

Fire Fighter Portable Dam



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Project Aims

- Produce a portable water storage unit suitable to be carried aboard the fire engine compartments.
- Improve the functionality of the mock up dam by including components that allow certain attributes:
 - + reducing the requirement of constant supervision
 - + Improve water flow in and out of the dam
- Reduce the current cost per unit to be more sustainable for purchase by the fire service in use with every fire response vehicles.

Initial Investigation



Ideal Scenario

Dam Required Scenario



Mock Up Dam

25 Mins

Assessment
Time



Groundsheet
Rope
Stepblocks

15 Mins

Set Up
Time

Ladders
U- Shaped
Locks



-Constant Supervision

-Leakages

- Difficult and very
specific set up
depending on
conditions



Specialised Response Unit

25 Mins

Assessment
Time



Fastank Portable Dam

Capacity	10000 l
Weight	64 kg
Price	£15,000 per unit
Packed Size	0.368m ³

30-60 Mins

Response
Time

Current Model held in a
separate transport truck
(specialised response
Unit)

15 Mins

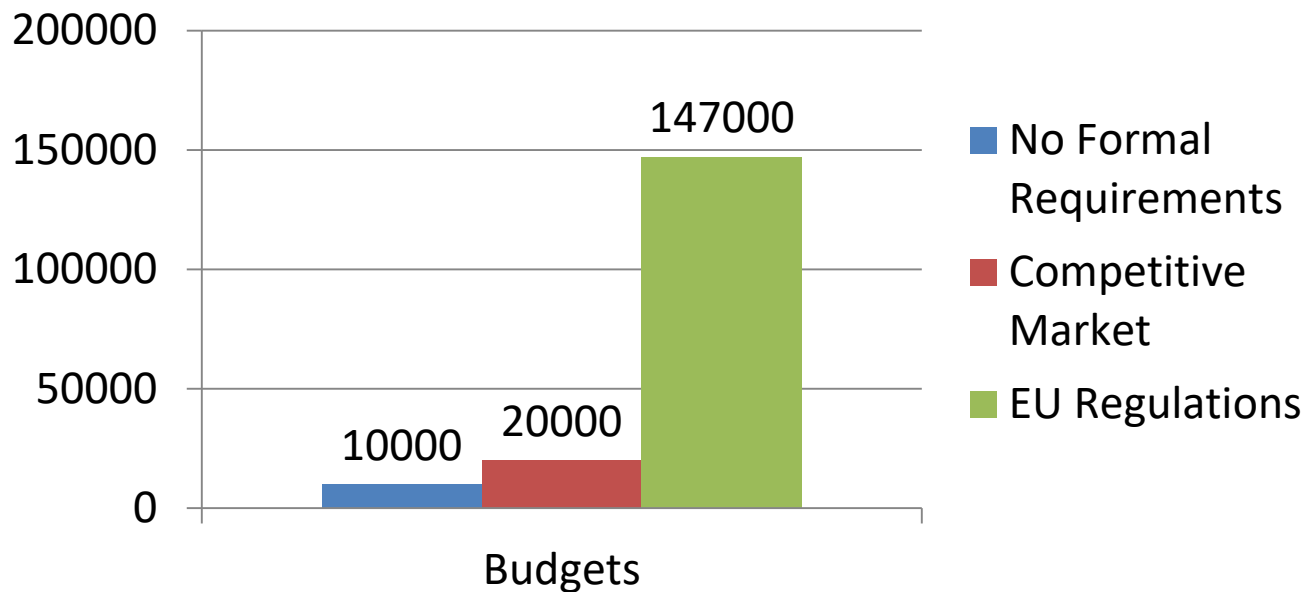
Set Up
Time



This unit can have
trouble accessing
rural areas in where
portable dams are
most likely required.

Fire Service Budget

Fire Service will set up contracts with businesses in order to maintain equipment availability. Aim to provide consistent and improving quality of products to remain competitive.



Government Market

Competefor aim's to provide businesses with a competitive market to provide government services with opportunities

- Provides opportunities for expansion in the market and supplier base
- Grants access to a wide variety of sectors and industries
- Offering consistent contract renewal

