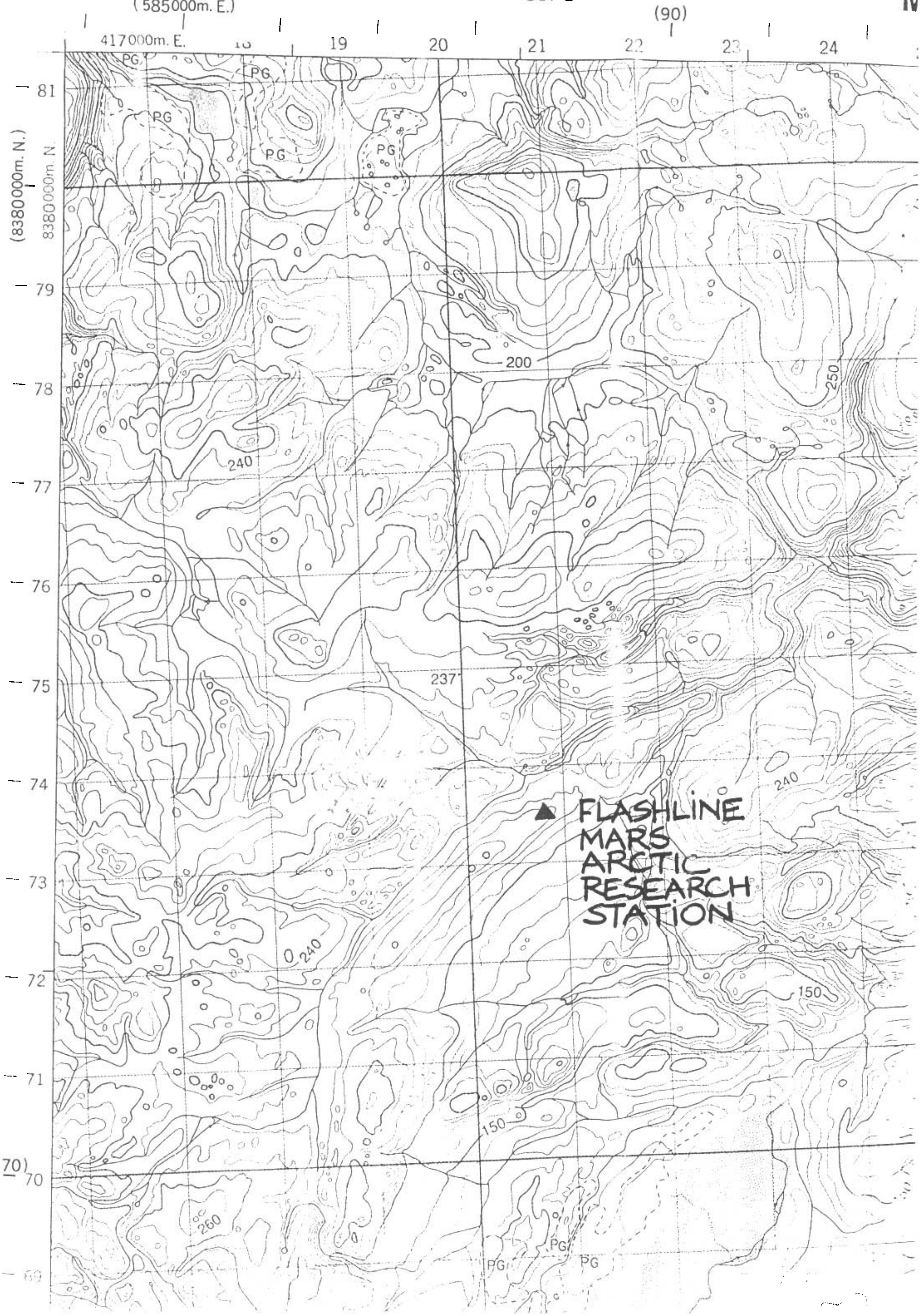
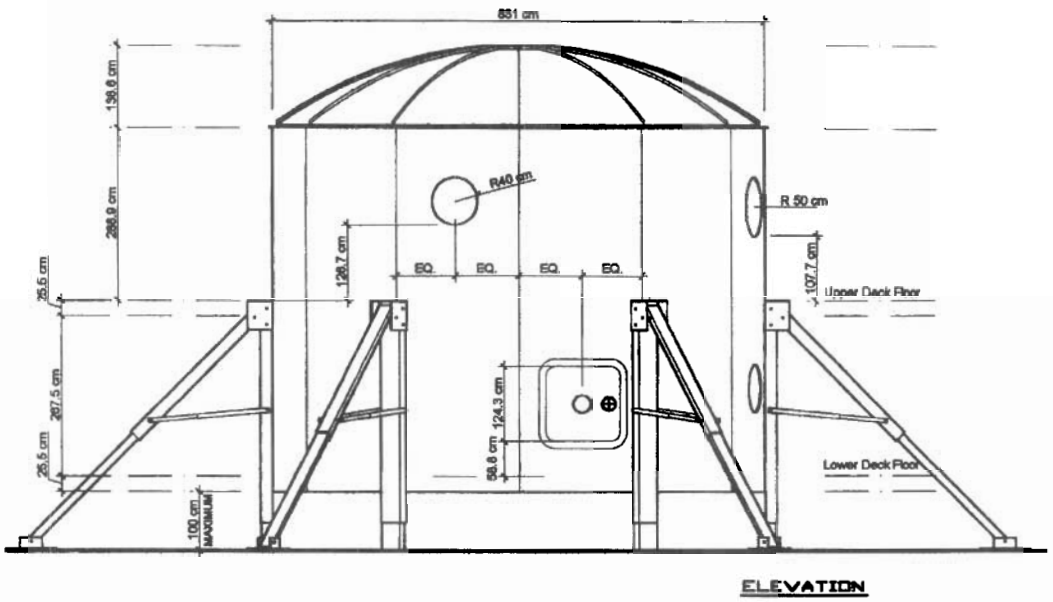
58 H/7

