

## Annex 2. Alternative blueprints

## Annex 2. Alternative blueprints

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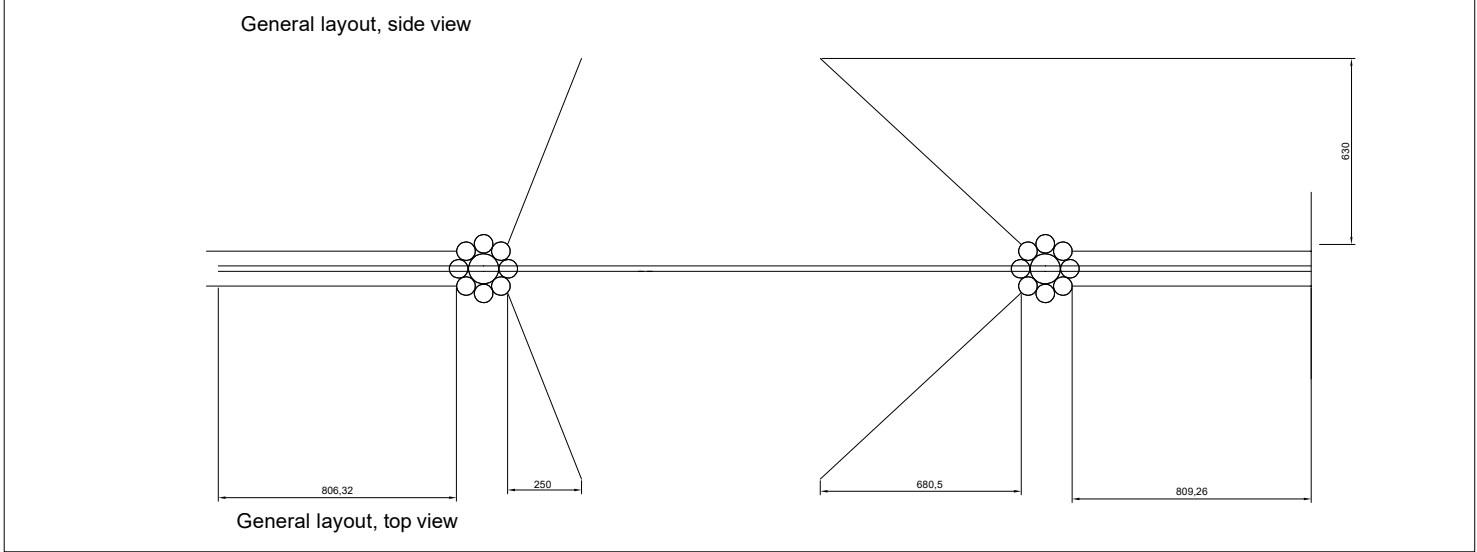
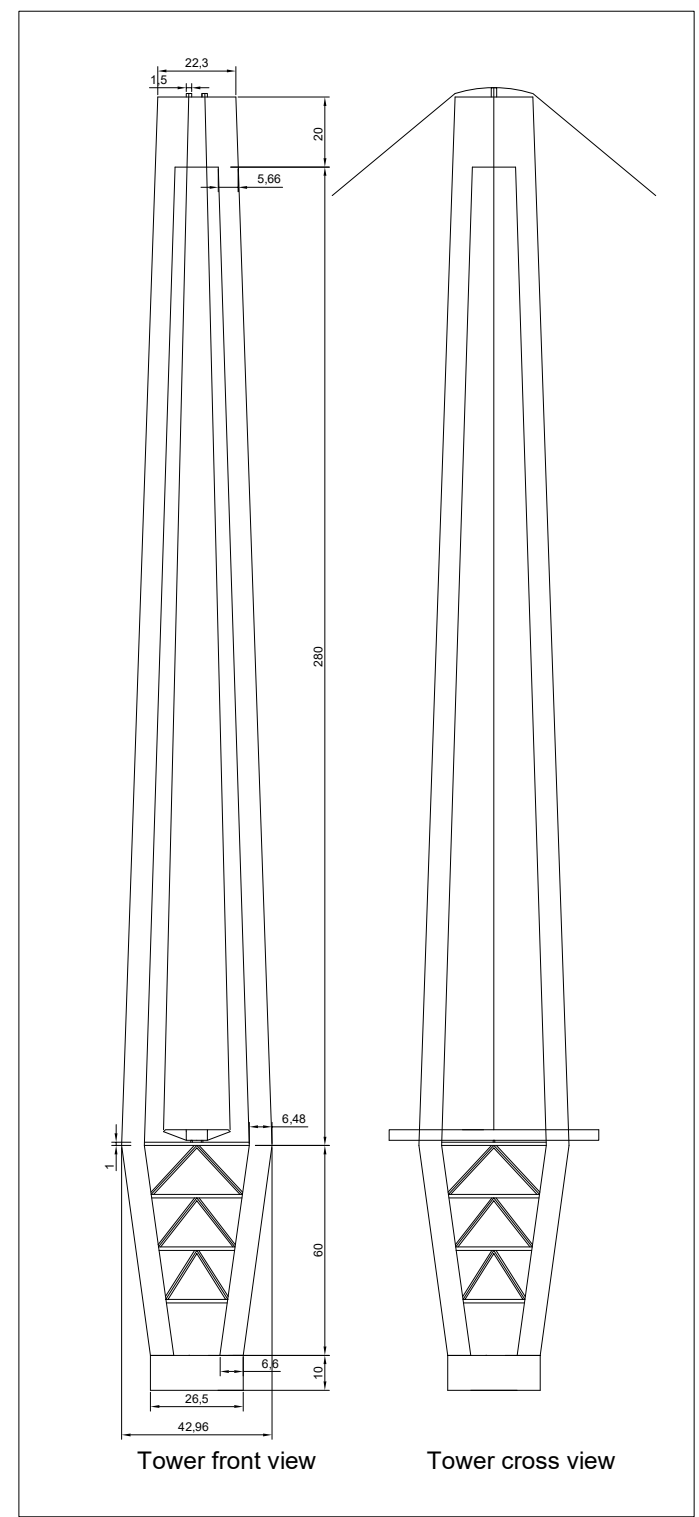
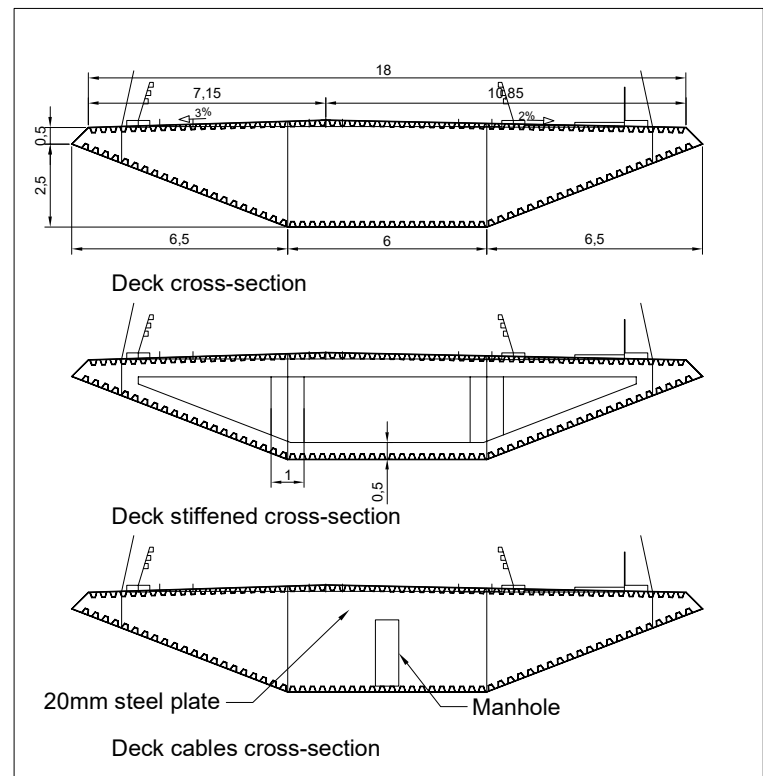
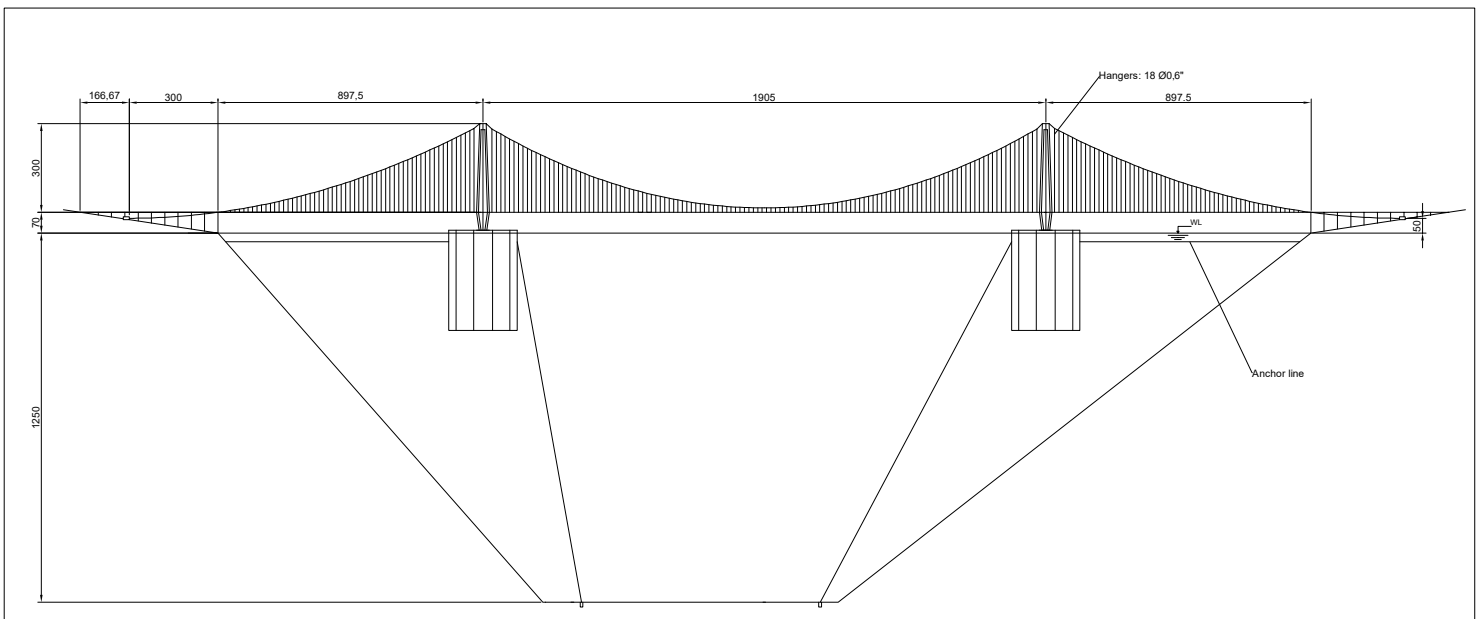
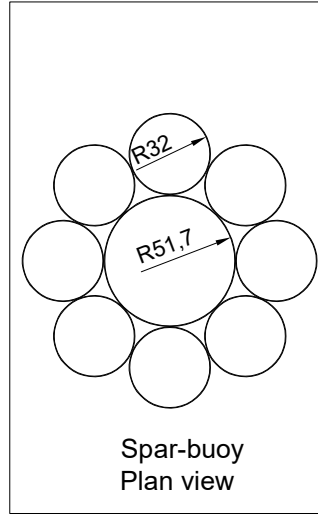
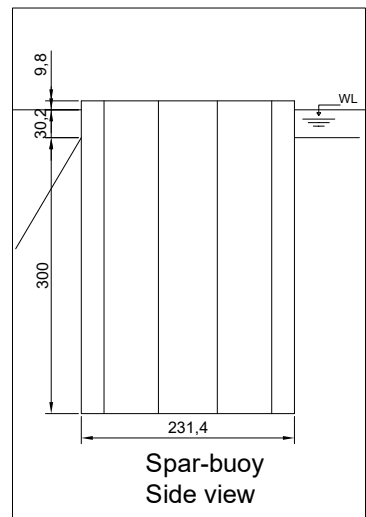
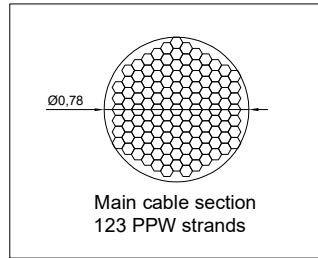
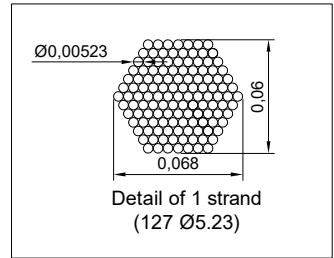
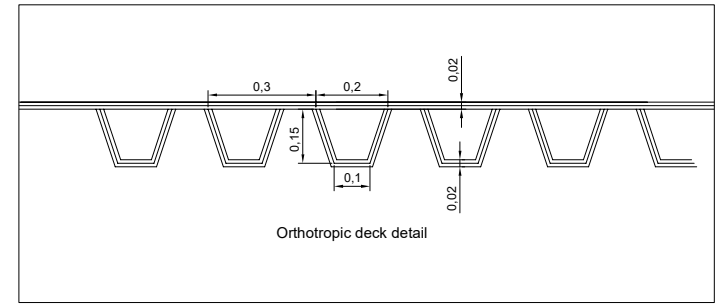
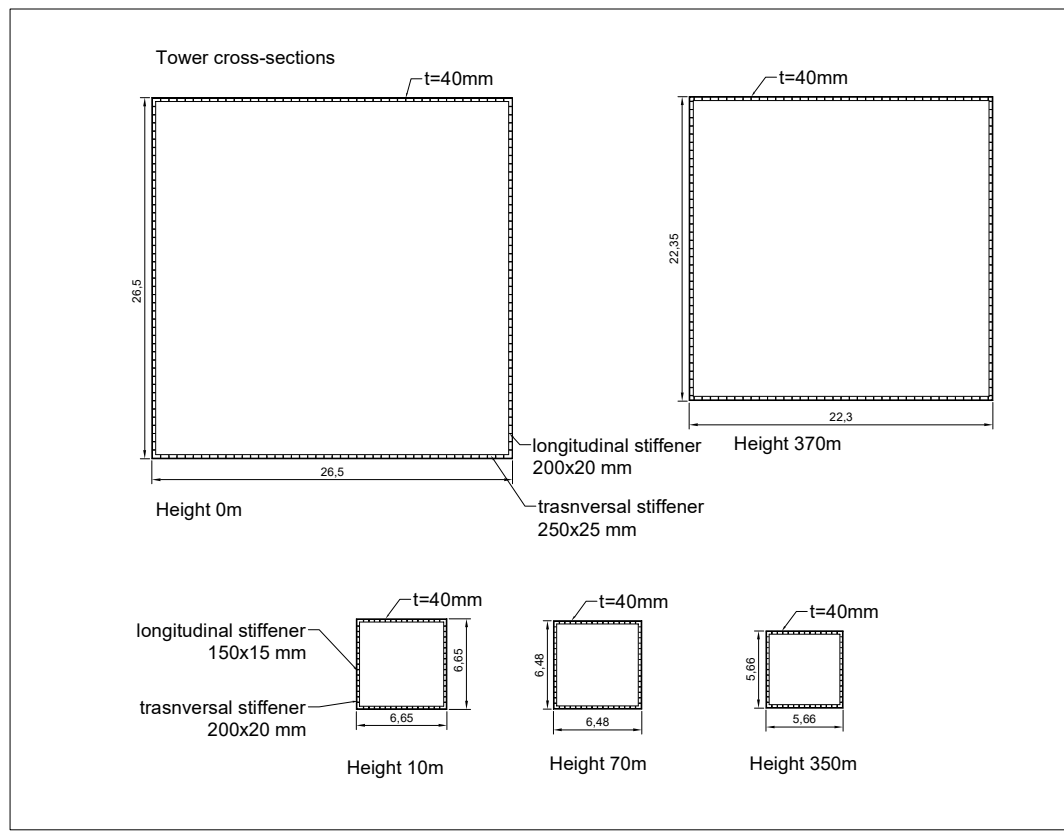
In the following pages there are attached the blueprints of the different alternatives.

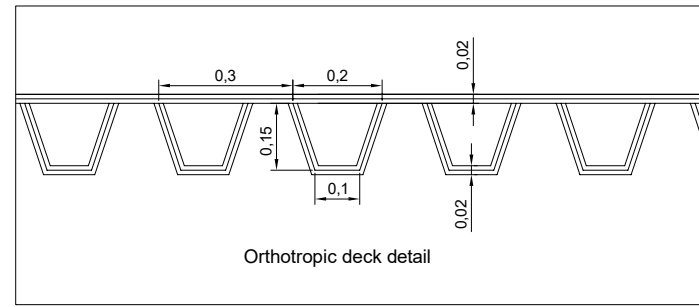
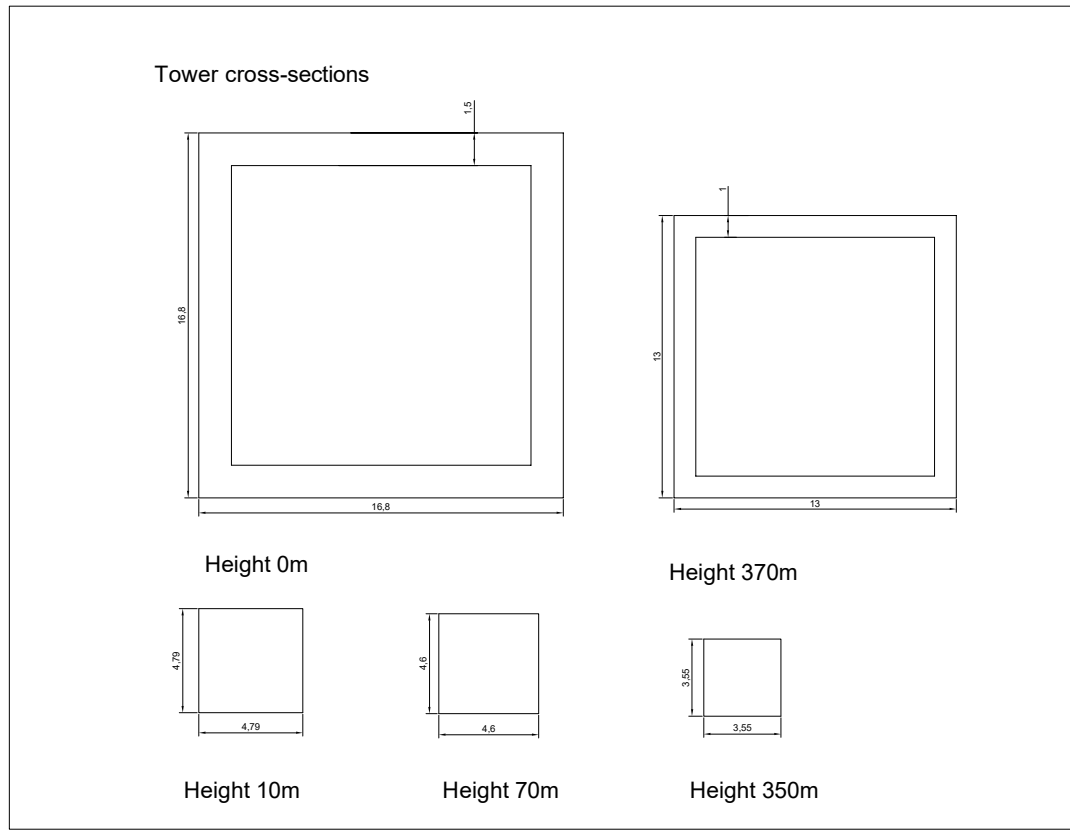
# Alternative 1

## Material properties

Structural steel (fyk,el)	355MPa
Main Cable steel	1860MPa
suspenders steel (fyk,r)	1570MPa
Concrete (fck)	40MPa
Anchor Cable steel	1700MPa

Bridge Technology	Suspension bridge
Tower material	Steel
Pontoon technology	Spar-buoy
Author	Gerard Alcalde
Supervisor	Joan Ramon Casas Climent Molins
Project	TFM
Date	30/06/2020



