



PLAY

WITH

DIRT

## Project Info :

**Project Title:**

Play With Dirt

**Location:**

Crotona Park, Bronx, NYC

**Completed Year:**

2023

**Budget for Design + Construction:**

NA

**Project Size:**

≈ 3.2 Acres

**Submitter's Role:**

Graduate Students

## Summary Statement :

Play with dirt aims to provide a healing playground for urbanized children, based on the research of the two books "Last child in the woods" and "Let Them Eat Dirt". This project focuses on the disconnection between urban children and the natural environment, especially with probiotics, and proposed new typologies of soil-based playground.

Different from traditional playgrounds, soil, plants, and other natural materials are part of this playground. Therefore, children can have contact with natural materials while playing in this playground and participate in the construction and maintenance of the playground. This process provides a deeper connection between children and nature and aims to heal the nature-deficit disorder of urban children.

# Narrative :

## Context:

The last decade has ushered in wide recognition of the centrality of microbes for virtually all aspects of ecological systems, including human life and wellbeing. The interaction along the gut-brain axis points to how bacteria influences our emotions, mood, and cognitive life. Researchers have even demonstrated how microbially rich soil environments can be linked to immune protection and the mitigation of diseases such as obesity, diabetes, asthma and allergies. Given all that our microbiomes do for us and to us, it's worth asking: what might a microbe-focused landscape architecture look like?

Therefore, through the design of a soil-based playgrounds that center decay and decomposition, this project hopes to build microbial robust landscapes that mitigate public health concerns for children.

## Site Analysis:

Due to the nature of a soil-based playground, this proposal suggests merging and transforming the community garden and conventional playground into a soil playground where children's diseases are highly prevalent. After mapping New York City's dense residential areas and children's disease areas, the site was selected in Crotona Park in the Bronx district, where there are many newborn children and high incidences of childhood diseases.

Site surveys show that areas with a high incidence of childhood illnesses often overlap with areas with high child poverty. Therefore, the design of the site will be based on low budget creativity and will be low maintenance.

# Narrative :

## Design Strategies :

This project addresses urban children's nature-deficit disorder on both macro and micro levels. At the macro level, it focuses on site connectivity, accessibility, and age-appropriate features. On the micro level, it analyzes beneficial bacteria environments (phyllosphere, aerobiome, rhizosphere), leading to diverse nature engagement opportunities and modular wall structures. These walls use recycled tree waste and local materials, and the playground incorporates rainwater collection, self-cleaning, and on-site composting to support biodiversity.

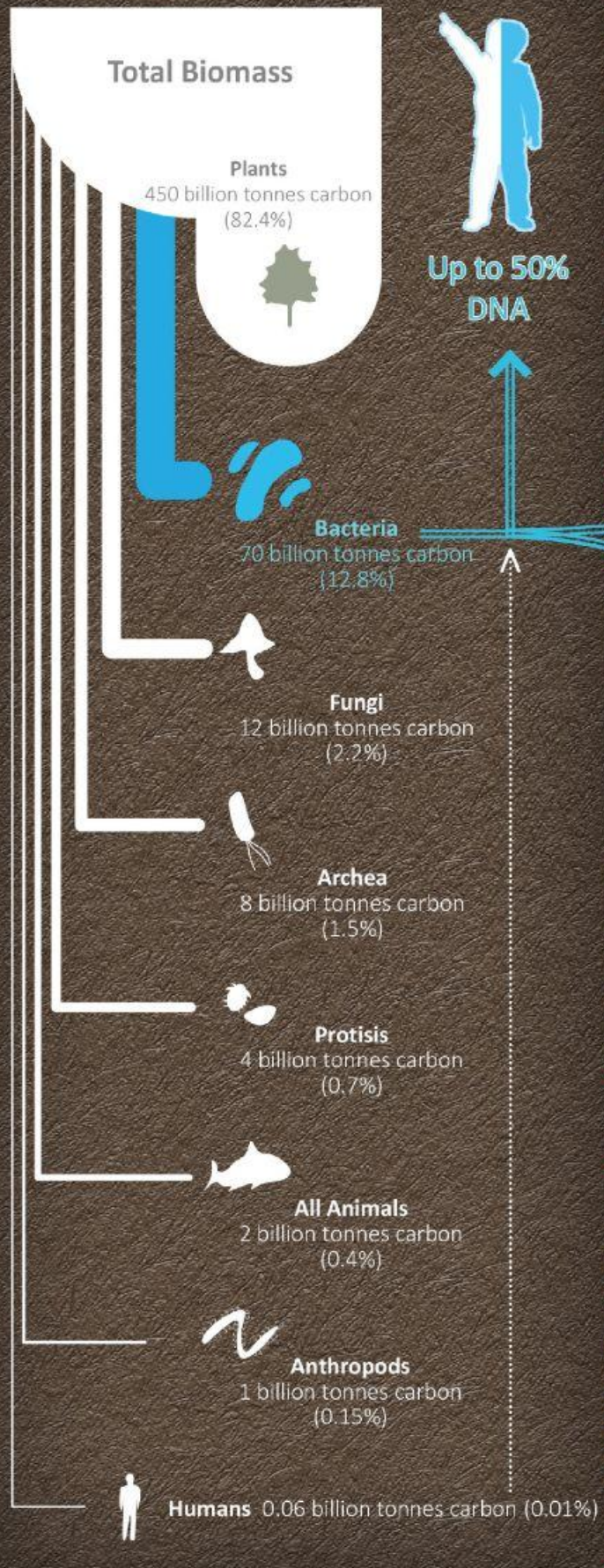
## Community Engagement :

As a design dedicated to under-resourced communities, this scheme places great emphasis on low budget creativity and user engagement. Playground units are designed as modules composed of materials that can be locally sourced, so that they are easily constructed and adapt to evolving conditions within diverse neighborhoods. Stakeholders can also play a role in selecting the plant palette and making use of their food scraps and yard waste to compost and regenerate soil for the playgrounds . Hence, communities can participate in the whole process of constructing and maintaining the them, which makes this playground a dynamic living system.

