
MOON BASE OMEGA

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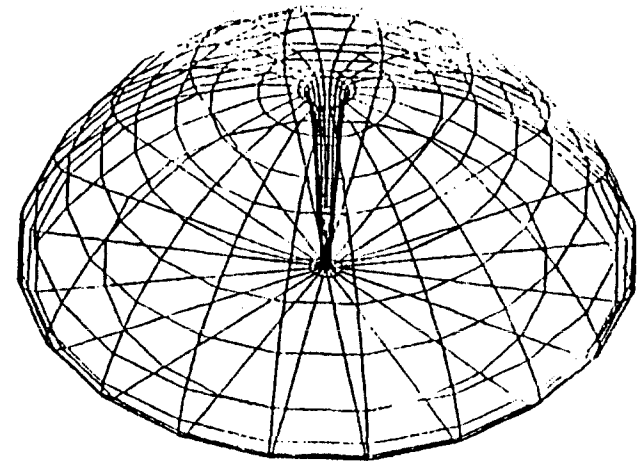


An exploration of the most cost and time efficient method of lunar construction was the primary goal of this project. Tension structures and inflatable habitats would be utilized for their least weight properties. An analogy of a camping trip with high technology gear served as the concept. A detailed construction sequence shows the ability to construct the base with very minimal human intervention.

The base would be divided into two conceptual parts, the shielding net and the habitation domes. Each pressurized dome would be linked to other domes with a maximum of three "hard" tube circulation modules. These earth manufactured tubes would serve a multitude of purposes. Besides the obvious circulation link, they would be the primary points for ingress and egress from the base and would serve as self-contained safe havens in the event of a pressure loss in one of the inflatable domes. They would also function as cargo containers for the earth shipments of additional building materials.

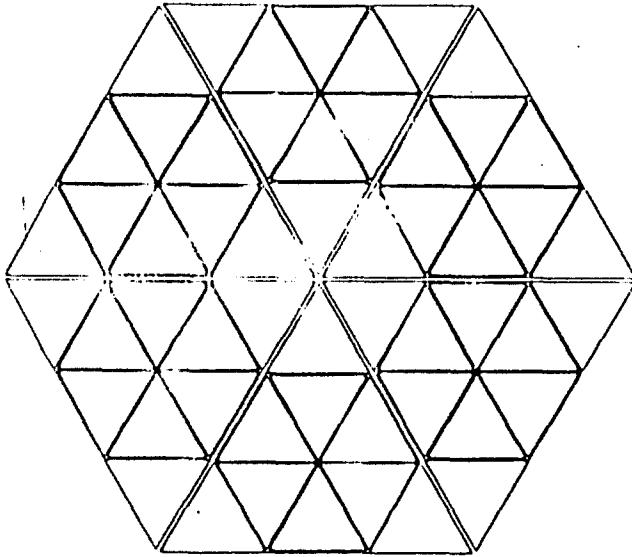
After site selection, robotic regolith-moving machinery would create craters approximately 20 M (65 feet) across. Three evenly spaced support pylons would be created with a portion of the regolith around the depression's edge. Steel cables and netting would be placed in the crater and over the three support mounds. After 3 meters of regolith is replaced and compacted over the net, the cables would be pulled taut and a cave like shelter created. Additional net shelters could be linked in a triangulated fashion using common support points.

The inflatable domes would employ twin membrane construction for safety and insulating reasons. Insulation injected between the inner and outer domes after inflation would serve as the primary thermal regulating element. A containment structure of netting would allow the domes to retain their shape with the internal pressure. Environmental requirements would be supplied from a detached power station and enter each dome through a central core. The interiors would be easily adaptable for various needs by using hung fabric dividers. The upper floor of a dome would again use tension technology and be hung from a central support column.