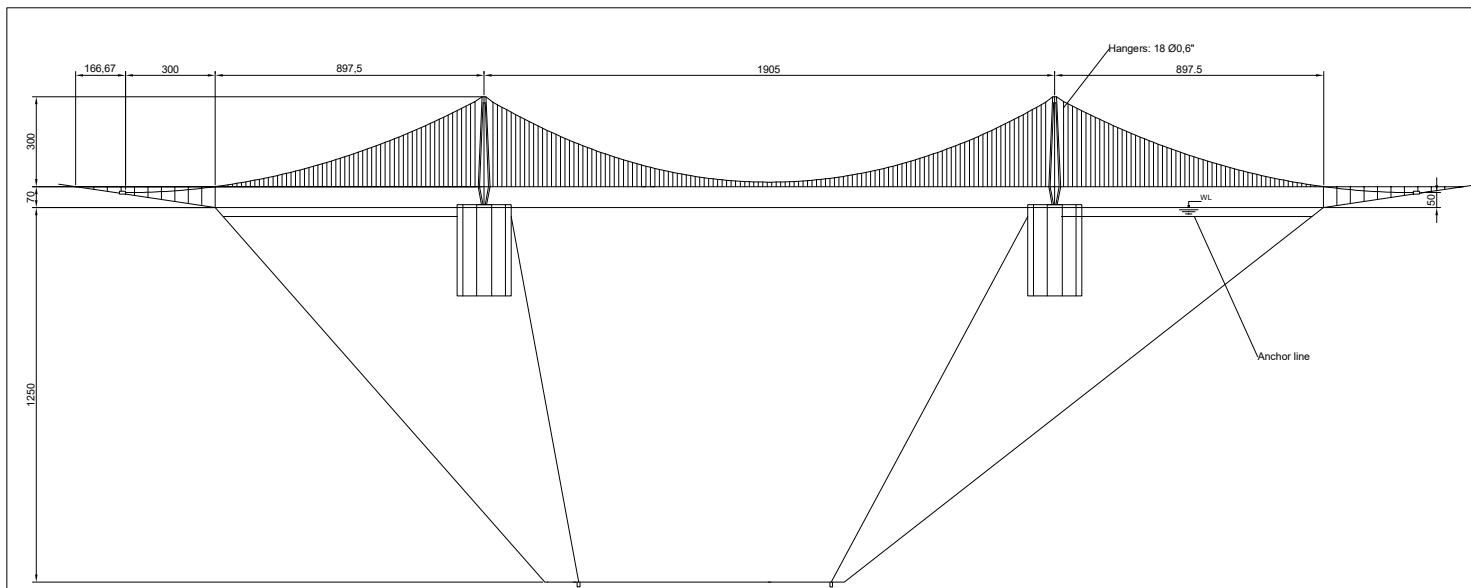
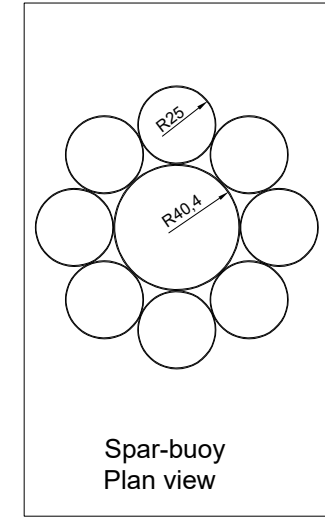
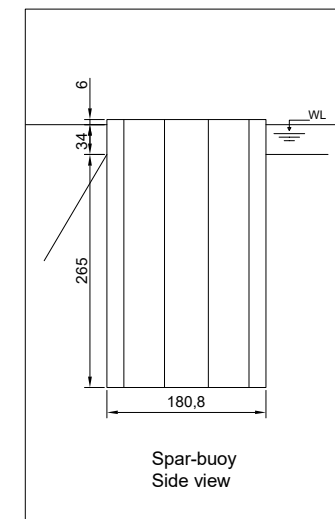
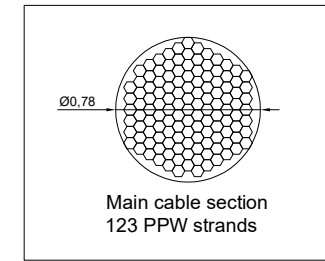
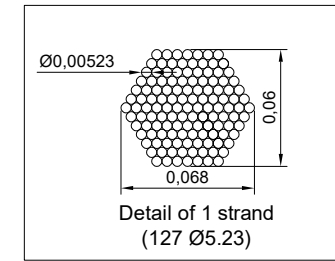


### Material properties

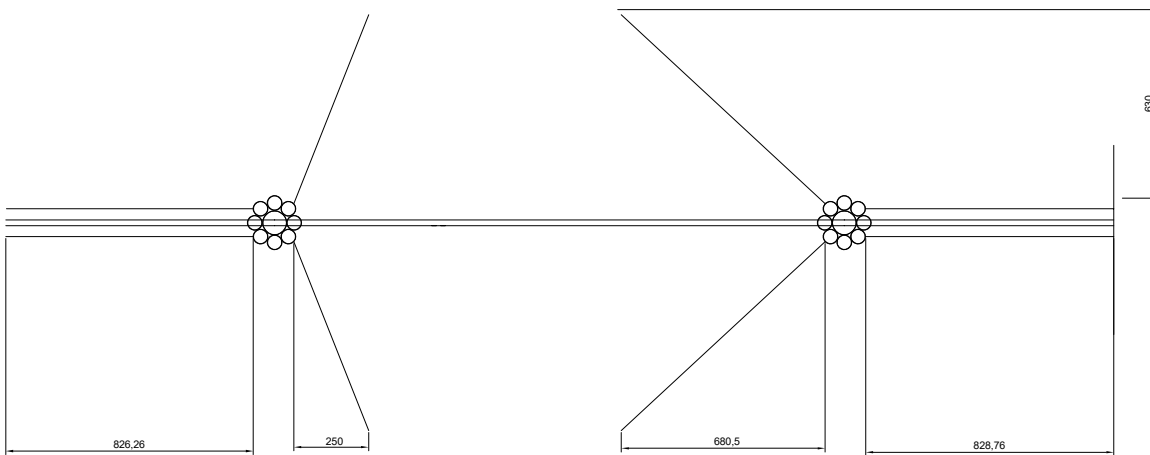
Structural steel (fyk,el)	355MPa
Main Cable steel	1860MPa
suspenders steel (fyk,r)	1570MPa
Concrete (fck)	40MPa
Anchor Cable steel	1700MPa

### Alternative 2

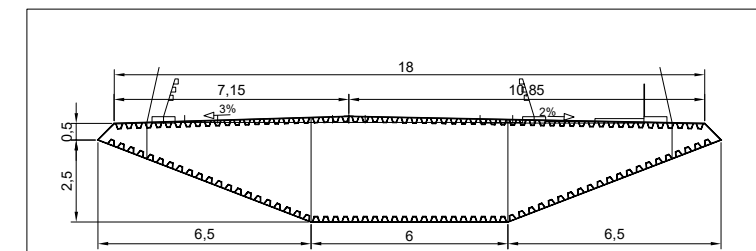
Bridge Technology	Suspension bridge
Tower material	Concrete
Pontoon technology	Spar-buoy
Author	Gerard Alcalde
Supervisor	Joan Ramon Casas Climent Molins
Project	TFM
Date	30/06/2020



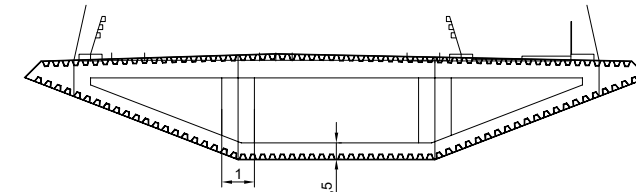
General layout, side view



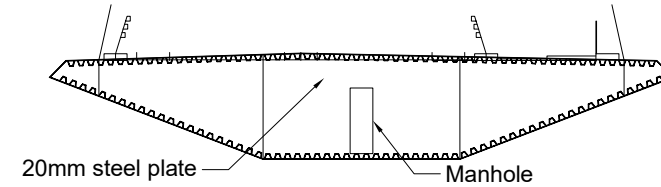
General layout, top view



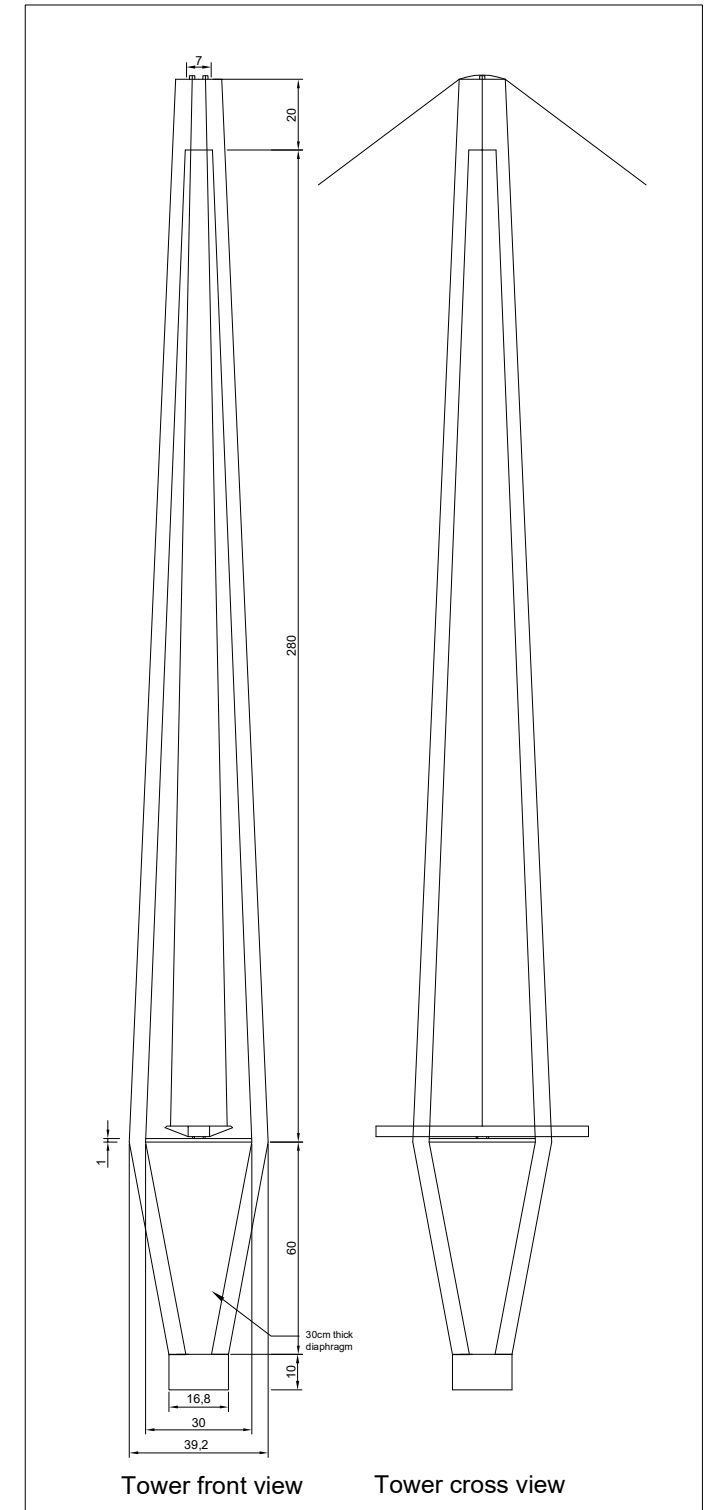
Deck cross-section



Deck stiffened cross-section

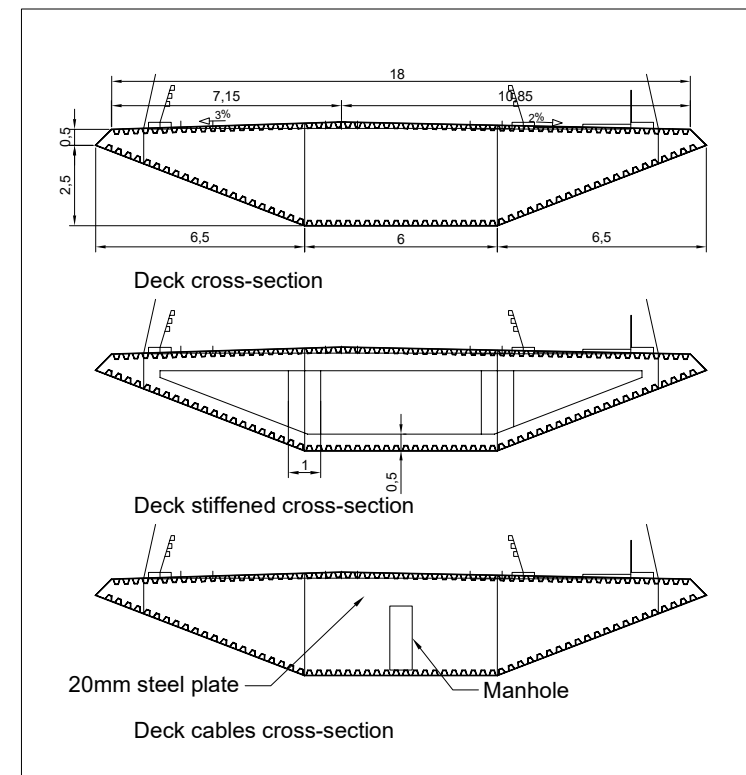
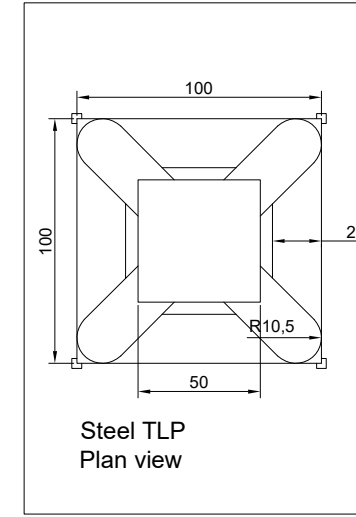
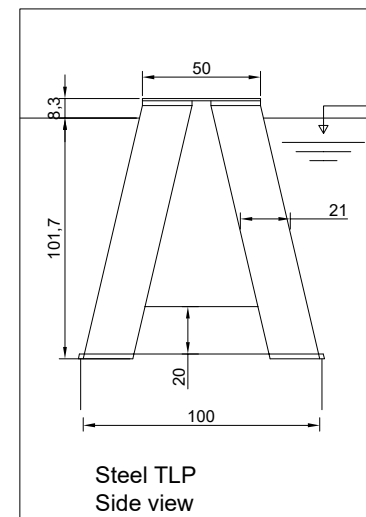
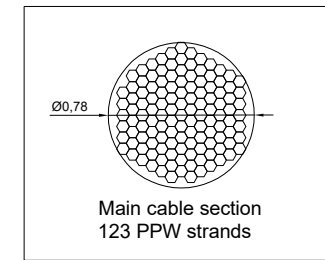
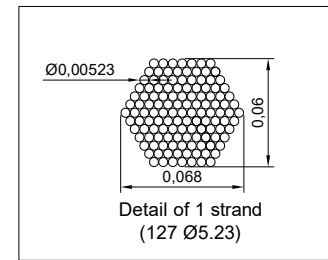
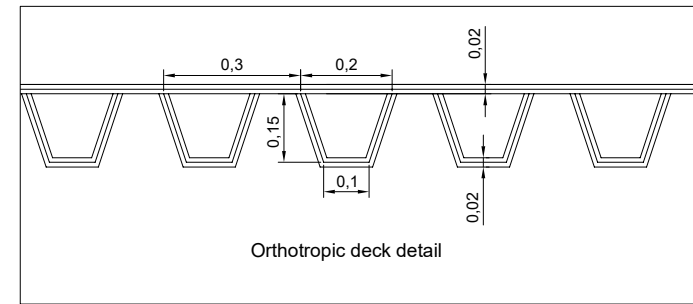
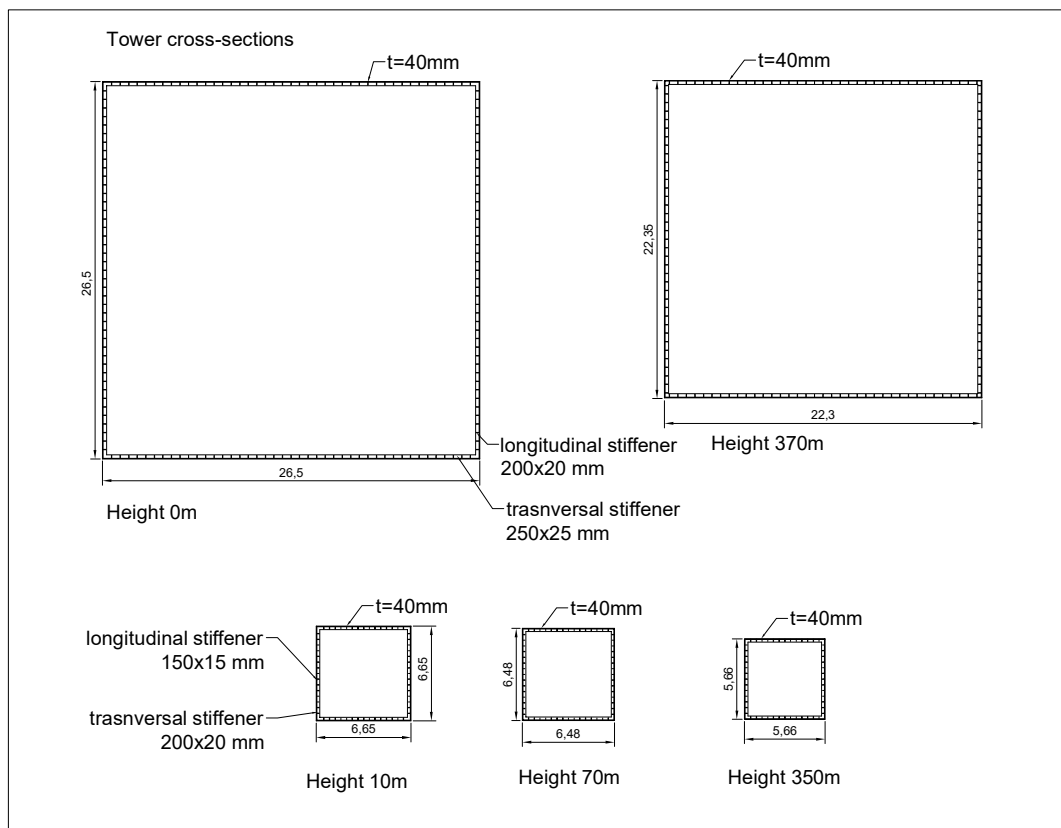


Deck cables cross-section



Tower front view

Tower cross view

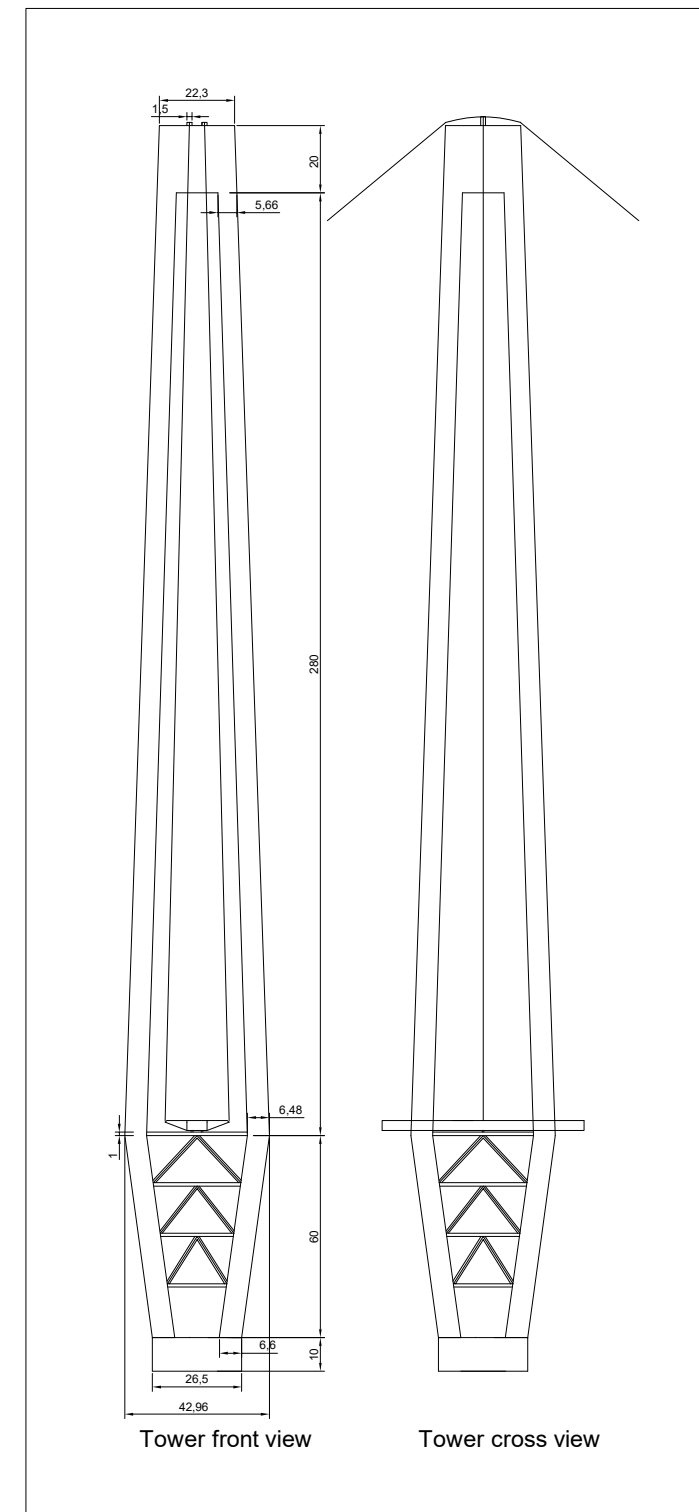
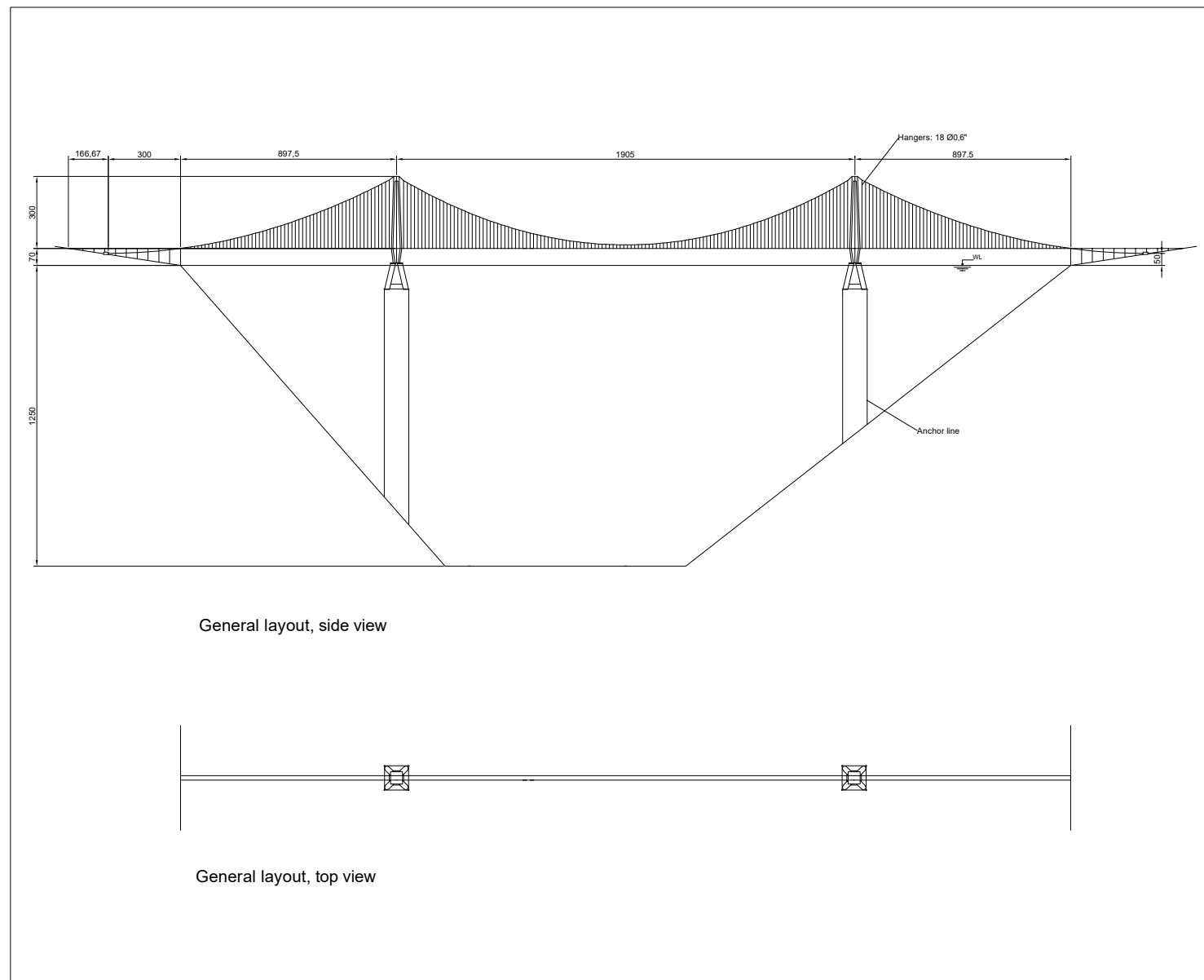


