

Country / City Canada, Guelph
 University / School University of Guelph
 Academic year 2019/2020
 Title of the project The Parametric Process: A Strategic Analysis on Digital Design Technology in Landscape Architecture
 Authors Christine Pedersen

TECHNICAL DOSSIER

Title of the project	The Parametric Process: A Strategic Analysis on Digital Design Technology in Landscape Architecture
Authors	Christine Pedersen
Title of the course	Master of Landscape Architecture Thesis Study
Academic year	2019/2020
Teaching Staff	Dr. Nadia Amoroso (PhD, MUD, BLA, Assistant professor in Landscape Architecture)
Department/Section/Program of belonging	Department of Landscape Architecture, School of Environmental Design and Rural Development
University/School	University of Guelph



Digital design technology is emerging in landscape architecture, however, there is a gap in design education and in practice regarding skills training and knowledge pertaining to digital design technology. The objective of this study is to investigate the efficiencies of using 'parametric design' for landscape designs and in the practice of landscape architecture. A comparative case study analysis of three landscape architecture practices who utilize parametric design was investigated. A questionnaire was created and sent to key informants who specialize in parametric design to evaluate the efficiencies and value of parametric technology. A 3D model prototype was generated using Rhinoceros (Rhino3D) and Grasshopper to test the 'parametric process' against the 'traditional' analogue design process. Three different site analysis scenarios were generated to understand spatiality and pedestrian circulation. The three scenarios adopted a 'voronoi diagramming' approach to simulate a densely populated space of one-hundred people, a social distancing experiment, and a vast open landscape. Parametric technology was also used to evaluate its capabilities for identifying the shortest most efficient pedestrian routes on a site. This research has demonstrated that parametric technology can promote versatile, innovative, and responsive landscape designs. Parametric technology also has the ability to test for both human and environmental impacts. Furthermore, this research is intended to promote the parametric approach in landscape designs, while also serving as a precedent for further research on digital design technology in the practice landscape architecture.