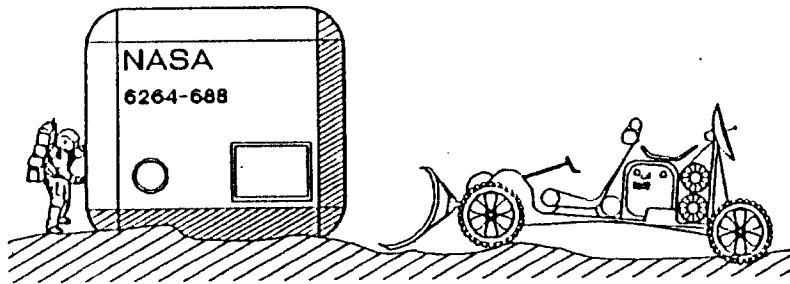


Isometric view of Inflatable habitation pod with central supply core.

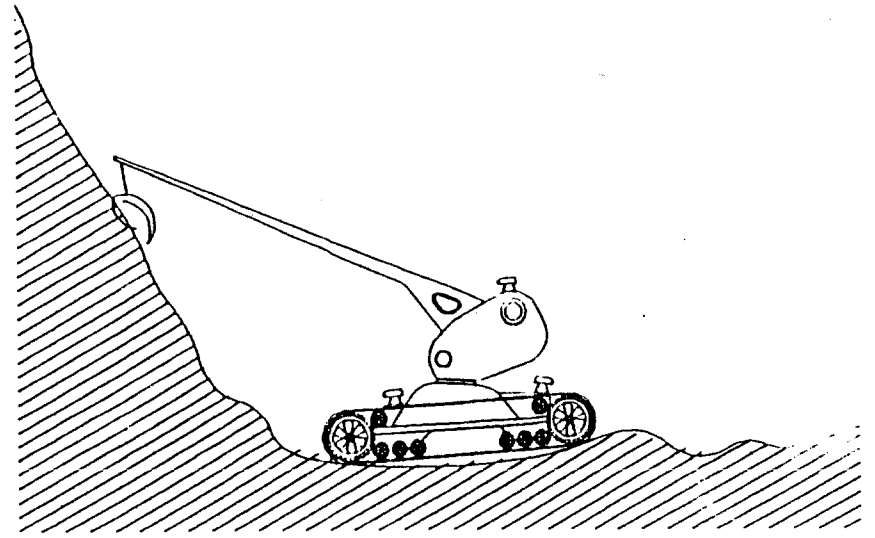
Key design issues of this scenario include tension structures to reduce shipping mass and weight, multi-use spaces and overall base growth and planning. Safety concerns and interior space adaptability are also significant issues.



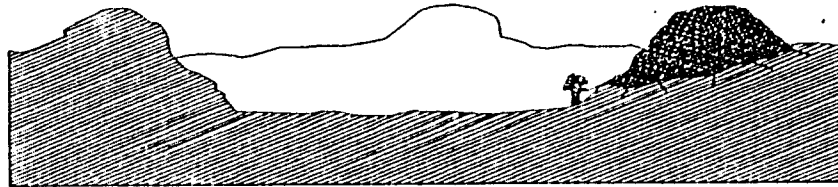
Possible configuration of regolith shielding nets. A circular configuration allows multiple use of support points and convenient access to all modules.



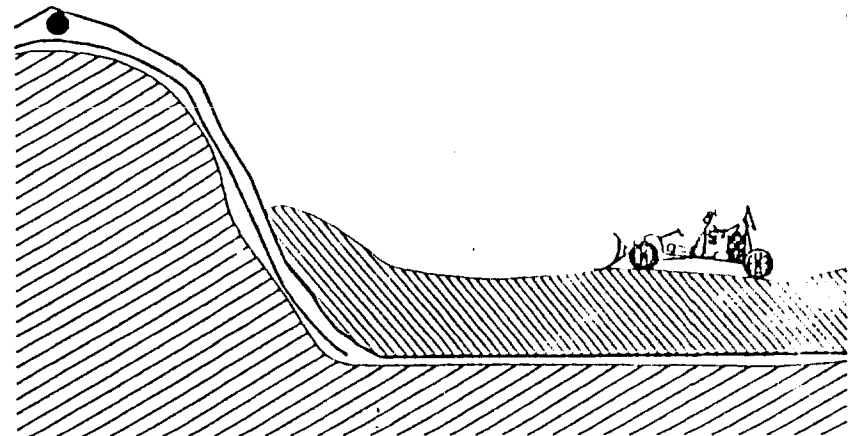
1. Materials are delivered to the site in reusable containers.