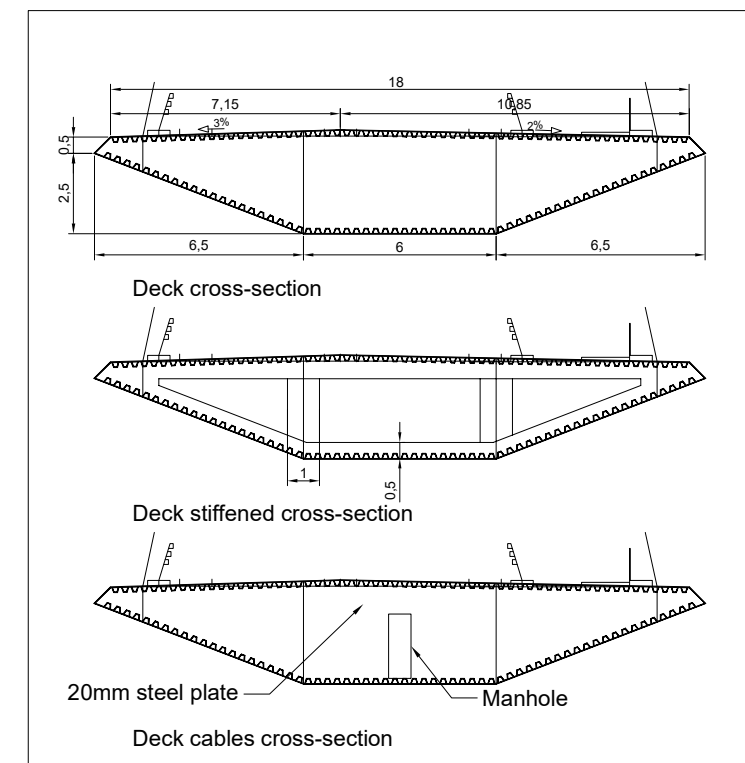
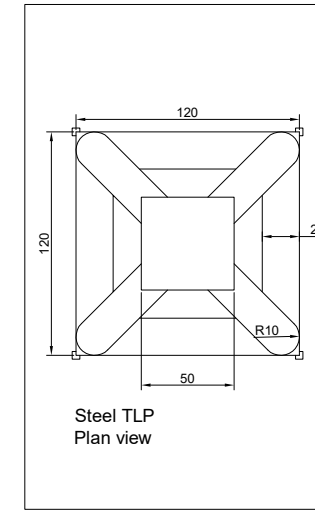
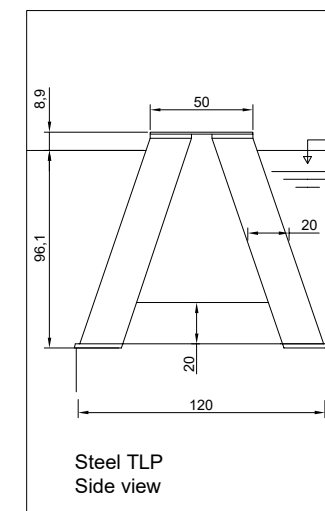
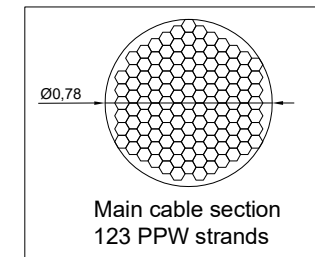
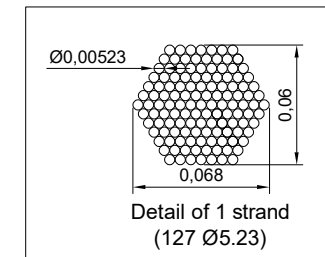
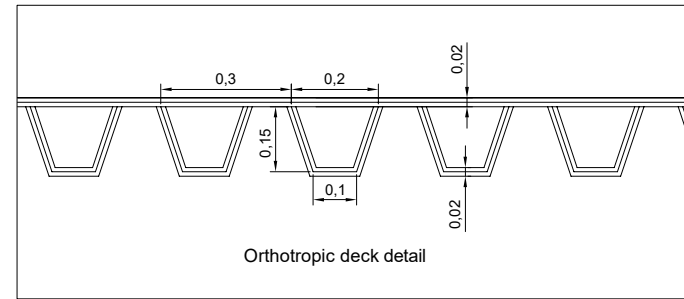
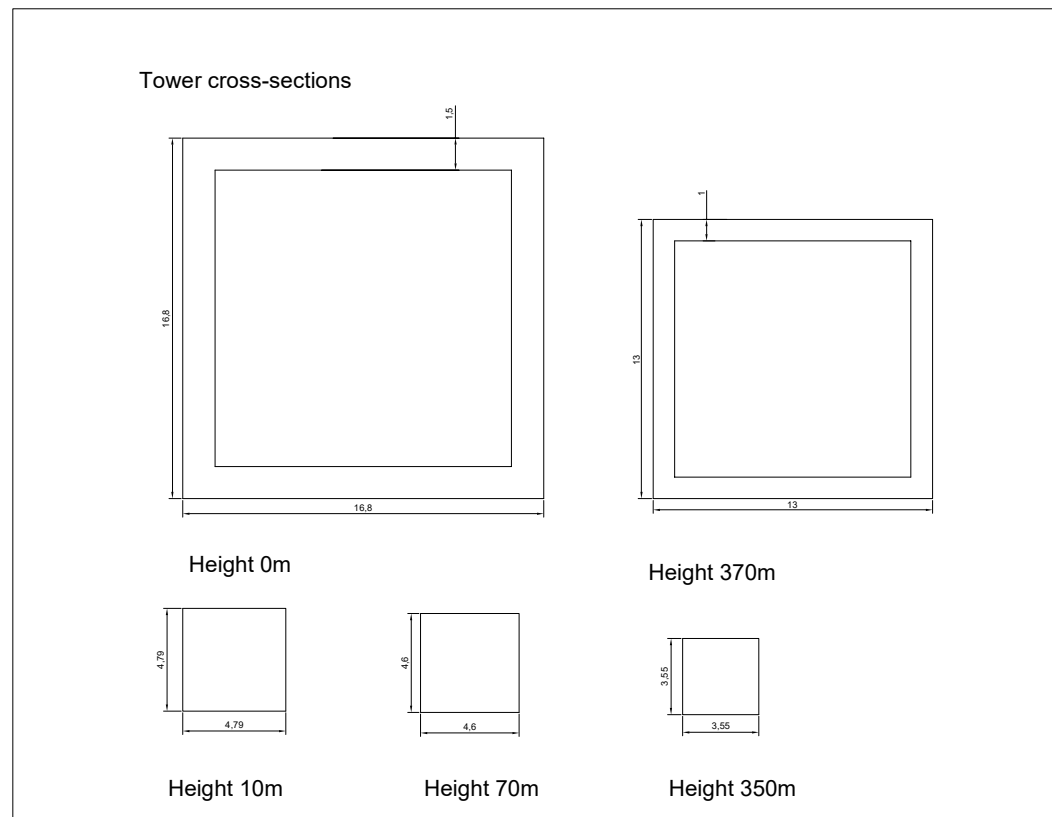
**Material properties**

Structural steel (fyk,el)	355MPa
Main Cable steel	1860MPa
suspenders steel (fyk,r)	1570MPa
Concrete (fck)	40MPa
Anchor Cable steel	1700MPa

**Alternative 3**

Bridge Technology	Suspension bridge
Tower material	Steel
Pontoon technology	Steel TLP
Author	Gerard Alcalde
Supervisor	Joan Ramon Casas Climent Molins
Project	TFM
Date	30/06/2020



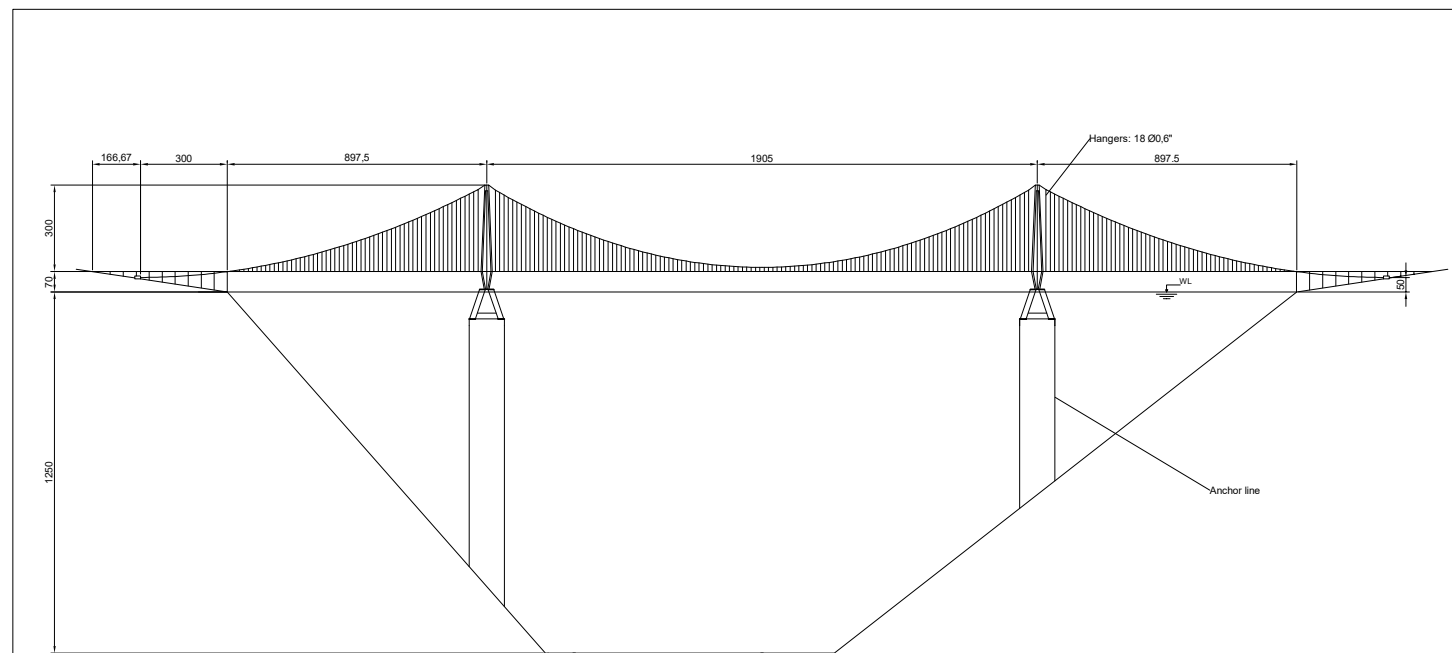


### Material properties

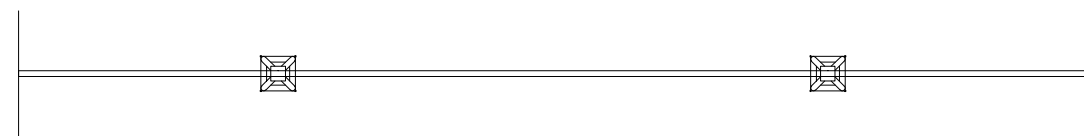
Structural steel (fyk,el)	355MPa
Main Cable steel	1860MPa
suspenders steel (fyk,r)	1570MPa
Concrete (fck)	40MPa
Anchor Cable steel	1700MPa

### Alternative 4

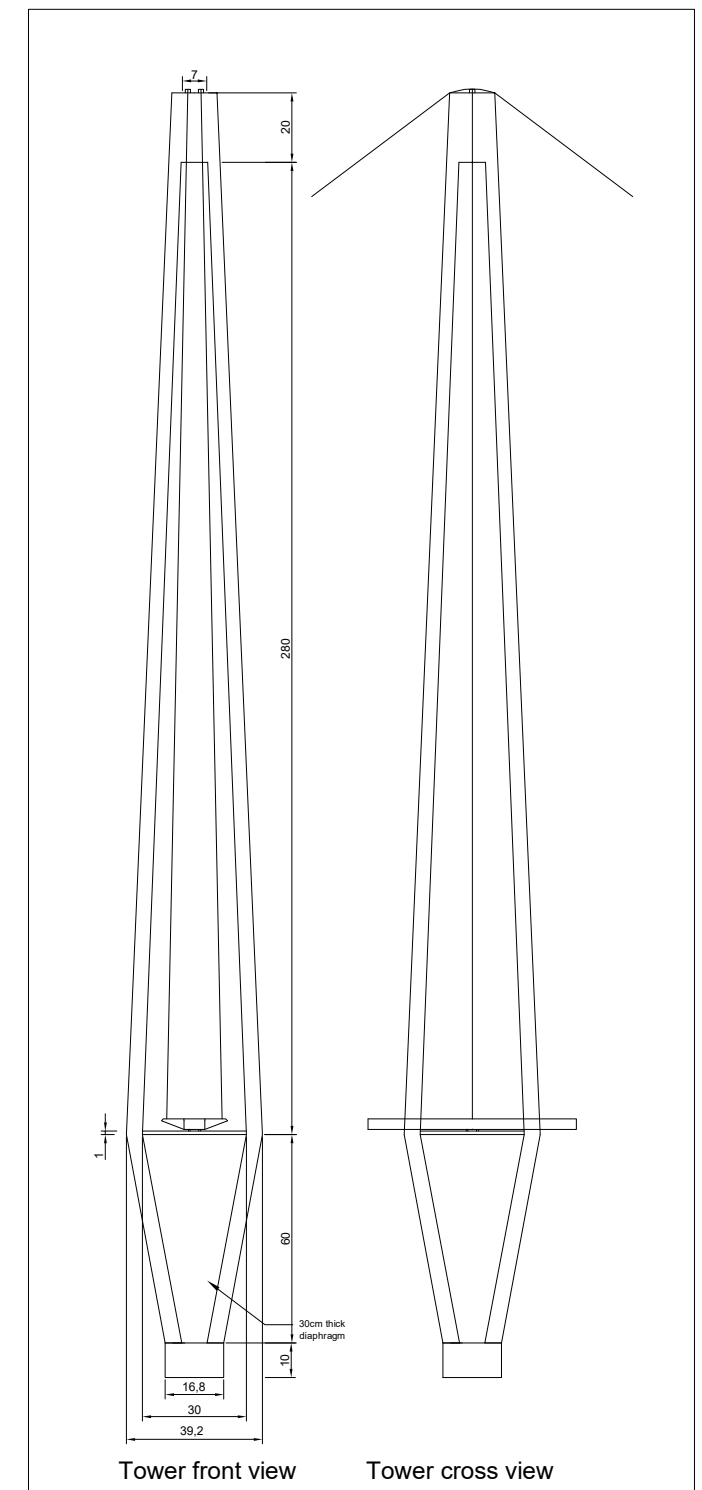
Bridge Technology	Suspension bridge
Tower material	Concrete
Pontoon technology	Steel TLP
Author	Gerard Alcalde
Supervisor	Joan Ramon Casas Climent Molins
Project	TFM
Date	30/06/2020



General layout, side view

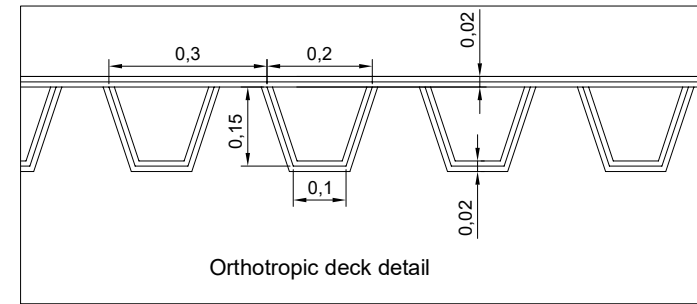
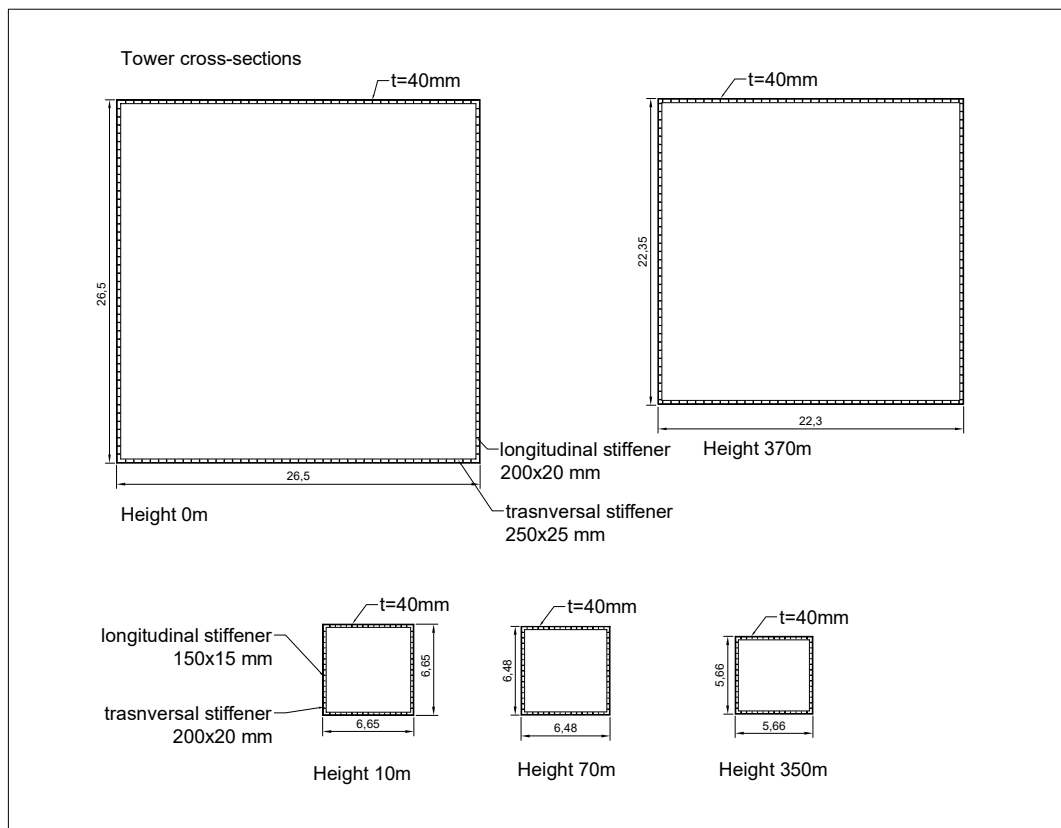