For further information
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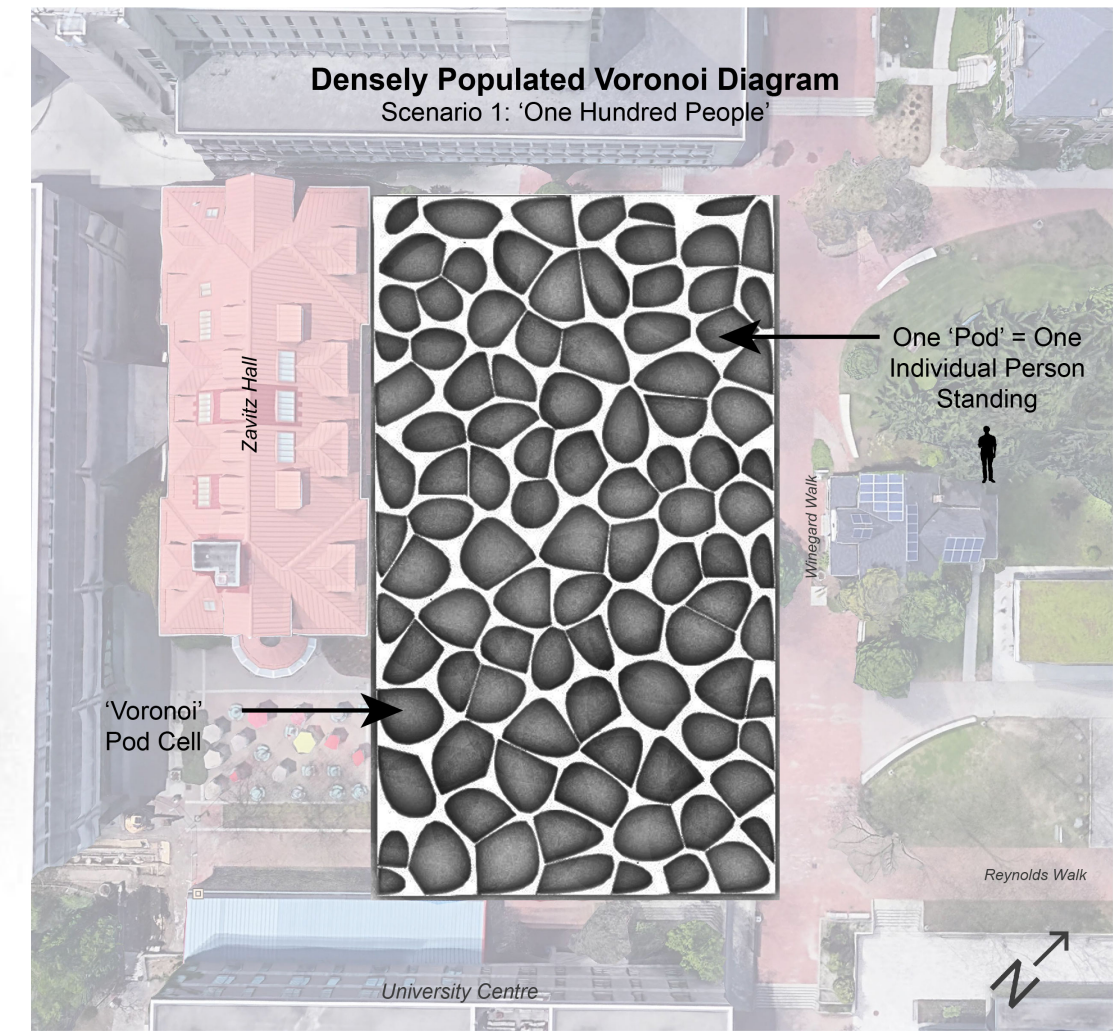
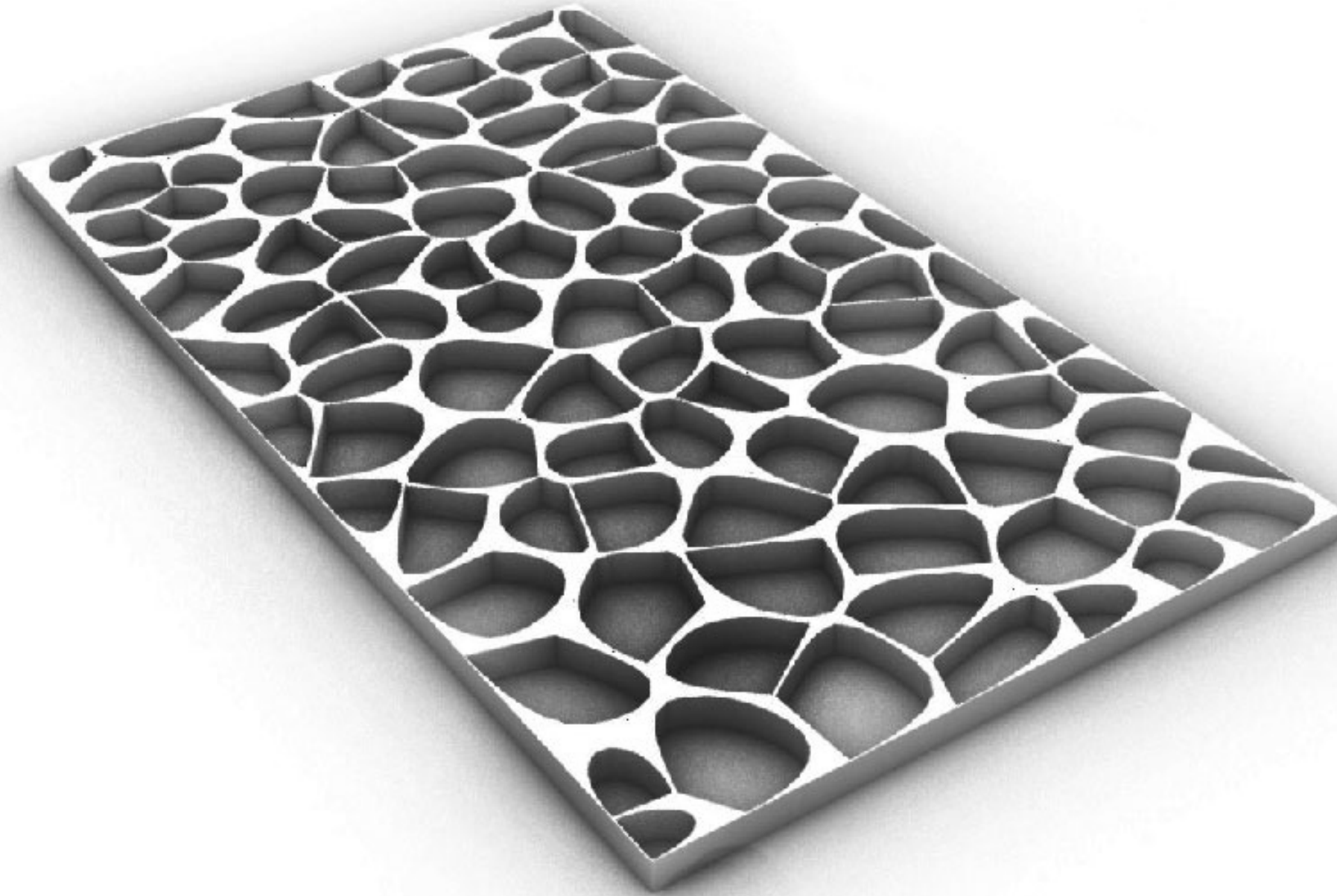
CLIMATE CHANGE AGAIN

