



October 14, 2006

# Earthship Biotectures

Experimental Subdivision in Taos, New Mexico  
Greater World Earthship Community

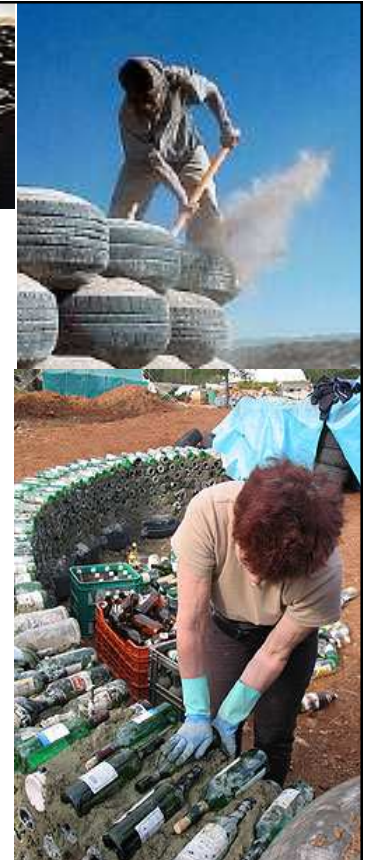
**Ann Schmidt**

Sustainability and the Built Environment



# What is an Earthship?





# Natural and Recycled Materials

- **Used Tires**
  - Rammed earth tires are the frame of the structure
- **Bottles and Cans**
  - Used as a filler to minimize the use of concrete in the structure.
- **Adobe**
  - Plaster
  - Interior walls
  - Exterior landscaping walls





# Solar Heating and Cooling

- **Passive Solar Design**
  - Southern Oriented
  - Wall of glass
- **Thermal Mass Construction**  
(heats and cools slowly to maintain comfortable temperatures)
  - Rammed earth tire construction
  - Burmed earth wall connects to deeper earth mass
  - Stone, concrete, or tile flooring



# Water Harvesting & Contained Sewage

- **Rain water and snow is collected from the roof**
- **Stored in large cisterns**
- **Used 4 times**
  1. Filtered and used for drinking, bathing and cleaning
  2. Grey water is then filtered through an indoor botanical cell and used to grow plants for food
  3. Recycled grey water is used to flush toilettes
  4. Black water is then treated in a septic system, then used to irrigate outer botanical cell.