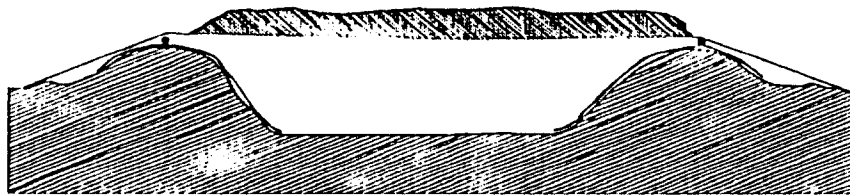
2. Excavation of site is begun using robotic machinery.



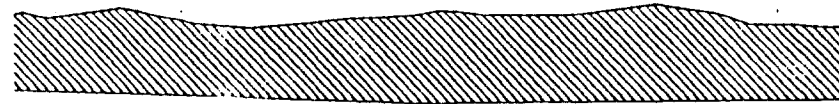
3. Netting is placed over the support mounds to add strength.



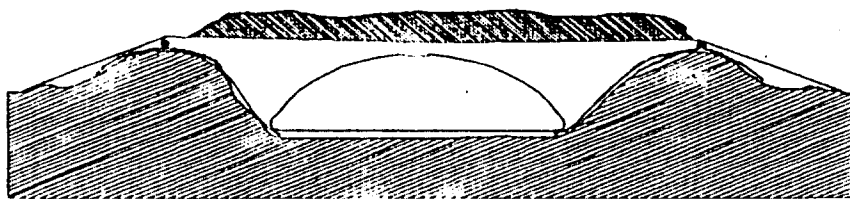
4. compacted regolith is placed over the cover net.



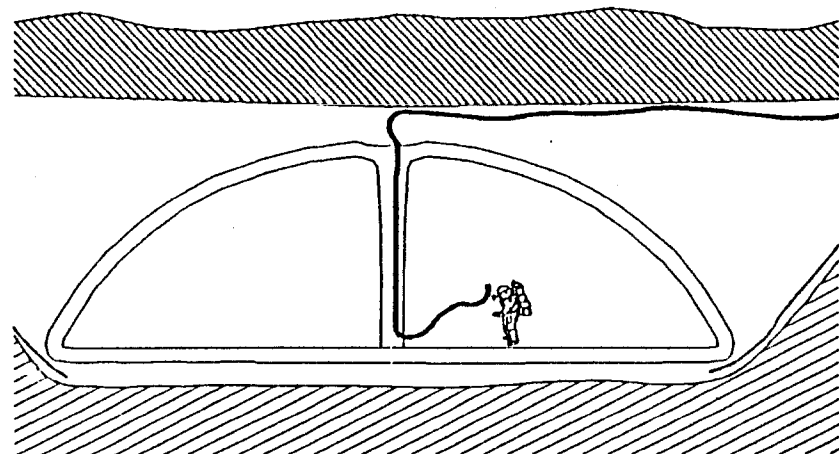
5. The protective net is holsted into place providing a radiation shield.