11th International Biennial Landscape Barcelona

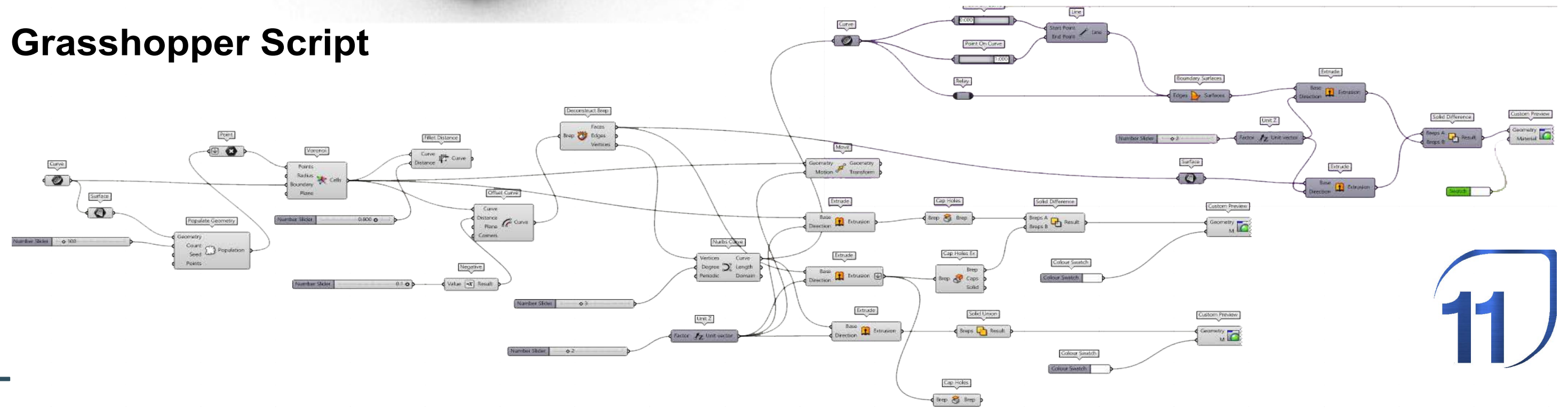
Barcelona September 2020
SCHOOL PRIZE

Isometric Voronoi Diagram

'One Hundred People Capacity Simulation'