## Solar and Wind Electricity

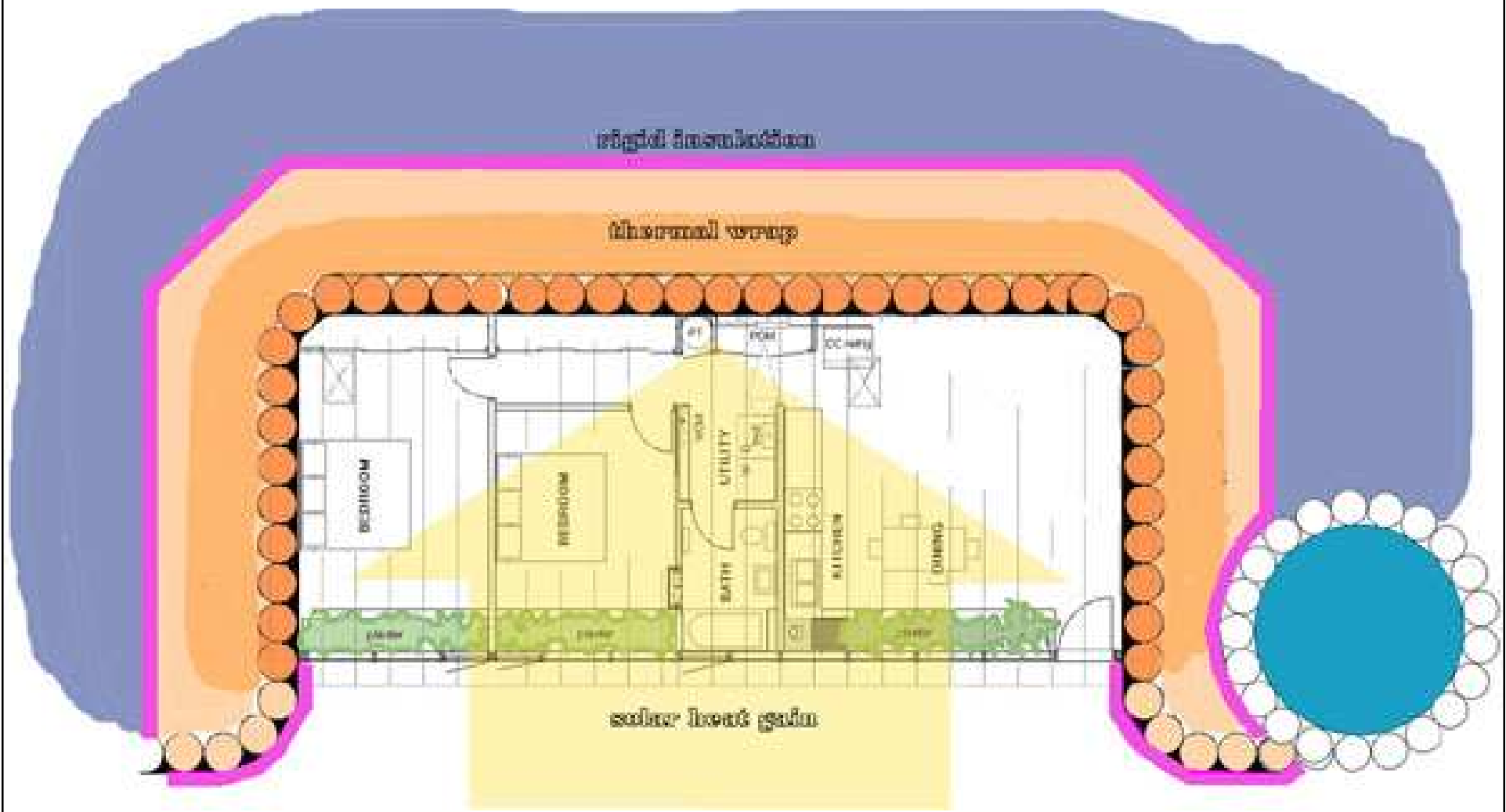
- Earthships produce their own electricity with a prepackaged photovoltaic / wind power system.
- This energy is stored in batteries and supplied to electrical outlets.
- Earthships can have multiple sources of power, all automated, including grid supplement.



rigid insulation

thermal wrap

soil heat gain



# Packaged Earthship












# Who developed the Concept?

## Michael Reynolds

Michael Reynolds is An Architect/developer of Earthship Biotectures. Mr. Reynolds has been developing Earthships for over 30 years. He is the developer of the Greater World Earthship Community