General layout, top view



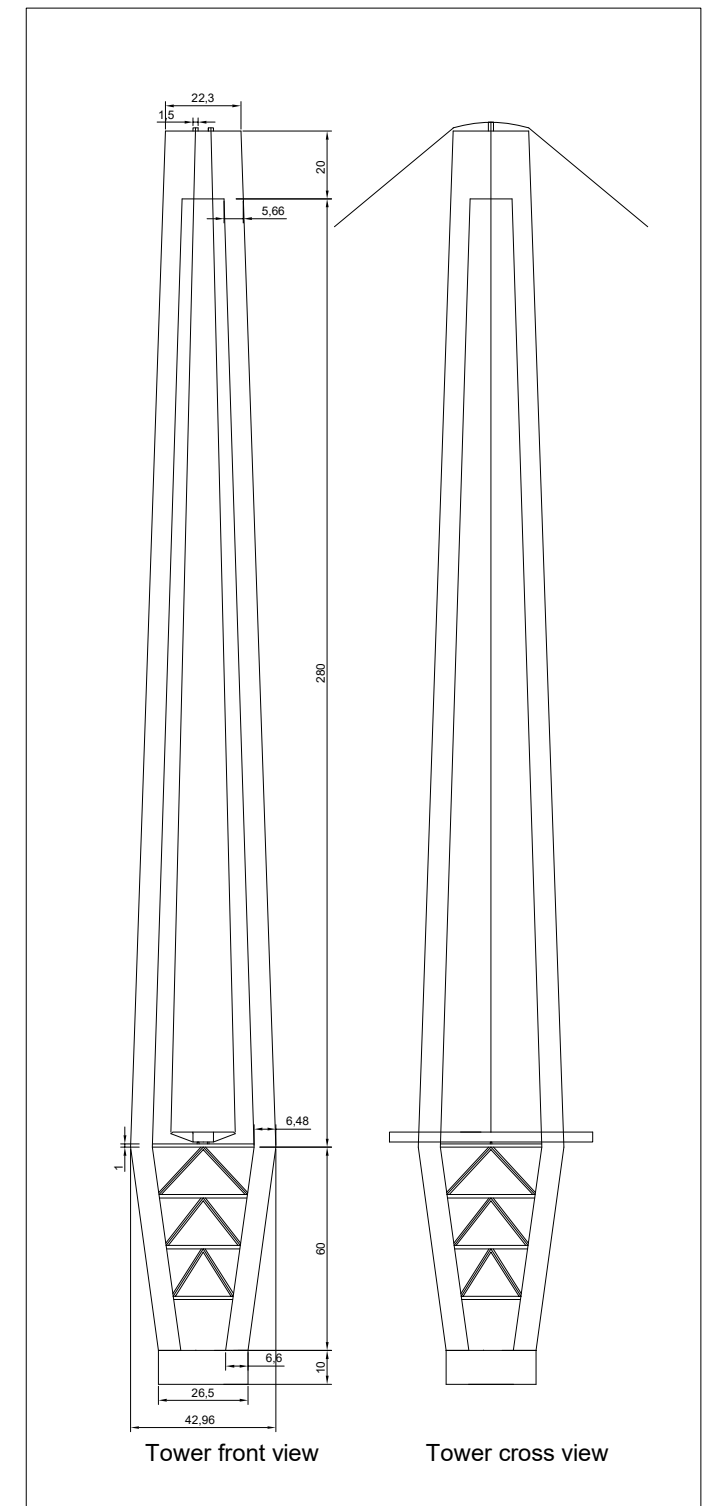
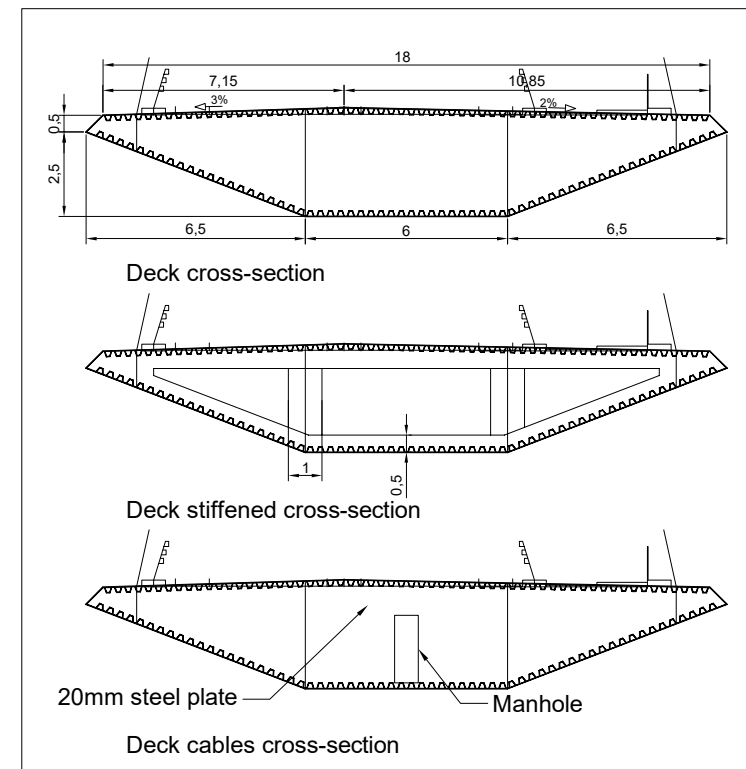
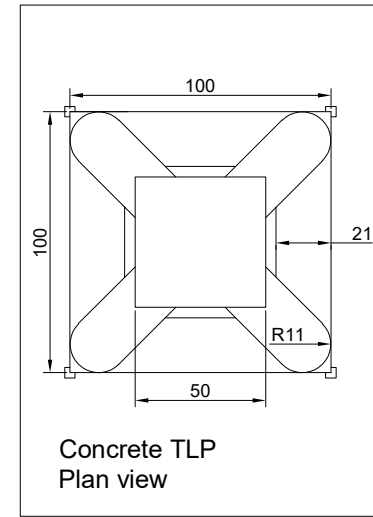
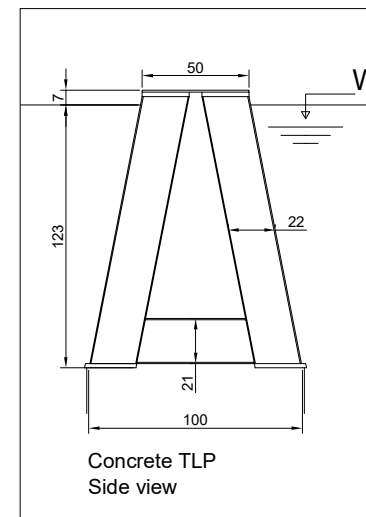
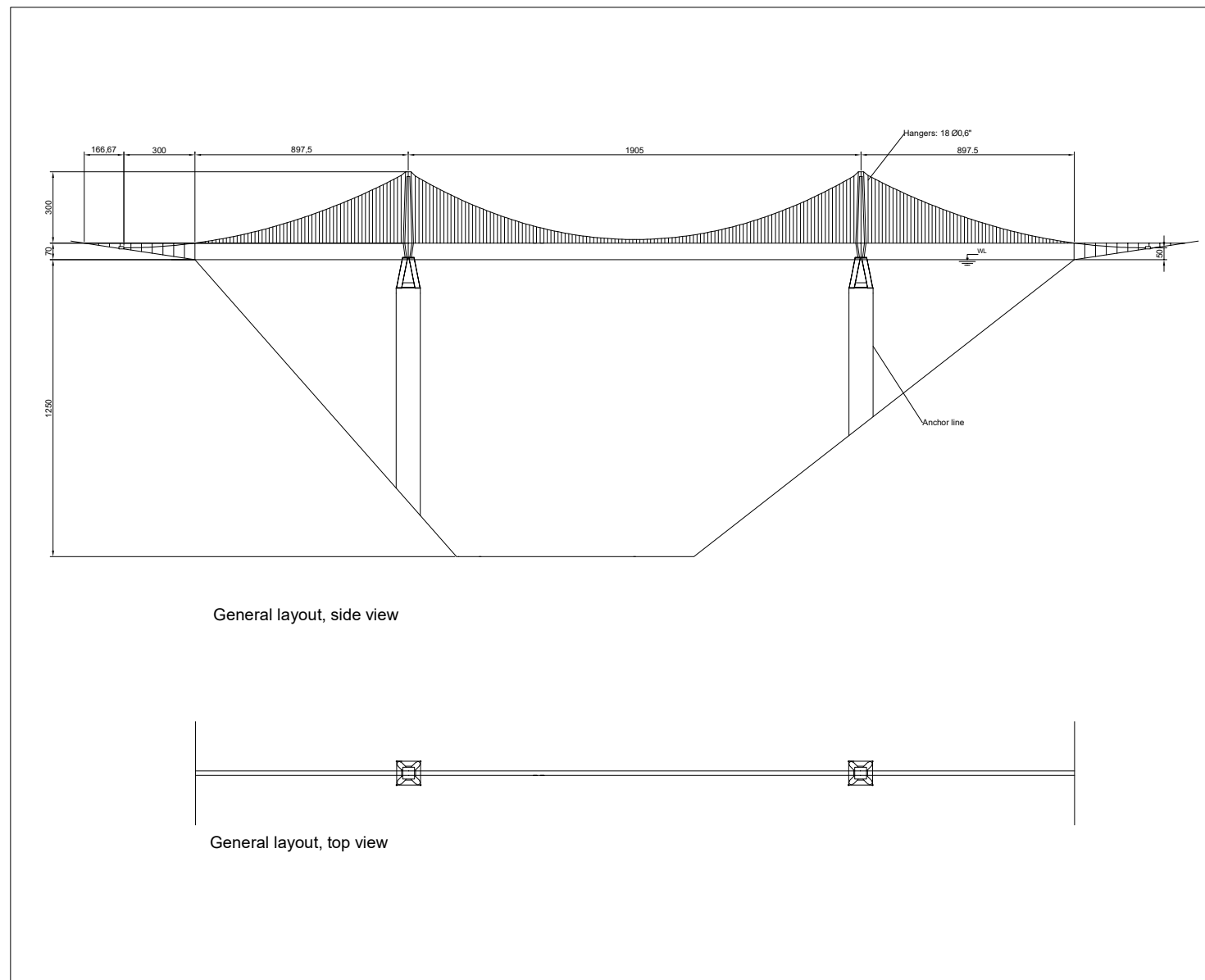
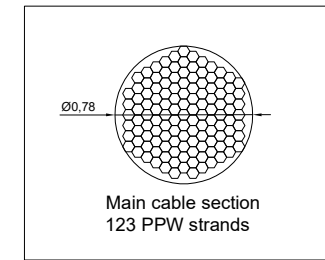
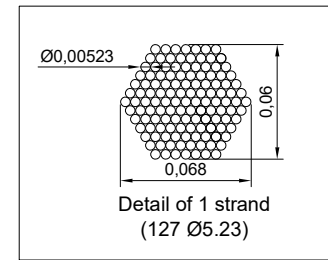
Tower front view

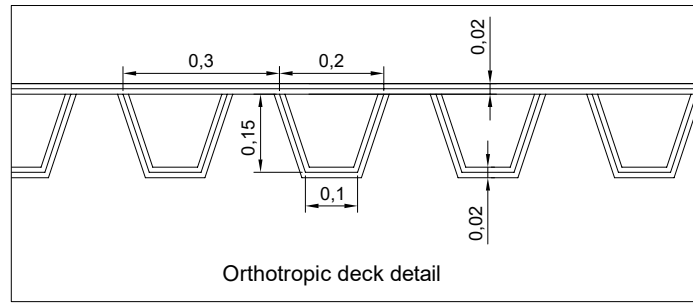
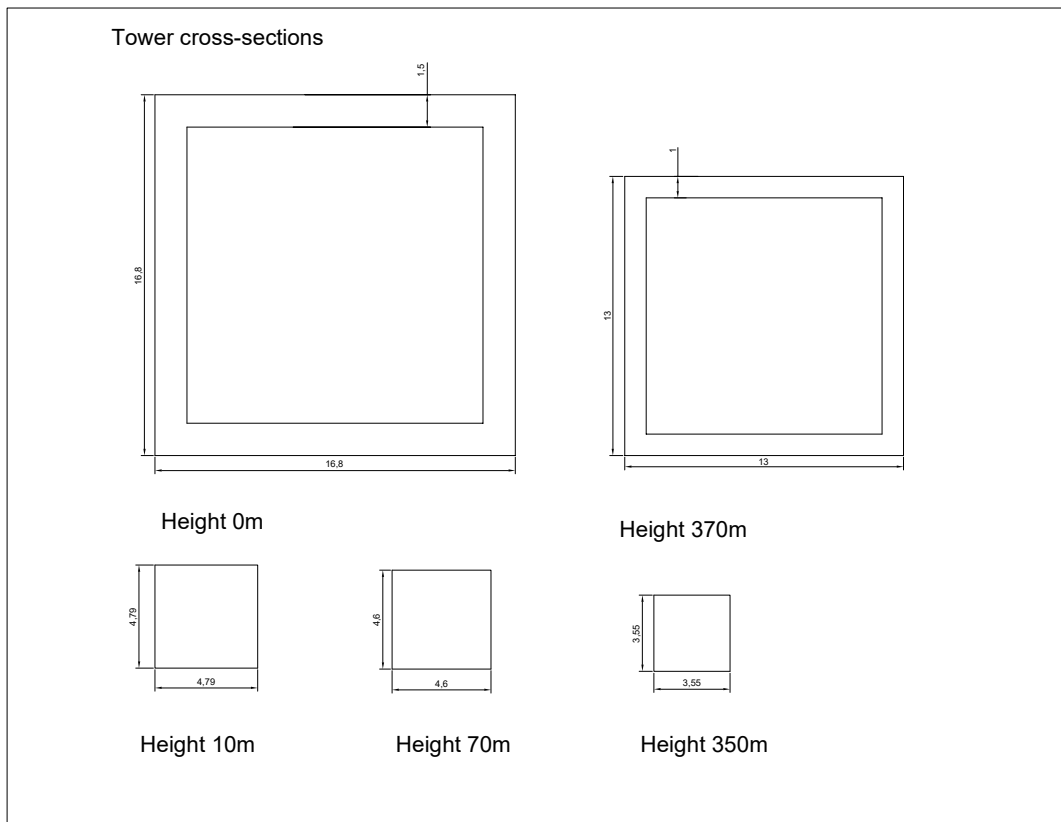
Tower cross view



Material properties	
Structural steel (fyk,el)	355MPa
Main Cable steel	1860MPa
suspenders steel (fyk,r)	1570MPa
Concrete (fck)	40MPa
Anchor Cable steel	1700MPa

Alternative 5	
Bridge Technology	Suspension bridge
Tower material	Steel
Pontoon technology	Concrete TLP
Author	Gerard Alcalde
Supervisor	Joan Ramon Casas Climent Molins
Project	TFM
Date	30/06/2020



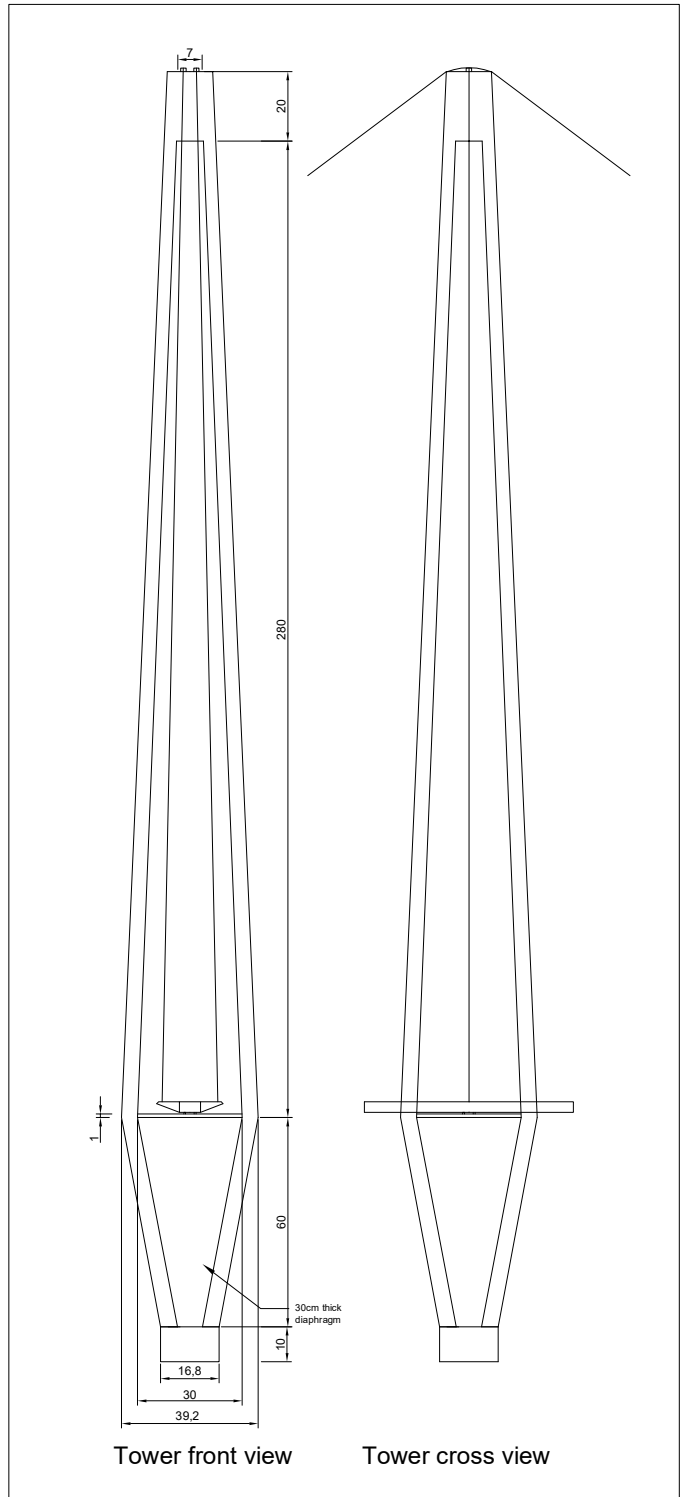
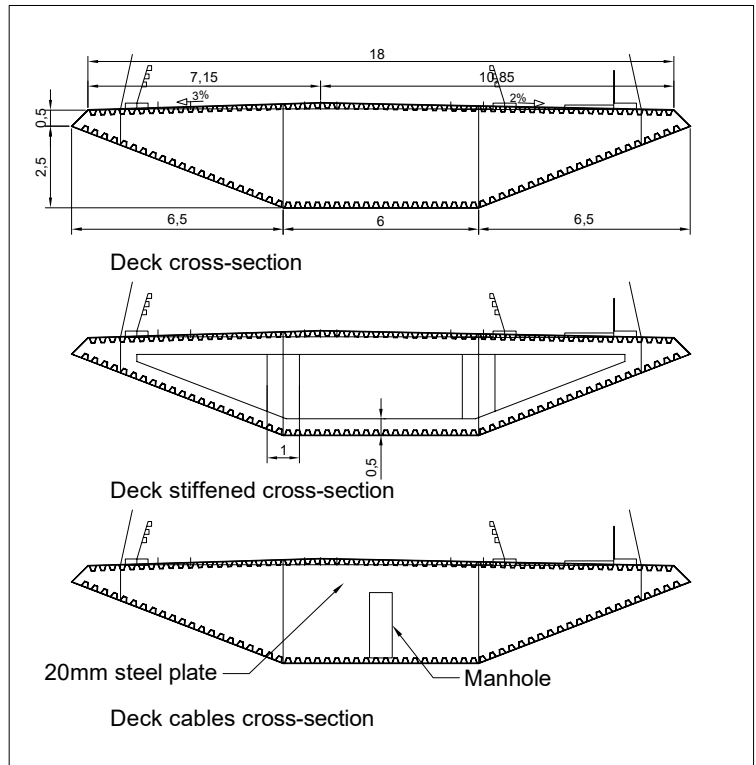
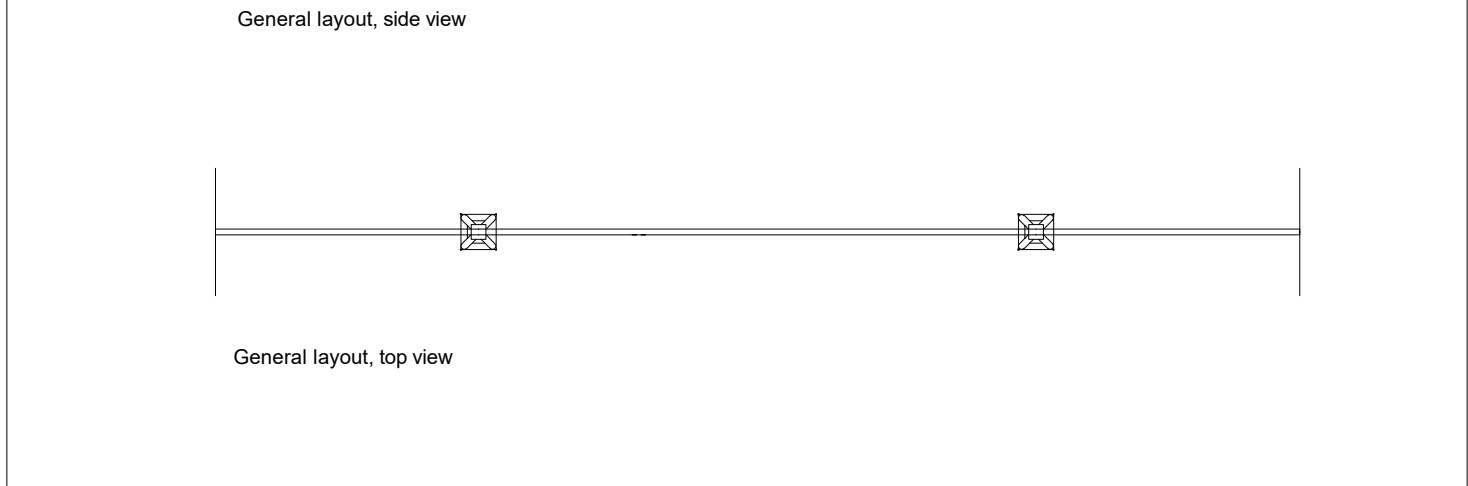
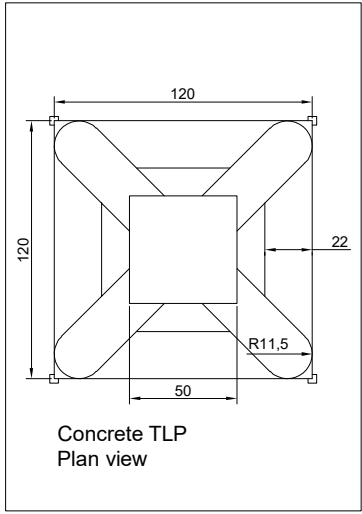
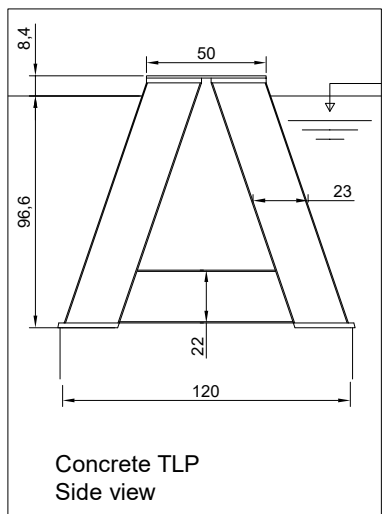
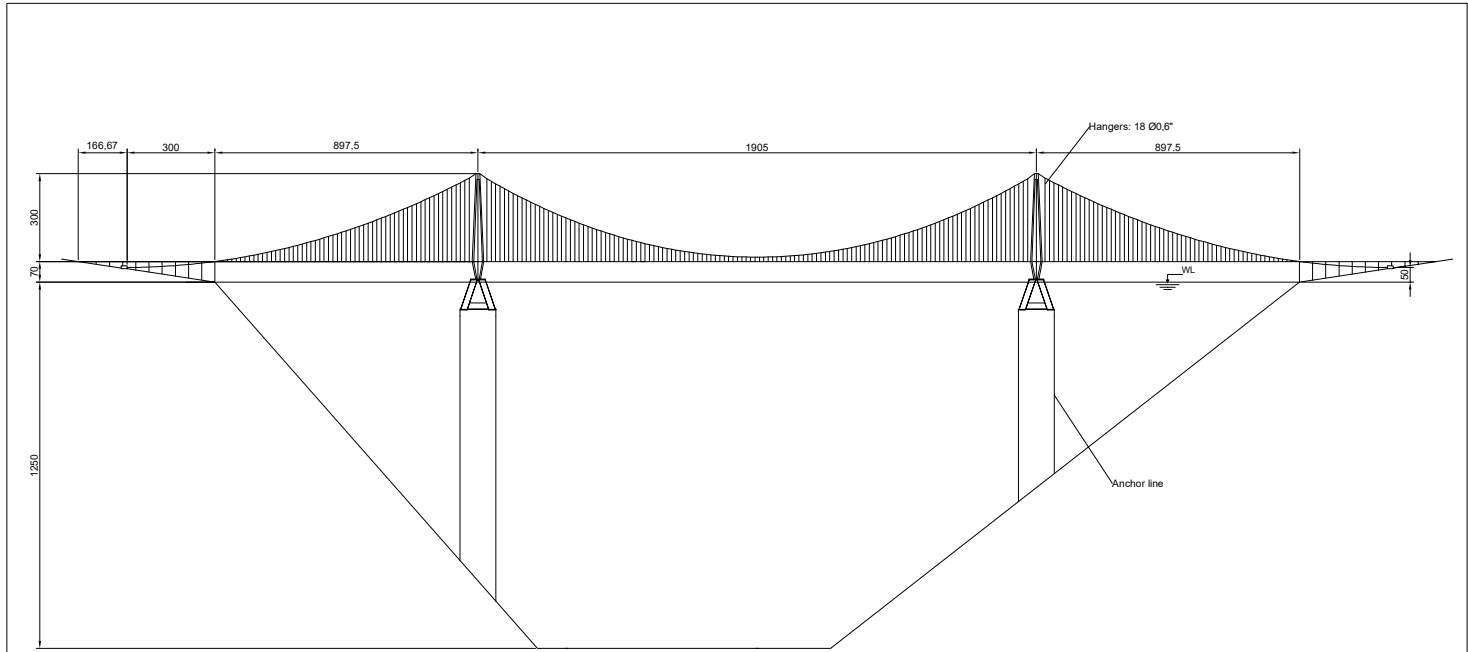
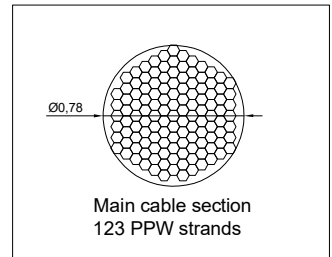
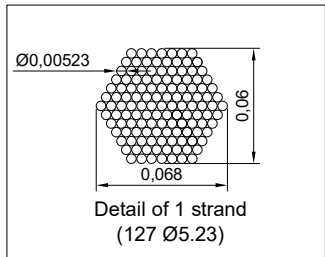


