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INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

C-O-N-F-I-D-E-N-T-I-A-L

PROCESS 50X1-HUM

COUNTRY Rumania

SUBJECT Construction of a Cellulose Industrial Complex in Rumania detailed plans + description

REPORT

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SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

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sketches showing the planned construction of the cellulose complex.

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REPORT

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CONSTRUCTION OF A CELLULOSE INDUSTRIAL COMPLEX IN RUMANIA

Table of Contents

Introduction

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the construction of a cellulose industrial area was begun 10 km south of the city of BRAILA in February 1956 and was scheduled to be completed in 1960. This was a joint enterprise established by the Commission of Reciprocal Economic Aid (CAER) in MOSCOW with Rumania, East Germany, Poland, and Czechoslovakia participating.

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This industrial complex was to produce cellulose and cellulose by-products by processing rushes which were readily available in their natural state on the Danube river delta. 1.

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The industrial area was to be comprised of a port on the Danube River, a storage area for raw materials, the factory area, and the roads and railroads supplying it. (See Annex A for sketch of the plans for the industrial area.)

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The following coordinates are given for cities and towns referred to in this report. UTM grid coverage of Rumania is not available.

BRAILA (N45-16, E27-59)

CHISCANI (N45-11, E27-56)

DRESDEN, East Germany (N51-03,E13-41)(UTM VS 1156)

HEIDENAU, East Germany (N52-10,E14-59)(UTM VT 9980)

LACU SARAT (N45-13, E27-52)

ONESTI (N46-15, E26-45)

PITESTI (N44-51, E24-51)

VIZIRU (N45-01, E27-42)

1. The Industrial Port

a. Location and Plans for the Port Area

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construction of this port was begun in February 1957 and was scheduled for completion in June 1960. It was to be constructed approximately 11 km south of BRAILA, near the village of CHISCANI. Raw materials for the industrial area were to be transported by river vessels and unloaded at this port. The village of CHISCANI was located on land above the high water level of the river and the site chosen for the port was on the bank of the Danube River approximately 800 m from CHISCANI. The high water level necessitated the construction of the port on a concrete quay, the top of which was to be one meter above the high water level.

The flood land between the quay and the village of CHISCANI was to be filled in with the earth removed from the excavations at the factory site. This flood land was partially filled in in June 1957 and a modern village for port employees was scheduled to be constructed on it. This village was to be expanded as the flood land was filled in so that eventually it would be linked with CHISCANI.

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The port was to consist of the quay (which was to be joined to the high ground by a dike), a storage platform for raw materials, and two reinforced concrete buildings which were to house the pumps and equipment for supplying water to the factories. (See Annex B for sketch of the plans for construction of the port.) The factory area was to be connected with the port by both a railroad and a highway.

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b. Quay and Dike

(1) Construction

the construction of the quay and of the dike had been begun and that both were being constructed in the same manner. The quay was to be approximately 850 m long and was to be joined at the south end by the dike. The dike was to be approximately 950 m long and was to connect the quay with the high ground. (See Annex B.) The quay and the dike were being constructed in the following manner: piles were driven into the river bed at the edge of the flood land, following which reinforced concrete box forms approximately 2 x 3 x 2 m in size were laid on these piles and filled with concrete. The concrete forms were to form the base for both the quay and the dike.

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After the base had been completed, the sides of the quay and dike were to be constructed. The side of the quay and of the dike which faced the river was to be made of the same concrete forms as the base, but the sides away from the river were to be made of pre-fabricated reinforced concrete blocks. The center of both the quay and the dike was to be filled with sand to reduce the tension on the sides of the quay and dike from the pressure of the river current. (See Annex B for sketch of this construction.)

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The top of the quay and dike was to be formed of reinforced concrete and partially covered with macadam and asphalt for the port highway surfacing. Seven hundred meters of the quay were to be used for the unloading of raw materials from river vessels; the remaining 150 m were to be constructed as protection for the two water supply buildings from the river current and as a dock for shallow draft cargo and passenger vessels.

