

FORM

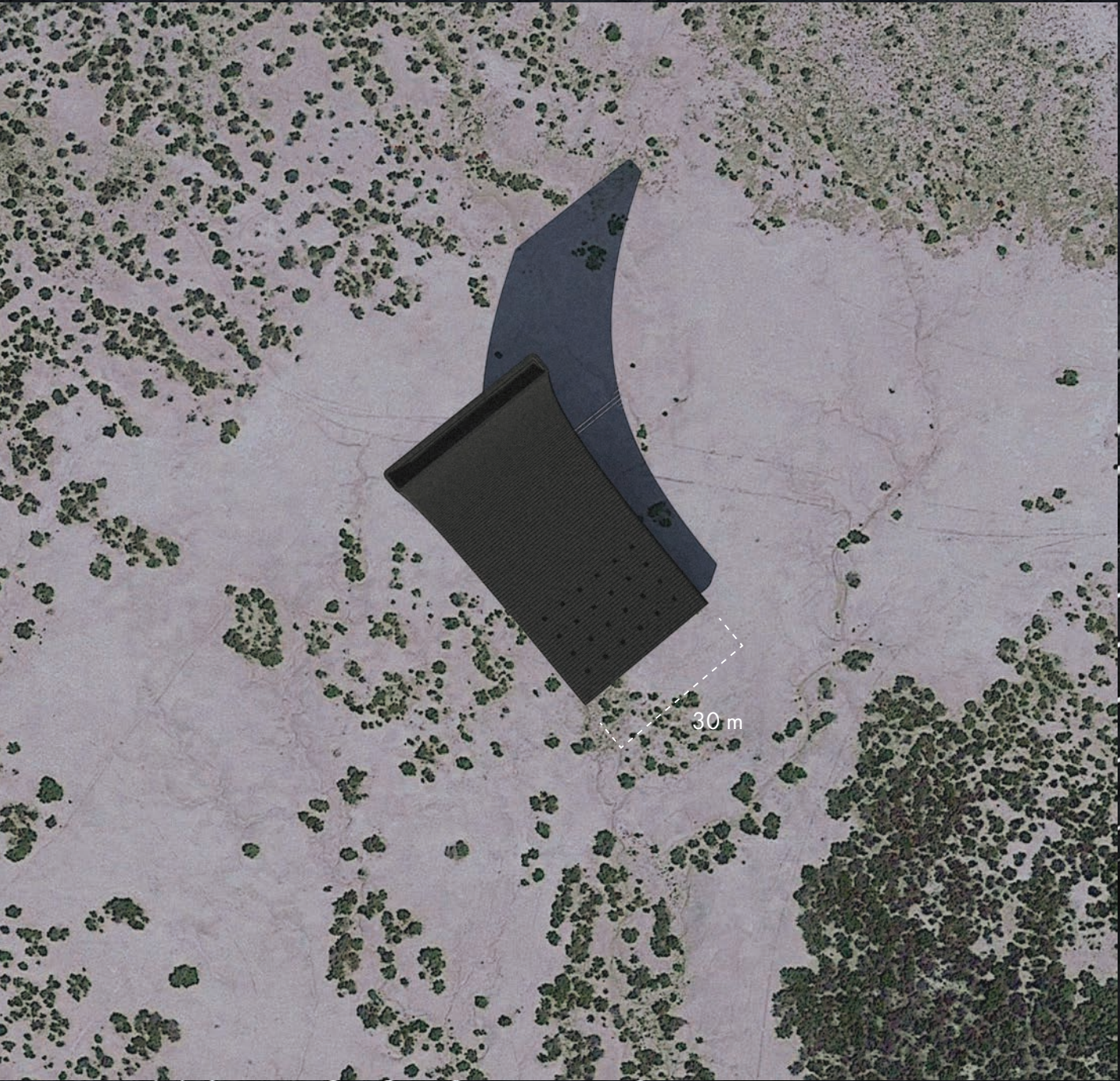
The conceptual form is evolved from the conventional incinerator smokestack and articulated as a sweeping parametric profile morphing from horizontal to vertical in juxtaposition to the horizontal nature of the surrounding playa, with a monumental presence prominently visible from a distance.

EXTERIOR STRUCTURE

Structurally, the intervention consists of a permeable assembly allowing for the visible passage of light and steam from the burning modules within. The outermost layer of the shell is constructed of aerated autoclaved concrete tubes, precast and pretensioned before being joined by welded contacts. This provides lightweight but rotationally stiff layers on the exterior that work as individual spanning units and as a system, resisting shear and torsion. On a larger level the shape of the form itself resists lateral forces through the curvature of the shell as well as the rear fold and front ribs forming the underside of the structure. The exterior concrete is pigmented black via iron oxide (magnetite), giving it a stronger visual presence against the lighter landscape.