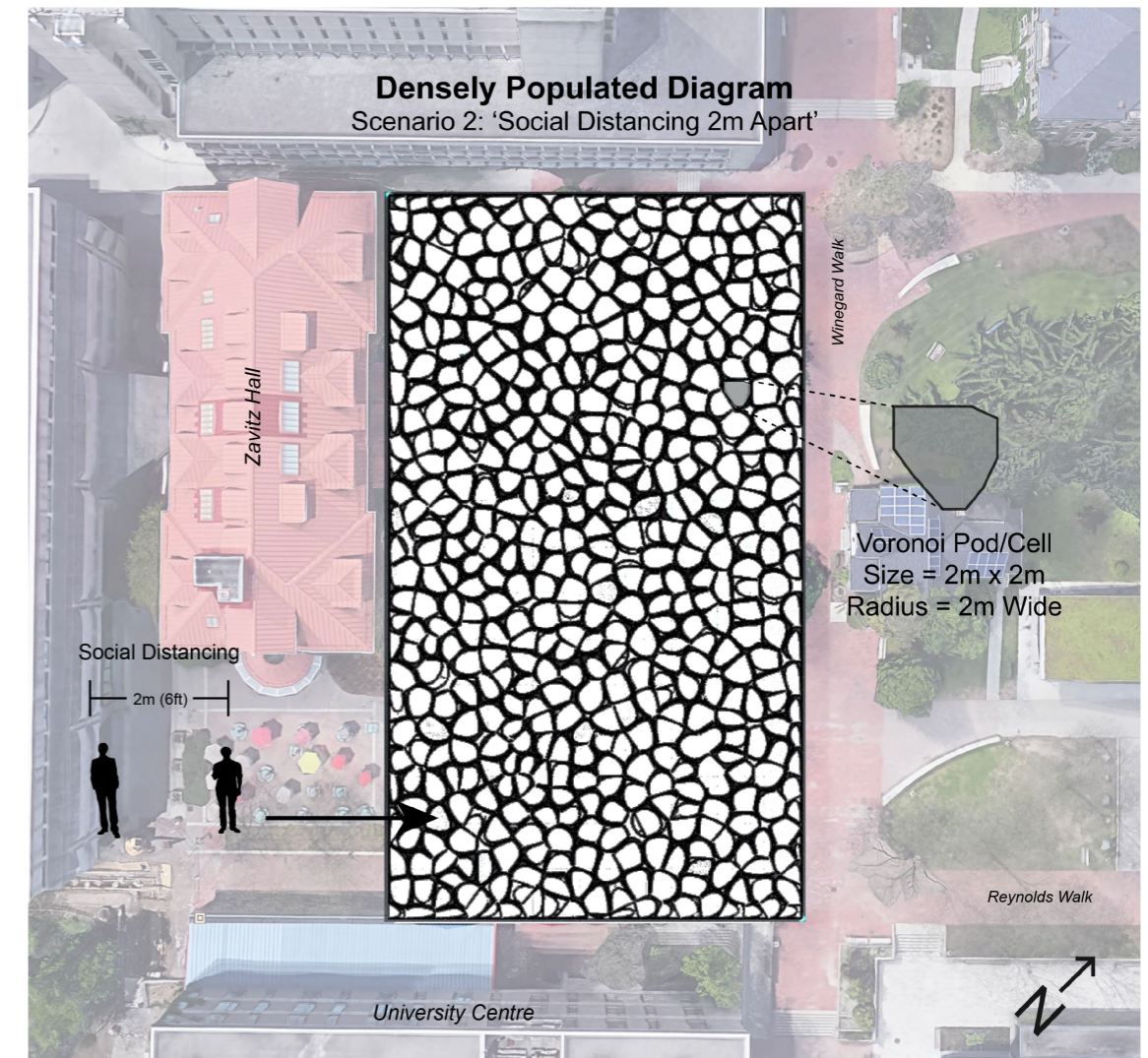