(2) Storage Platform

A storage platform for the temporary storage of raw materials unloaded from river vessels pending their shipment to the storage area was to be constructed at the south end of the quay. This platform was to be constructed of reinforced concrete and was to have a storage area of approximately 1500 square meters. An unknown number of one-story brick buildings were to be constructed on this platform.

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(3) Port Railroad

a standard gauge railroad line was to be constructed on the port quay and dike extending through the storage area and factory area to the national railroad station at the village of LACU SARAT. (See Annex A for the railroad route.) This rail line was to be constructed to supply the factories in the factory area with raw materials from the port and to ship the finished products from the factories to the consumers. this rail line was to be of the "40 kg per linear meter" type.

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In addition to this rail line, a similar rail line, parallel to it, was planned for construction sometime after 1960 when the factories were scheduled to be operating at full capacity. When construction of the port quay and the dike was begun, sufficient space was allotted on top of them for this extra rail line.

(4) Port Highway

A two-lane highway was scheduled for construction to serve the factory area from the port. It was to extend from the port quay over the dike, through the storage area and the factory area, and was to join with national highway 21, a secondary road from BRAILA to VIZIRU and national highway 2b. (See Annex A for the proposed highway route.)

The highway base was to be of crushed rock, 30 cm thick. On the base was to be a 10 cm layer of macadam covered by a 2½ cm layer of rough asphalt. The road surface was to be made of a 2½ cm layer of fine asphalt. Source stated that the completed highway would be suitable for heavy traffic.

(5) Port Equipment

Equipment to be used at the port for unloading raw materials was to be furnished by Poland and was to consist of two railroad cranes. These cranes were to operate on a special two-meter gauge rail line on the quay, the rail line being described as the "50 kg per linear meter" type. Each of the cranes was to have a loading boom approximately 20 m long and a maximum lifting capacity of 10 metric tons.

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(6) Water Supply Buildings

(a) Construction

Construction of the two water supply buildings had not begun

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They were to be constructed of reinforced concrete on the flood land which was scheduled to be filled in, at the juncture of the quay and the dike. Each of them was to be circular in shape, 13 m in diameter and approximately 15 m high; the exact height was to be established at the time of construction and would be determined by the consistency of the earth upon which the foundations were to be laid. There were to be six floors in each of them, the lower floor for the water intake pipes, the second and third floors for the water cleaning devices, the fourth and fifth floors for the water pumps, and the sixth (top) floor for the water control valves and access to the building. (See Annex C for sketch of the floor plan of these buildings.)

Water would be supplied to the pump house through three steel pipes which were to extend from the lower floor of each building through the dike and out into the center of the Danube River. This water was to be pumped through one pipe from each building into a small control house approximately 15 m away, where it would be distributed into three steel pipes, each 800 mm in diameter, and sent to the factory area. The steel pipes were to extend in a direct line to the factory area and would be buried under approximately 1½ m of earth. (See Annex A for routes of these pipe lines.) In addition to the pipes, a concrete oval-shaped culvert approximately two meters high was to be laid along the same line for carrying off waste water, and its contents would empty into the river at the north end of the quay.

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(b) Use of Water Supply

It was also planned that the buildings would supply water to the city of BRAILA, since the waste water draining back into the river would contaminate it, making it unsafe for use. It was estimated that the buildings would be capable of supplying water to the factory area at the rate of 4,800 liters per second.

(c) Water Pumping and Cleaning Equipment

Equipment to be used in the buildings was to be supplied by East Germany and would consist of four specially constructed electrically operated centrifical pumps and three types of water cleaning devices. Each of the pumps was to have a maximum capacity of 1,200 liters per second and were identified as type NZV 700/650. 50X1-HUM

The water cleaning devices were described as follows: the first stage of cleaning was to be accomplished by screens having 100 mm openings, the screens being identified as type EKM-WD 546. The second stage of cleaning was to be done by water deflection devices with the designation V431/Ag 2045/55 DDT/Rept 381/55. The openings between the deflection blades were to be from eight to ten millimeters. The third or final stage of cleaning was to be done by three revolving drums which bore the designation EKM-WD 536. None of this equipment had been received 50X1-HUM Space was to be allotted within each building for the installation of two additional pumps at some unknown future date. The additional pumps, when installed, were to be maintained as a reserve.