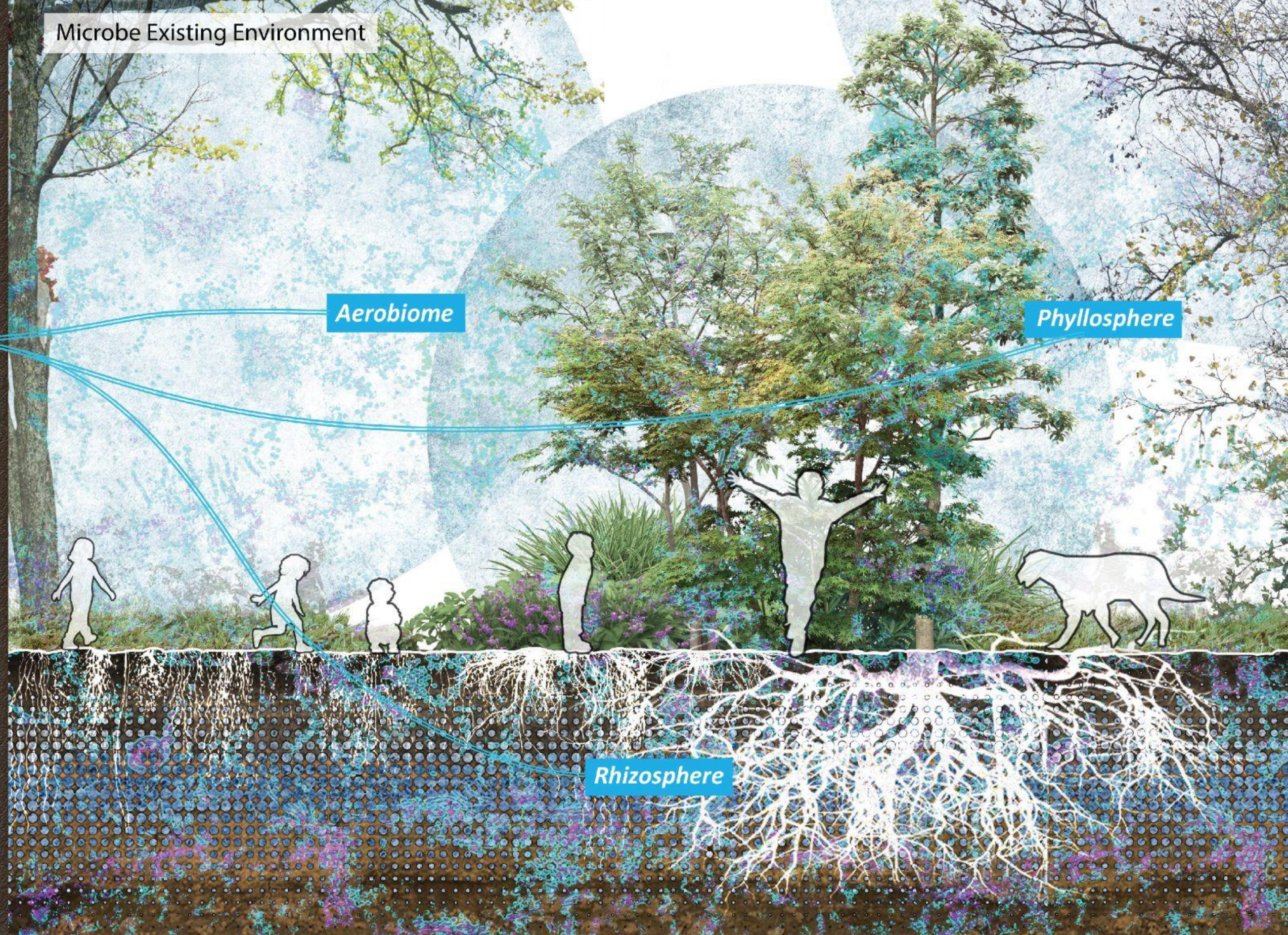
## New Typologies of Urban Playground :

Play with Dirt proposes new typologies of soil-based and microbial rich playgrounds, that are not only fun and educational, but also beneficial for the health and wellbeing of children. In this system, children are the adventurers, but also the little caretakers of the site. All in all, this process hopes to develop deeper connections between children, our non-human biota companions, and the dynamic cycles of the urban environment.

# We are more Microbe than Human



## Microbe Existing Environment



# We are More Microbe than Human

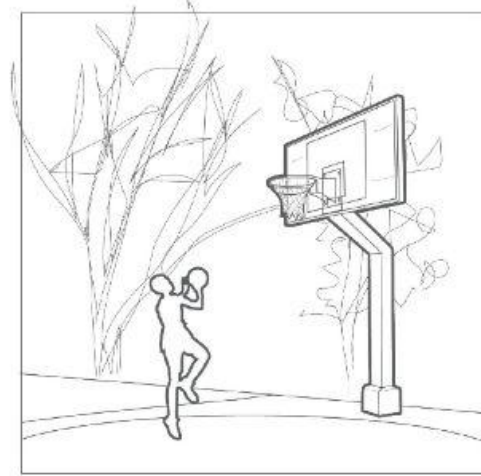
This diagram provides a comparative analysis of Earth's biomass across various organisms, elucidating the ecological habitats of bacteria.

# Evolution of Playground

PAST



Nature as Playground

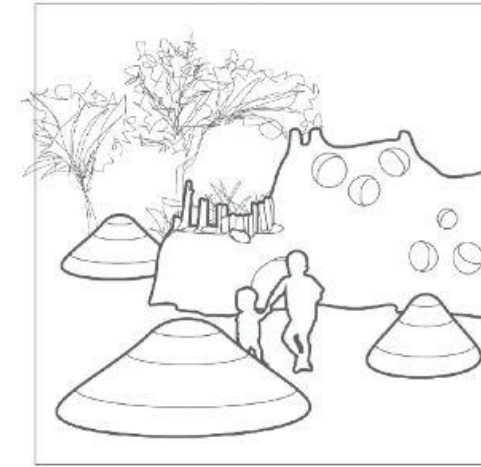


Outdoor Gymnasium



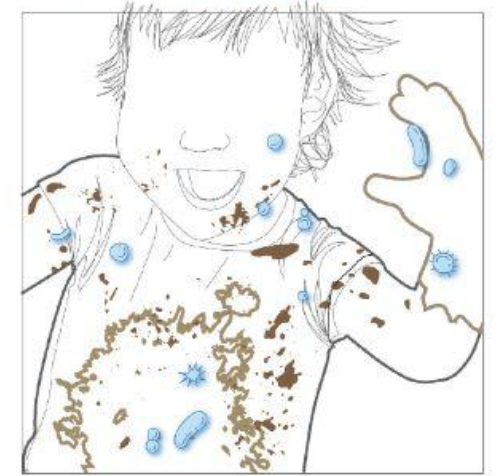
Manufactured Play Structure

PRESENT



Integrated Playscapes

PROPOSED



Mud Play

## The Development and Expansion of Playgrounds in NYC



**1891- 1894**

The society lobbied city government, demonstrated how to use play equipment to mothers and children, and operated an experimental playground on Second Avenue between 91st and 92nd Streets.