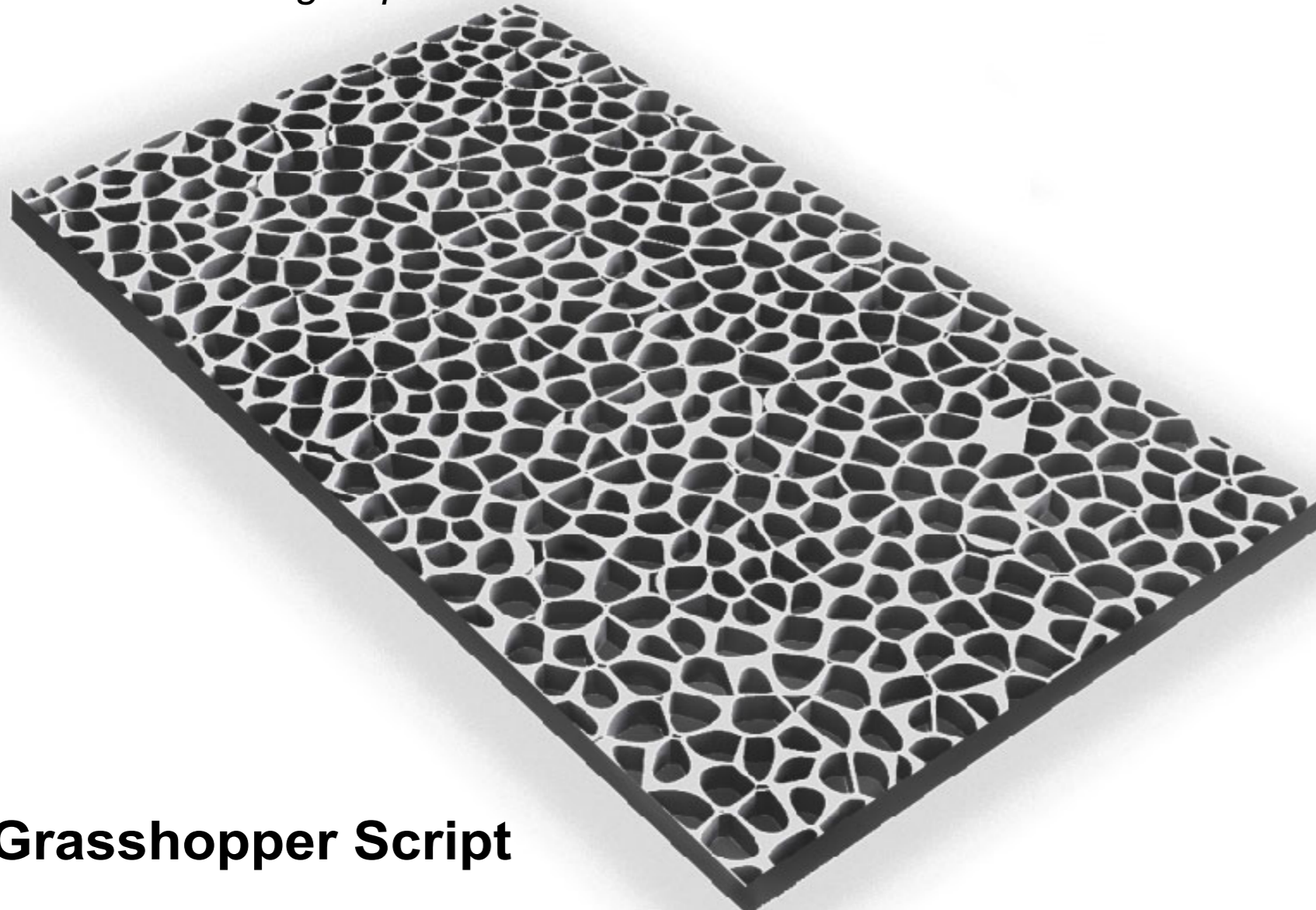