(d) Emergency Water Wells

In addition to the supply of water which was to be obtained from these two buildings, the factory area was equipped with three water wells to be used for an emergency water supply, each of the wells to be four meters in diameter and two meters deep. (See Annex D for the location of these wells.)

2. Raw Materials Storage Area

Construction of the storage area was begun in June 1957 and was scheduled to be completed in March 1960. The area was to consist of storage sheds, service roads, and railroads, and a special fire-fighting detachment would be stationed there.

a. Storage Sheds

Thirty large, open-sided sheds were to be constructed in this area to store the rushes which would be processed by the factories. These sheds were to be 20 m x 80 m x 20 m in size and constructed of reinforced concrete. The framework of these sheds was to consist of 14 reinforced concrete pillars, the roof was to be formed of prefabricated reinforced concrete slabs, and the floor was also to be of concrete, but only lightly reinforced. The rushes were to be stored in these sheds in bales, each bale being 2 to 3 m in length, approximately 80 cm in diameter, and weighing approximately 75 to 100 kg.

b. Service Railroads

The service railroads in the storage area were to consist of four trunk lines branching off the port railroad and extending through the rows of

storage sheds. [redacted] the lines would be of the "26 kg per linear meter" type. They would rejoin the port railroad on the north side of the storage area. (See Annex A for locations of these rail lines in the storage area.)

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c. Service Roads

A number of service roads were scheduled for construction in the storage area. These roads were to branch off the port highway. Each road would be 3½ m wide and would be capable of handling semi-heavy traffic. The base of the roads was to be of crushed rock 30 cm thick covered by an 8 cm thick layer of macadam. The macadam would comprise the road surfaces. (See Annex A for the locations of these roads within the storage area.)

d. Storage Area Equipment

Equipment to be used in the storage area was to be supplied by East Germany and was to consist of two small diesel electric switch engines and six mobile cranes. Each switch engine would be approximately 180 hp and would be used to transport the raw materials from the port to the storage area and from the storage area to the factory area. The six mobile cranes were to be used to load and unload the railroad cars and store the bales of rushes in the storage sheds. Each of the cranes would be equipped with a telescopic loading boom which was to have a maximum extended length of 20 m and a maximum lifting capacity of approximately 7.5 metric tons. None of this equipment had been received [redacted] 50X1-HUM

e. Fire-Fighting Detachment

Because of the very combustible nature of the rushes which would be stored in the area, it was necessary to plan for a special fire-fighting detachment to protect it. This detachment was to be a branch of the main fire department which would be located in the factory area. (See Annex D for the location of the main fire department.) [redacted] 50X1-HUM [redacted] their main mission in the event of a fire would be to isolate it and to safeguard the other storage sheds, since extinguishing or control of a fire would be almost impossible.

Equipment scheduled for use by this detachment was to consist of two tank trucks equipped to spray an unknown type of foam extinguisher. In addition to these trucks, a series of water fire hydrants, complete with fire hoses, were to be constructed at approximately 10-m intervals throughout the storage area.

3. The Factory Area

Construction of the factory area was begun in February 1956 and the major portions of it were scheduled to be completed in February 1960 [redacted] 50X1-HUM [redacted] did not believe this schedule would be met because of the lack of funds in Rumania, the inferior construction equipment being used, and the non-cooperation of the other countries involved in the project. The factory area, when completed, would cover 300 hectares and would consist of a nitrocellulose factory, a cello-fiber factory, a carton factory, a waste-processing plant, a cellulose factory, a thermo-electric power plant and a factory sub-area.[2] (See Annex D for [redacted] sketch of the plans for this area.) When the project was completed, approximately 5,000 persons would be working in the area.[3] 50X1-HUM 50X1-HUM

