

Arch 464  
ECS  
Spring 2002

Name \_\_\_\_\_

Quiz #3

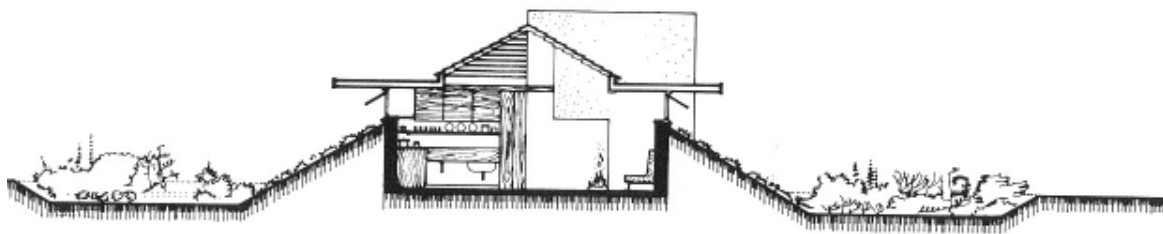
## "Actualizing Wright's Vision for Usonia I"

For this problem you are the water use consultant for the Taliesin Fellowship which is attempting to finally build Frank Lloyd Wright's 1939 plan for Usonia I as a shining example of sustainable architecture that demonstrates Wright's prescience. Your job is to articulate the water use issues that the Fellowship faces and to suggest design modifications to address sustainable water use in the spirit of Wright's concept. The design is regarded as the first practical demonstration of the principles of Broadacre City.

The cooperatively owned development is located on a 40-acre tract for which Wright laid out sites for seven houses, each with a private garden, and a caretaker's residence adjacent to the farm's small fields, orchard, and fishpond. Wright and the co-op members' intent was to create a self-sufficient neighborhood.

The original plan was denied financing in 1939 by the FHA's ultra-conservative view of construction, "the walls will not support the roof; floor heating is impractical; the unusual design makes subsequent sales a hazard." This dismissal happened in spite of Wright's personal presentation to the FHA in Washington, DC. The newly formed cooperative and the Taliesin Fellowship are determined to demonstrate the FHA's short-sightedness.

The site is located in Lansing, Michigan, which has a cool temperate climate—cold, snowy winters and hot, humid summers. It gets an average of 43 inches of rainfall each year with July and August as the dry season. The average Michigan house consumes 180 gallons of water a day.



*House plans for the site featured earth berms and radiant slabs.  
Each roof had wide eaves to provide sun protection to the windows.*

Wright's first use of low-cost berm insulation was planned for the Cooperative Homesteads.

## Site Water

5 points

1. The site design was conceived as a central farmstead and caretaker's house surrounded by the seven house sites and their gardens. A river and two ponds form the site's northwest boundary. To attain self-sufficiency and sustainability, all water must be obtained and treated on-site. **List** five improvements that are essential to water management on this site, **identify** what needs each will address, and **explain** how each can be integrated into the site and building design. Use the site plan and make diagrams to **illustrate** your ideas.