Grasshopper Script

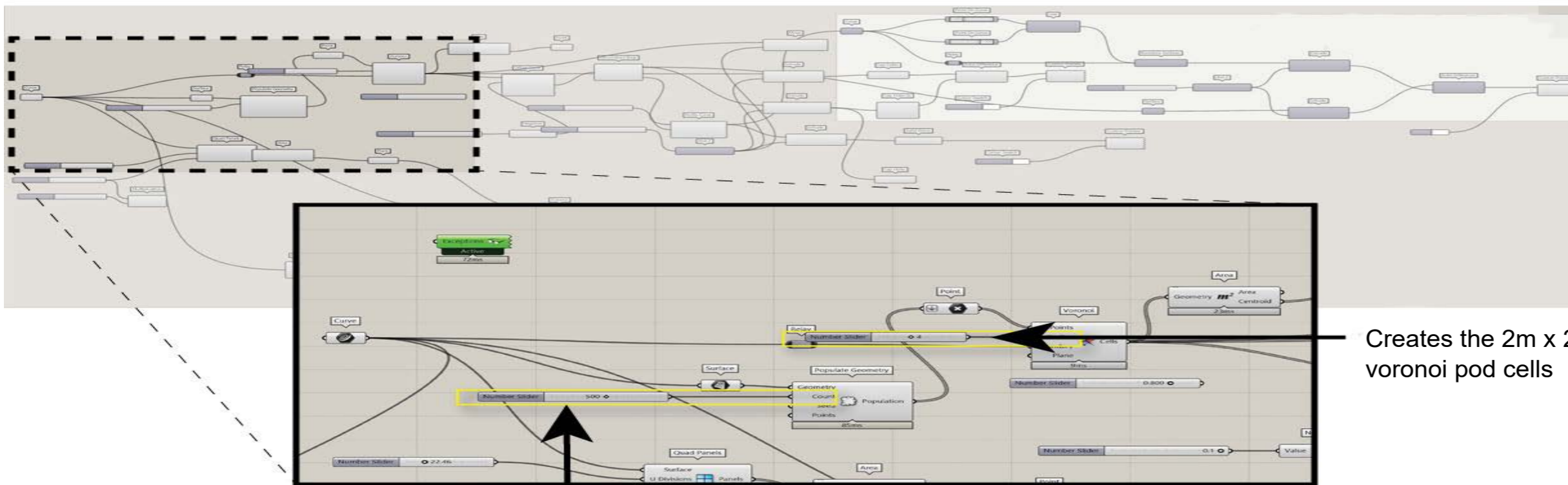


Isometric Voronoi Diagram

'Social Distancing Experiment 2m x 2m'