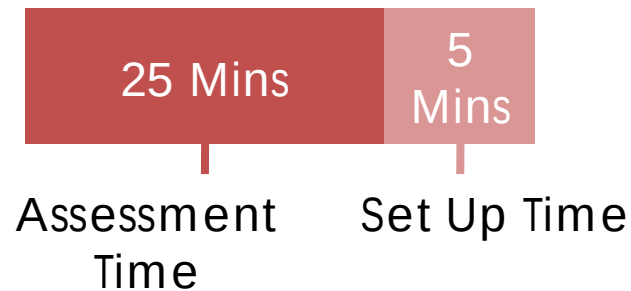
Work for the 2012 London Olympics



Equipment for the emergency services

Aiding local communities and businesses flourish

New Portable Dam



- Set Up Times
- Improve Response Time
- Equipment Availability

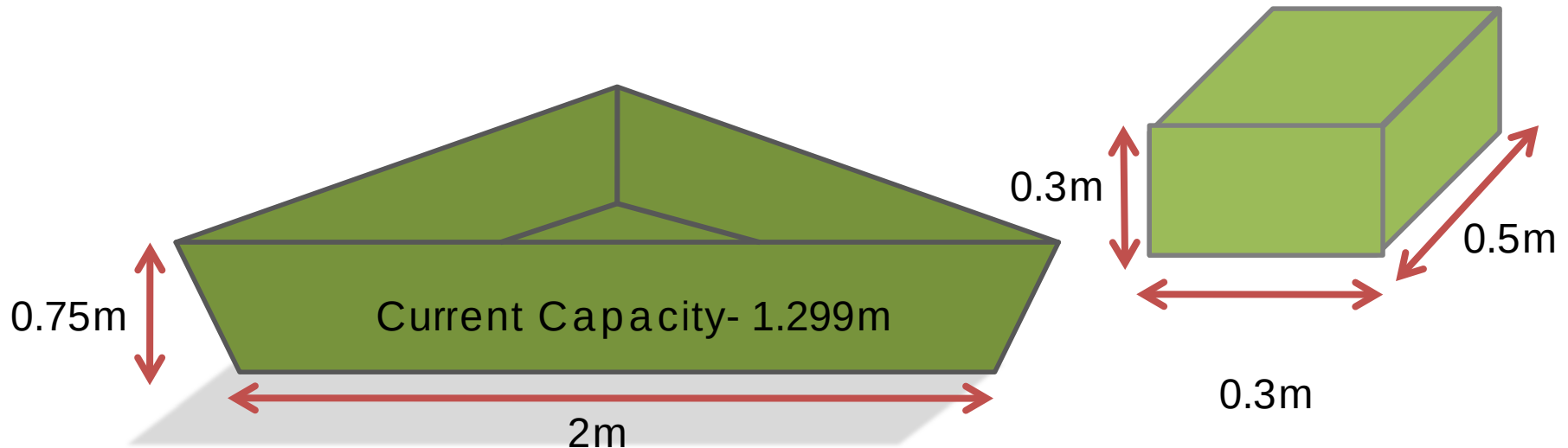
Physical Requirements

Needs to be horizontal from the surface

- Currently using block steps

Draw pressure can be interrupted by blocked hose.

Requirement	Value
Capacity	1300 l
Weight	1300 kg
Space	1.3 m ³
Lateral Pressure	20059N



Engine Compartments



The only compartment with available space is bay 2 on the second shelf

0.045m³



Additional Components

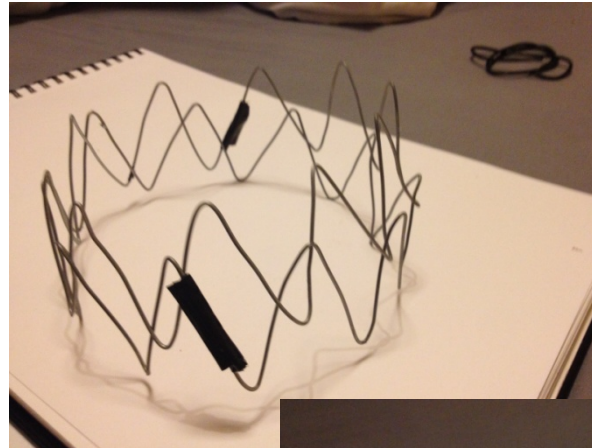
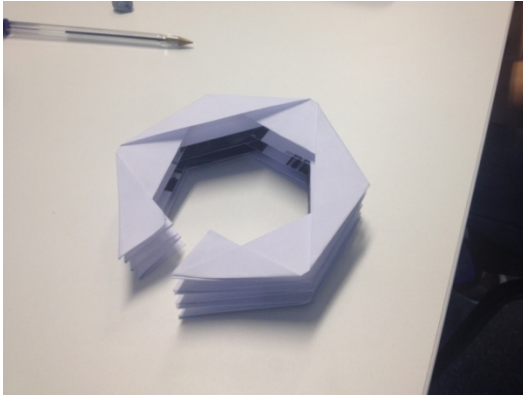
Male to Female Hose connectors
the basic connectors used by the
fire service



