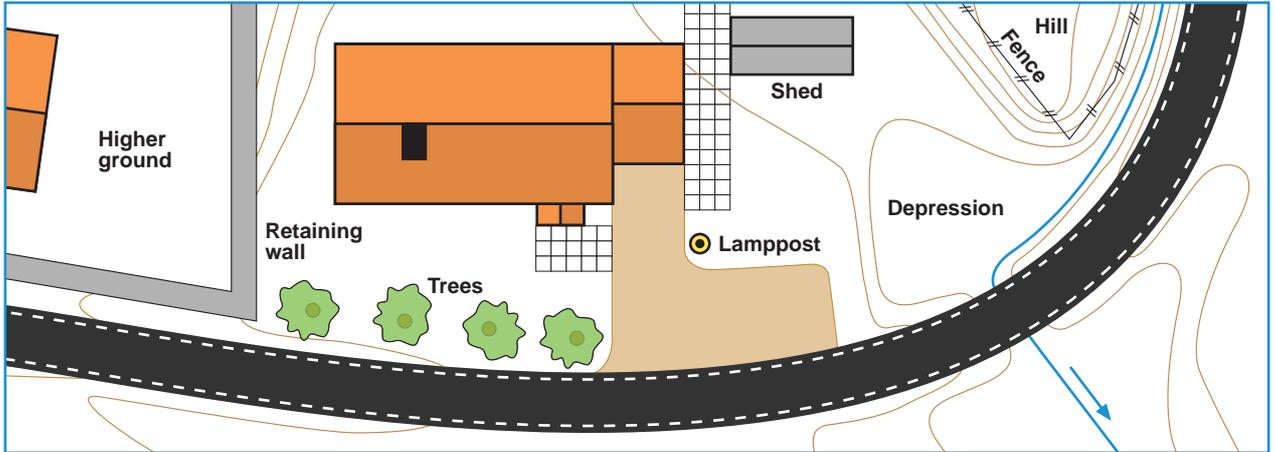
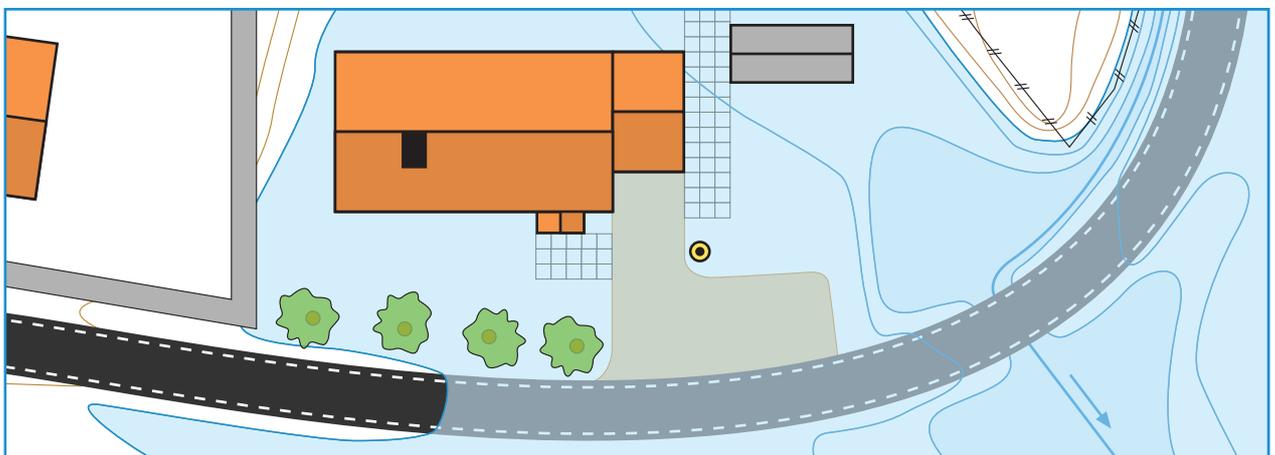
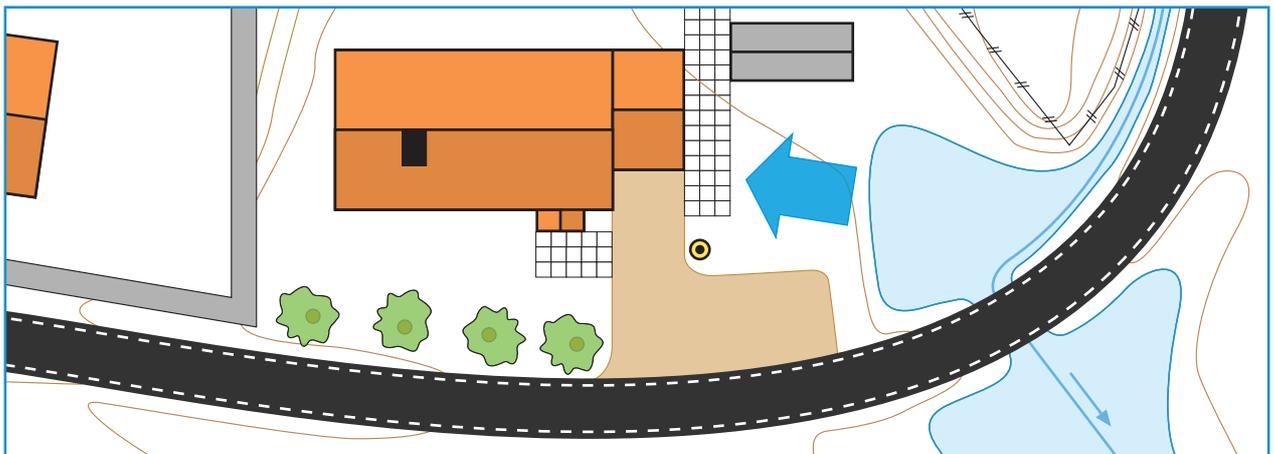