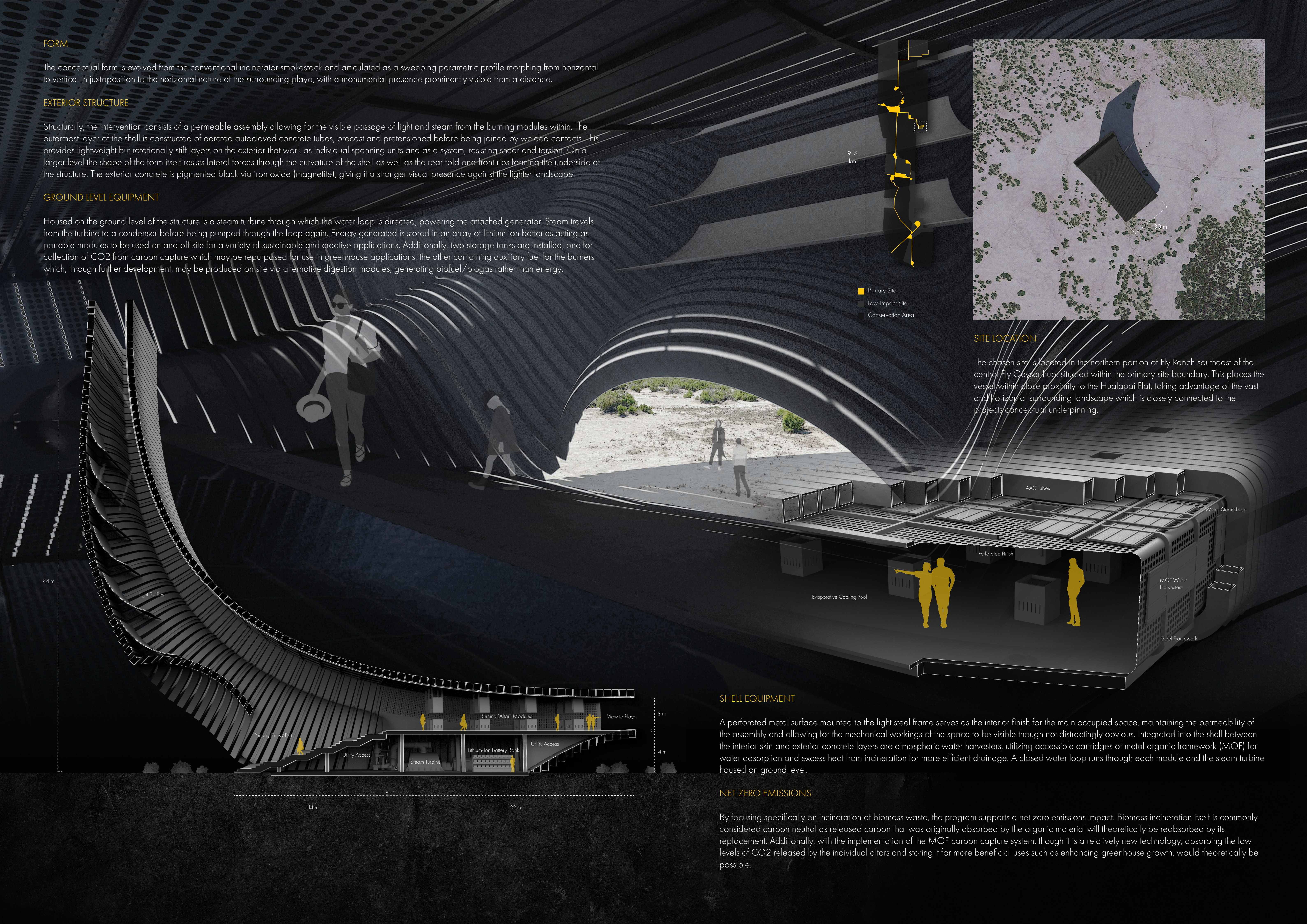
GROUND LEVEL EQUIPMENT

Housed on the ground level of the structure is a steam turbine through which the water loop is directed, powering the attached generator. Steam travels from the turbine to a condenser before being pumped through the loop again. Energy generated is stored in an array of lithium ion batteries acting as portable modules to be used on and off site for a variety of sustainable and creative applications. Additionally, two storage tanks are installed, one for collection of CO2 from carbon capture which may be repurposed for use in greenhouse applications, the other containing auxiliary fuel for the burners which, through further development, may be produced on site via alternative digestion modules, generating biofuel/biogas rather than energy.



SITE LOCATION

The chosen site is located in the northern portion of Fly Ranch southeast of the central Fly Geyser hub, situated within the primary site boundary. This places the vessel within close proximity to the Hualapai Flat, taking advantage of the vast and horizontal surrounding landscape which is closely connected to the projects conceptual underpinning.



SHELL EQUIPMENT

A perforated metal surface mounted to the light steel frame serves as the interior finish for the main occupied space, maintaining the permeability of the assembly and allowing for the mechanical workings of the space to be visible though not distractingly obvious. Integrated into the shell between the interior skin and exterior concrete layers are atmospheric water harvesters, utilizing accessible cartridges of metal organic framework (MOF) for water adsorption and excess heat from incineration for more efficient drainage. A closed water loop runs through each module and the steam turbine housed on ground level.

NET ZERO EMISSIONS

By focusing specifically on incineration of biomass waste, the program supports a net zero emissions impact. Biomass incineration itself is commonly considered carbon neutral as released carbon that was originally absorbed by the organic material will theoretically be reabsorbed by its replacement. Additionally, with the implementation of the MOF carbon capture system, though it is a relatively new technology, absorbing the low levels of CO2 released by the individual altars and storing it for more beneficial uses such as enhancing greenhouse growth, would theoretically be possible.