



ENGINEERING



TH offers a full engineering service in the mining, industrial minerals, aggregates and environment industries, with special attention on the main technical and investment issues so as to draw up effective, profitable projects.





A SOLUTION PROVIDER

TH covers all the engineering stages of projects individually or as a whole.

1 | Viability studies



2 | Basic engineering



3 | Detail engineering



4 | Implementation engineering





Basic engineering

Concept definition stage

Basic study analysing processes and investment to enable the customer to assess the implementation of a project and how to tackle it.

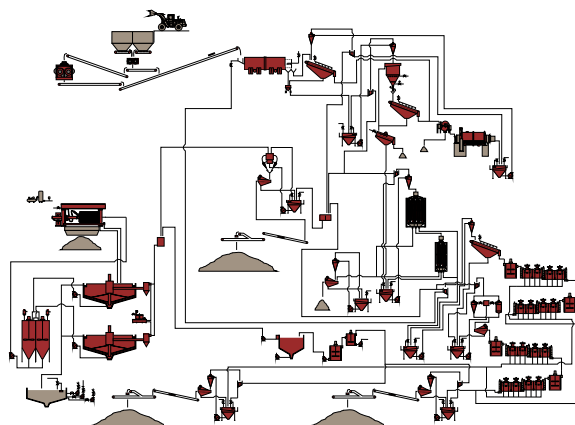
- › Work with the customer to define basic engineering and design parameters.
- › Preparation of estimated process balances and flow diagrams.
- › Basic dimensioning of equipment and auxiliary elements.
- › Basic dimensioning of structures and accesses.
- › Basic definition of electrical equipment and installation.
- › Basic definition of auxiliary supplies (water, electricity, fuel, etc.).
- › Initial general implementation layout and guideline plans for same.
- › Determination of the estimated project timeline.
- › Estimates of investment requirements and production costs envisaged.
- › Preparation of general draft projects.

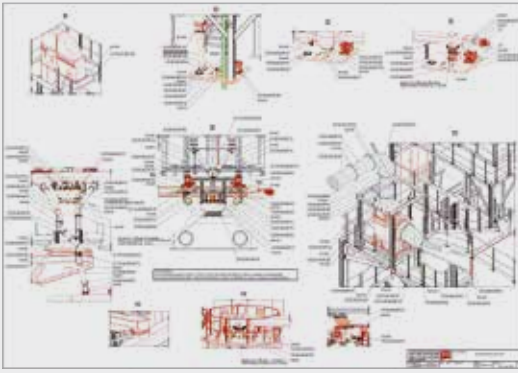
Viability studies

Preliminary stage

Preliminary study to analyse the viability of the project proposed by the customer:

- › Characterisation of raw materials and establishment of specifications for finished products.
- › Preliminary estimates of process and storage capacities.
- › Preliminary definition of processes.
- › Preparation of preliminary flow diagrams.
- › Preliminary estimates of investment and operating costs.
- › Drawing up of viability studies.





Implementation engineering

Implementation stage

Detail engineering

Development stage

Detailed study to enable customers to implement and monitor projects. The final engineering documents are prepared at this stage.

- › Work with the customer to define engineering development and design parameters and goals.
- › Preparation of the detail engineering timeline.
- › Preparation of final process balances and flow diagrams.
- › Final dimensioning and determination of bought-in items and equipment and selection of suppliers.
- › Calculation, final dimensioning and drafting for construction of hoppers, tanks, conduits, pipes, etc. for treatment plants.
- › Calculation, final dimensioning and drafting for construction of structures, accesses and civil work for treatment plants.
- › Decisions concerning final general implementation and preparation of drawings for same.
- › Detailed determination of main electrical equipment, field sensors, regulators, cable lines, etc. and preparation of electrical circuit diagrams.
- › Determination of consumption requirements and preparation of circuit diagrams for air supply, fuel, etc
- › Preparation of general projects.

Monitoring and control of project implementation via supervision of and specialist technical assistance for manufacturing operations, supplies from suppliers, logistics, incoming goods, assembly, training and commissioning of facilities.

- › Preparation of implementation timelines for treatment plants.
- › Work with customers to decide on suppliers for treatment plant elements and services. Analysis of quotes and advice on awarding of orders.
- › Monitoring and supervision of construction of plate work, supply of bought-in elements, implementation of civil work, etc
- › Monitoring and coordination of transportation.
- › Preparation of instructions for control programming.
- › Supervision of erection work and commissioning.
- › Preparation of low voltage projects, compressed air systems, safety plans, etc. for treatment plants.
- › Preparation of operating and maintenance instruction manuals.





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