

# **FUEL PRODUCTION SITE:** CONSTRUCTION



### **1. SUBTERRANEAN**

After initial inspection, the initial digging starts to build and place the foundations. The dig starts with mixing the earth and gravel to strengthen the planar area before pouring the foundation mix. Bitumen concrete will be used to reduce the embodied carbon from construction footprint.

### 2. RAMMED EARTH

Once the foundations are placed, the walls will be framed and filled with earth, to be rammed in layers. The earth will be from excavated soil and also sourced locally from Fly Ranch. The retaining walls will be strengthened with metal frames and rebar, ensuring safety and safe gravity load.

### 3. FUNCTIONS + MECHANISMS

The press mechanisms and platforms will then be installed and secured in place, while backfilling in appropriate areas to allow for installation of flooring, stairs, plantings, and other finishes in the designated areas.

### 4. HILL CREATION

The final step is the create berms around the site with excavated soil, where retaining walls will keep the soil in place. The result is the geometric contrast of the site with the surrounding organic materials. Native plants and shrubs will be planted on the hillside where possible.

### FOUNDATIONS

The retaining walls are made from rammed earth. It will be reinforced with steel bars, ensuring ability to take dead loads from soil retension.

The footings comprise of the excavated earth mixed with 5% polymer and 2% cement, with reinforcing steel.

The foundation "wall" under the footings is 2% cement mixed with the excavated material and compacted back in 150mm thick layers at a time.



#### NATIVE PLANT SPECIES



## **DESIGN PRINCIPLES**

#### VISTA FRAMING AXIS

Situated on the 1997 Burning Man site, the press is a compass (desert) rose. Built near a Black Rock City of the past, it looks to the current yet invisible BRC.

The site axes act as guides, one enters from the southerly farm and finds directed views towards the the Hualapai Flat and to the visitor's final destination, the main commons.

### THREE TIERS OF INTERACTION

First tier is listening. Visitors must physically and sightlessly coordinate by listening to their partners. The second tier, is listening and seeing. The wind will reveal the cistern's contents to those who listen, and the cistern will reveal a distant BRC to those who look carefully. The third and highest tier, emphasizes seeing. Elevation affords a sweeping view of the flat.

## **BRICKMAKING PROCESS: DETAILS**

SAFETY COVER ⊢



### **BRICK PRESSING BOX**

At the center of the first floor, rest aside the metal box with a drawer mechanism to uncover the press drawer for making biomass fuel bricks. Miscanthus material is loaded from top using a foot pedal and a shredder, falling down to the basin where users will mix the materials and load them into the drawer.



#### PRESS DRAWER EXPLODED VIEW



COMPRESSION RATE

### **BRICK PRESSING MECHANISM**

As the screw jack goes up, the pressing plate pushes the loaded mix of miscanthus material, densifies them and drains the excess water from the mold, leaving the condensed materials with the brick shape inside the press as biomass fuel bricks.

# **FUEL PRODUCTION SITE: DESIGN, DRAWINGS, & MECHANISMS DETAILS**

#### **BRICK PRESS: PLAN VIEW**





Comprising three tiers, the site affords different interactions at each level.









### FIREFLOWER BIOMASS FUELS

Burners have diverse needs. The briquette is adaptable; left whole, it is stackable, easy to transport, and offers shelter from the wind to kindling. Broken apart along seams left by the mold, it can be used comfortably in a variety of contexts, from lanterns to stoves.





### TOWARDS MYCELIUM BRICKS

INTRODUCE MYCELIUM CULTURE

Mycelium is the vegetative part of a mushroom. The fine white filaments can saturate a substrate like miscanthus in a matter of days. Put in a mold, left to grow, and finally baked, miscanthus and mushrooms make a powerful team, creating strong, fire-resistant material that can be used to build seasonal infrastructure and sculpture.

PERMEATION

MYCELIUM BRICK PROCESS