**1895**

State Law: "Hereafter no school house shall be constructed in the City of New York without an open-air playground attached to or used in connection with the same."

**1903**

First permanent playground in NYC - Seward Park. The plan for the park featured a large running track with an open play area in the center and a children's farm garden in the southeast corner.

**1910**

Charles Stover, revered as the "Father of Seward Park," became Parks Commissioner and immediately set out to increase the number of playgrounds in the city.

**1926**

The first equipped play area opened in Central Park.

**1934 - 1960**

Under Commissioner Robert Moses, the Parks Department advanced the work of earlier reformers by greatly expanding the number of playgrounds in the city.

**1960s**

The Adventure Playground emerged from movements in 1950s Europe that worked to reclaim derelict urban spaces, many caused by the devastation of World War II.

**1984**

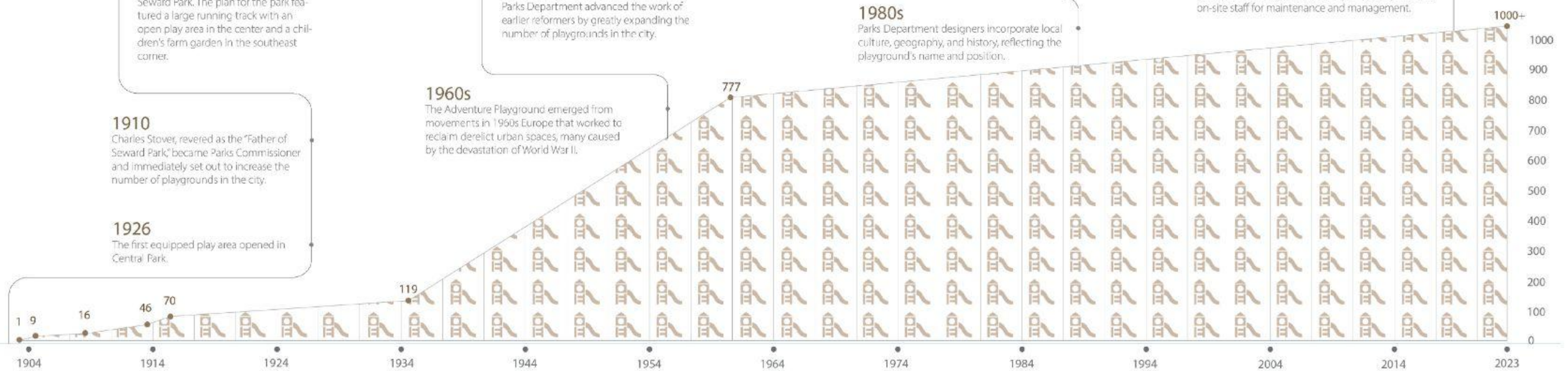
The first fully accessible playground in the country opened in Flushing Meadows Corona Park in Queens.

**1980s**

Parks Department designers incorporate local culture, geography, and history, reflecting the playground's name and position.

**2009**

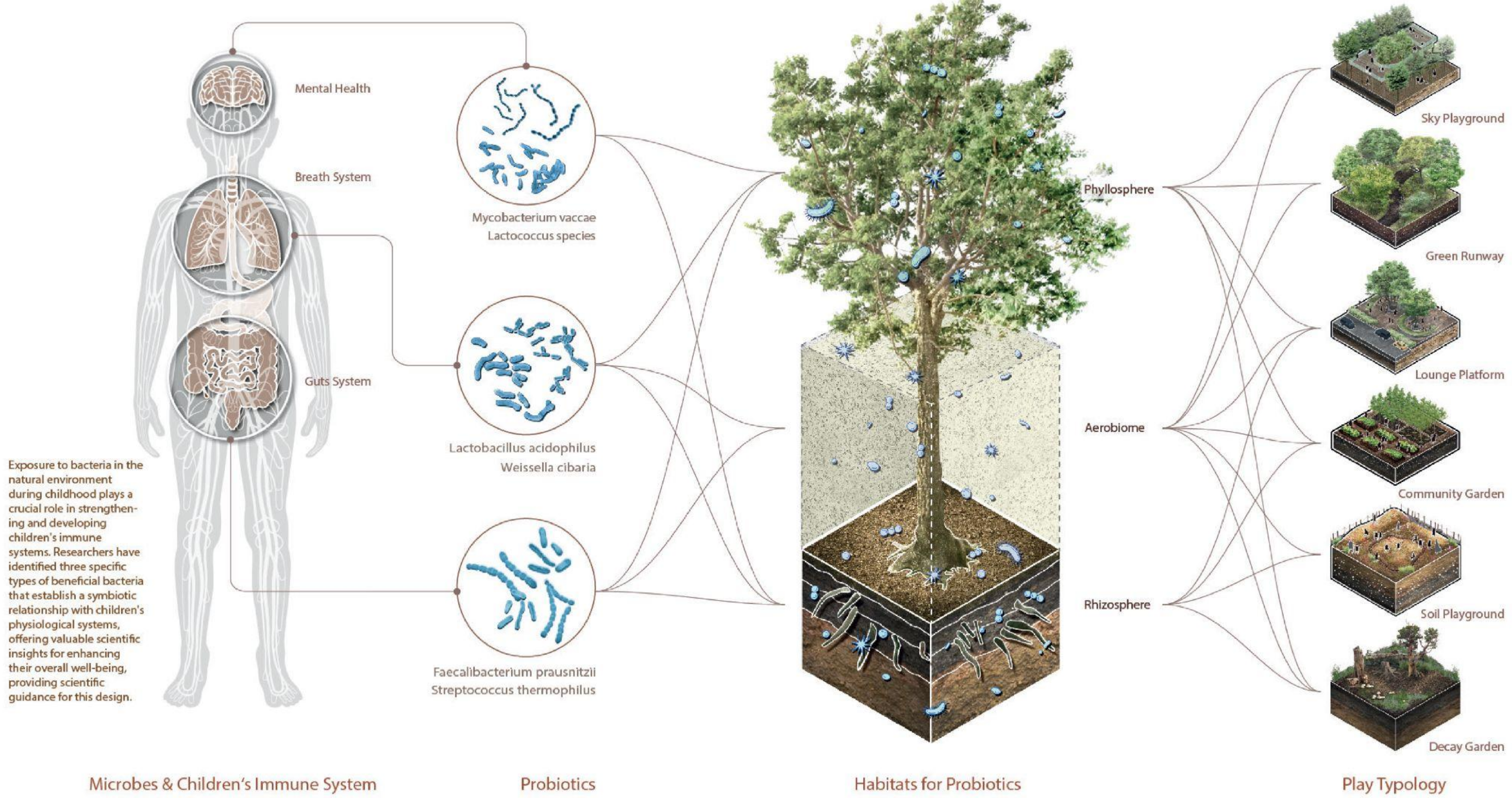
The City built a permanent flagship site at Burling Slip, combining an open multi-level space with sand and water features, a wide variety of "loose parts," and on-site staff for maintenance and management.