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a. Nitro-Cellulose Factory

Construction of the nitro-cellulose factory was to begin in the first quarter of 1958 and was scheduled to be completed sometime after 1961. The factory building was to be two stories high, constructed of reinforced concrete, 260 m long and 40 m wide. [redacted] no information on the methods to be used in producing nitro-cellulose, the quantity of nitro-cellulose to be produced, or the number of persons who would be employed there. All equipment scheduled for use in this factory was to be supplied by East Germany. 50X1-HUM

b. Cello-Fiber Factory

Construction of this factory was to begin in late 1957 and it was scheduled to be completed sometime after 1961. It was to consist of a single, irregularly shaped, reinforced concrete building 260 m long and varying in width from 50 to 90 m, one story high. All of the equipment for use in this factory was to be supplied by East Germany, [redacted] no information on such equipment. 50X1-HUM

It was planned that the factory would require approximately 600 persons for its operation and that it would produce 20,000 tons of cello-fiber per year when it first began operating; this quantity would be increased after full production was reached. [redacted]

c. Carton Factory 50X1-HUM

Construction of this factory began in January 1957 and it was scheduled for completion in the first quarter of 1959. The factory mission was to manufacture duplex and triplex (double and triple thickness) cardboard cartons, with the section which was to manufacture duplex cartons beginning operations before the section which was to make triplex cartons.

The factory was to consist of seven structures: a storage building for paste chemicals and cartons, a temporary (transit) storage building for various items, a storage house for a special unidentified oil, a lime storage house, the factory building, three funnel-shaped vats in which a grease-water emulsion was to be stored, and a station for treating water with caustic. All equipment for the factory, with the exception of the paste mixing machines, was to be supplied by East Germany; the paste mixing machines were to be supplied by the Soviet Union. All of the equipment necessary for the carton factory was received sometime in 1955 and stored in the city of BACAU pending beginning of the factory construction. It was planned that approximately 800 persons would be employed in this factory.

The section of the factory which was to manufacture the duplex cartons was to begin operating in the last quarter of 1958 and was scheduled to produce, initially, 10,000 tons of cartons per year. The section which was to manufacture the triplex cartons was to begin operating sometime in 1959. After full production was reached, it was estimated that the factory would produce 50,000 tons of duplex and triplex cartons per year.

(1) Paste Chemical and Carton Storage Building

Construction of this building was begun in the first quarter of 1957 and was scheduled to be completed by the end of 1957. It was to be a one-story building with a basement, constructed of brick and reinforced concrete, 120 m long, 20 m wide, and 8 m high. The basement was to be 4½ m deep. The

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roof was to be constructed of prefabricated reinforced concrete arches, each 20 m long and 35 cm wide. (See Figure 1, Annex E for sketch of this building.) The paste chemicals were to be stored in the basement and were to be supplied from unknown locations in Rumania and brought to the factory by rail. The ground floor was to be used to store completed cartons pending their shipment to the consumers. 50X1-HUM

(2) Temporary (Transit) Storage Building

Construction on this building was begun in early 1957 and was scheduled to be completed in late summer or early fall of the same year. It was to be a small one-story brick building 35 m long and 10 m wide. Along each side of it was to be constructed a platform at the level of the railroad cars. (See Figure 2, Annex E for sketch of this building.) It was to be used as a storage building for items which were to be stored for only short periods of time, such as metal bands and wire for baling factory products. In addition, it was to be used for the storage of containers of chlorine gas to be used in the factory and for storing small quantities of cartons intended for early distribution to consumers. 50X1-HUM

(3) Special Oil Storage Building

Construction of this building was begun at the same time as the temporary storage building and it was to be completed at about the same time. It was to be constructed in the same manner as the temporary storage building and was to be 50 m long and 25 m wide. It would be used for storage of a special unidentified oil necessary for the production of the cartons. This oil was to be supplied by rail from the Rumanian refineries and stored in this building in barrels; the oil was then to be pumped from the storage building to the factory by electrically operated pumps which Source believed were to be supplied by Rumania.

(4) Lime Storage Building

This building was to be constructed at the same time and in the same manner as the temporary and the special oil storage buildings but was to be 25 m long and 10 to 15 m wide. The lime to be stored in this building was to be obtained from the city of BRAILA and transported to the factory by rail.

