any part of the Permanent Works or any third party service or structure.

D. Design pipe stringing area and pipe conveyor system to prevent damage to the pipe whilst the pipe is being transported, stored, worked upon, welded and pulled into the drill hole.

E. Design pipes to withstand the following under the local ambient temperature conditions:

1. Stress in the pipe or string at the beginning and during the pull (friction, weight).
2. Stress in the pipe or string upon finish of the pull-in (friction, flotation, bending).
3. Stress in the pipe or string due to exit angle.
4. Stress in the product pipe or string in final position (both empty and under internal pressure, temperature, bending, live loads, dead loads).
5. Pipes shall comply with ISO 4427, black and PE 100 class as a minimum.

F. Design the drilling rig to be secured with adequate anchorage in the horizontal and vertical planes.

G. Provide a drill rig of adequate size for the soil conditions, pipe dimension and drill profile.

H. Maintain a bore entry angle of between 9o to 15o.

I. Maintain a bore exit angle of less than 10o.

J. Locate the drilling entry point and exit point as far enough away from the first and last obstacles as is physically possible to avoid damage to the obstacles from the drilling operation or mud breakout.

K. Maintain a minimum cover to prevent drilling mud breakout, as determined from the calculations

2.2 Part 2 Products

2.2.1 Equipment

A. Use plant and machinery that is appropriate for the intended installation, site and ground condition, length of drive, and other relevant factors which can demonstrate meeting the contents of these specifications to the satisfaction of the Engineer.