Suction Filter-
suspends the
drawing
hose above the
bottom of the
dam



Modelling



Modelling

Closes under
pressure

Problems with
some structure
parts needed to
be strengthened



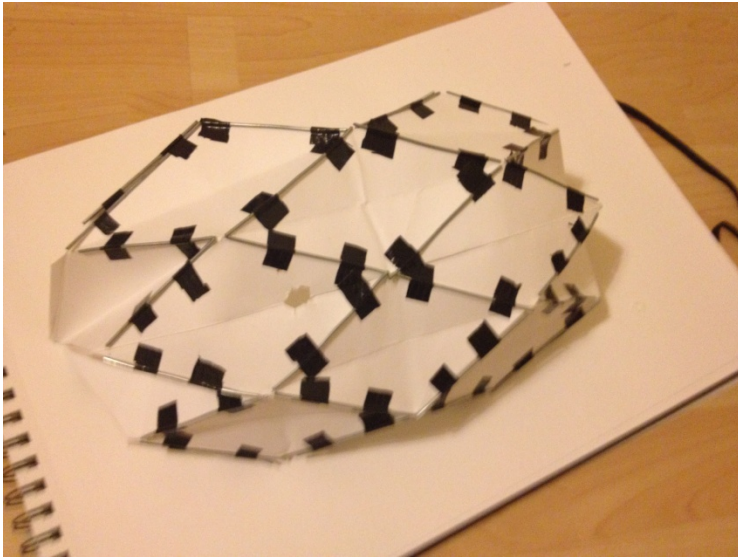
Modelling

Closes under
pressure

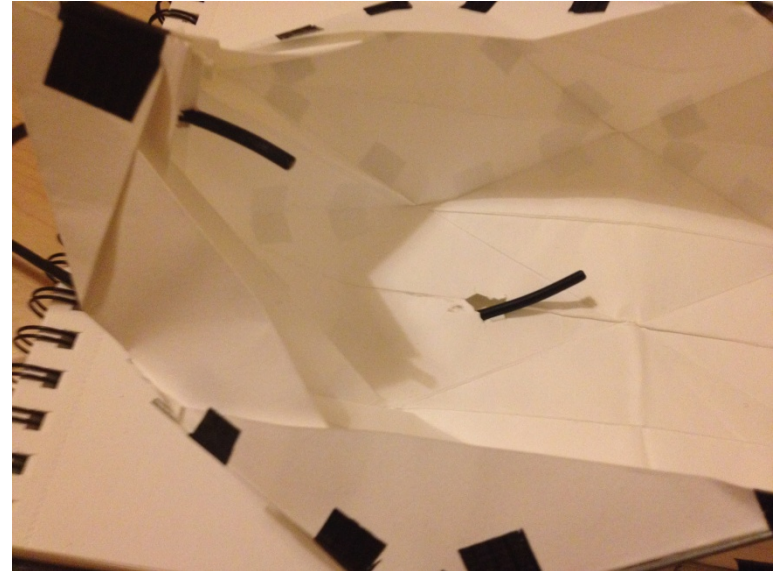
Problems with
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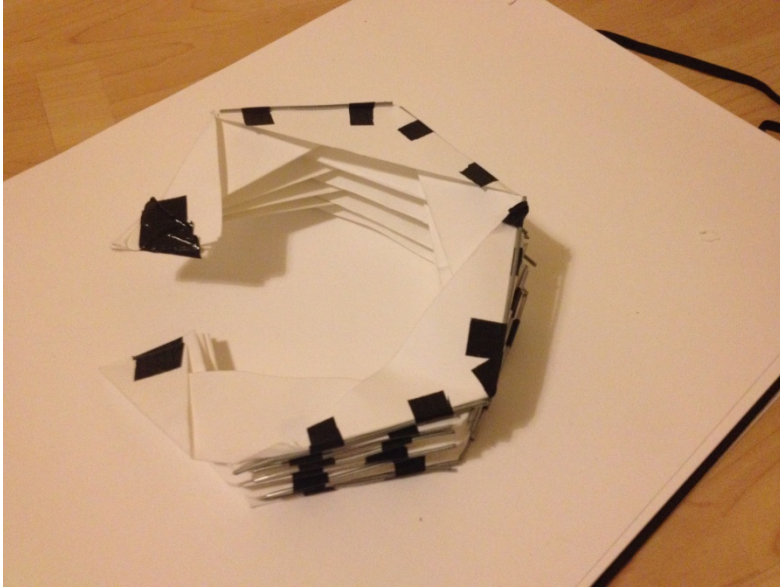
Model Improvements



Model Improvements



Model Improvements



Proposed Materials

Galvanised Steel

- Moisture Resistant
- Lightweight
- High Ductile Strength
- Suitable for extrusion moulding for the framework

Woven PVC Sheet

- Similar to a grounding sheet
- Waterproof
- Quick dry

Next Steps

- Improve the overall structure of the design
 - Prevent collapsing risk
 - Strengthen skeletal structure
- Consult fire service personnel as to the feasibility of the proposed design
 - Continue working closely with them to ensure that the test parameters can be met