(5) Carton Factory Building

Construction of this factory building was begun in January 1957 and it was scheduled for completion in the first quarter of 1959. It was to be an irregularly shaped building 168 m long and varying in width from 15 to 56 m and in height from 9 to 27 m and was to have a basement four meters deep which was to be under the entire building. (See Annex F for sketch of this building.) 50X1-HUM

The factory was to be divided into four major sections, designated as sections "A-1", "A-2", "B", and "C". 50X1-HUM section "A-1" was to consist of unidentified elevators to be used for transporting the raw materials and the boiling vats. 50X1-HUM The boiling vats were to operate on a system called the "vertical" system, 50X1-HUM Section "A-2" was to be the paste preparation and sorting section; section "B" was to be the carton manufacturing section; and section "C" was to be the cutting, baling, and storage section. Also included 50X1-HUM in this section "C" were to be the administration offices, technical offices, and laboratories.

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(6) Grease-Water Emulsion Vats

Construction of these funnel-shaped vats was to begin in the third quarter of 1957 and was to be completed sometime in 1958. Three of the vats were to be completed in 1958 and another was scheduled to be constructed sometime after 1960. Each of the vats was to be constructed of reinforced concrete and supported by a number of "monolyte" reinforced concrete columns. Each vat was to be 13 m high and 15 m in diameter. (See Annex G for [redacted] 50X1-HUM sketch of these vats.)

The grease-water emulsion would be manufactured in the factory building and piped into the vats where it would stand for several days until the sediment had settled to the bottom. The emulsion when required by the factory, would then be pumped by electrical pumps to the factory building. Each of the vats was to have a capacity of approximately 450 cubic meters. [redacted] no 50X1-HUM information on the chemical formula of this emulsion or on the equipment planned for use in manufacturing and pumping it.

(7) Water Treating Station

Construction of this installation was to begin sometime in the first quarter of 1958 and it was to be completed in the last quarter of the same year. It was to be a one-story brick building 15 m long and 8 m wide and was to be used for water preparation only until the main water preparation station was completed.

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[redacted] the water was to be supplied from the emergency water supply wells in the factory area until the water supply buildings at the port were completed. The treated water was to be pumped through underground pipes to the factory building. These underground pipes were to be covered with removable concrete slabs so the pipes would be easily accessible if necessary.

d. Waste Processing Plant

[redacted] the waste processing plant was still in the planning stage [redacted] but that if the plant were approved for 50X1-HUM construction, it would consist of a one-story, U-shaped building. Each of the wings was to be 85 m long and 30 m wide; the center portion was to be 80 m long and 15 m wide.

The mission of this plant, if approved, was to be the manufacture of insulation panels from the waste materials of the other factories in the area. These insulation panels were to be manufactured in the two wings of the building; the central section was to be used for unloading waste materials and for storing the finished products. The center of the U was to be utilized as a storage area for the waste materials brought from the other factories. Approximately 350 persons would be required to operate this plant. All of the necessary equipment was to be supplied by Rumania.

e. Cellulose Factory

(1) Over-All Plans

Construction of this factory was to begin in the third quarter of 1957 and was scheduled to be completed by the end of 1959. It was to consist of the cellulose factory building and a storage building for lime and sulphate

soda. In addition, eight other buildings were to be constructed to be used primarily by the cellulose factory but which were also to supply the other factories in the area. These were to be the main water processing station, the pulp manufacturing plant, the oxidation and decontamination station for waste water, a repair shop, a foundry, a supply building, a chemical reclamation building and a caustic reclamation station.

(2) Personnel and Equipment

Approximately 2,100 persons would be required to operate the factory and approximately 200,000 tons of cellulose would be produced per year. All of the equipment was to be supplied by DRESDEN and HEIDENAU in East Germany. A small portion of this equipment and machinery had been received and the remainder was to be received before the end of 1958. 50X1-HUM 50X1-HUM

(3) Cellulose Factory Building

Construction of this building was to begin in May 1958 and it was scheduled to be completed by the end of 1959. All of the equipment and machinery was to be assembled and installed between January 1959 and June 1960. This was to be an irregularly shaped building 275 m long and varying in width from 50 to 85 m. Over half of it was to have two stories and be approximately 11 m high, and the remainder was to have three stories and be approximately 16 m high. Along each side of the building there was to be a one-story annex. These annexes were to contain the administrative and technical offices. A four-meter-deep basement was to be constructed under approximately 80 percent of the building. (See Annex H for sketch of this building.)