TUBE WALL CHECK LIST



- 1. Identify the most vulnerable side of the object**
From what direction is it most likely that the water will approach?
From what direction will the water first reach the object?
Most often this is obvious, but sometimes it is not.

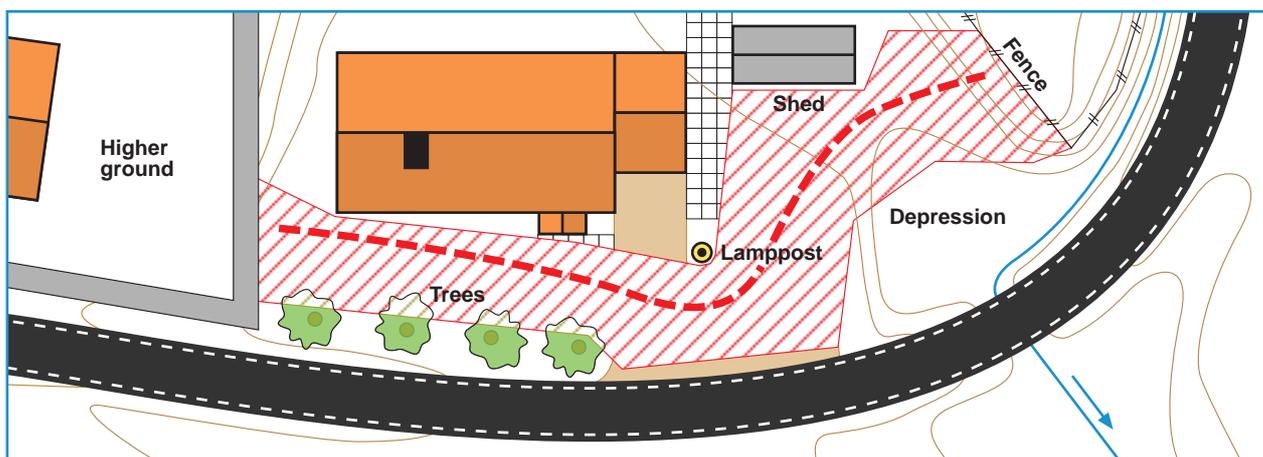


2. Find a flood defence line in front of this side

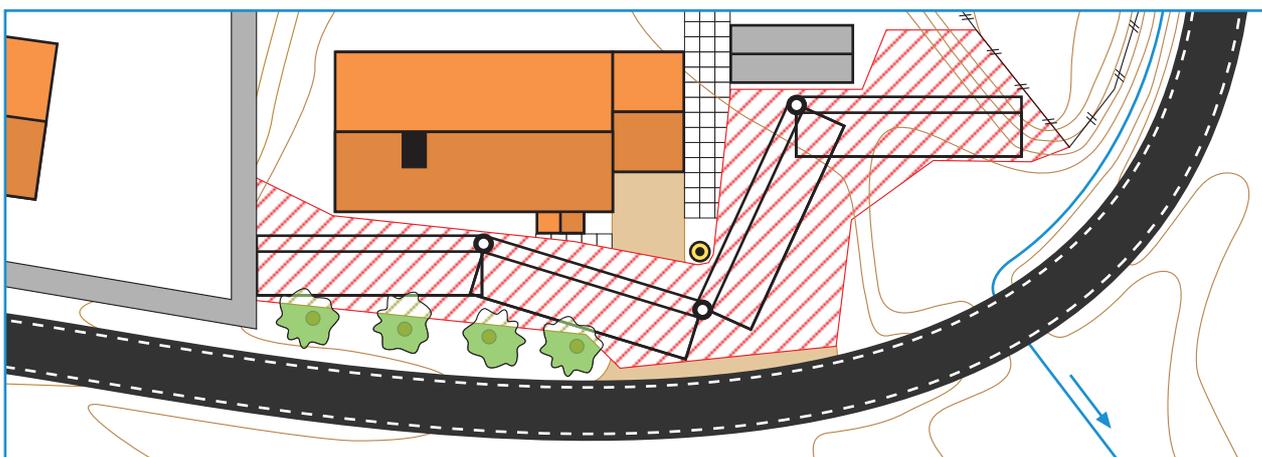
A flood defence line is a path along which a mobile flood barrier can be deployed. It should be chosen as high as possible; if the ground slopes downward from the object, the flood defence line should be chosen as near the object as possible.