# The Greater World Earthship Community

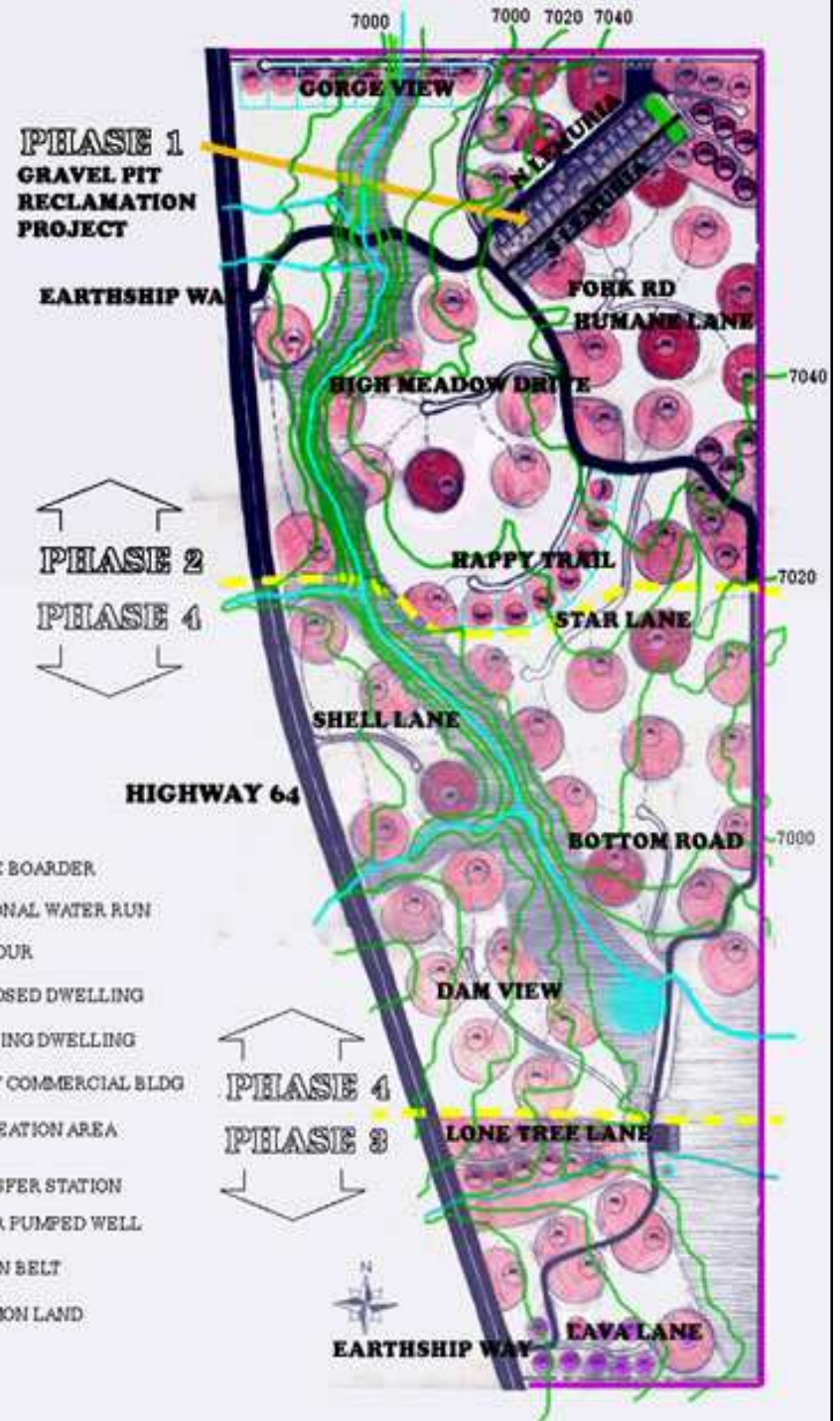
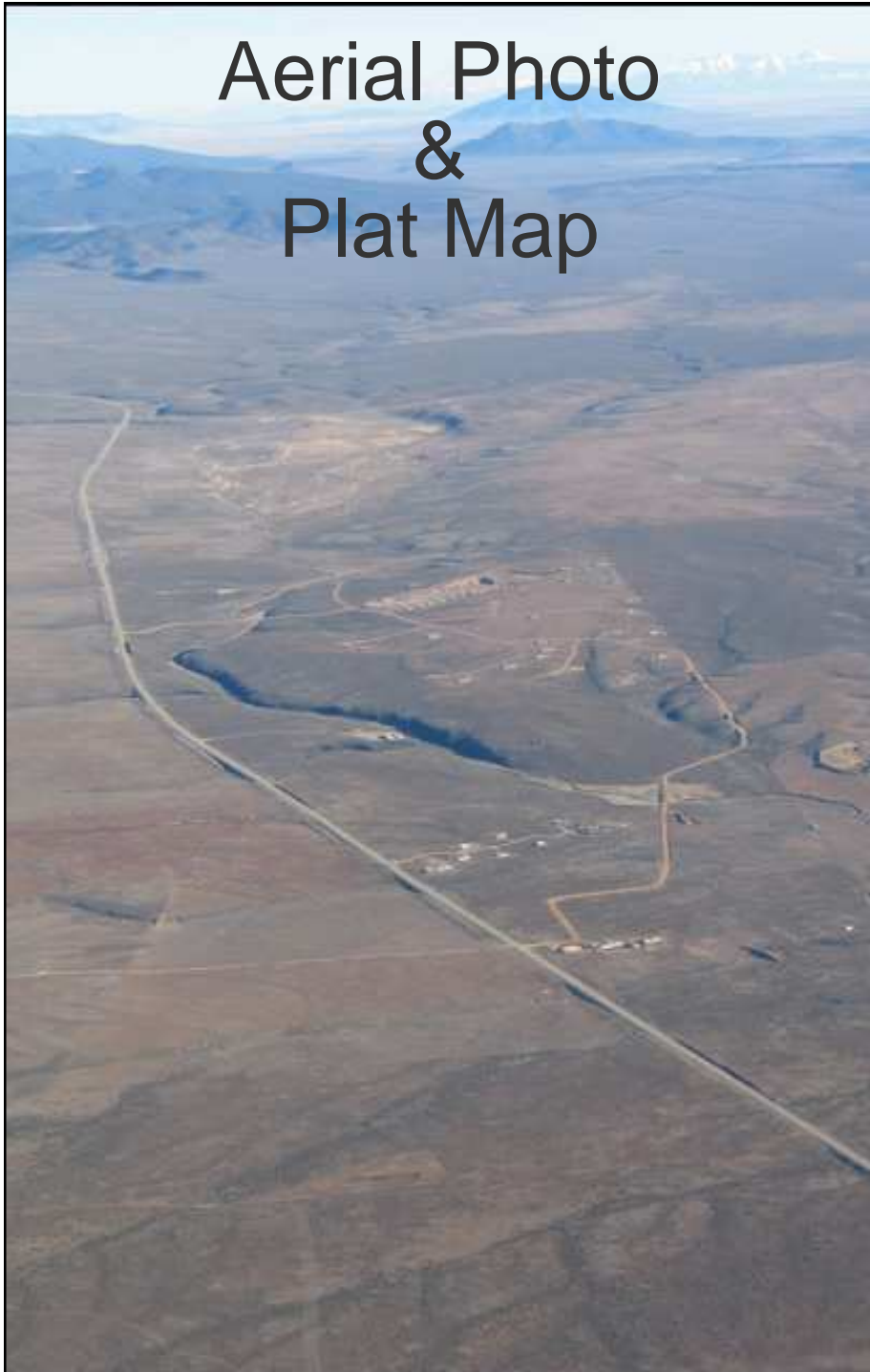
An aerial photograph of the Greater World Earthship Community, showing several earthship-style dwellings scattered across a vast, arid desert landscape. The community is situated in a valley, with a prominent dirt road winding through the area. In the background, a range of mountains is visible under a clear sky. The overall scene conveys a sense of isolation and self-sufficiency in a natural environment.

“That which contributes to its surroundings in the world at large is constantly reinforcing it’s own existence.”

# Ground View



# Aerial Photo & Plat Map



# Gravel Pit Reclamation Project



# Gravel Pit Reclamation Project Close Up





“We are simply adapting our needs to the already existing activities of the Planet.”



## Conclusion

This architecture exceeds the general expectations of a sustainable building.

- What would entice a developer to build a subdivision in CA?
- Is this a realistic subdivision for California's central valley?



## More Information

<http://www.earthship.org>

Organization researching development of Earthships

<http://www.pinkhammer.blogspot.com/>

Find out how one woman at the Greater World community built her Earthship.

<http://www.lowcarbon.co.uk>

Earthship research in the UK.

