volumetric situations. As Hensel and Turko remarks this (2015): *‘Surely some may feel inclined to argue that in the time of computational design the three-dimensional model has super-seded orthogonal projections, such as plan and section, as the locus of design attention and effort. And yet, while this*

may or may not be so, it should be clear from the above that a sectional approach still has a lot to offer in terms of innovative spatial thinking and organization.' While sections provide two dimensional guideline for the given complex landscape, it is also a strong design guide and tool to navigate and articulate programme in a much more precise way within the constraints of proposed architectural and structural concerns.

Surface

The proposed surfaces on the landscapes offering both access and circulation organisation for the users. While manipulating the offered surfaces on both plan and previously gathered sectional diagrams, the visitor centre proposal articulates with both landscape, river and the excavated new volume to offer its spatial outcome. Several deformations have been applied to these surfaces in order to explore complex spatial situations for inhabitations. As Kipnis also highlighted this (1993): *'If embodying effects into the design a priori is problematic, then the central issue for Deformation design technique becomes the elucidation of methods that generate monolithic, non-representational forms that lend themselves well to affiliative relationships a posteriori. If all that were required was gestured and articulation, then the problem would pose no particular difficulty and could be saved by employing familiar Expressionist techniques.'* While deformation technique has been repeatedly used to integrate the programme into the chosen zone, the main focus was always about the articulation of the landscape and the structure that can handle these surfaces to provide both spatial and structural coherency. There has not been any metaphor and symbolism to adapt these deformations, every action has been precisely considered for both spatial and performative possibilities.

Structure

While the proposed surfaces have been assigned on both horizontal and vertical sections on the given site, the structural need had been defined in order to give both volume and support to the given building. However, by using the landform and its integration to the landscape, the structural logic has been carefully articulated to offer heterogeneous spaces.

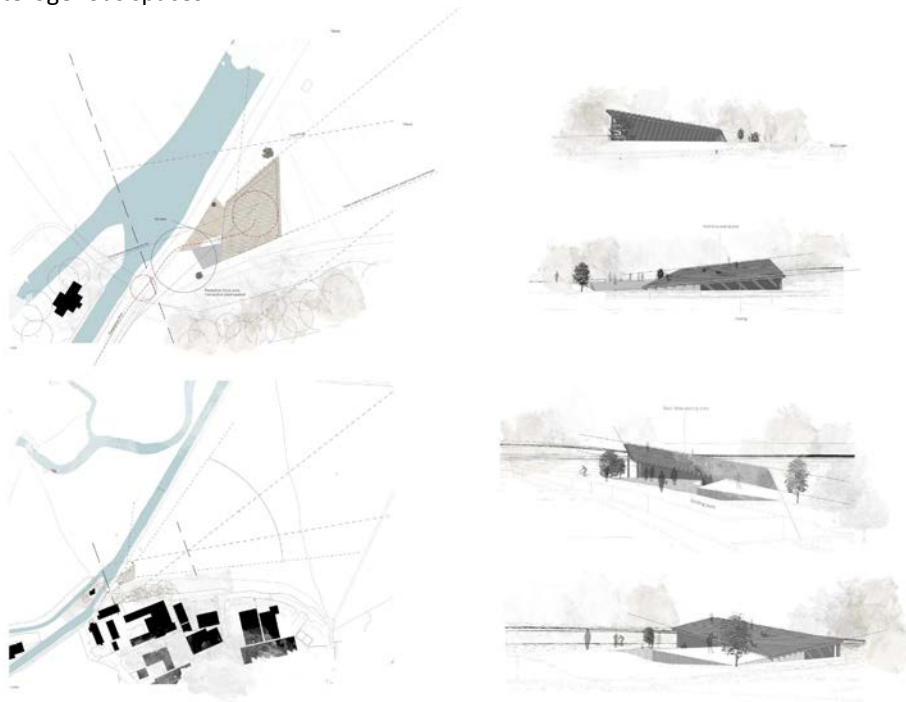


Figure 8. Formal studies on topography, demonstrating the formal proposal of new river, landscape and visiting centre programme)