## Evolving Playscape

This diagram illustrates the evolutionary journey of playgrounds and showcases the historical development of playgrounds in NYC.

# Play Typologies are Shaped by Bacterial Influence on Children's Health



## Play Typologies are Shaped by Bacterial Influence on Children' Health

This diagram elucidates the interplay between beneficial bacteria and prospective playscape typologies.

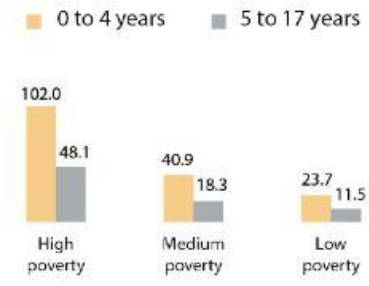
# Asthma Emergency Room Visit Rate

(by Borough, 2016 per 10,000 children in age group)

- Asthma-related emergency room visit rates
- Asthma-related hospitalization rates



## Asthma-related hospitalization rates (per 10,000 children in age group)



## Child Poverty Rate

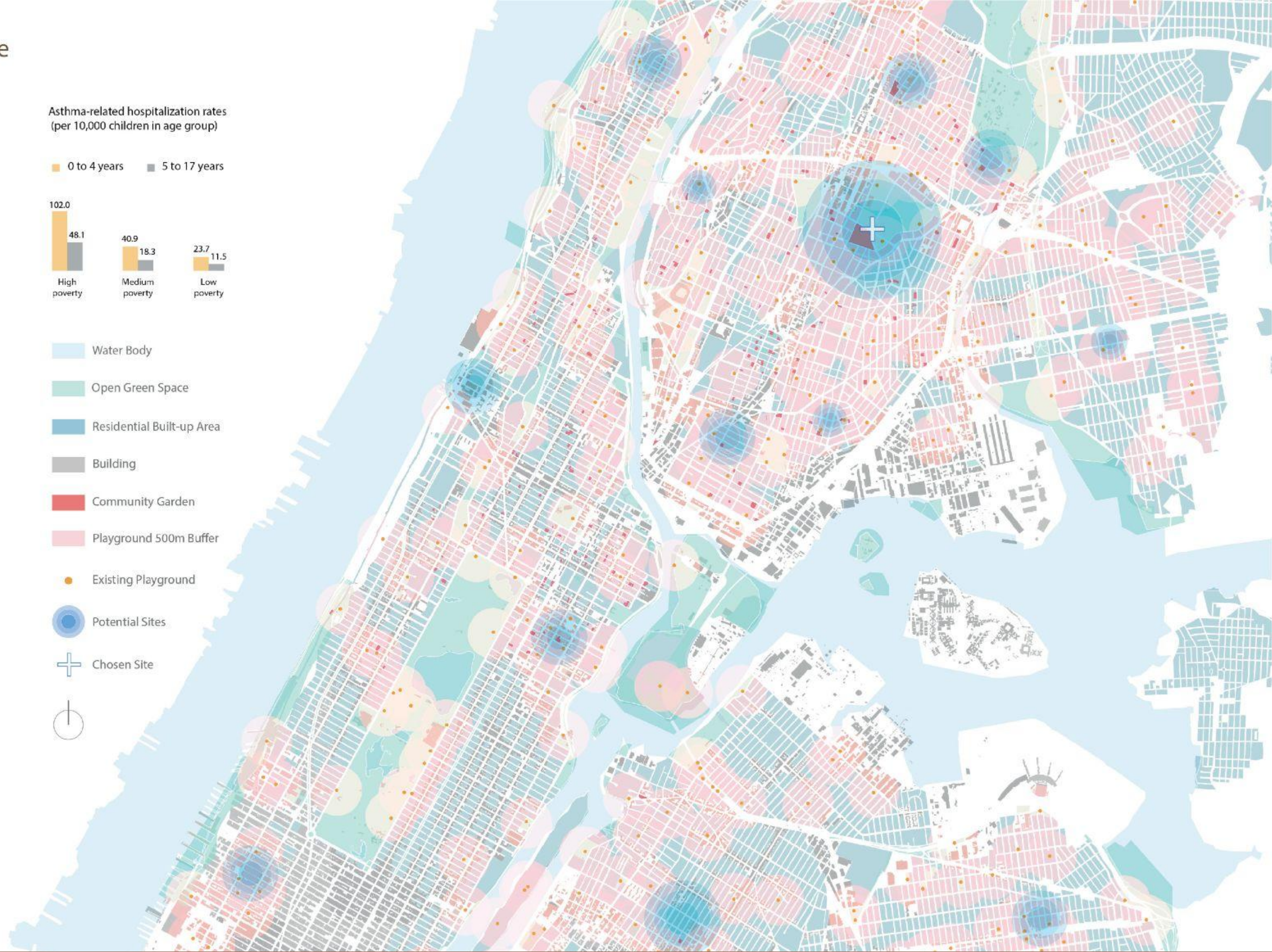
- 0.8% - 9%
- 9.1% - 18.8%
- 18.9% - 30.7%
- 30.8% - 40.9%
- 41% - 50.9%
- Parks/Uninhabited

## Asthma Emergency Room Visit Rate (per 10,000 children 5 to 17 years old)

- 16.9 - 100.9
- 101.0 - 205.8
- 205.9 - 334.0
- 334.1 - 472.5
- 472.6 - 683.4
- Parks/Uninhabited