### Material properties

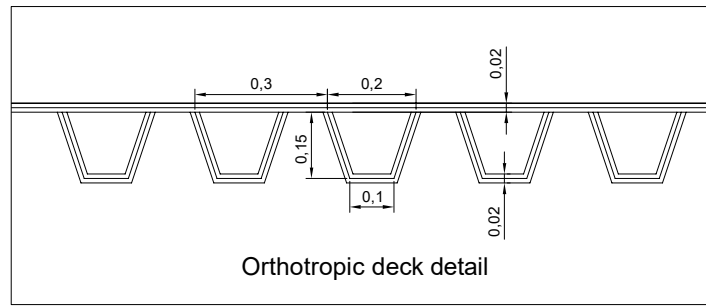
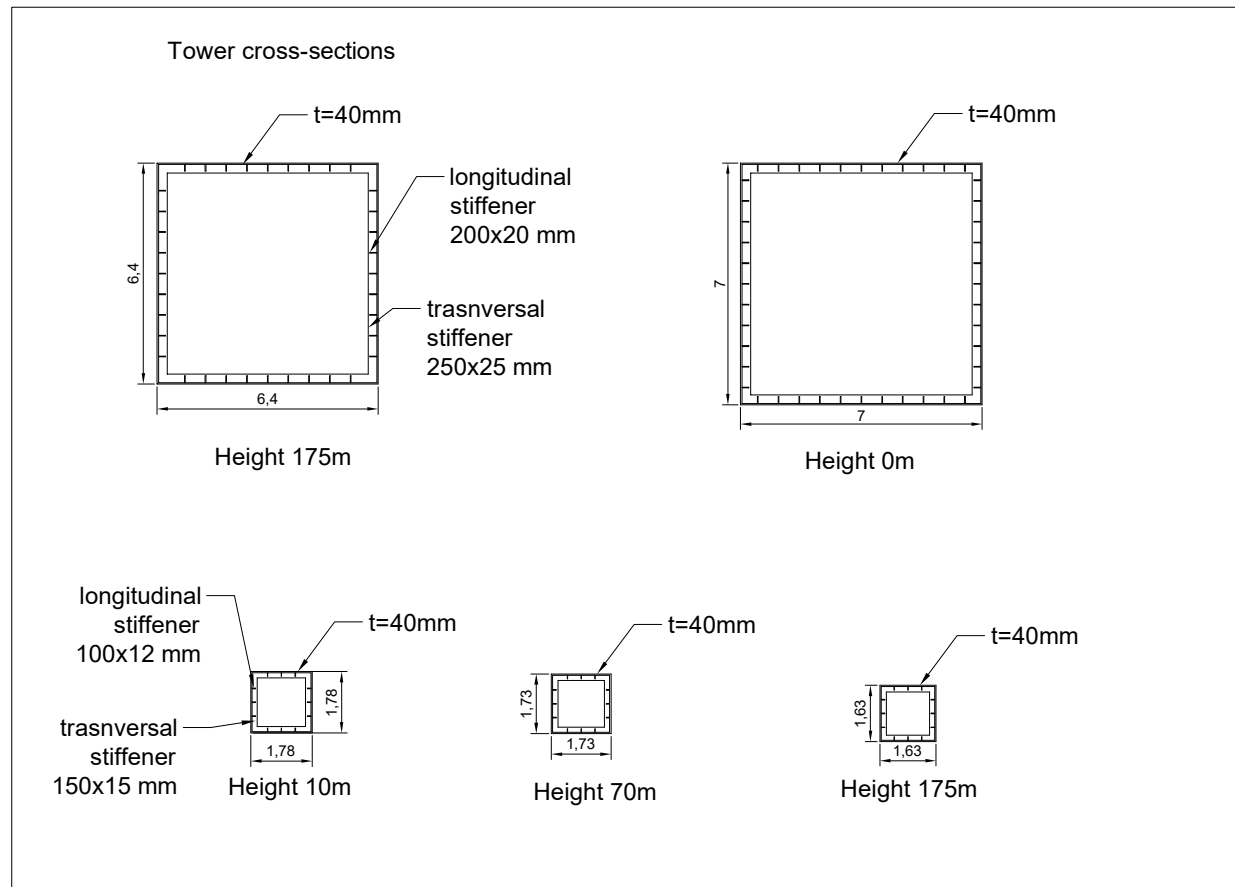
Structural steel (fyk,el)	355MPa
Main Cable steel	1860MPa
suspenders steel (fyk,r)	1570MPa
Concrete (fck)	40MPa
Anchor Cable steel	1700MPa

### Alternative 6

Bridge Technology	Suspension bridge
Tower material	Concrete
Pontoon technology	Concrete TLP
Author	Gerard Alcalde
Supervisor	Joan Ramon Casas Climent Molins
Project	TFM
Date	30/06/2020

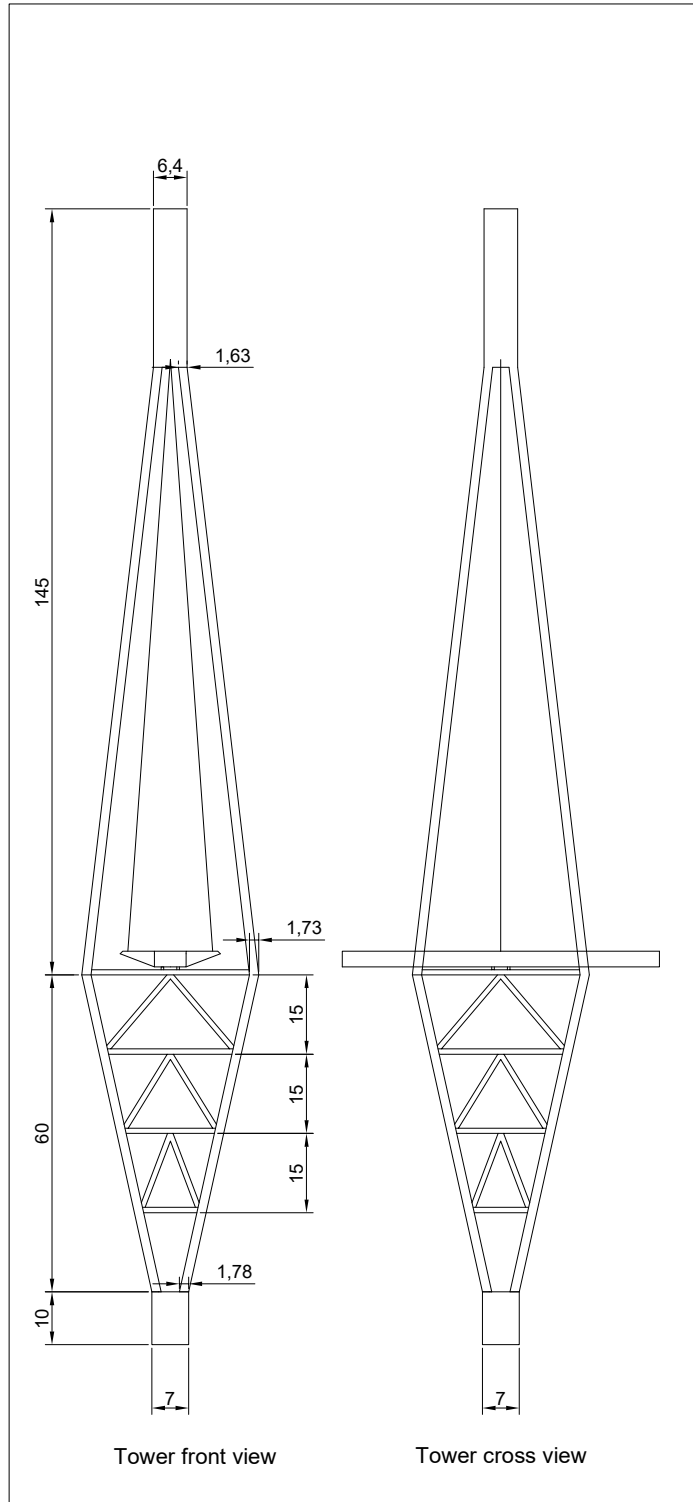
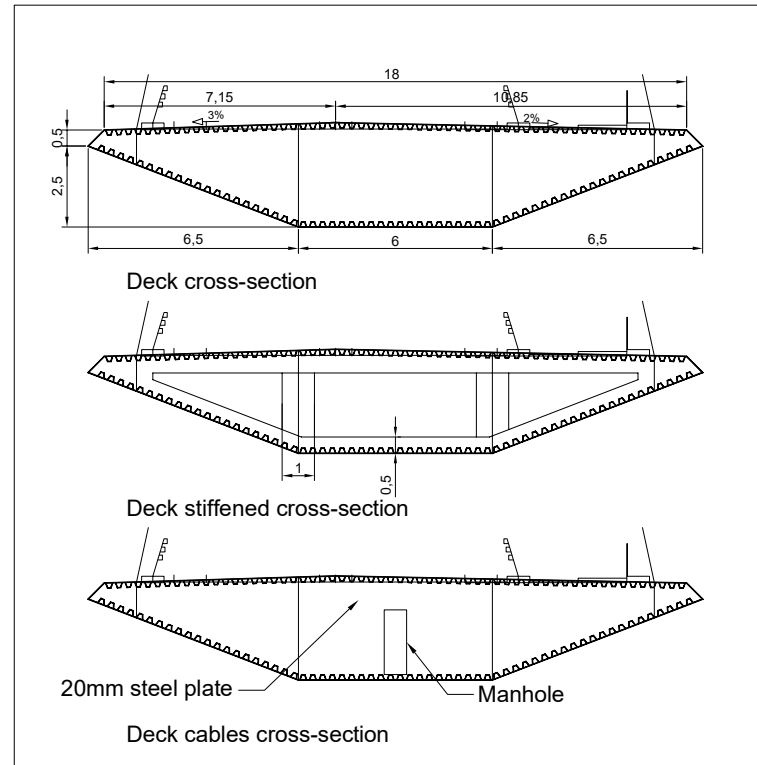
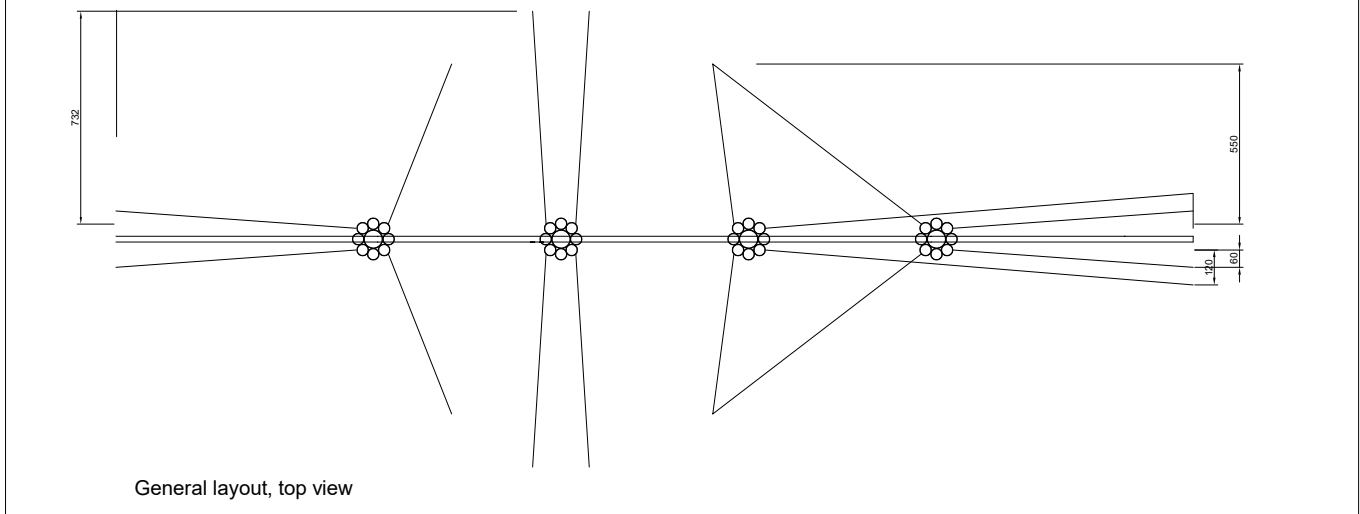
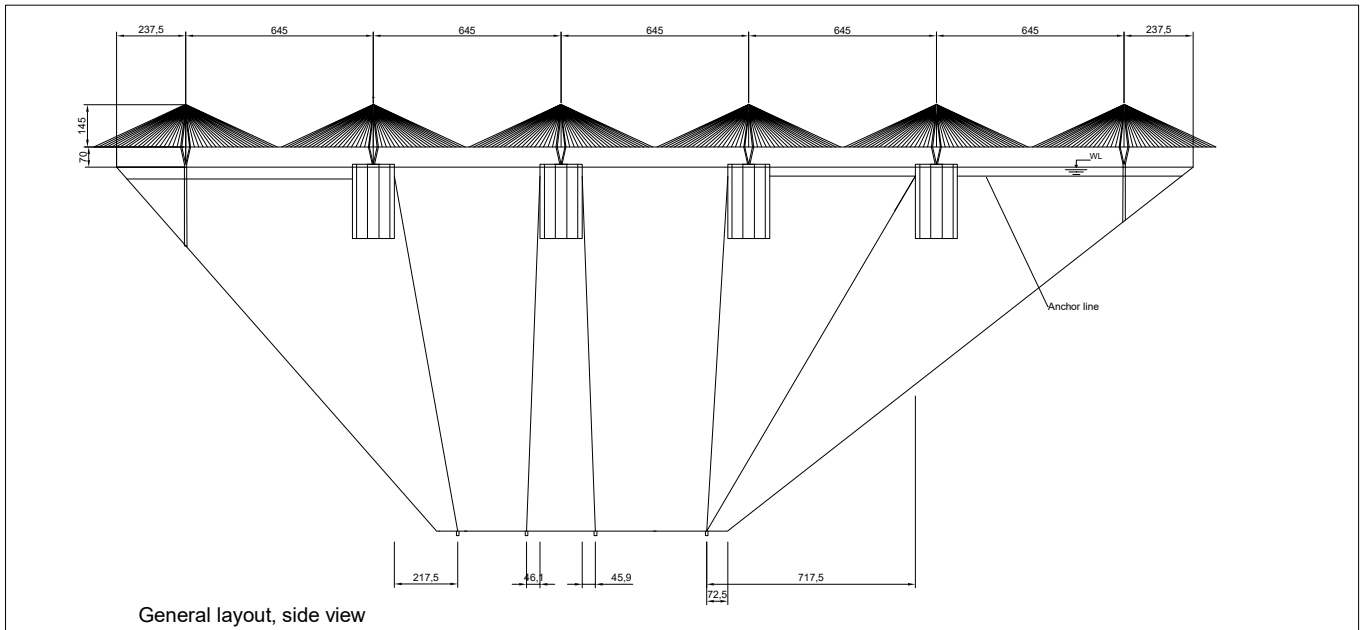
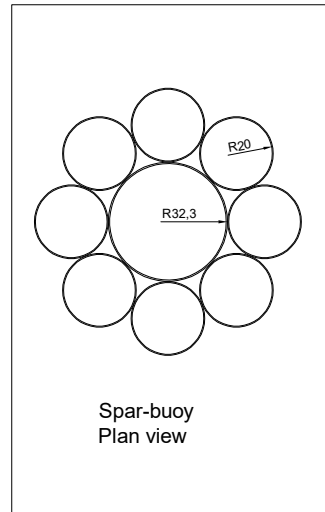
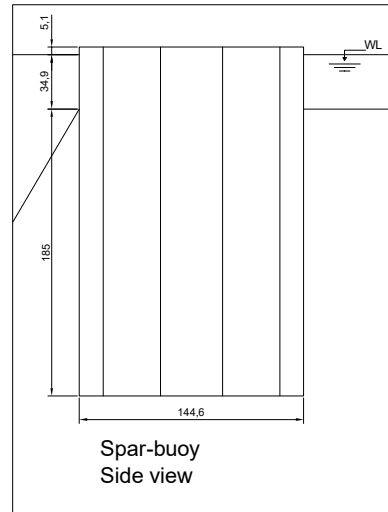
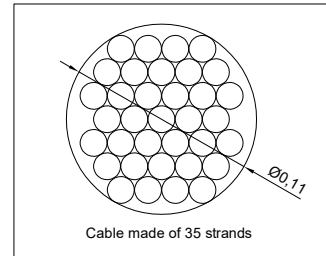
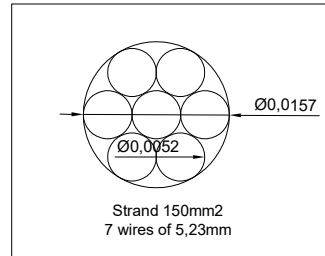




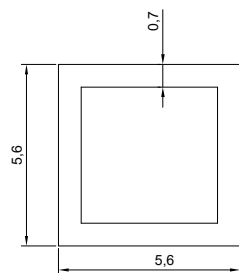


Material properties	
Structural steel (fyk,el)	355MPa
Cable steel	1900MPa
Concrete (fck)	40MPa
Anchoring cable steel	1700MPa

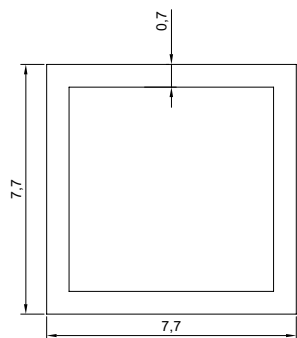
Alternative 7	
Bridge Technology	Cable-stayed bridge
Tower material	Steel
Pontoon technology	Spar-buoy
Author	Gerard Alcalde
Supervisor	Joan Ramon Casas Climent Molins
Project	TFM
Date	30/06/2020



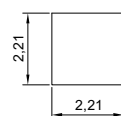
### Tower cross-sections



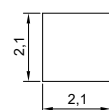
Height 145m



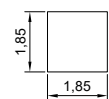
Height 0m



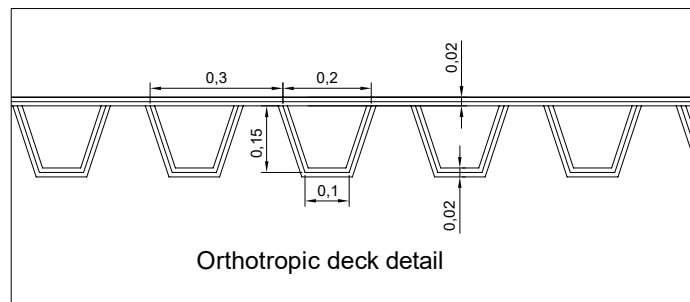
Height 10m



Height 70m



Height 115m



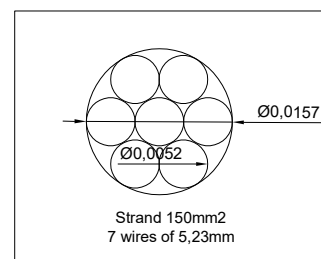
Orthotropic deck detail

### Material properties

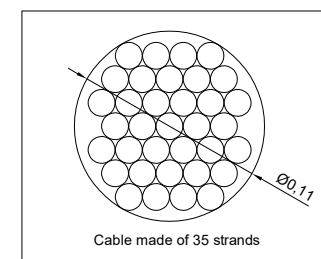
Structural steel (fyk,el)	355MPa
Cable steel	1900MPa
Concrete (fck)	40MPa
Anchoring cable steel	1700MPa

