**Contractor Statement of Requirements**

# Introduction

## Scope

This document describes the scope of work and technical requirements for the design for the Low Cost Rural Water Transfer System.

## Background

Multiple rural communities in the country of Somewhereistan only have a central outlet for safe drinking water. There is a critical need to establish a gravity fed water distribution to individual homes within each village that has a fresh water supply.

The regional public works department is currently constructing supply reservoirs and elevated storage tanks in each village along with the distribution lines to each house.

The purpose of this project is to specify the design of the pump system needed to transfer water from the supply reservoir to the elevated tank.

# Contractor Requirements

1. The Engineering Contractor shall design the system as described in this document and as shown in Attachment 1 for the first installation.
2. The Contractor shall produce the design using Model Based Systems Engineering in SysML and shall provide model files in .mdzip format.
3. The final design shall include specification of the following:
   1. Pump Model
   2. Pump Motor Model
   3. Pipe Lengths and Joints
   4. All Sensors and Switches
   5. All harnesses and cables
   6. All interface requirements to power and other utilities.
   7. Structural, behavioral and performance assessment diagrams associated with the system design.

# System Technical Requirements

1. The system shall transfer water from the supply reservoir to the water distribution tower.
2. The system shall provide a sustained flow rate of 500 m3/hr.
3. The system shall maintain a water level in the water distribution tower between the maximum and minimum water levels as defined by Attachment 1 – System Technical Specification.
4. The system shall automatically stop water transfer when the tower water level reaches maximum water level as defined by Attachment 1 – System Technical Specification.
5. The systems shall automatically stop water transfer when the supply reservoir reaches the reservoir minimum water level as defined by Attachment 1 – System Technical Specification.

# Design Constraints

1. The system shall use electrical power as the primary power source.