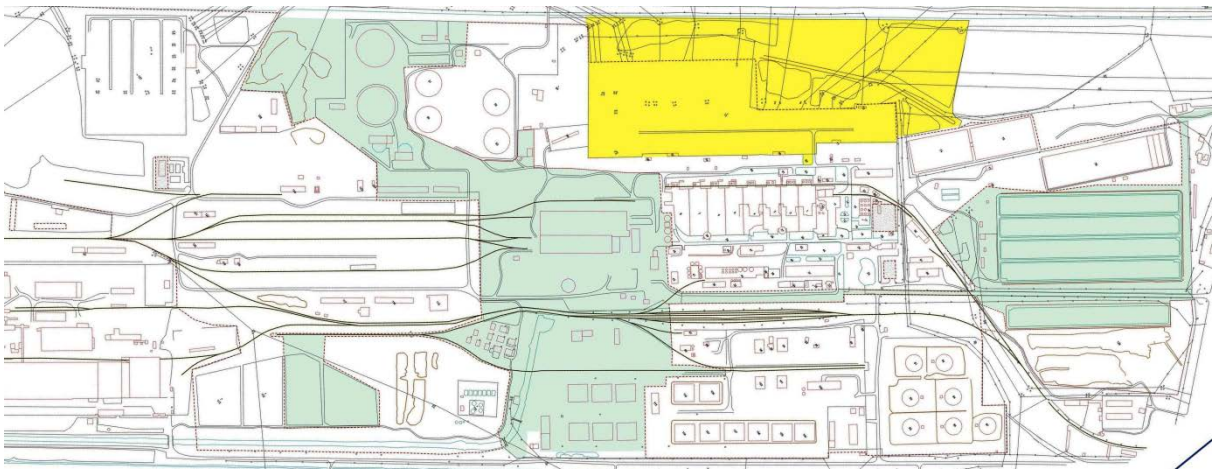
Preliminary bill of quantities for part of the railway

EXISTING STATE

Archive drawing with railway system



FINAL STATE

Final state without indicating liquidated railway lines shown on drawing ……..

Introduction

Due to building a new 300MW unit coal-fired, it is necessary to provide:

- supply coal to the plant in amount of ~1 550 000 tons/year
- supply of limestone to the plant in amount of ~250 000 tons/year
- emergency export ashes in amount of ~910 000 tons/year

These assumptions result in an increase traffic on the railway lines access – analysis is not in the scope of this study.

The subject of this section of conception is analysis technological - movement current railway system on the plant area, in order to determine the direction of its modernization.

Assumptions for the modernization of the railway system

The modernized railway system is designed to enable introduction on area rail car with coal and other raw materials and export of products (including emergency export ashes) related to the operation of the expanded plant.

Accepted the following input conditions:

- composition of rail car will be include – max 42 rail car
- weight of the load in one rail car – max 65 tons
- composition of rail car will be divide into three parts, each of 14 rail car
- working time of the siding since 6:00 on Monday until 6:00 on Saturday, the operating time of the siding is ~ 250 days in year.

Accepted construction of new sections of railways:

No.	Specification	Description	Comments
1.	For the tipper wagon no.1	▪ railway track before tripper wagon on 14 pcs of full rail cars ▪ railway track with cradle behind tripper wagon to output an empty rail car and directing it to the a receive path ▪ receive path next to the tripper wagon to set up 14 pcs empty rail cars ▪ to be considered place for locomotive	It can work only one tippler wagon
2.	For the tipper wagon no.2	▪ railway track before tripper wagon on 14 pcs of full rail cars ▪ railway track with cradle behind tripper wagon to output an empty rail car and directing it to the a receive path ▪ receive path next to the tripper wagon to set up 14 pcs empty rail cars ▪ to be considered place for locomotive	It can work only one tippler wagon
3.	For limestone*)	▪ 3 railway tracks, including two with unloading stations ▪ each can accommodate 14 pcs. of full and / or empty rail cars ▪ to be considered place for locomotive	
4.	For emergency export of ashes	▪ will be used railway tracks destined for limestone ▪ accepted possibility of loading the moistened ash into three rail car simultaneously (three points of loading providing substitution, filling of and to take three pcs rail cars during 1h = 195t/h)	
5.	Railway track for access to turbine house	▪ railway section connecting the existing railway track (the existing railway track to liquidation - interferes with coal storage yard)	
6.	Other	▪ eventually other railway tracks according to requirements of other for example: User, GIG, etc.	

***) Please pay attention to fact that limestone after crushing will be transported pneumatically, and because it must be delivered to the plant in the dry state. At present lack of definitive data concerning types of railway cars provided for the transport of limestone.**

Other railway tracks

All other railway tracks not conflicting with new objects may remain, those that interfere must be removed or moved.

The maneuvering of railway cars

For maneuvering of railway cars should be provided diesel locomotive. The Employer has the locomotive. We recommend using two locomotive.

In term of working of locomotive is:

- displacement railway cars composition by locomotive and maneuvering trolleys for unloading railway cars no tripping wagon and laying of composition an empty rail car
- substitution, picking up railway cars from the points of loading, movement railway cars on points of loading by maneuvering trolleys
- preparing the composition of the trains to leaving

Additional equipment:

Within the new railway tracks should be provided (for consideration):

- telephone communication,
- lighting for night work,
- signaling maneuvering for the movement of trains,
- heating systems for crossovers

Accepted amount of railway cars entering and exiting of the Plant

- unloading:

Type of cargo	Weigth [t/year]	Number of railway car [pcs]	Load capacity in railway car [t]
▪ coal	1 559 337	23 990	65
▪ limestone	245 520	3 774	65
Total	**1 804 857**	**27764**	

- loading:

Type of cargo	Weigth [t/year]	Number of railway car [pcs]	Load capacity in railway car [t]
▪ ash	910 800	14012	65
Total	**910 800**	**14012**	

For the purposes of the calculation to be considered the technological margin of 30% resulting from the possible irregular coal supplies.

The numbers of railway cars entering and exiting for 250 days during the year:

(27764 + 14012) x 1,3 = 54 309 = ~217

Possible the number of railway cars and composition of the trains entering and exiting of the Plant:

Type of cargo	Number of railway cars on 250 days [pcs./250d]	Number of railway cars on day [pcs./24h]	Number composition of trains on 1 day [42pcs./d]	Number composition of trains on 5 days [42pcs./5d]
Węgiel kamienny	23 990	96	**2 ÷ 3**	**10 ÷ 15**
Kamień wapienny	3 774	15	**0,35**	**1 ÷ 2**
Popioły	14 012	56	**1 ÷ 2**	**5 ÷ 10**
		Total	**3,35 ÷ 5,35**	**17 ÷ 27**

CONCLUSIONS:

It should be taken into account:

- unloading from 3 to 4 composition of trains with coal per day
- unloading from 1 to 2 composition of trains with limestone for a week
- emergency loading of ash from 1 to 2 composition of trains per day
- development of railway weight