## Alternative 8

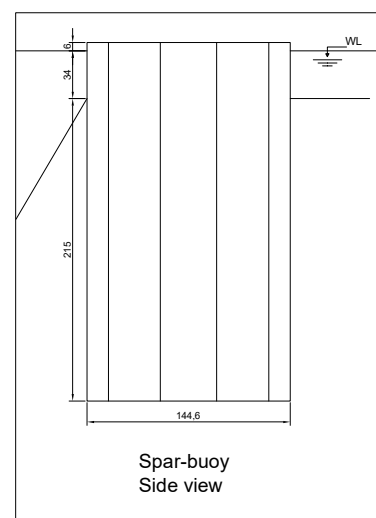
Bridge Technology	Cable-stayed bridge
Tower material	Concrete
Pontoon technology	Spar-buoy
Author	Gerard Alcalde
Supervisor	Joan Ramon Casas Climent Molins
Project	TFM
Date	30/06/2020



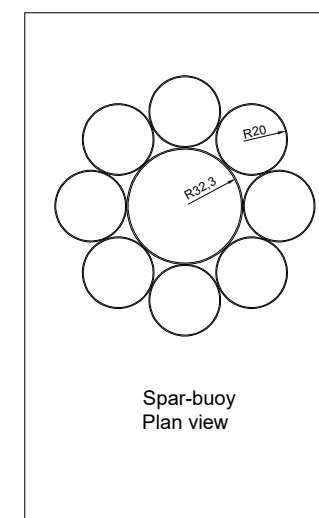
Strand 150mm<sup>2</sup>  
7 wires of 5.23mm



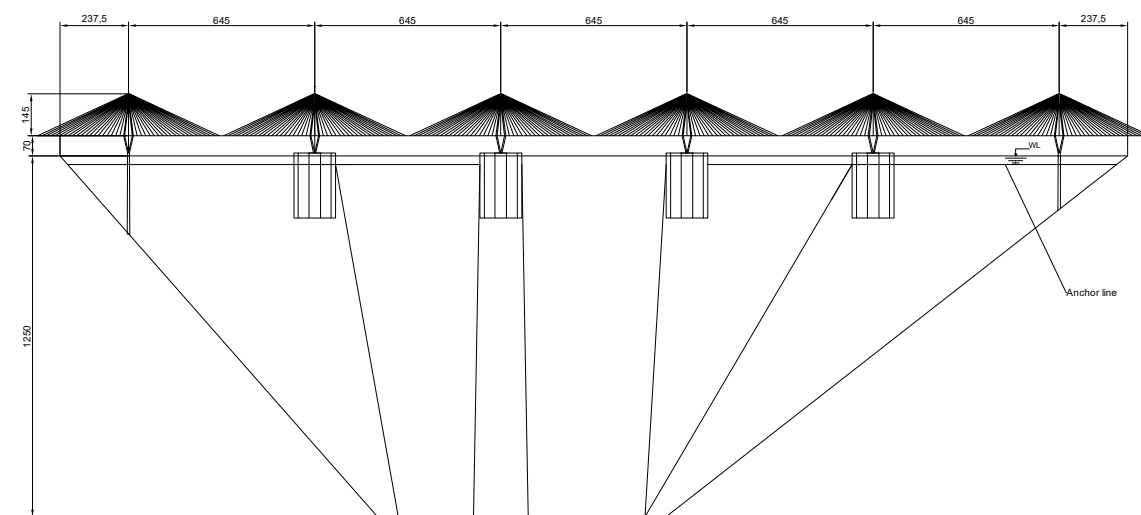
Cable made of 35 strands



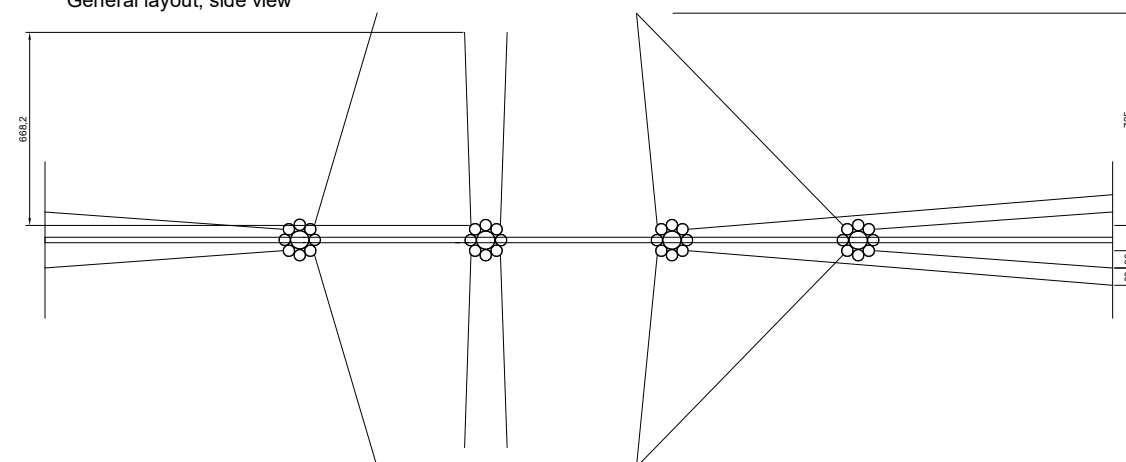
Spar-buoy  
Side view



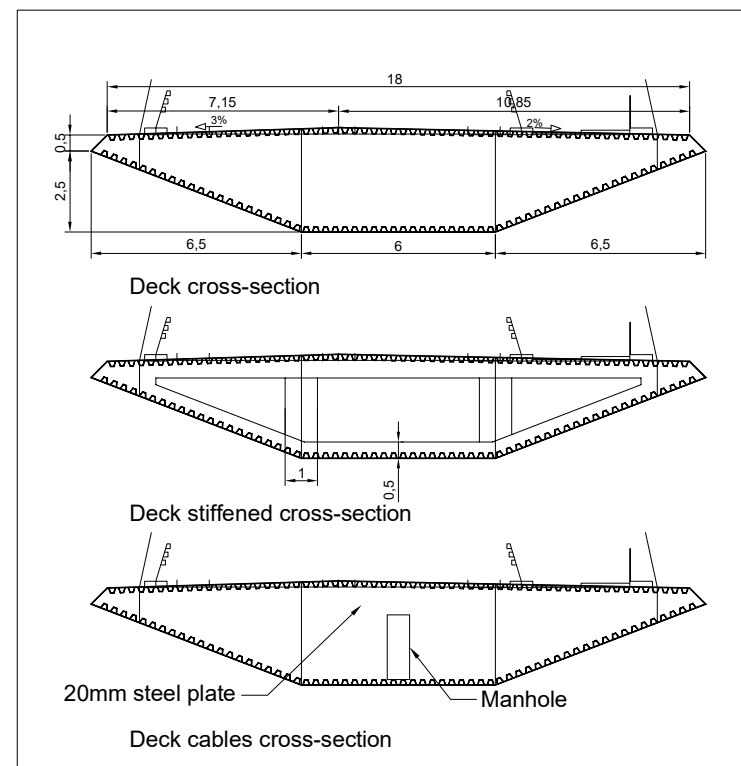
Spar-buoy  
Plan view



General layout, side view



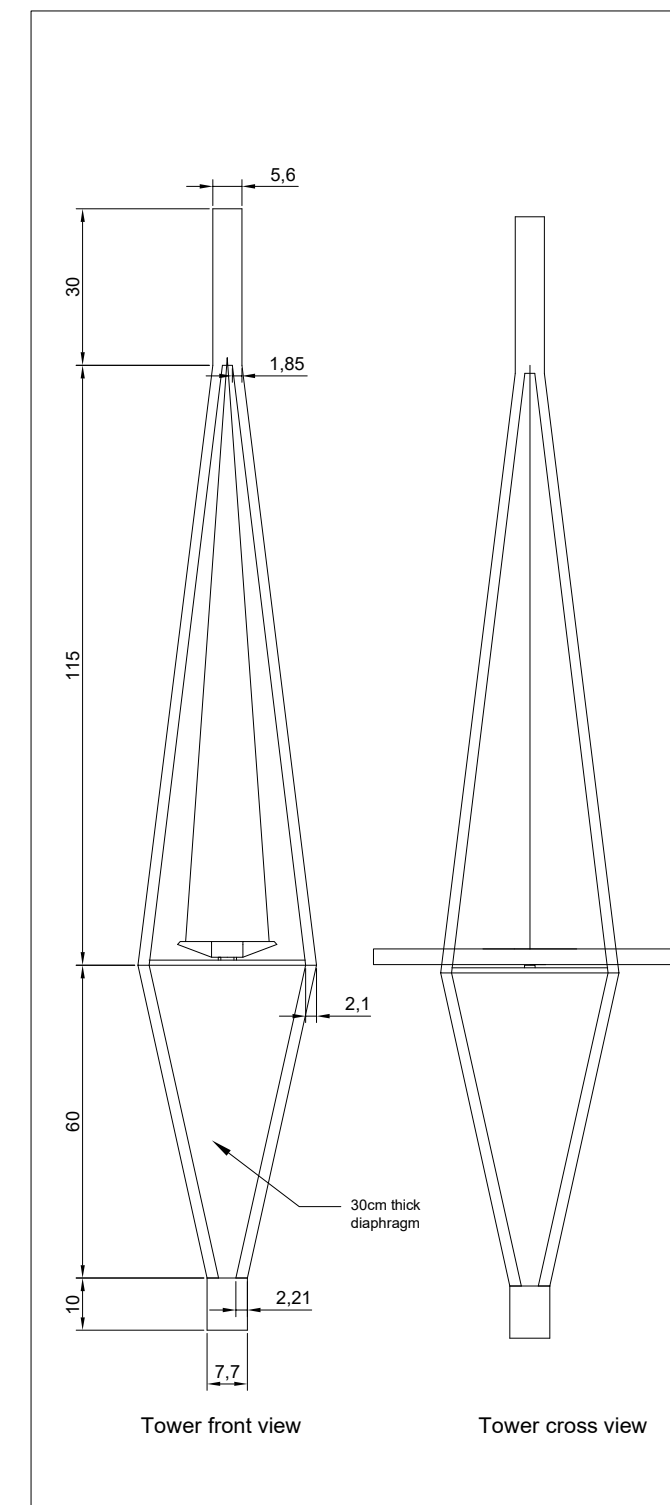
General layout, top view



Deck cross-section

Deck stiffened cross-section

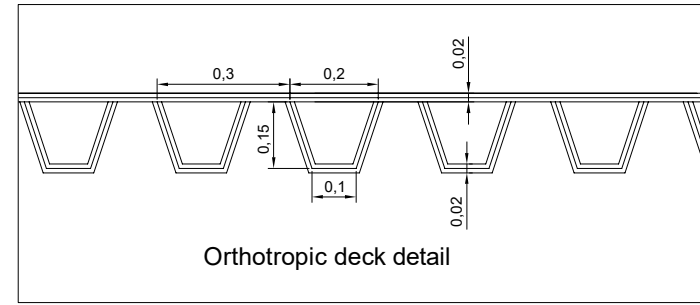
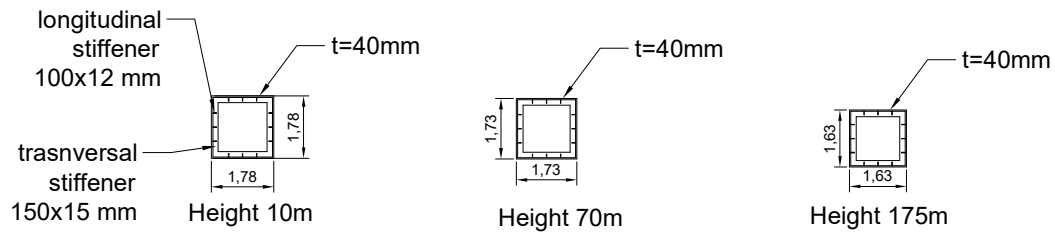
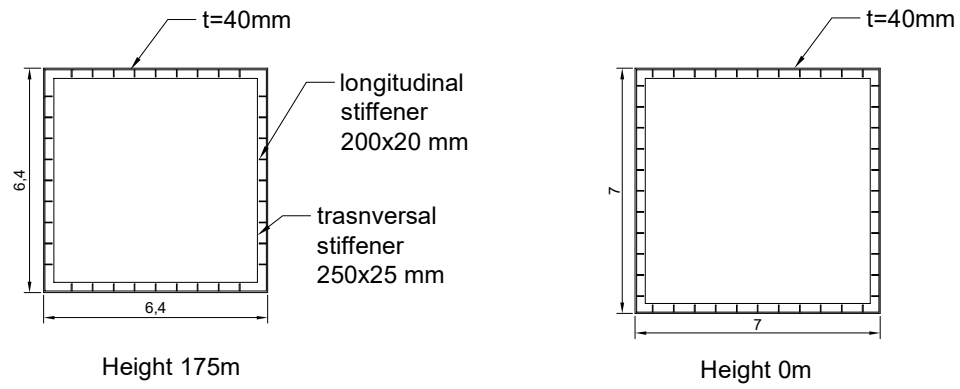
20mm steel plate  
Manhole  
Deck cables cross-section



Tower front view

Tower cross view

Tower cross-sections

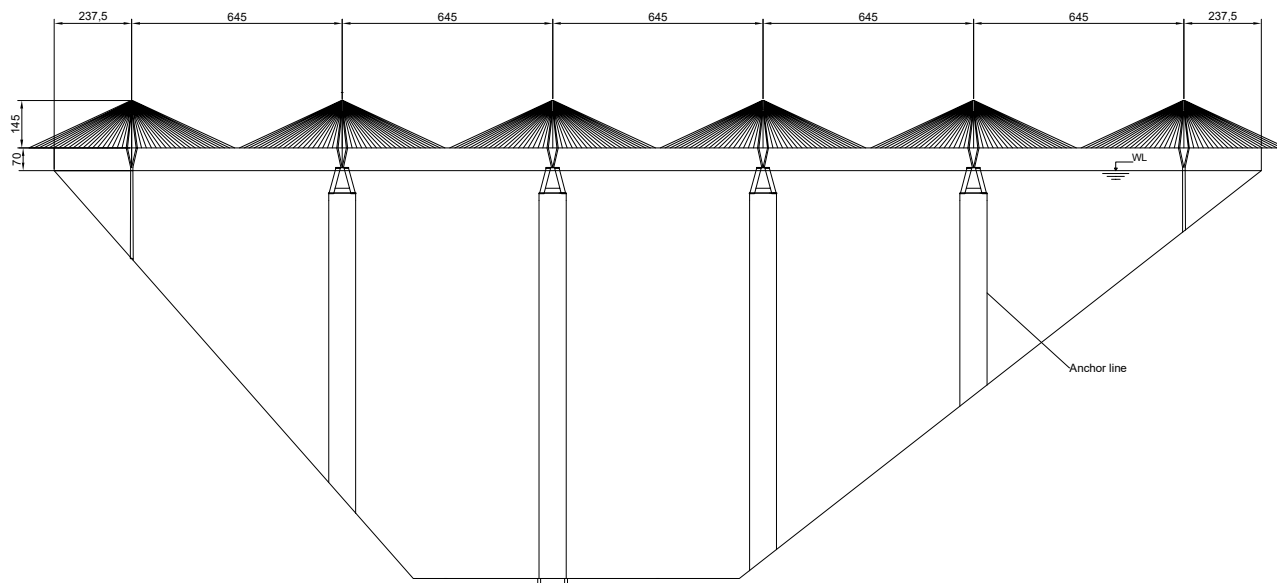
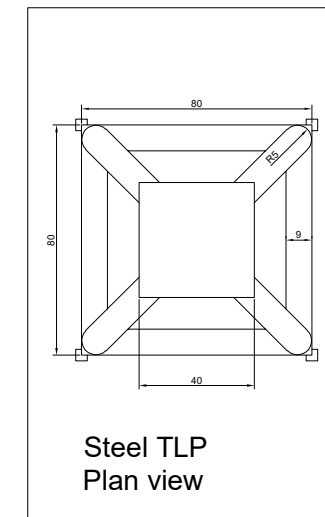
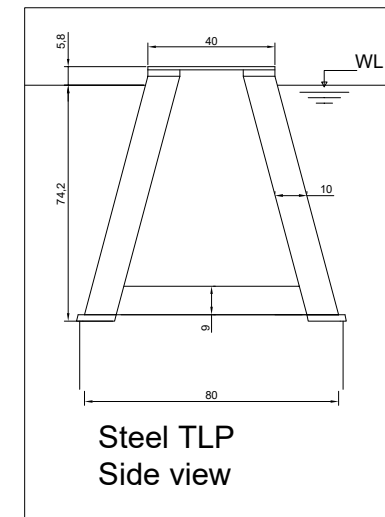
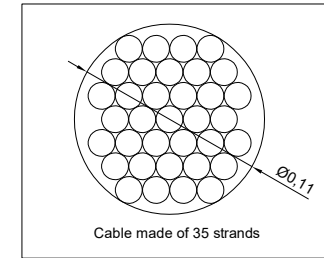
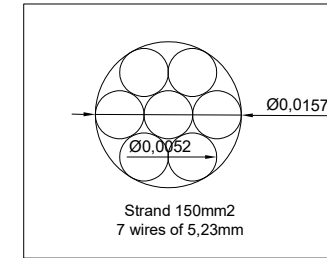


Material properties

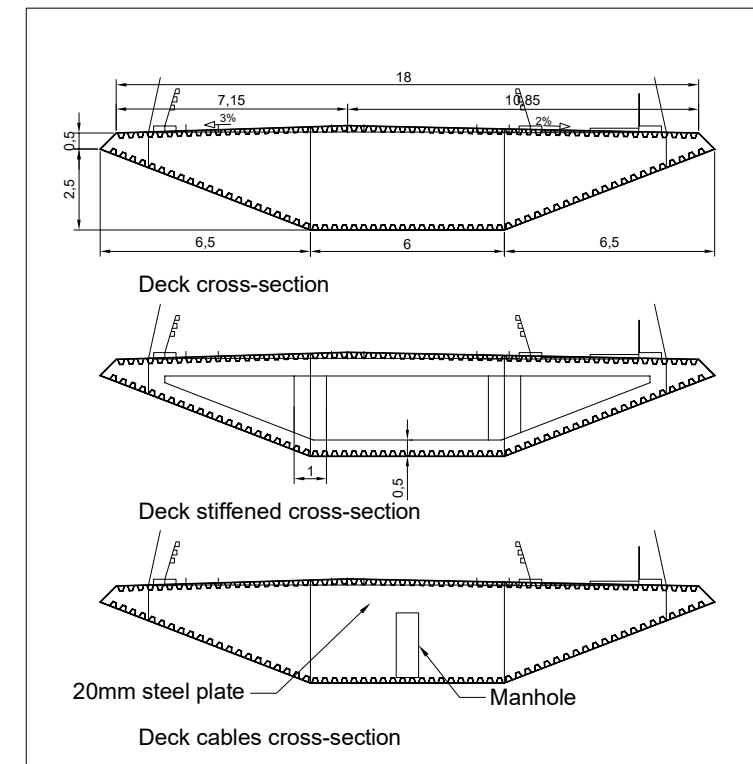
Structural steel (fyk,el)	355MPa
Cable steel	1900MPa
Concrete (fck)	40MPa
Anchoring cable steel	1700MPa

# Alternative 9

Bridge Technology	Cable-stayed bridge
Tower material	Steel
Pontoon technology	Steel TLP
Author	Gerard Alcalde
Supervisor	Joan Ramon Casas Climent Molins
Project	TFM
Date	30/06/2020