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(4) Main Water Processing Station

Construction of this station was to begin in September 1957 and it was scheduled for completion in June 1959; all the necessary equipment and machinery was to be installed during 1959. This was to be a building constructed in the shape of a T, the front of the building being 135 m long, and the leg of the T being 50 m long. One wing of the front of the building was to be 25 m wide, and the other, 15 m wide; the leg of the T was to vary in width from 15 to 25 m. (See Annex I for sketch of this building.) 50X1-HUM

This installation was to operate as follows: it was to receive the water from the two water supply buildings at the port, filter it, purify it (to an unknown degree), and treat the water with caustic so that it could be used by the factories. because of the high pressure and the volume of water to be pumped from the port, it was planned that the purification and treating with caustic would be accomplished by means of small electric pumps which would inject the necessary chemicals and caustic into the flow, thereby maintaining a constant flow of 4,800 liters per second. The treated water would then be distributed to the various factories through underground pipes. 50X1-HUM

(5) Pulp Manufacturing Plant

Construction of this plant was to begin in September 1958 and was scheduled to be completed in December 1959; the equipment and machinery was to be installed between January and June 1960. The building was to be 60 m long and 40 m wide and would vary in height from 14 to 35 m. (See Annex J for sketch of this building.)

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In this plant the raw materials (rushes) would be chopped into small particles and this pulp would be used by the factories. The plant was to consist of unloading rooms for raw materials, an elevator system on each end of the building, and the pulping machines located in the center of the building. (See Annex J for sketch of the floor plan of this installation.) The rushes were to be transported into the building from the storage area by railroad and were to be unloaded into underground chutes. From the unloading chutes the rushes would be carried to the elevator rooms at each end of the building by conveyor belts. The elevators would be equipped with chopping machines which would chop the rushes into small pieces and simultaneously raise the chopped rushes to the top of the pulping machines and empty the small pieces into it where the rushes would be more finely chopped. After the fine chopping was accomplished, a system of air blowers would separate the pulp from the waste material (chaff).

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Both the pulp and the waste material would be transported to the using installations by means of underground conveyor belts. These conveyor belts were to be constructed in tunnels approximately four meters underground and would extend to each of the factories. It was estimated that approximately 700,000 tons of rushes would be processed by this installation each year and that approximately 28 percent of all pulp produced would be transformed into cellulose.

(6) Waste Water Oxidation and Decontamination Station

This installation was to be a small, one-story building with a very deep basement, the building being 35 m long and 10 m wide and the basement being 8 m deep. All waste water from the various installations in the factory area would enter this building where it would be treated with oxygen and decontaminated before being drained back into the Danube River. This was considered necessary to protect the fish and wild life of the river.

The chemicals necessary for oxidation and decontamination of the waste water were to be prepared on the ground floor and transmitted to the basement where the water was to be treated. Near this installation a series of electrically operated pumps were to be installed for pumping the waste water back into the river. This was necessary because during the flood season the water level of the Danube River would be too high for the waste water to drain into the river by gravity.

(7) Repair Shop

Construction of this building was to begin in October 1957 and was to be completed in the summer of 1958. It was to be one story high, 115 m long, and 35 m wide and was to be used primarily for the repair of equipment for the cellulose factory and the power plant, but also for the repair of equipment for the other installations if necessary. (See Annex L for sketch of this shop.)

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Equipment used in this shop was to be supplied by East Germany, with the exception of some of the larger lathes, which were to be supplied by Czechoslovakia. Two overhead cranes were to be installed in the center part of the building, and each of the cranes was to have a maximum lifting capacity of over 16 tons.