[1] "Keeping Track Of New York City's Children: 2020 - CCC New York"

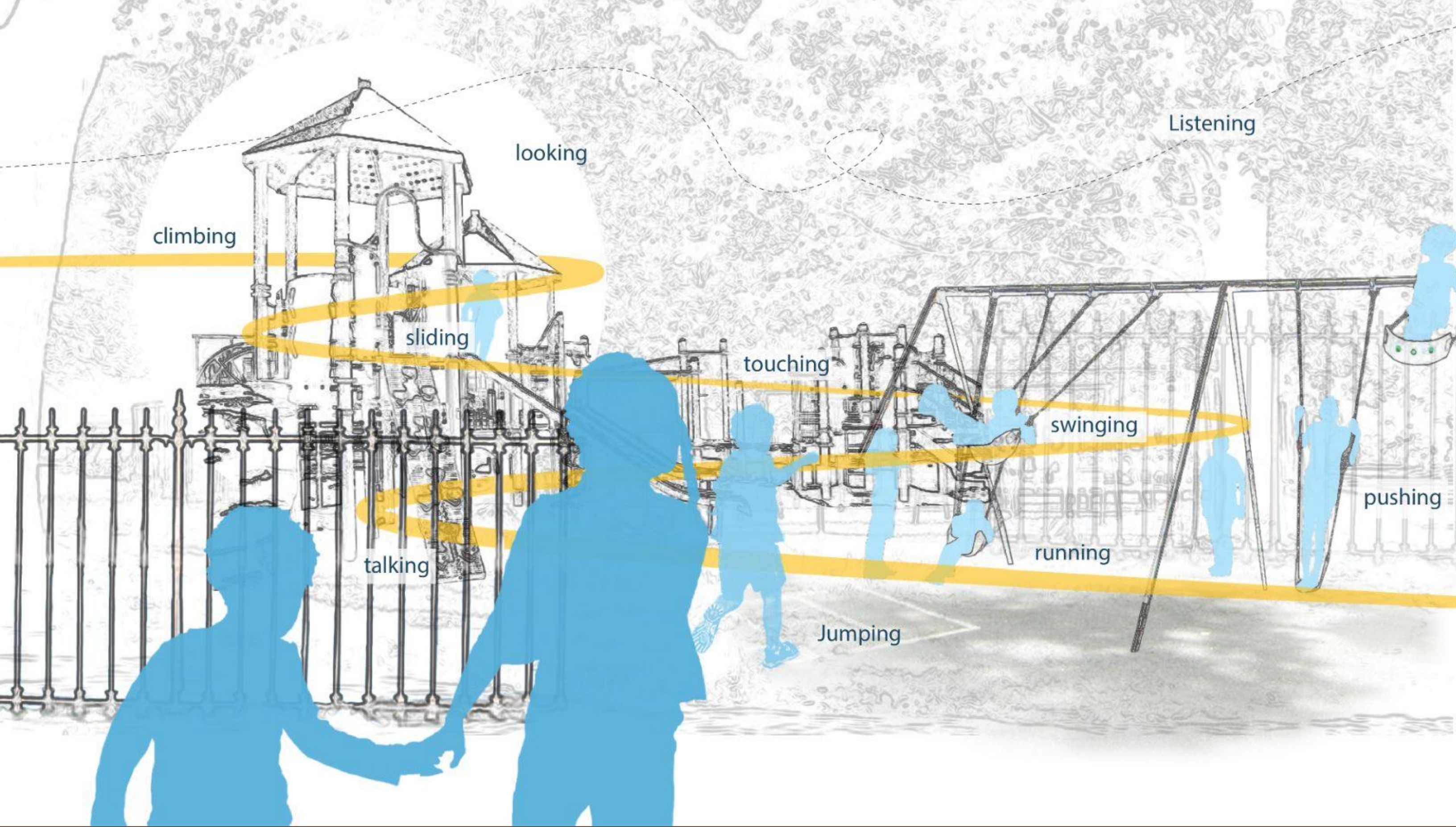
- Water Body
- Open Green Space
- Residential Built-up Area
- Building
- Community Garden
- Playground 500m Buffer
- Existing Playground
- Potential Sites
- ⊕ Chosen Site
- 



## NYC Potential Playground Sites GIS Mapping

This diagram showcases our strategy of utilizing GIS data to identify and evaluate potential sites for the deployment of our designed playgrounds.





**Existing Conditions**

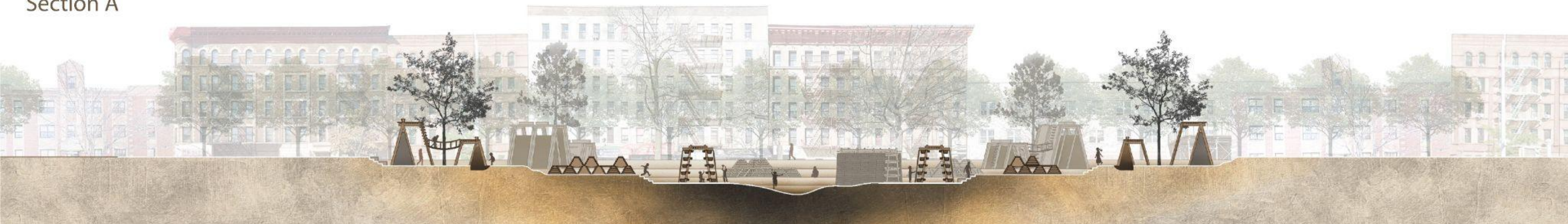
This collage illustrates our site's existing condition, showcasing its speciality, materiality, and activities happening within it. (Playground in Crotona Park, Bronx, NYC)

# Proposed Plan

- 1. Mud Playground
- 2. Sand Playground
- 3. Sky Playground
- 4. Open Plaza
- 5. Open Plaza
- 6. Park Compost Site
- 7. Open Lawn
- 8. Pedestrian Bridge
- 9. Park Compost Site
- 10. Bioretention
- 11. Open Lawn
- 12. Entrance Plaza
- 13. Pedestrian Park Entrance
- 14. Crotona Park Lawn
- 15. Pedestrian Park Entrance
- 16. Vehicle Park Entrance



# Section A



## Proposed Master Plan and Section

The master plan and section of our site demonstrate the integration of our designed playscape within the existing urban fabric.