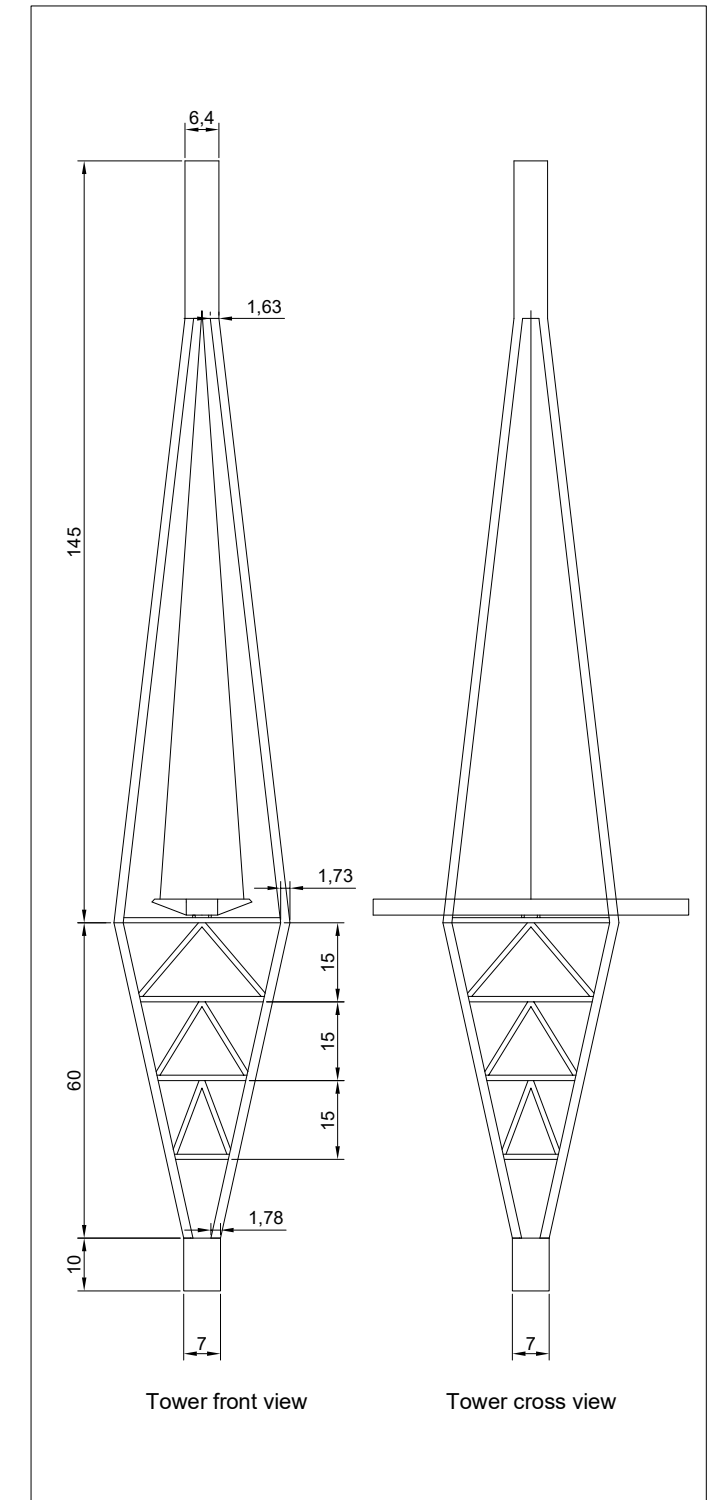
General layout, side view



Deck cross-section

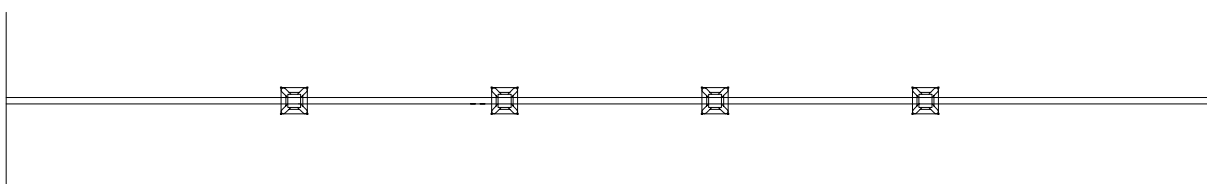
Deck stiffened cross-section

Deck cables cross-section



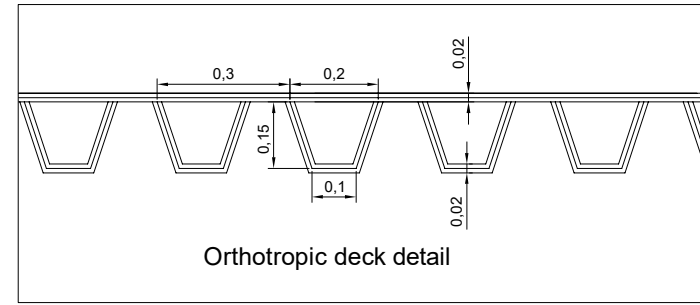
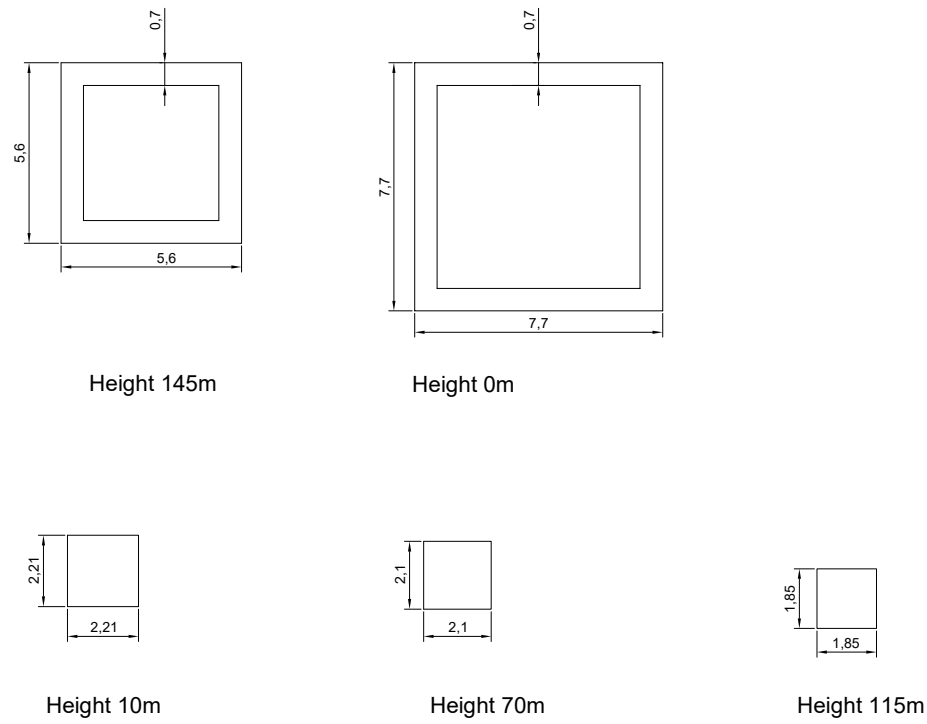
Tower front view

Tower cross view



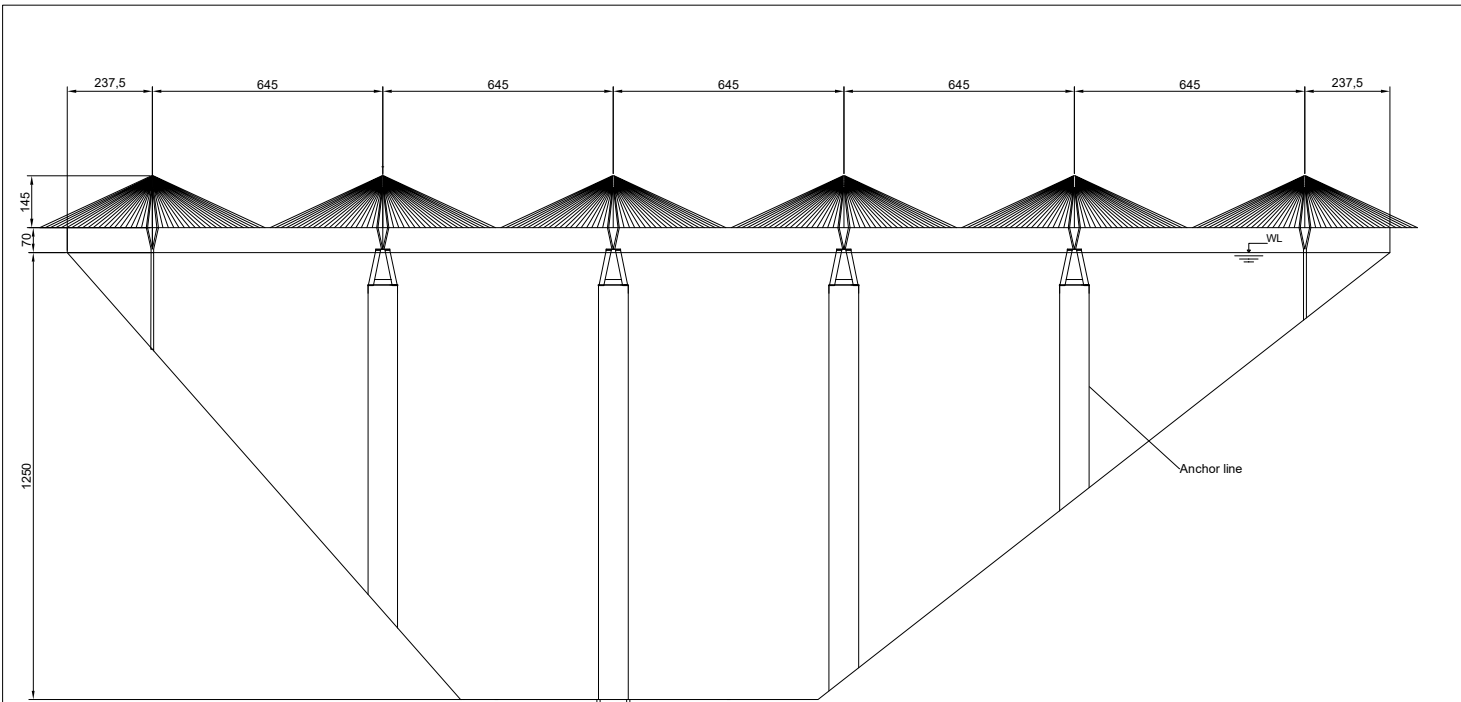
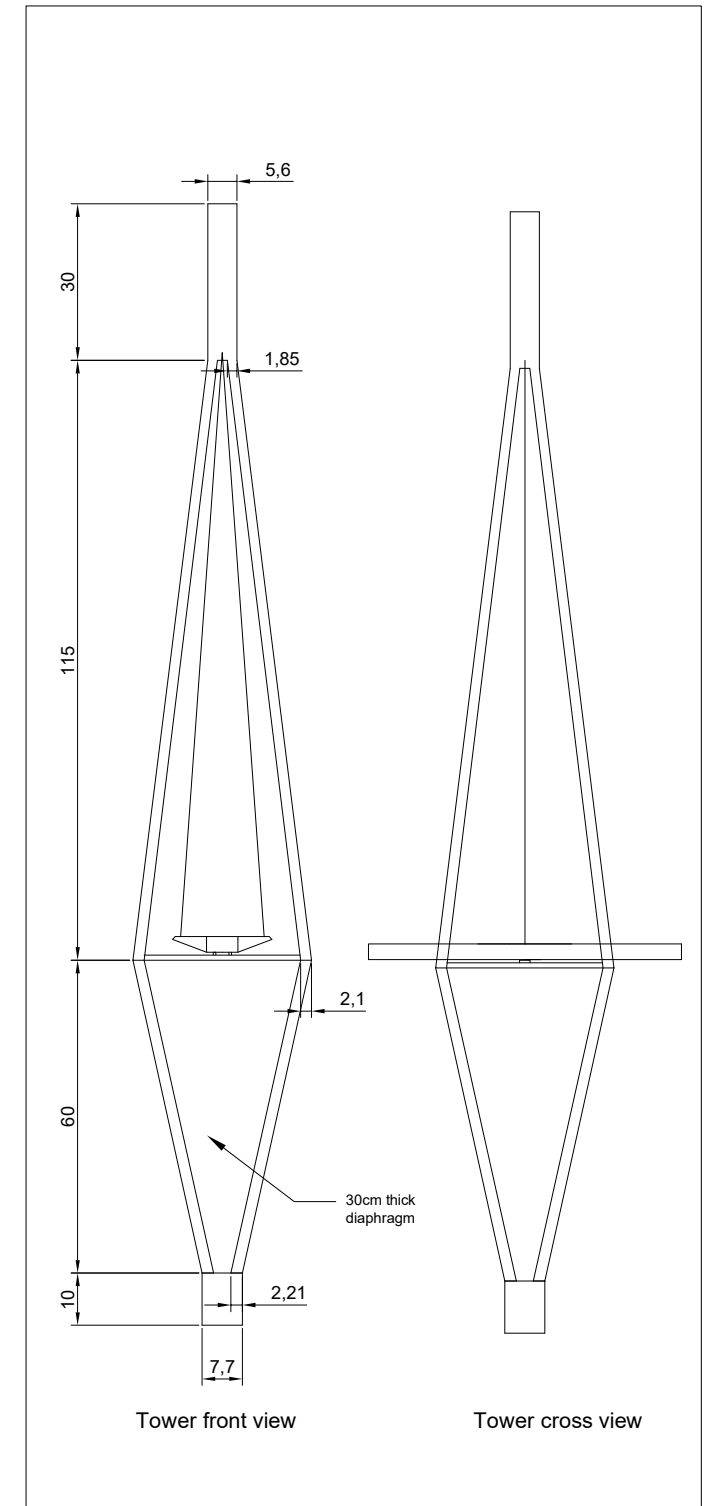
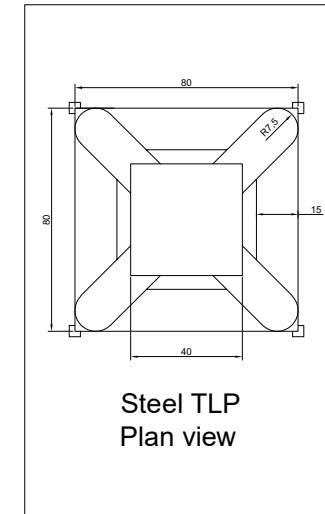
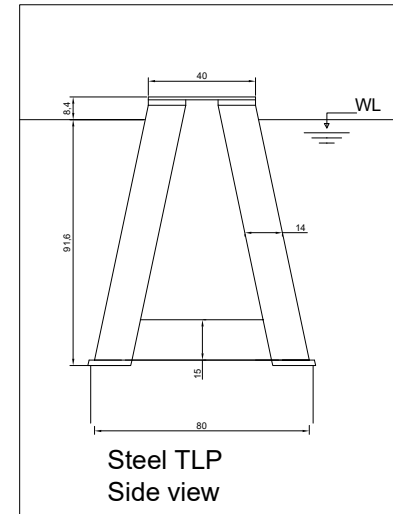
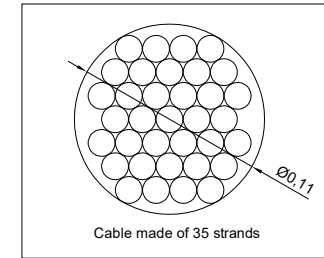
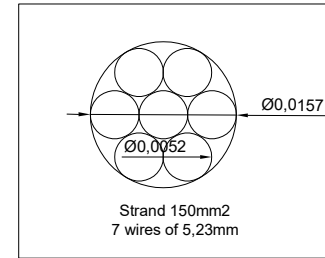
General layout, top view

### Tower cross-sections

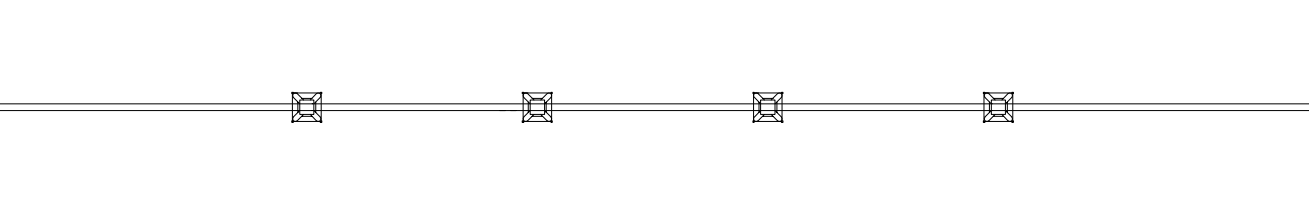


Material properties	
Structural steel (fyk,el)	355MPa
Cable steel	1900MPa
Concrete (fck)	40MPa
Anchoring cable steel	1700MPa

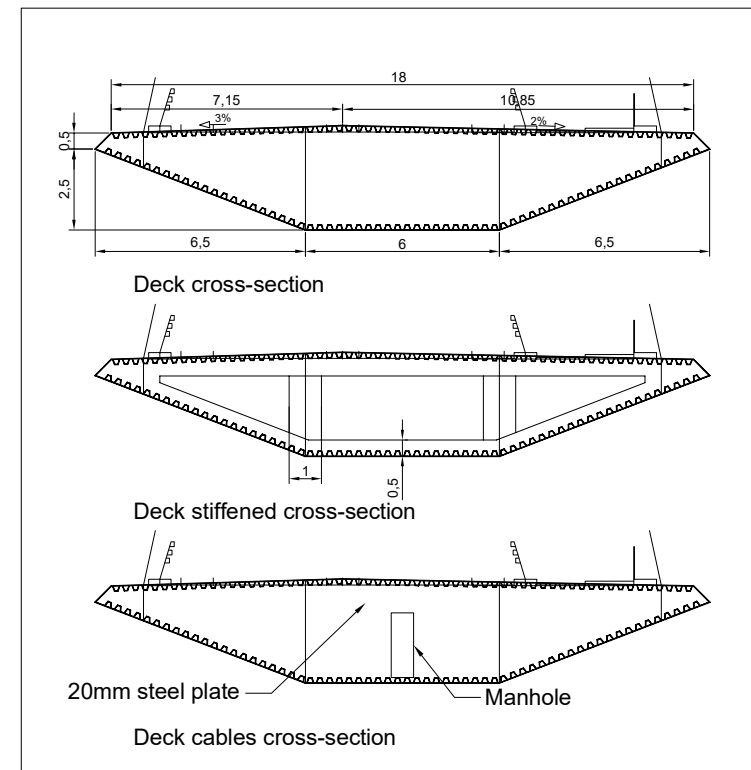
Alternative 10	
Bridge Technology	Cable-stayed bridge
Tower material	Concrete
Pontoon technology	Steel TLP
Author	Gerard Alcalde
Supervisor	Joan Ramon Casas Climent Molins
Project	TFM
Date	30/06/2020



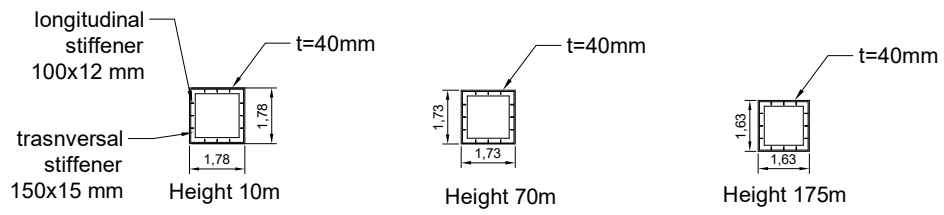
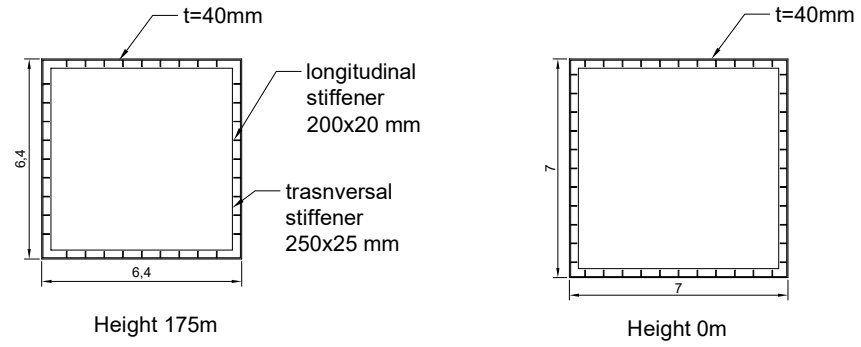
General layout, side view



General layout, top view



Tower cross-sections

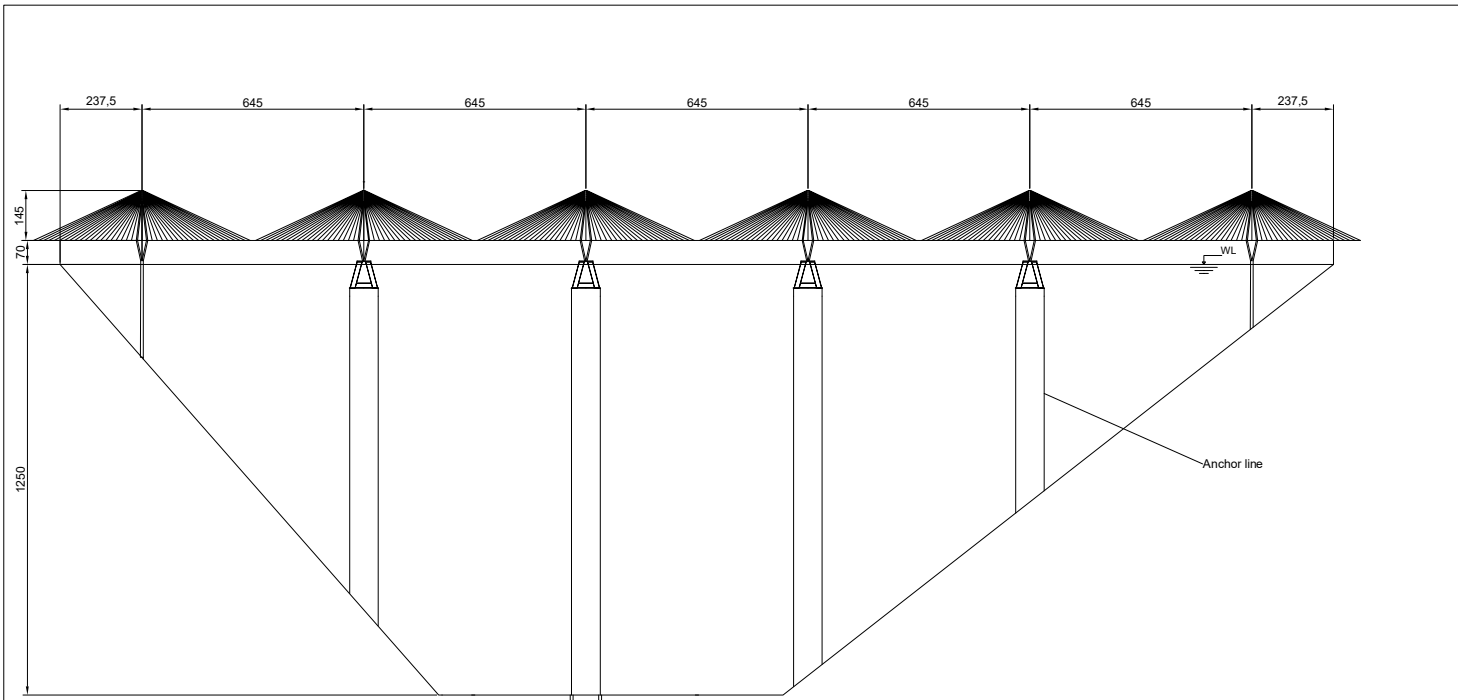
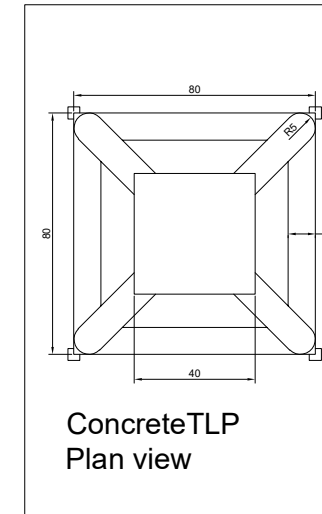
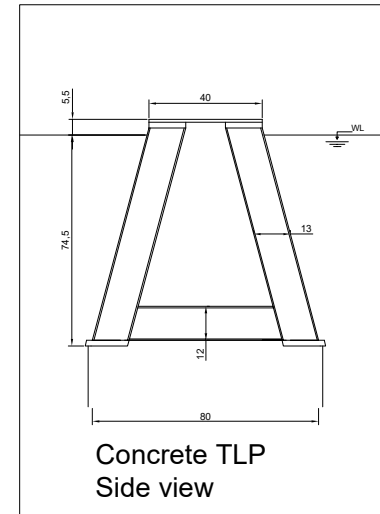
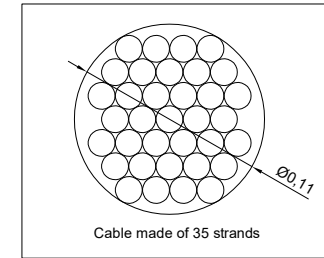
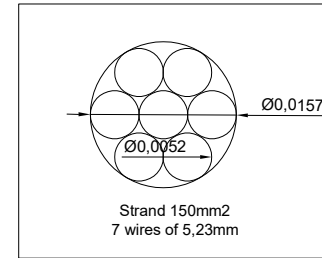
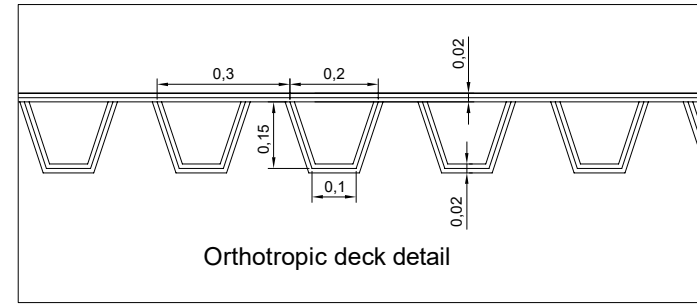