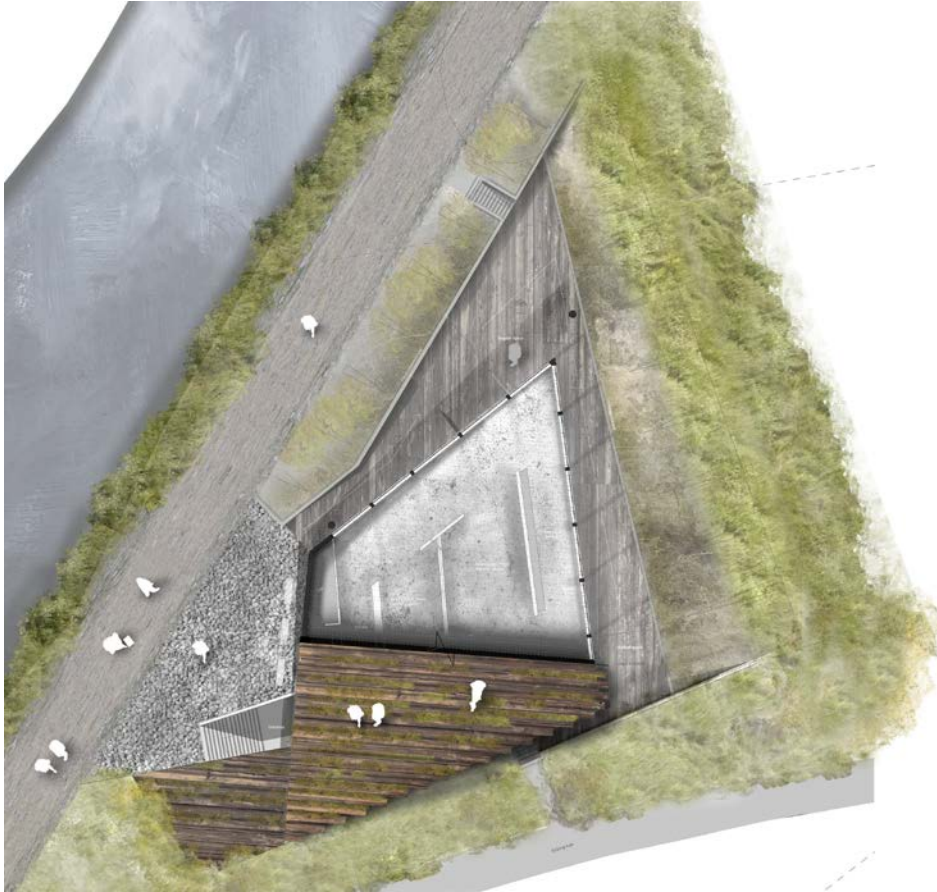


Figure 9. Plan drawing of the proposal visitor centre, demonstrating the articulated layout for landscape, river and infrastructure where users can inhabit the whole.



Figure 10. Perspective render of the proposal visitor centre, demonstrating the articulated layout for landscape, river and infrastructure.

Conclusion

The sensibility of architecture, landscape and nature articulation has been in several architects work in the past such as Enric Miralles & Carme Pinos, Avaro Siza and finally Peter Eisenman. Most importantly, in Igalada Cemetery, Miralles and Pinos tried to fuse both structure, surface and landscape by using different material systems that might could respond to both strict programme restrictions and users circulation in the space. While students at studio one in this research paper have been studying and developing synthetic natures brief on the given site at Ware, U.K. they did also visited Miralles and Pinos's works at Barcelona such as Olympic Archery and Igalada Cemetery as being both case studies and historical context in the need for understanding architectural techniques and their spatial outcomes. As E. Miralles pointed out in his conversation with A. Zaera (1995) *'When I start the portrait of a street that ends up dissolving into the landscape, I probably have to seek the way to work with it... but my intention is still to fix things. One very elementary technique that I am fond of is to treat everything as equal: to consider the placement of a tree, a specific programme, a building, all in the same way... I learned this with the Igalada cemetery, where I managed to build a place devoted almost exclusively to the protected growth of trees.'* While students offered visitor centre programme, in order to produce and develop architectural speculation to explore spatial outcomes, the curiosity for utilization and articulation of highly complex terrains, topography and infrastructure remains. For the conclusion, it would be interesting to explore further, how some of these techniques and situations could further be developed in extreme urban conditions. By visiting some of these case studies and understanding the current experiments, the studio would try to use more contemporary tools to deploy new forms of solutions into problematic urban scenarios where new tectonic and structural resolutions can be resolved.

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Images:

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Fig. 3,4: Onur Ozkaya, Studio 1 BA(Hons), 2017

Fig. 5,6,7,8,9,10: Michael Crook, Studio 1 BA(Hons), 2017

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