## Zoom in Playground Plan

Crotona Park Internal Path

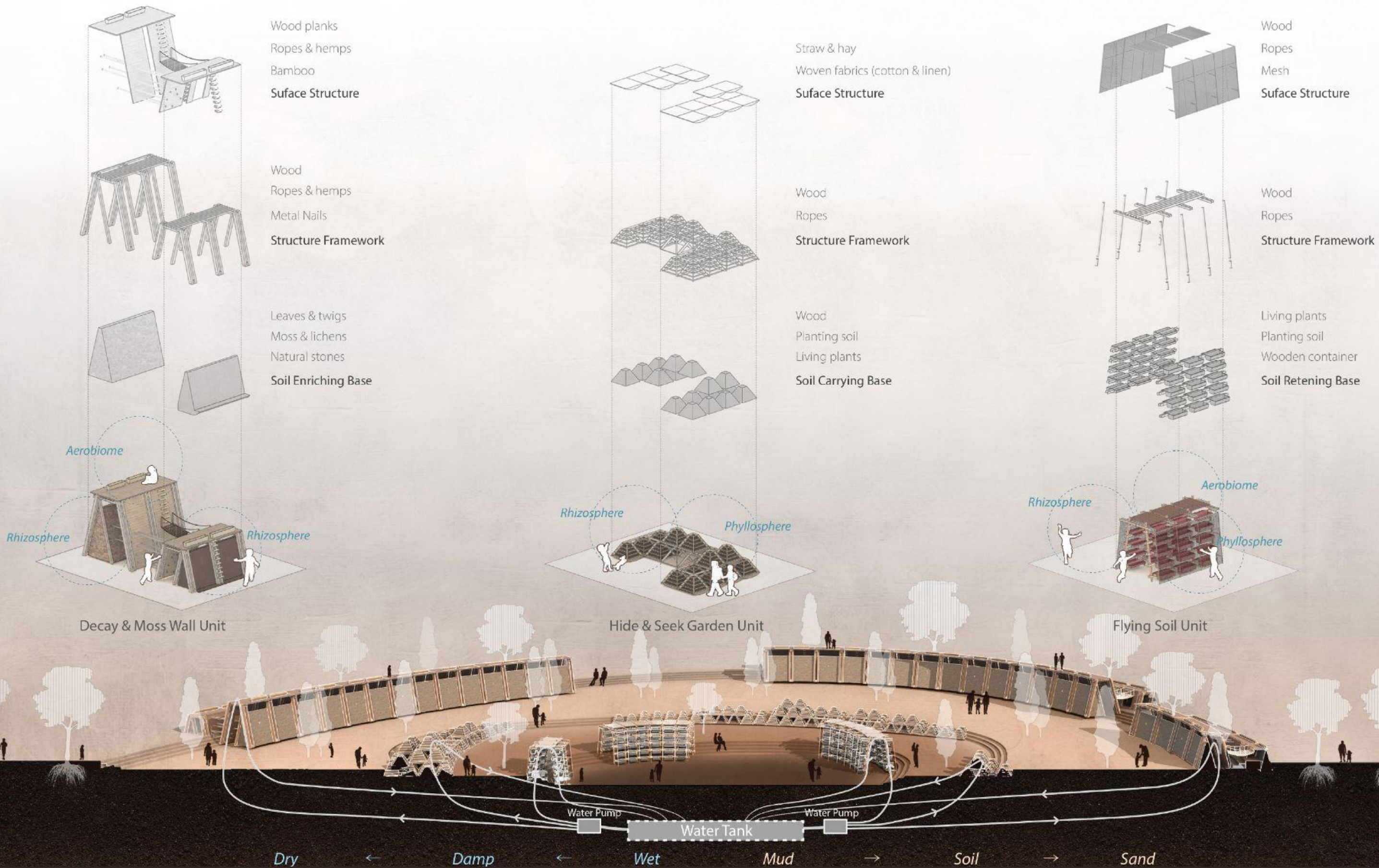
1. Mud Playground
2. Flying Soil Units
3. Soil Playground
4. Hide & Seek Units
5. Sand Playground
6. Decay & Moss Wall Unit
7. Raised Sitting Platform
8. Pedestrian Bridge
9. Bioretention
10. Playground Compost Site
11. Compost Piles
12. ADA Ramp
13. Playground Entrance
14. Playground Entrance
15. Open Plaza
16. Open Plaza
17. Open Lawn