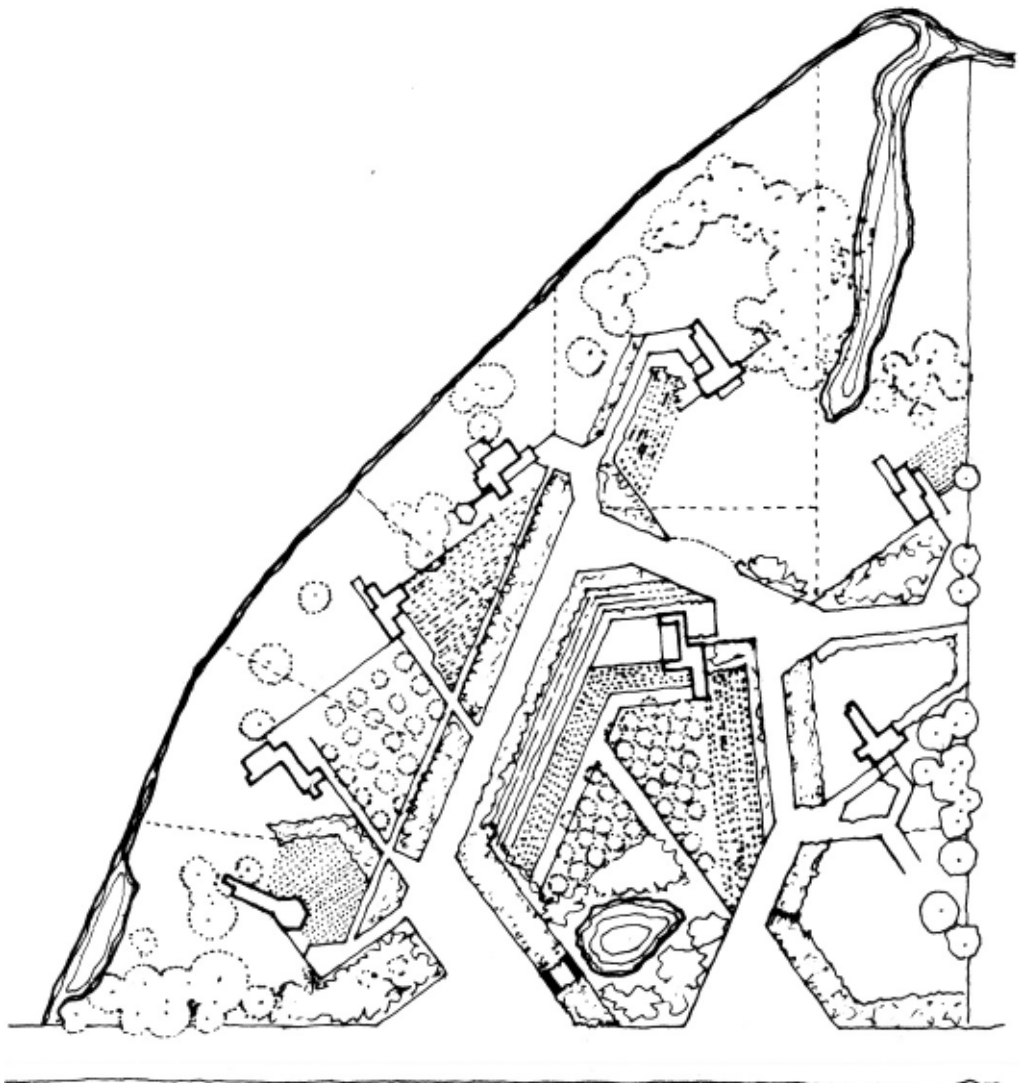
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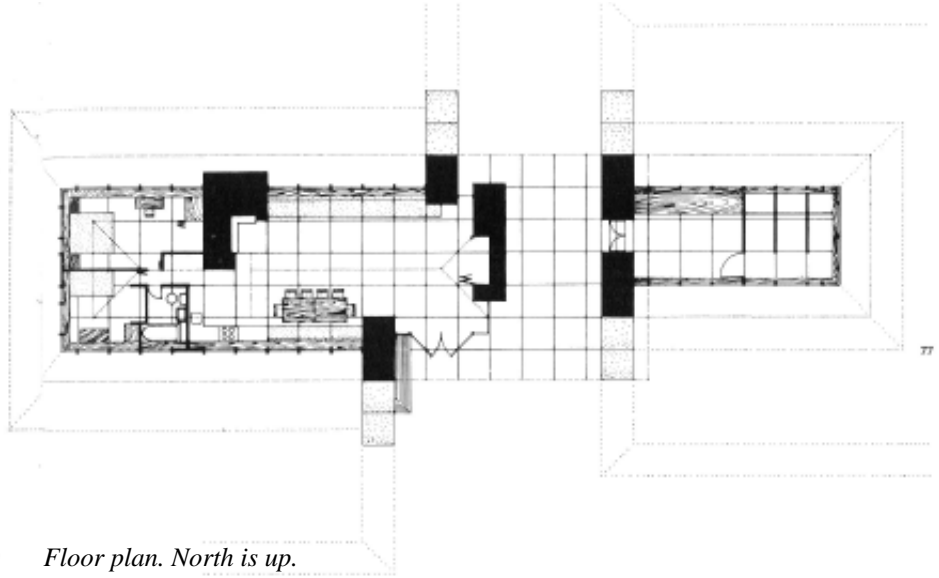
*Site Plan. North is up. The access road forms the south boundary..*

Usonia I project, site plan, Lansing, Michigan, 1939. The six Usonian homes were grouped around a shared farm unit.

## Building Water

5 points

2. Each house is modest in size (1,000 to 1,500 sq.ft.) has an integrated carport and out building (for food processing and storage and clothes washing). **Show** five features that the typical house (below) should incorporate to attain Wright's vision of water self-sufficiency. **Explain** how each can help ensure water conservation and high quality water.



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