



Australian Space Design Competition: Regional Qualifying Competition 2017-18

PRELIMINARY REQUEST FOR TENDER

10 February 2067

" *Cassandras* " Space Settlement Contract

Basic Requirements

The Contractor will describe the design, development, and construction of the *Cassandras* space settlement community and develop plans for operations required to maintain the community.

1 Business Development

Cassandras will primarily support mining interests and operations within the asteroid belt, as a waypoint and transfer station, agricultural supplier, and a manufacturing and materials processing facility. As the settlement will be the sole source of food for many of the smaller mining settlements planned for the asteroid belt, it shall have systems and contingencies in the event of emergencies and disasters. The tender shall include a schedule for completion and occupation of *Cassandras*, and costs for the design.

2 Structural Design

Cassandras, must provide a pleasant living and working environment for permanent population for 1000 and a small transient population of no more than 100, consisting of mostly ship crews on leave during loading and unloading. Specify locations of primary and back up systems for the agricultural and material processing facilities.

3 Operations and Infrastructure

The tenders will identify a suitable orbital location in the vicinity the asteroid belt and the justification for its selection. The *Cassandras* design will show elements of basic infrastructure required for the activities of the settlement's residence, including food acquisition and storage, electrical power generation, internal and external communication systems, internal transportation systems, atmosphere/climate/weather control, household and industrial waste management, water management, and day/night cycle provisions.

4 Human Factors

Cassandras communities will provide facilities for services that residence could expect in an isolated mining camp environment, variety and quantity of consumables and other supplies, and public areas designed with open space and consideration of psychological factors. Include designs of typical rooms and blocks of rooms, clearly showing sizes. Assure that natural sunlight and views of space outside the settlement are readily available to residents.

5 Automation Design and Services

Specify numbers and types of computing and information processing devices, electronic tools, servers, network devices, and machines required for *Cassandras*' facility, community, and business operations. Describe types and capacities of data storage media, data security, and user access to computer networks. Show automated processes for, in particular, the maximization of crop yields and manufacturing output, clearly indicating how they perform their tasks. Identify locations and sizes of repair, maintenance, and storage facilities.