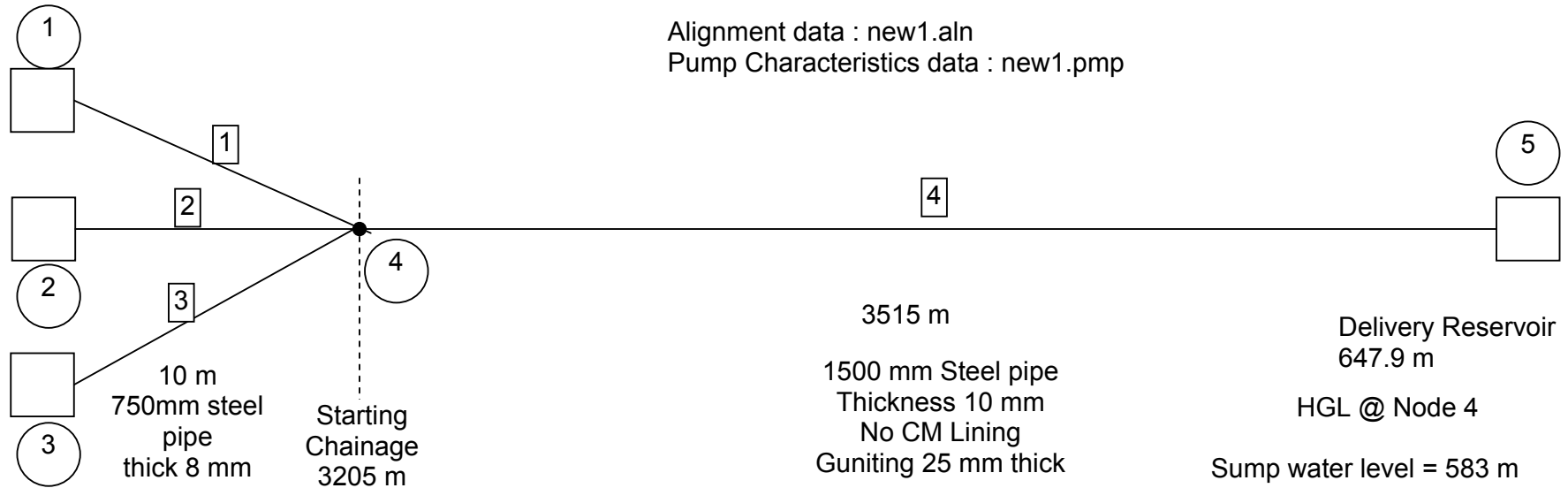


**Example 1**

Alignment data : new1.aln  
 Pump Characteristics data : new1.pmp

Sump water level = 583 m



3 Pumps working

Discharge =  $3 \times 0.82 = 2.46 \text{ m}^3/\text{sec}$   
 Pump Head = 70 m  
 Efficiency of pump = 90%  
 $\text{GD}^2$  of Pump = 154 kgf-sqm  
 $\text{GD}^2$  of Motor = 485 kgf-sqm  
 Speed = 1440 rpm  
 Shut off head = 106 m

Type of NRV = 2  
 Time of closure = 0.5 sec  
 Delay in closure = 0 sec

Sump water level = 583 m  
 Pump head = 70 m

-----  
 653 m

Head loss in pump  
 house (assume) - 2 m

-----  
 HGL @ Node 4 = 651 m

## **Example 2**

Data Same as Example 1

Column separation analysis data

Pipe number = 4

Chainage = 4280 m

Invert level = 612 m

## **Example 3**

Data Same as Example 1

Details of Air Vessel

Pipe No. 4

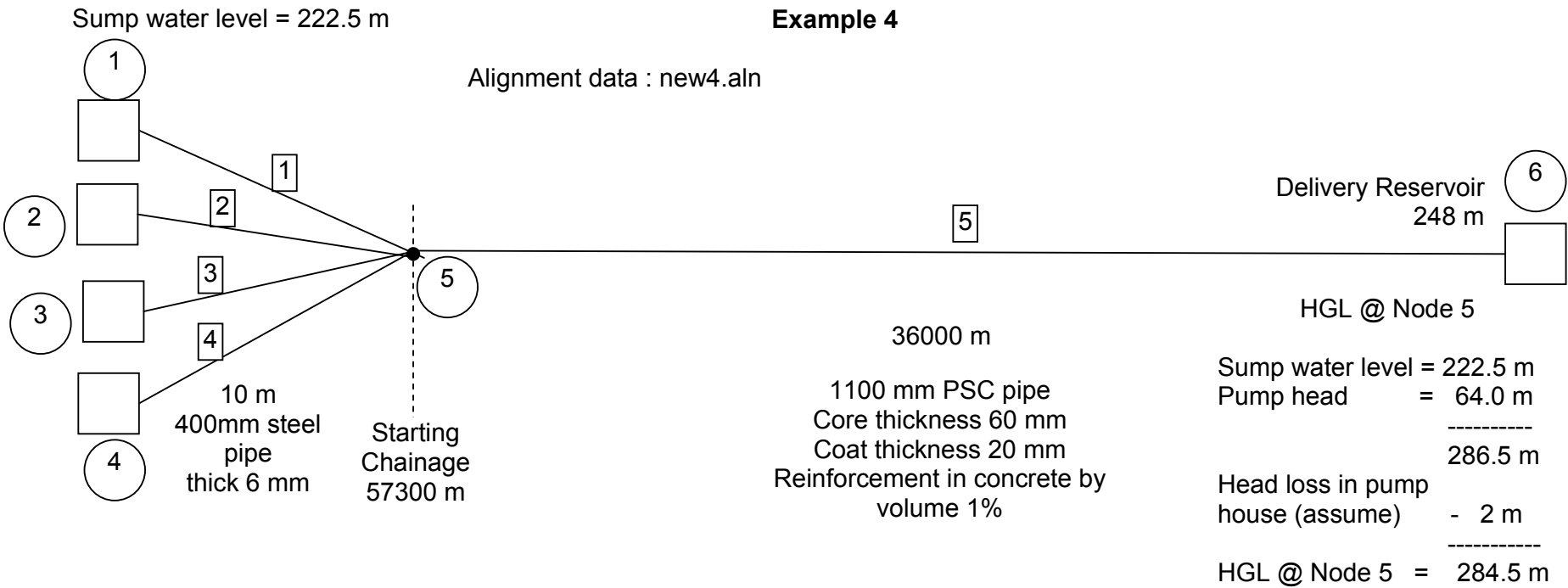
Ground elevation at the location (RL, m) = 591.5 m