0 25 50ft



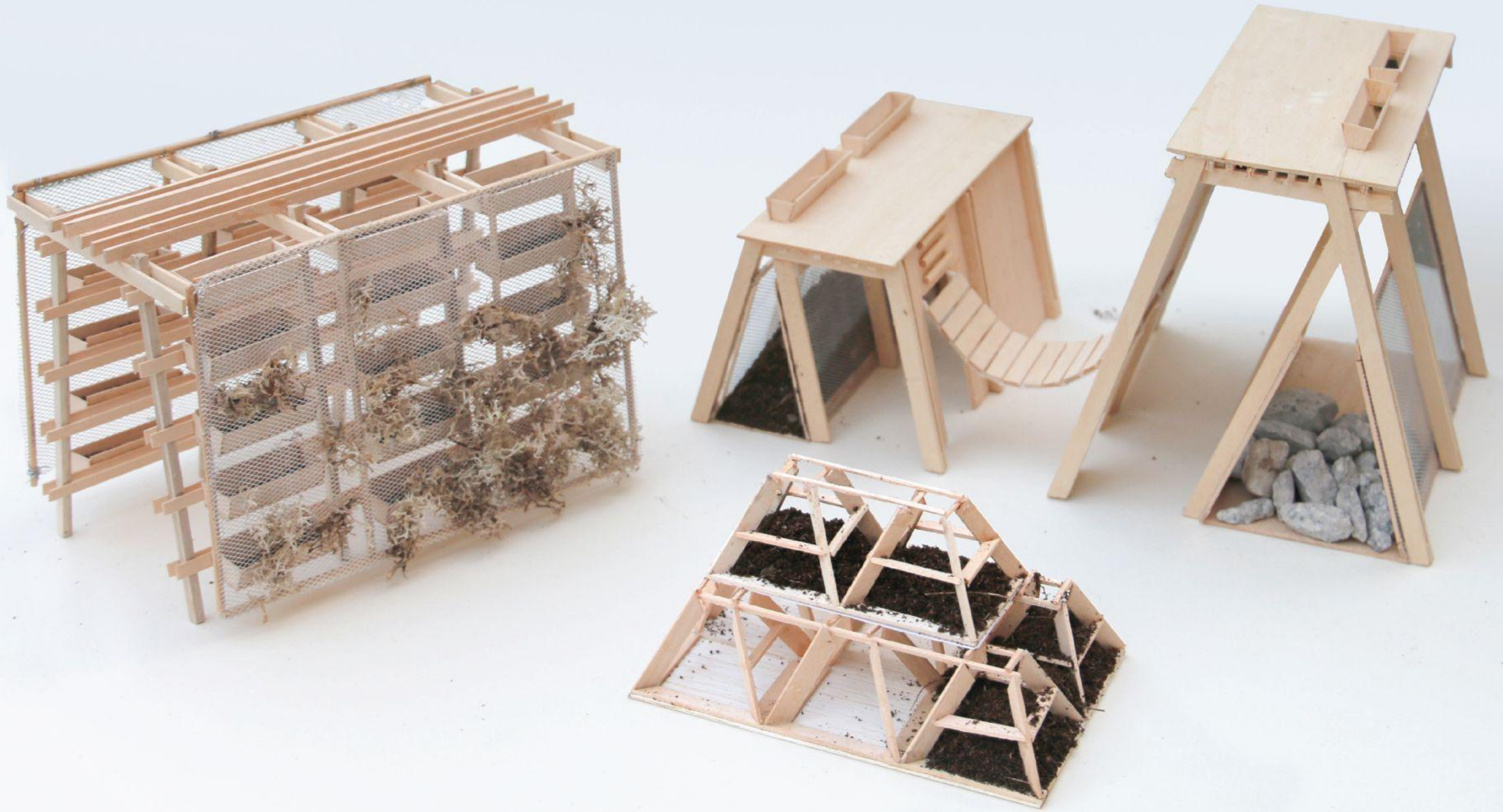
## Zoom in Proposed Site Plan

The master plan and section of our site demonstrate the integration of our designed playscape within the existing urban fabric.



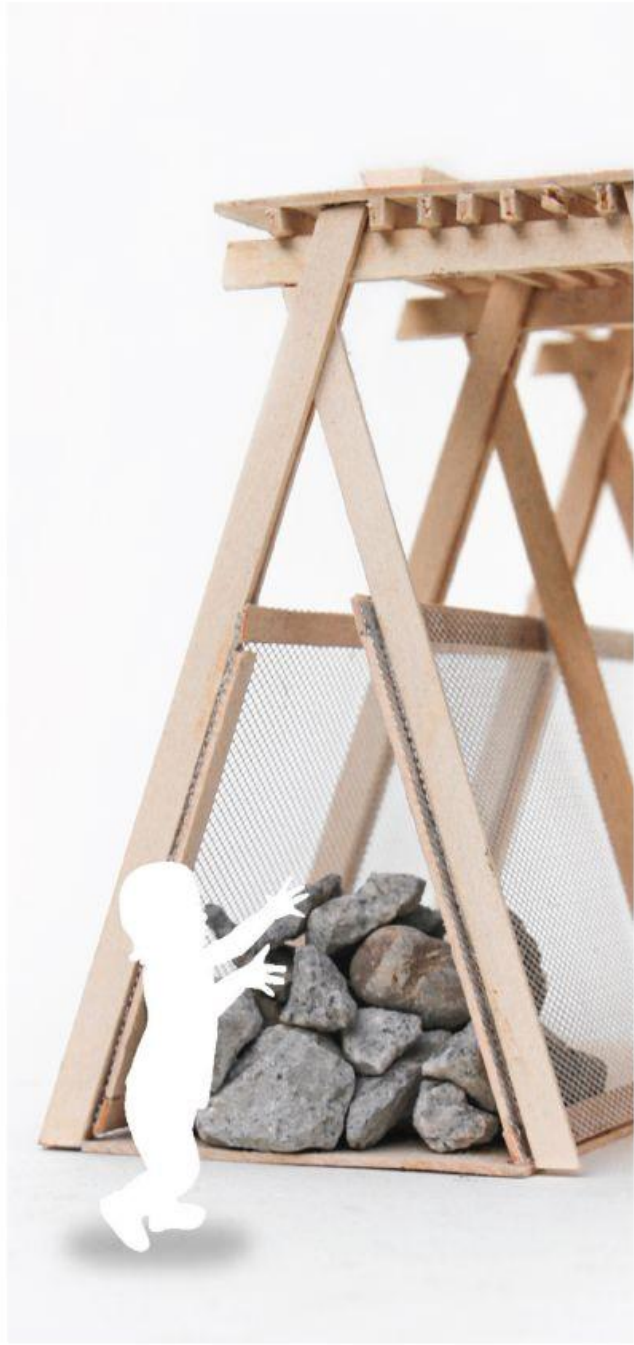
### Exploded Axonometric Drawing & Section Perspective

Three playground units with different structures and surfaces form a circle to frame the site and together provide a rainwater collection and purification system.



**Physical Model Photo**

This overall model photo shows the dimensions and structures of the different playgrounds, and the different natural materials added to them.