6. Inflatable domes are inserted in the cavity.

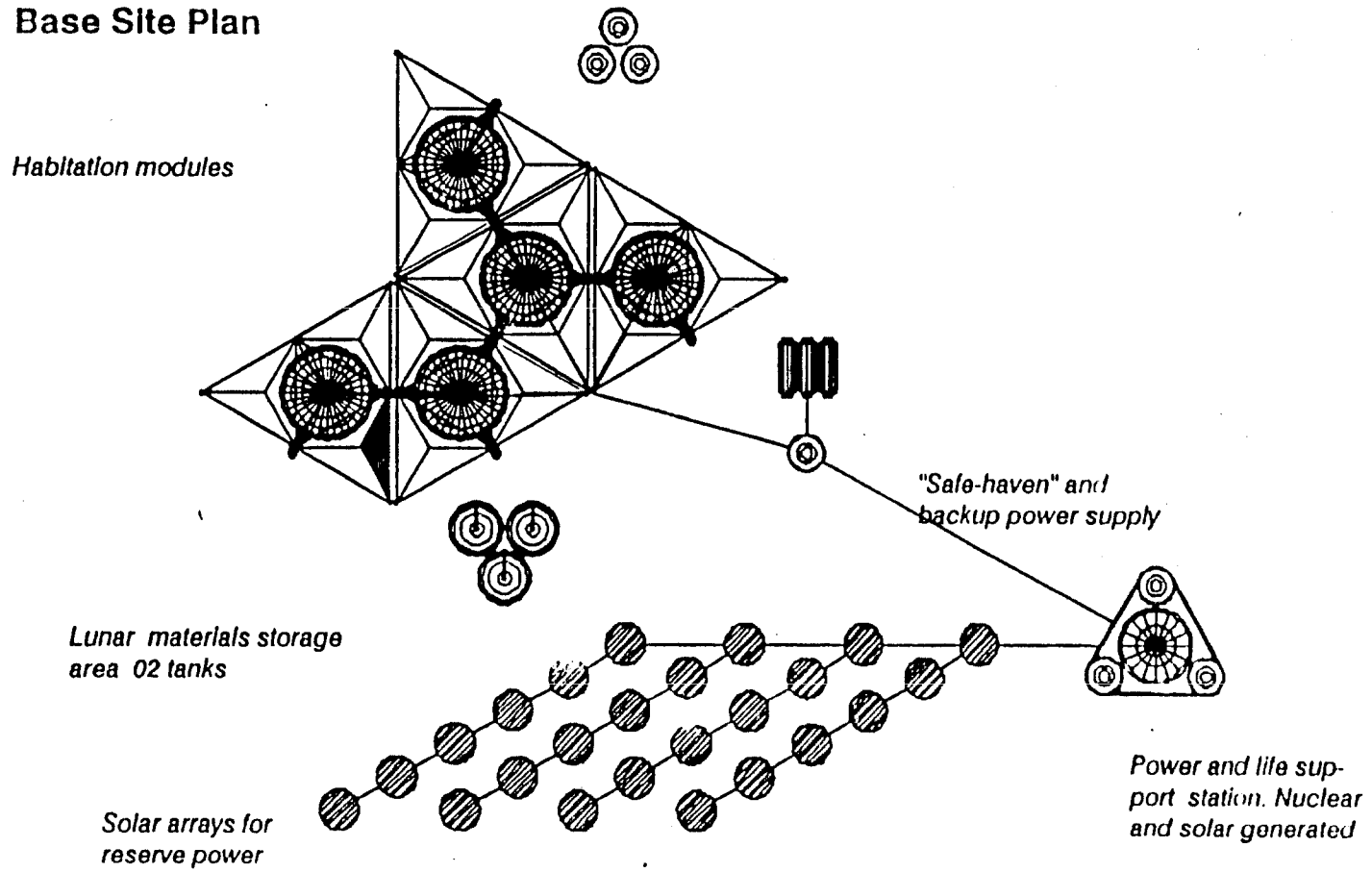


7. The dome is inflated and passage ways are connected.

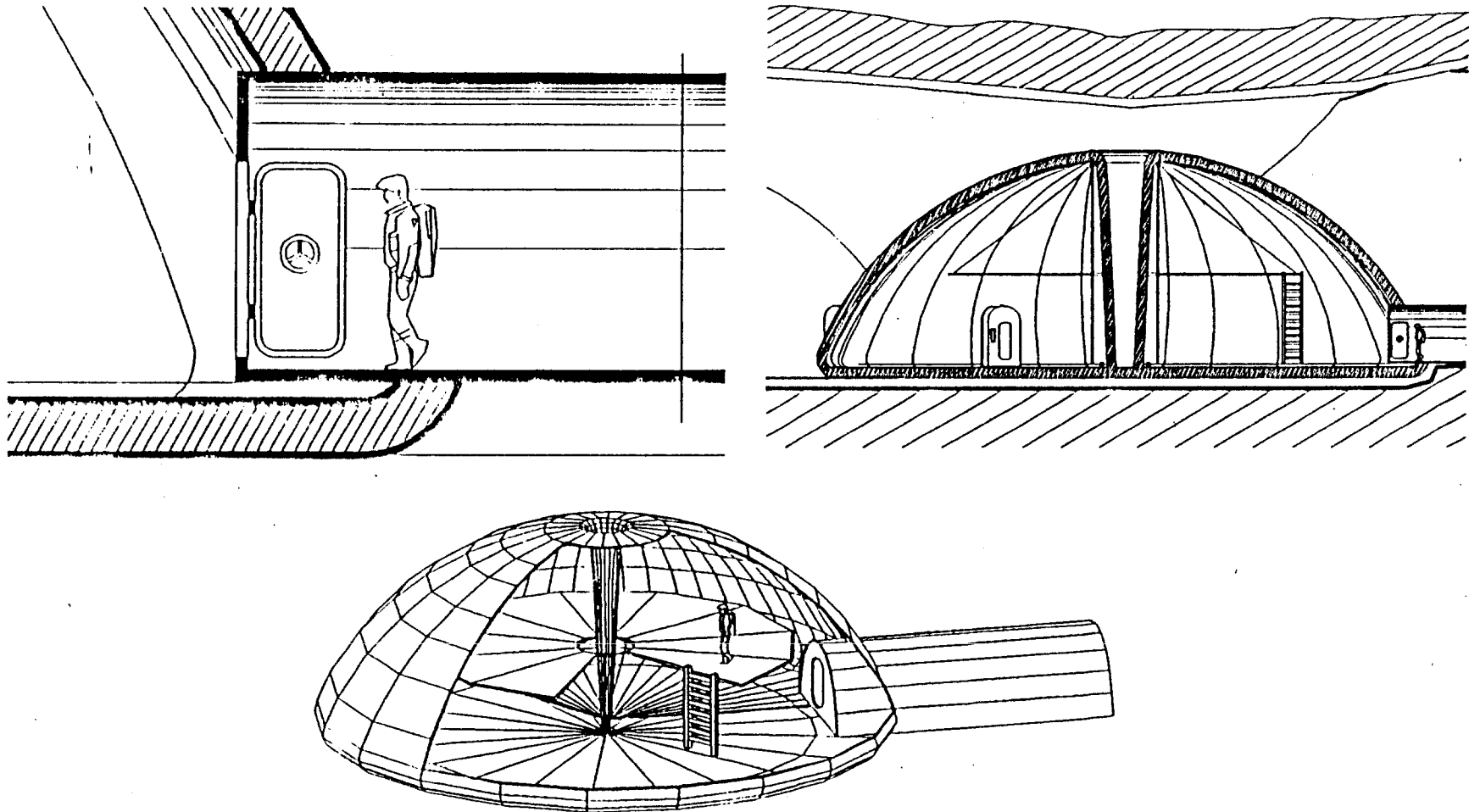


8. After the inner dome is inserted, life support systems are connected.