EDITION 1



Mars Analog Research Station Project •
Flashline Mars Arctic Research Station Exterior Layout



Shown above is the exterior layout of the Flashline Mars Arctic Research Station. The Station is 8.3 m in diameter and 8.45 m tall. The primary components of the station are twelve wall panels, each 6.1 m long and 2.17 m wide, and 12 dome sections converging on a 1 m diameter central node at the top. The Walls and domes are made of a unique weatherproof and superstrong fiberglass honeycomb that is 15 cm thick, but only weighs as much as 2.5 cm thick pine. The structure is supported by 6 vertical steel legs, augmented against horizontal loads by 6 oblique steel legs. The structure has two decks, separated by 2.7 meters. The lower deck features two airlock ports, two windows, and a sample hatch. The upper deck features 4 windows. The living quarters and cooking area are upstairs, the laboratory, workshop, storages areas, EVA prep areas, bathroom, and airlocks are downstairs.

The station is similar in overall architecture to the habitat designed at Martin Marietta for the "Mars Direct" mission plan in 1990, and to that designed for the NASA Johnson Space Center Design Reference Mission in 1993. It is thus "flight like" in the sense that it would be compatible with the fairing limitations of the kind of heavy lift launch vehicles generally proposed for human Mars missions.

Mars Analog Research Station Project •
Flashline Mars Arctic Research Station Interior Layout

The following drawings depict interior arrangement plans for the habitat's decks.

A Ladder

B Sample port

C Lab/work area

D Simulated airlock

E Primary EVA hatch

F EVA prep area

G General hygiene area

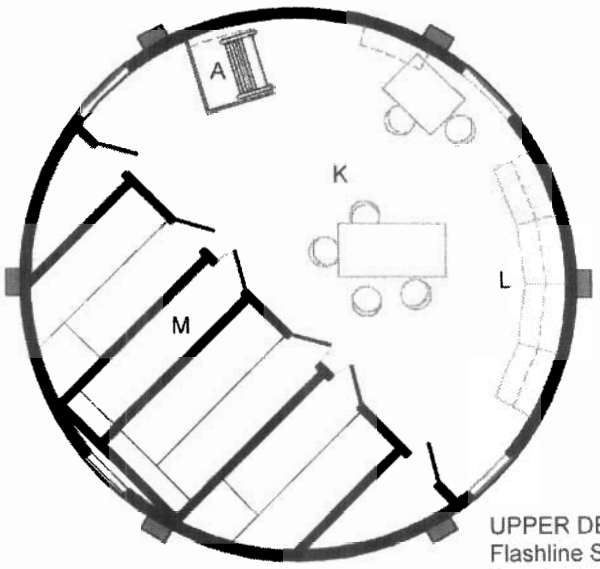
H Mechanical Stack – Contains plumbing and electrical systems

J Pressure port for future attachment to greenhouse or other additional structures

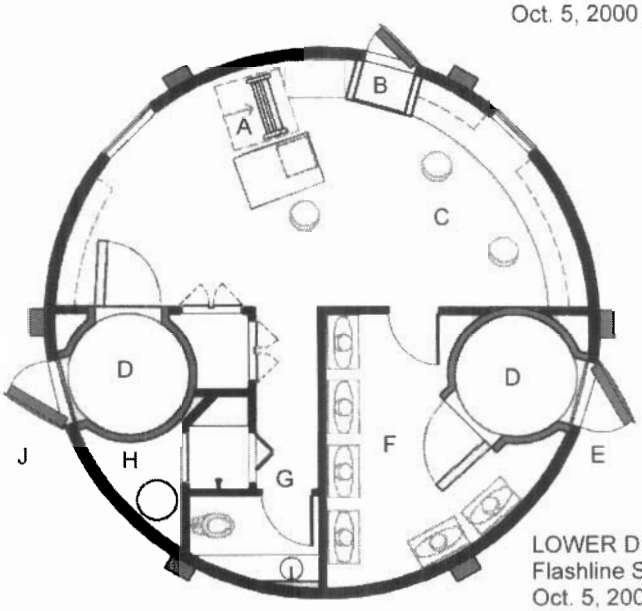
K Wardroom

L Galley and food storage compartments

M Crew staterooms



UPPER DECK PLAN
Flashline Station
Oct. 5, 2000



LOWER DECK PLAN
Flashline Station
Oct. 5, 2000