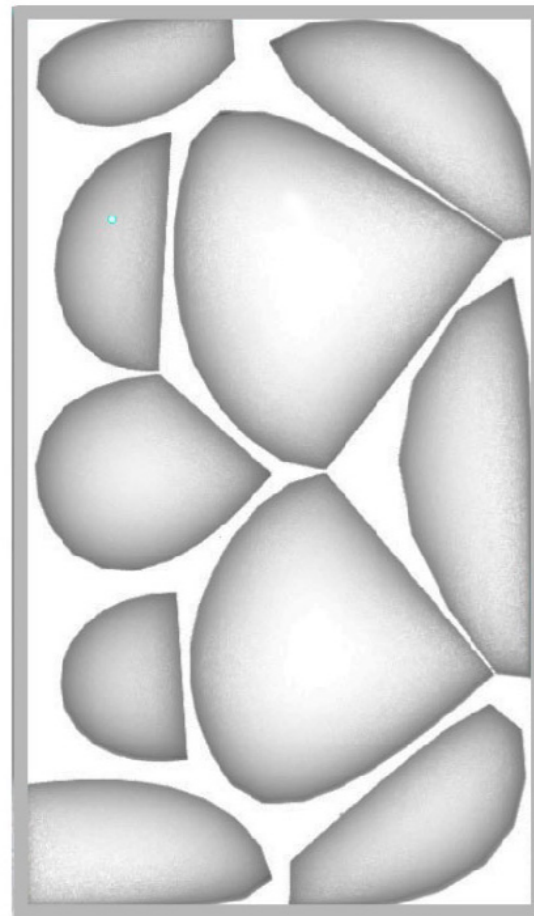
Grasshopper Script



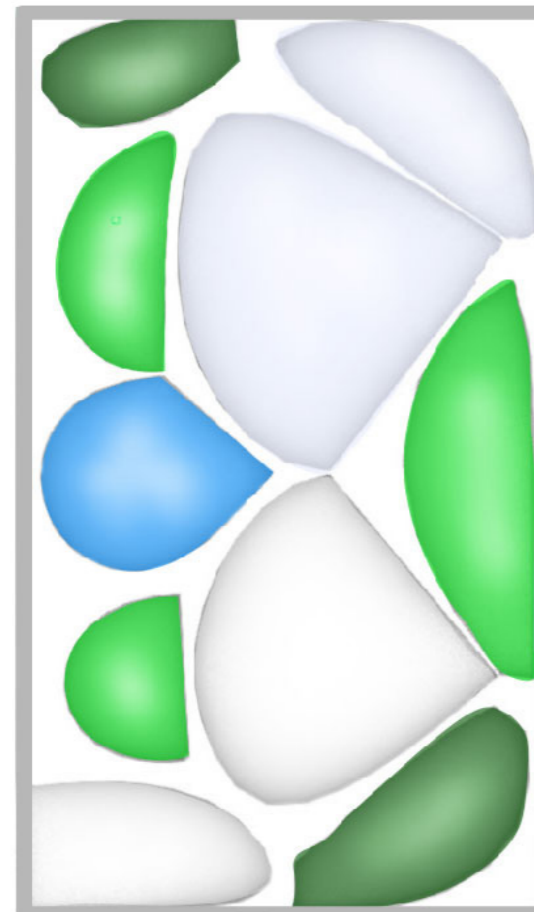
Creates the 2m x 2m voronoi pod cells

Generates the number of pods



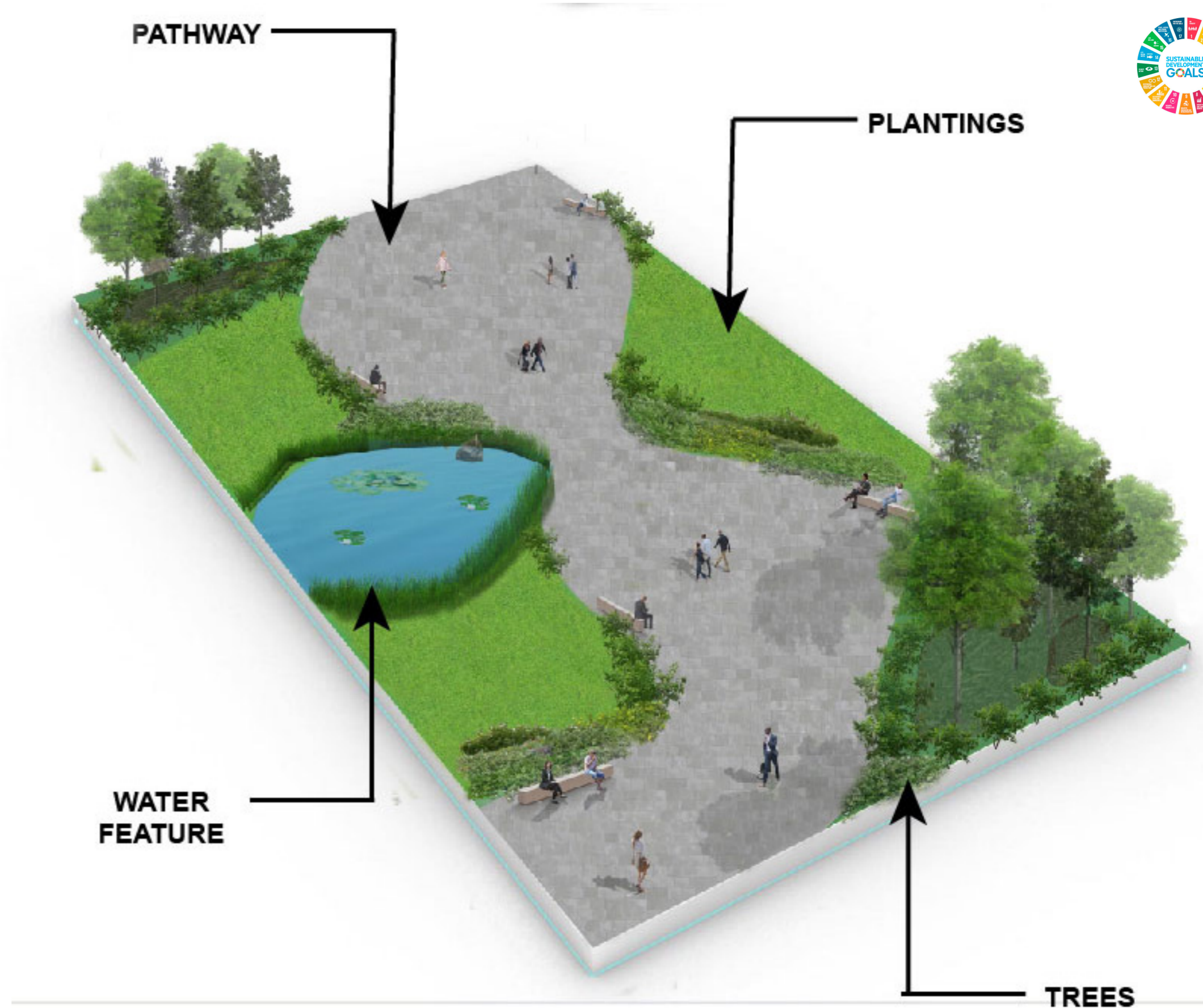


Voronoi Diagram 'Open Spaces'



Voronoi Diagram 'Hard and Softscape'

- TREES
- PLANTING
- WATER FEATURE
- PATHWAY



Isometric Voronoi Diagram

'Open Space Conceptual Design Rendering'