Size parameter of the air vessel = 4

Connecting pipe size = 900 mm

Type of Air vessel = 1

Size of orifice in connecting pipe = 450 mm



4 Pumps working

Discharge =  $4 \times 0.28 = 1.12 \text{ m}^3/\text{sec}$   
Pump Head = 64 m  
Speed of pump = 1440 rpm  
Radial pump char

Type of NRV = 1  
Delay in closure = 0.5 sec

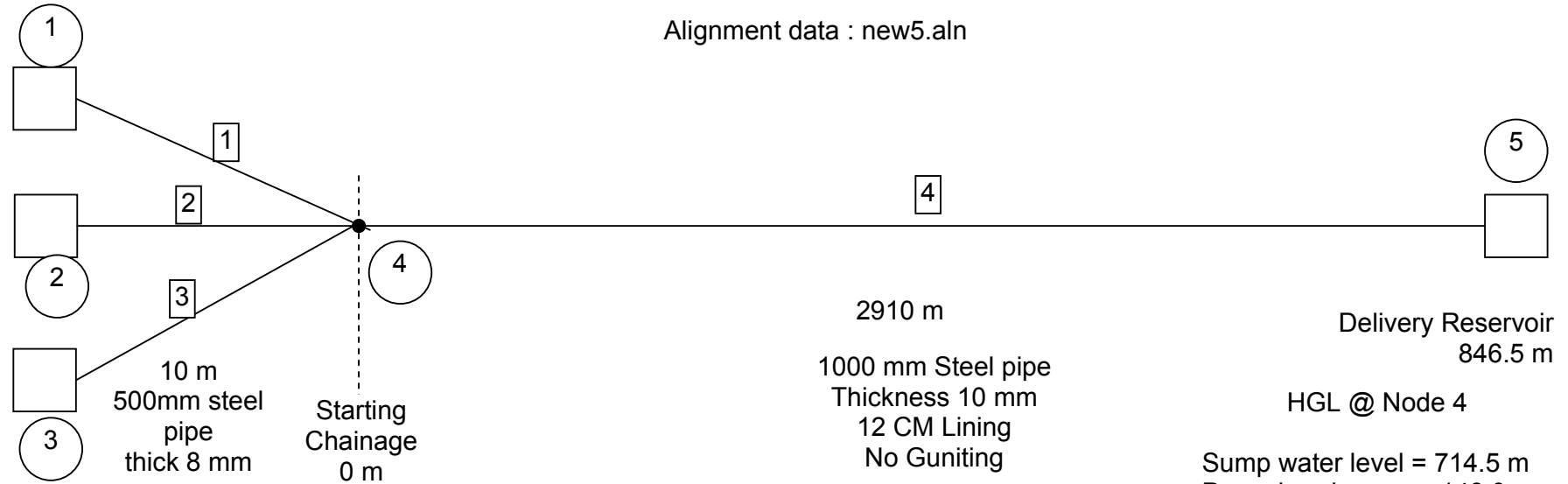
Number of one way surge tanks = 2

Pipe no.	Location Chainage	Ground level	Staging ht.	Diameter	Storage depth	Connecting pipe size
5	73650 m	228.6 m	0 m	2.5 m	2 m	300 mm
5	83300 m	242 m	0m	7.5 m	3 m	400 mm

Number of air valves = 1

Pipe No. 5 Size 200 mm, Chainage 57300 m, Pipe invert level 222.8 m

Sump water level = 714.5 m



3 Pumps working

Discharge =  $3 \times 0.378 = 1.134 \text{ m}^3/\text{sec}$ 

Pump Head = 148 m

Speed = 1440 rpm

Radial pump characteristics

Type of NRV = 1

Delay in closure = 0.5 sec

Air Valves = 2

Pipe No.	Size	Location	Pipe Invert
4	200 mm	1400 m	730 m
4	200 mm	2700 m	838 m

Surge Relief Valves = 2

Size of valves = 200 mm

Pipe invert level = 712 m

Low pressure pilot setting = 40m

High pressure pilot setting = 175 m

Closure time of valve = 30 sec