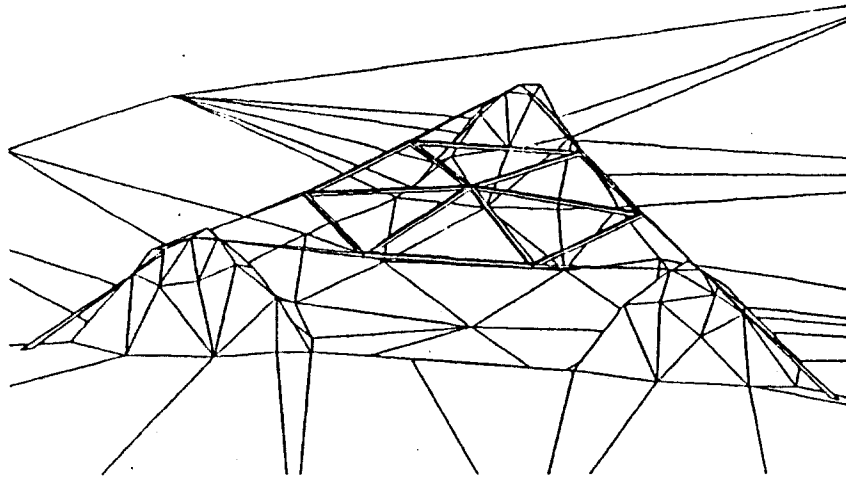
Base Site Plan



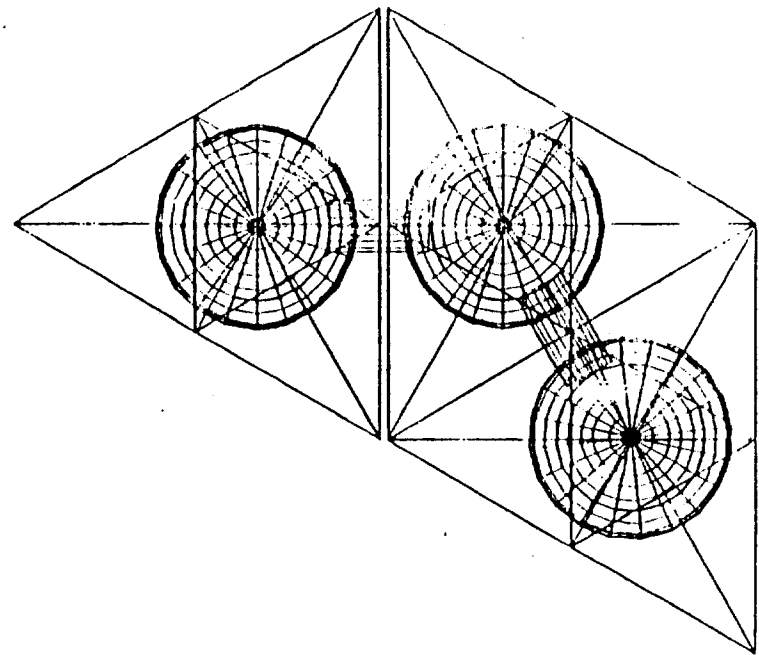
A site plan of later phase base development showing five inflatable habitation modules and various support systems.



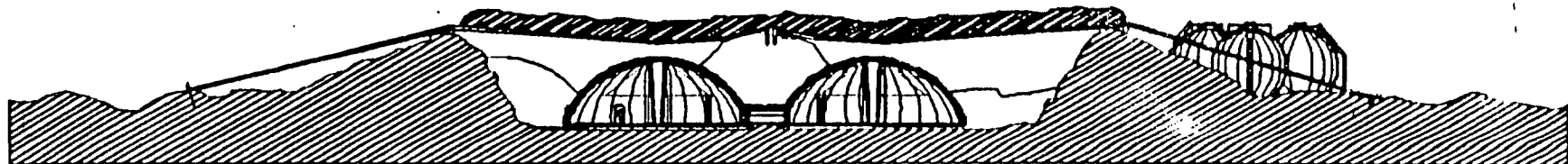
Section, detail and cutaway isometric view of habitation domes, showing how interior systems integrate with double layered dome.



Perspective of regolith netting used to shield habitation domes



Plan view showing relationship between netting and dome structures.



Site perspective of base.