Material properties

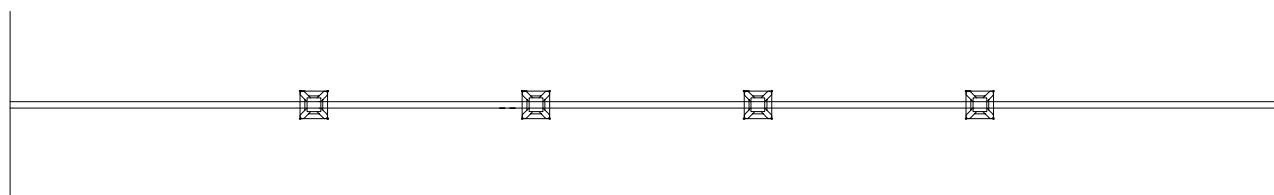
Structural steel (fyk,el)	355MPa
Cable steel	1900MPa
Concrete (fck)	40MPa
Anchoring cable steel	1700MPa

# Alternative 11

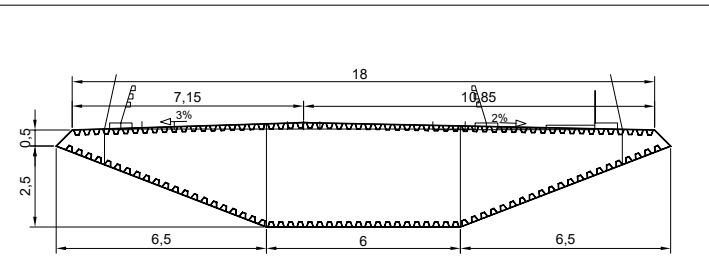
Bridge Technology	Cable-stayed bridge
Tower material	Steel
Pontoon technology	Concrete TLP
Author	Gerard Alcalde
Supervisor	Joan Ramon Casas Climent Molins
Project	TFM
Date	30/06/2020



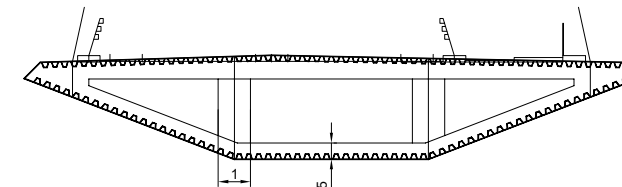
General layout, side view



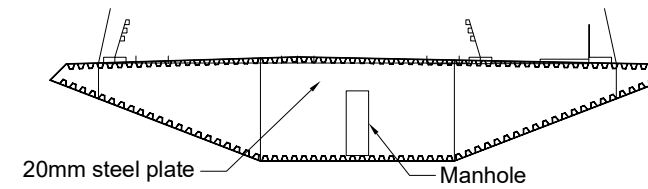
General layout, top view



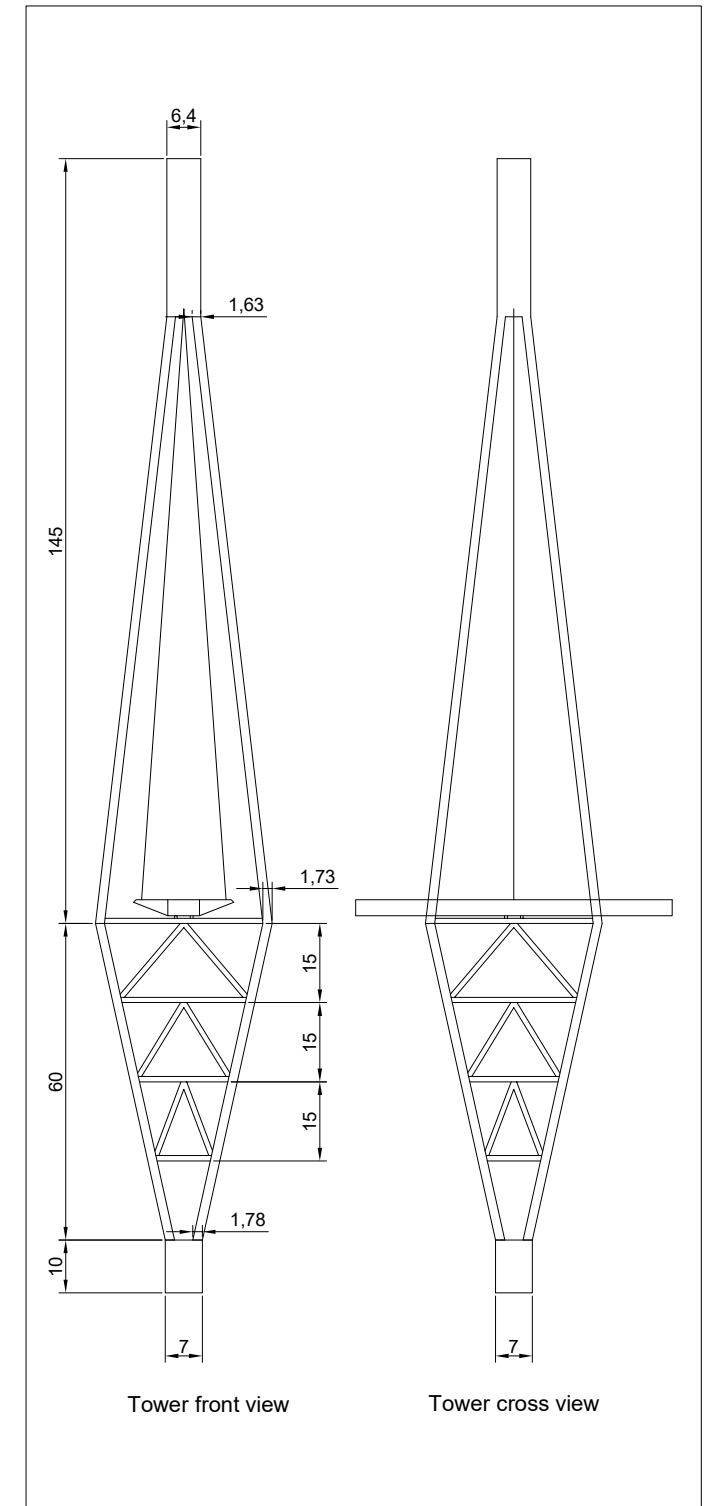
Deck cross-section



Deck stiffened cross-section



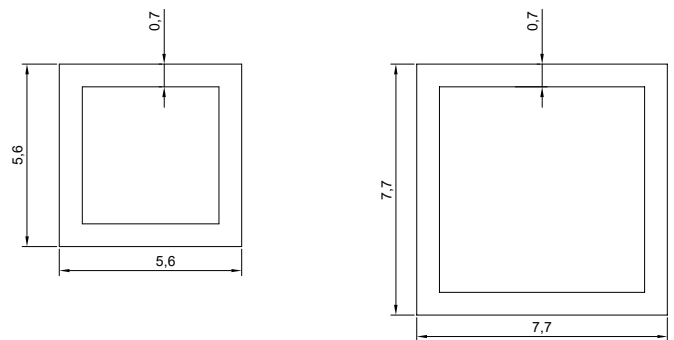
Deck cables cross-section



Tower front view

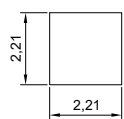
Tower cross view

### Tower cross-sections

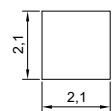


Height 145m

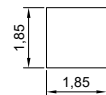
Height 0m



Height 10m



Height 70m



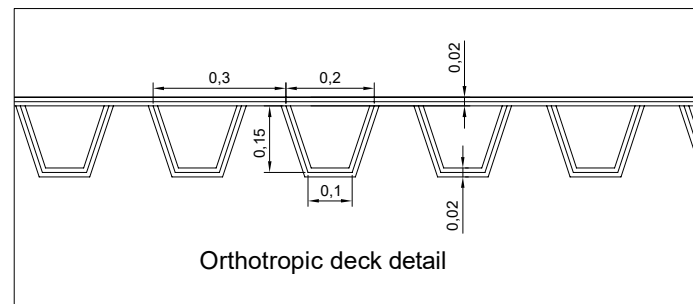
Height 115m

### Material properties

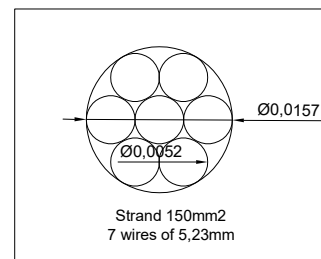
Structural steel (fyk,el)	355MPa
Cable steel	1900MPa
Concrete (fck)	40MPa
Anchoring cable steel	1700MPa

# Alternative 12

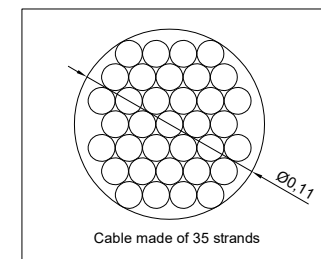
Bridge Technology	Cable-stayed bridge
Tower material	Concrete
Pontoon technology	Concrete TLP
Author	Gerard Alcalde
Supervisor	Joan Ramon Casas Climent Molins
Project	TFM
Date	30/06/2020



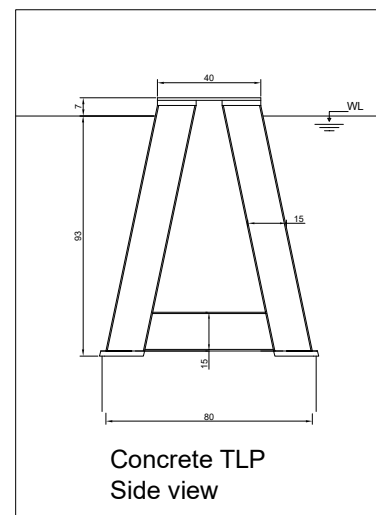
Orthotropic deck detail



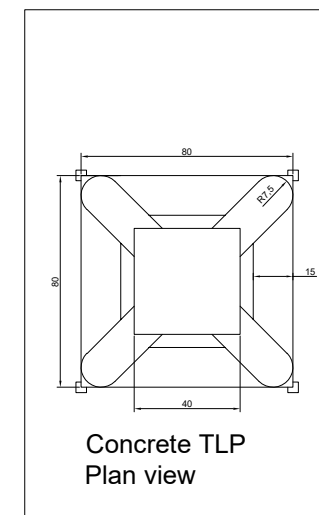
Strand 150mm<sup>2</sup>  
7 wires of 5.23mm



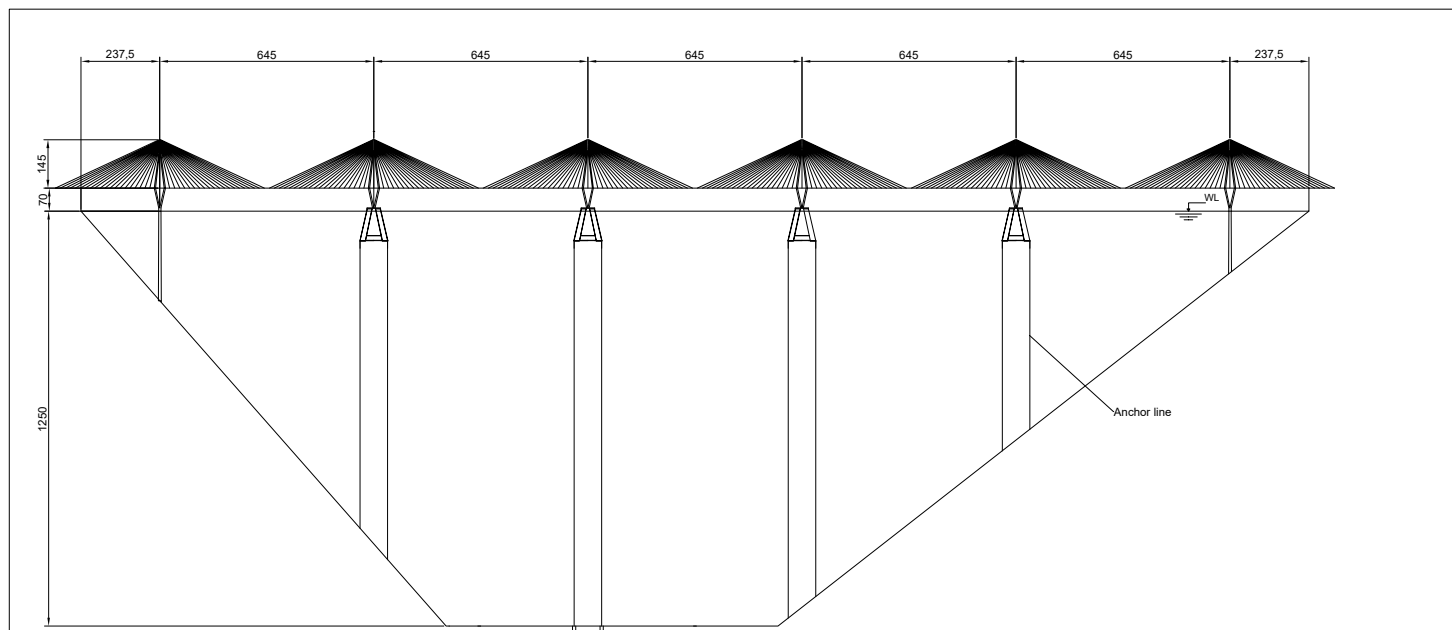
Cable made of 35 strands



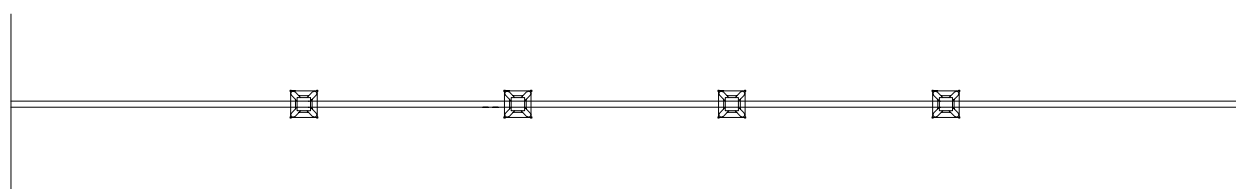
Concrete TLP  
Side view



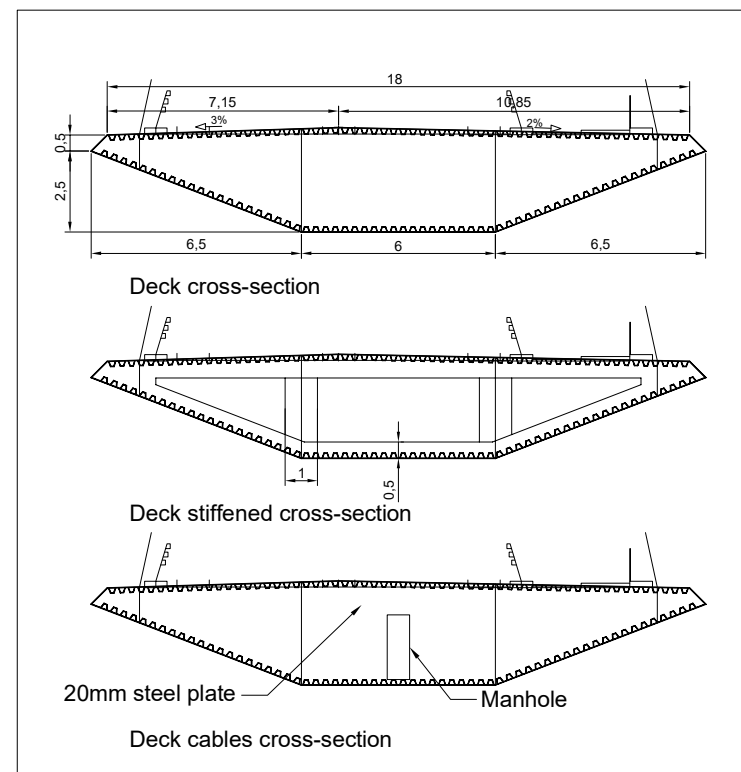
Concrete TLP  
Plan view



General layout, side view



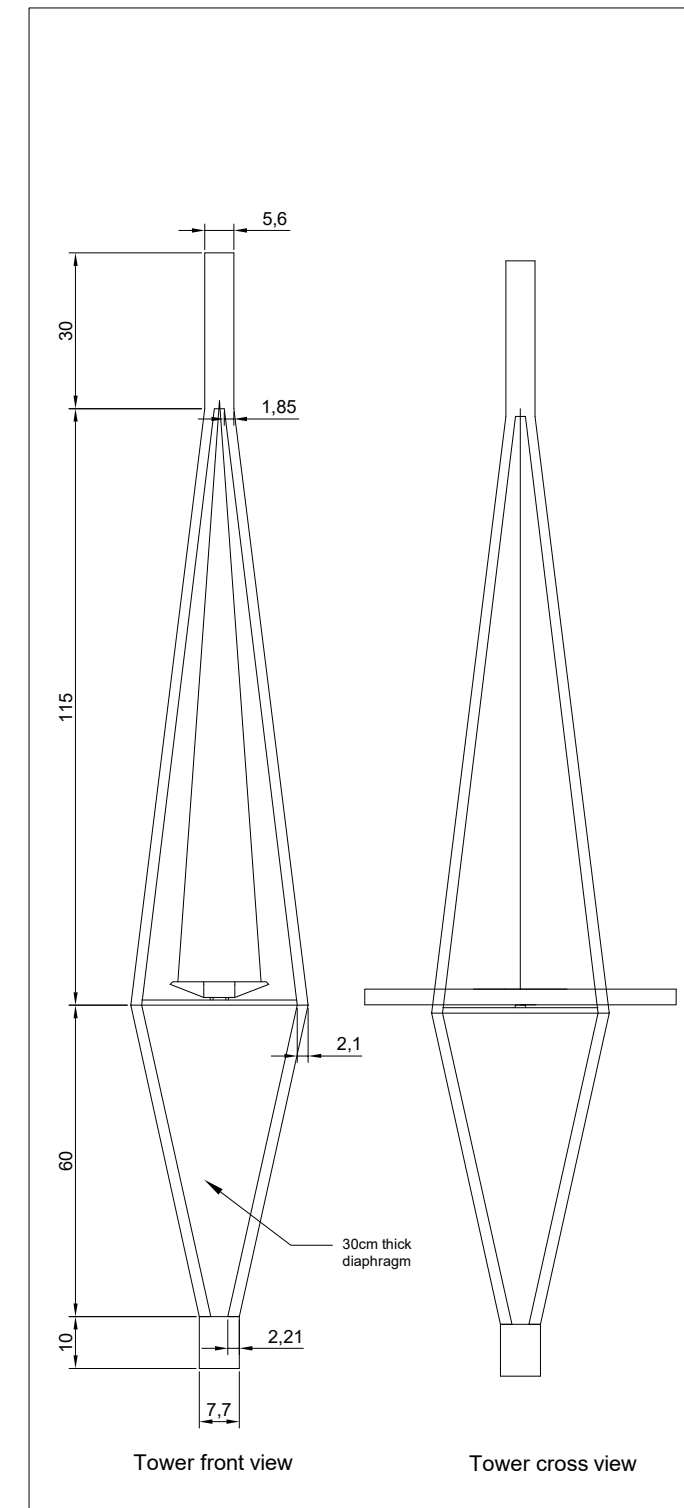
General layout, top view



Deck cross-section

Deck stiffened cross-section

Deck cables cross-section



Tower front view

Tower cross view