For the use of a NOAQ Tube Wall, a flood defence line must meet the following requirements:

- Along the line, there must be a strip of land free from firm obstacles like trees, posts, fences etc. to a width of at least 2.4 metres.



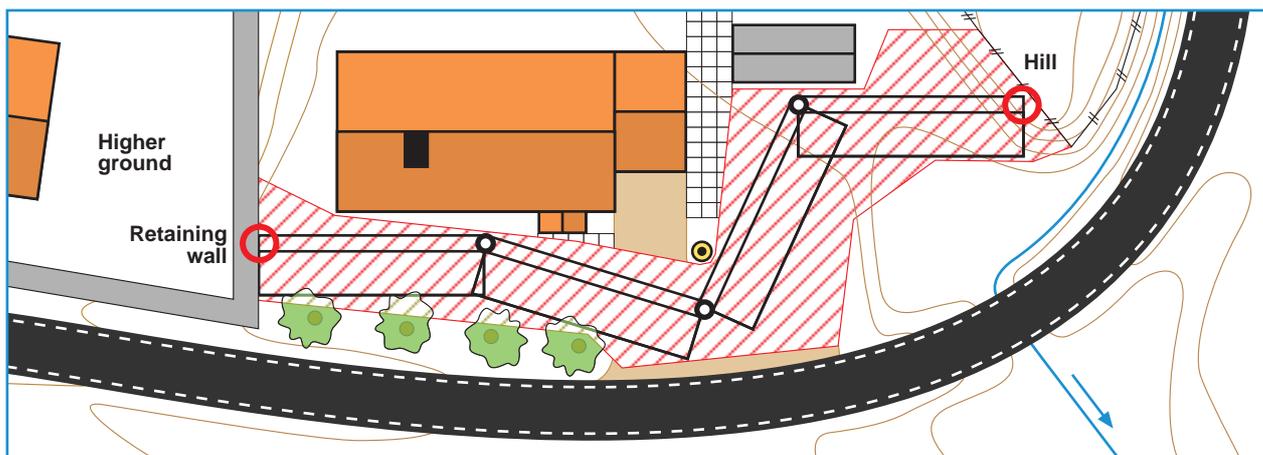
- As the footprint of each tube section (including the skirt) will form a rectangle 10 x 2.4 m or 20 x 2.4 m, a chain of such rectangles must be possible to fit within the area of the strip. The connecting point, the "hinge", between two adjacent rectangles (i.e. the tube ends) is situated on the short side of the rectangle, 40 centimetres from the outer corner.



- The ground must be reasonably even, especially along the outer edge of the strip, where the outer part of the skirt is supposed to seal tightly against the ground surface.
- If the ground consists of erodable material (like sand or loose soils) it has to have a non-erodable surface (like turf, slabs etc.)

3. Find two secure ending points

A barrier protecting this side of the object must reach from one secure ending point to another, the secure ending points being either a place where the ground is high enough not to get flooded or a vertical wall or facade against which the tube wall end could abut tightly (by using a joint cover).



If no secure ending points are found near the object the tube wall will have to encircle it. If other threatened objects are too close (like terrace houses) the tube wall may have to be extended to protect the whole group of objects.

4. Is there a need for complementary flood protection?

Will one tube wall do, or are there other flood threatened sides of the object, that need to be protected separately? If so, repeat p. 2 - 3 above.

Are there other ways for water to enter the protected area, from drains, manholes etc? Does the ground contain water permeable layers that could lead water under the barrier to the protected area behind it?

If so, these routes have to be blocked too, by using appropriate techniques. Also drains or manholes covered by the skirt needs attention as they may lead water to the drainage layer.