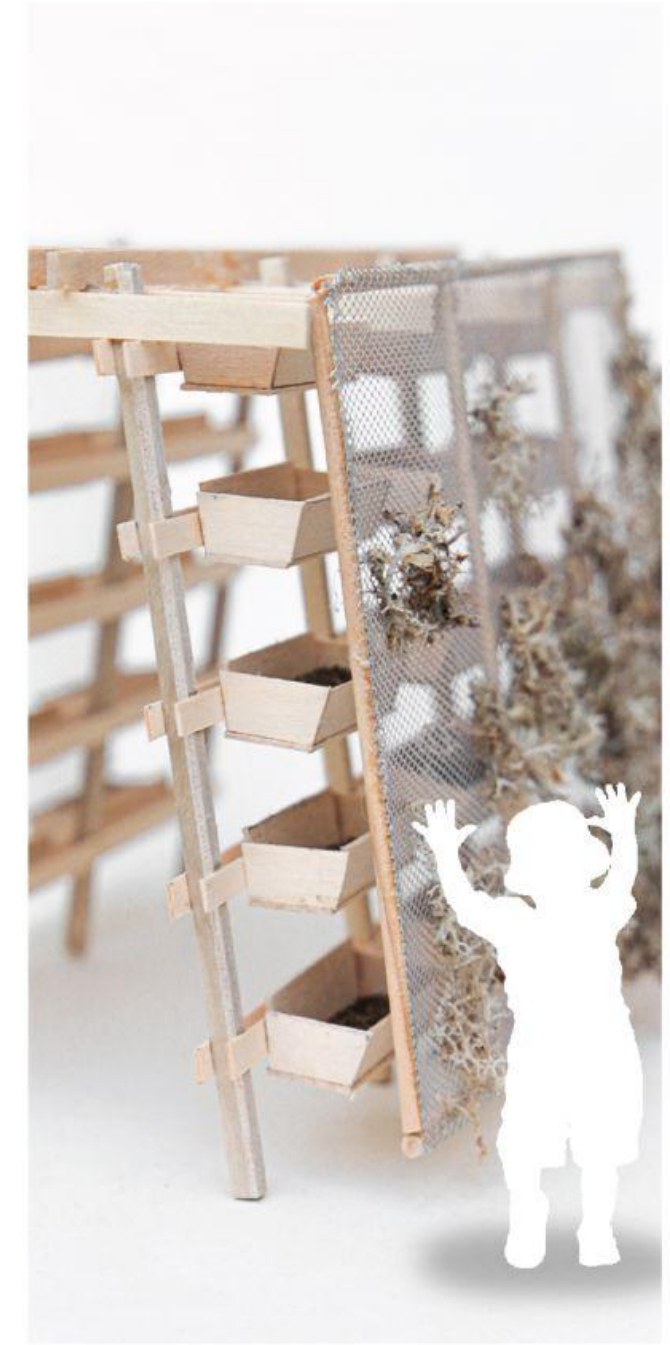
Moss Wall



Decay Wall



Hide & Seek Garden



Flying Soil Wall

### Detailed Physical Model Photos

These four model photos show the details of different playgrounds, and the children's exposure to various natural surfaces in an intimate scale.



**Mud Playground - Flying Soil Wall**

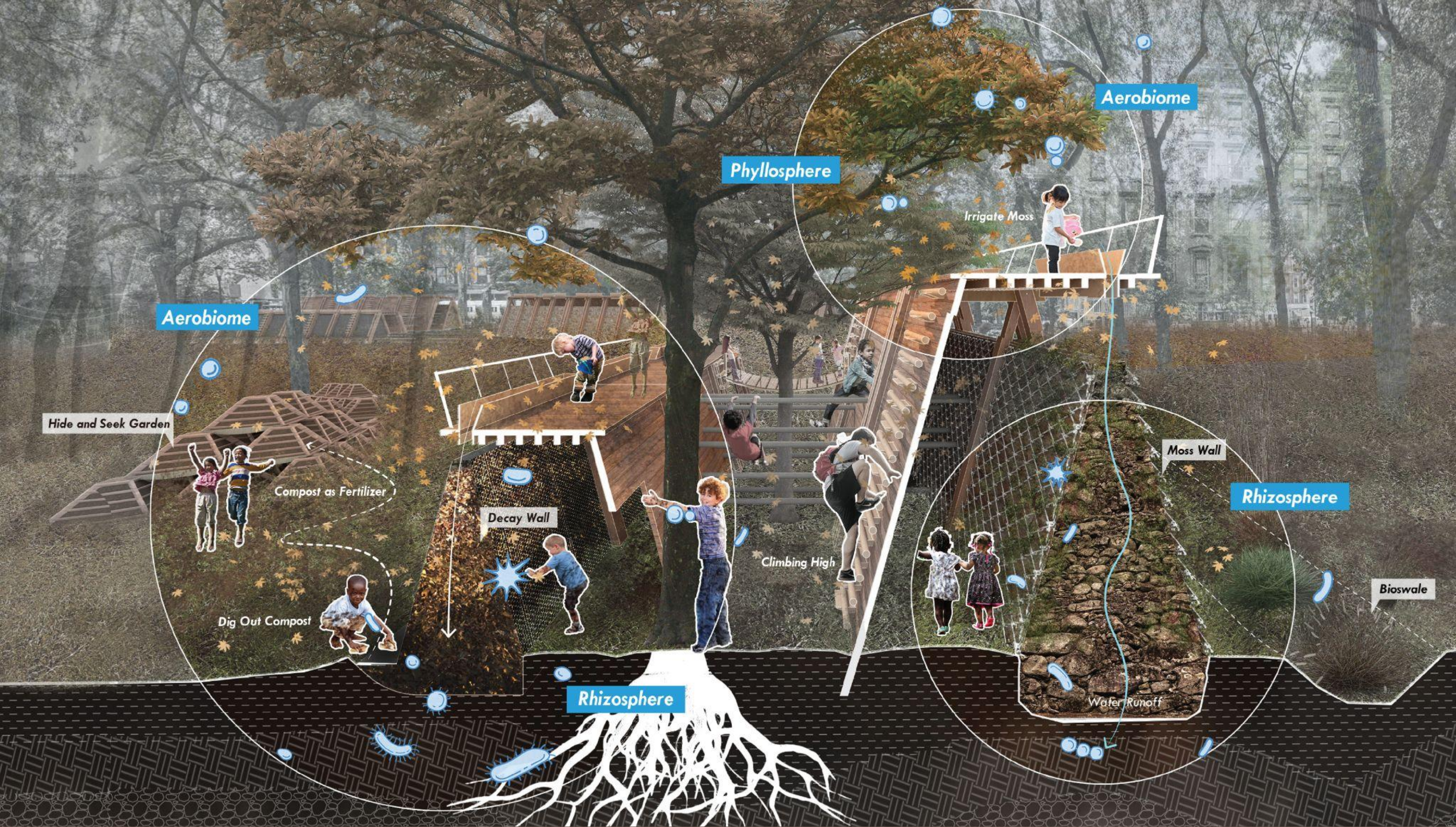
Children can mix seeds with mud and throw them onto the flying soil wall. As time passes by, the plants will grow spontaneously, leaving the trace of play.



**Sand Playground - Hide and Seek Wall**

The hide & seek wall is not only a support for plants, but also a playground for kids. They can gain unique perspectives when interacting with plants.





**Sky Playground - Decay & Moss Wall**

Kids are collecting yard waste and making compost in the sky playground. Through playing, they can observe and participate in the soil material cycle.