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most of it had been received and had been installed in temporary buildings where it was being used by the construction workers.

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In addition to the normal repair facilities usually found in such repair shops, this installation was to contain a special section for repairing turbines of the power plant and another special section for the precision repair of the extra large axles and rollers used in some of the factories.

(8) Foundry

Construction of this foundry was to begin in August 1957 and was to be completed by the end of 1958. The foundry was to be housed in a single building approximately 18 m long and 18 m wide and was intended to be capable of casting any replacement parts required for the entire industrial area. It was to contain two large coal-burning blast furnaces and one small electric blast furnace.

(9) Supply Building

This building was to be constructed in the same manner as the repair shop (see Annex K) and was to have the same dimensions. Construction was to begin in August 1957 and was scheduled to be completed in summer 1958. It was to have two overhead cranes installed in the center part of it, of the same type as those in the repair shop. The building was to be used for storing metals for the foundry and the repair shop and for storing spare parts and machinery for the factories.

(10) Chemical Reclamation Building

the construction of this installation was to begin in August 1957 and was scheduled to be completed in July 1959. All equipment and machinery was to be supplied by Czechoslovakia and was to be installed between summer 1959 and 1961. The building was to be 120 m long and approximately 25 m wide. The center part of the building was to be approximately 15 m high and was to contain large cooking vats and laboratories; each of the two wings was to be one story high, 35 m long, and was to contain condensation pipes. (See Annex L for sketch of this building.)

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The purpose of this installation was to extract the chemicals from the waste materials of the factory area for reuse in the factories; thus it was similar to a chemical laboratory serving the entire factory area. There were to be a number of large vats installed in the center part of the building, they were to be heated by crude oil. All waste materials from the factories were to be transported to this installation by railroad cars, with the exception of the residue obtained from the caustic reclamation station.

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(11) Caustic Reclamation Station

Construction of this station was to begin in May 1958 and was to be completed in November 1959. It was to consist of a one-story building 20 m long and 15 m wide, to be used in the reclamation of caustic from the waste water of the factories.

The building was to contain eight reinforced concrete tanks which, during operation, would be filled with waste water. After being treated with unidentified chemicals and being agitated, the water would be allowed to stand until the caustic settled to the bottom. The water would then be drained off and piped to the oxidation and decontamination station for preparation before being drained into the river. The residue of caustic which settled on the bottom of the tanks was to be sent to the chemical reclamation building through pipes, where it would be processed for re-use.

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f. Thermo-Electric Power Plant

Construction of this power plant was to begin in May 1958 and it was scheduled for completion in December 1959. The building was to be constructed in the shape of an L, one wing was to be 160 m long and 55 m wide, and the other was to be 100 m long and approximately 55 m wide. The height of the building was to vary from 14 to 18 m. (See Annex M for [redacted] sketch of this building.) Equipment for the power plant was to be supplied by Czechoslovakia; it had not been received [redacted] 50X1-HUM

50X1-HUM

The plant was to be divided into five major sections which were to be completed at different times. These sections were to be the water preparation section, the boiler section, a turbine section, a power distribution section, and an emergency power section. In addition to these five major sections, administration offices were to be located in the front part of the building.

It was estimated that this power plant would be able to generate 180,000 kw of electrical power and would produce sufficient high pressure steam for the manufacture of the cellulose products and for heating all of the buildings in the industrial area.

(1) Water Preparation Section

Construction of this section was to be completed in August 1959 and the installation of the equipment completed by August 1960. [redacted] 50X1-HUM

[redacted] the section was to receive filtered river water from the water processing station. This water would be mixed with an unknown chlorine composition and, by means of electrolysis, the mineral salts would be removed. After this, the water would be piped into the boiling vats of the boiler section. 50X1-HUM

(2) Boiler Section

Construction of this section was to be completed in August 1959 and the equipment installed by March 1960; however, the equipment was to be installed in two groups. One group of three boilers and accessory equipment was to be completed by December 1959 and the other group, consisting of two boilers and accessory equipment, was to be completed by March 1960. This section was to be located in a special room 50 m long, 35 m wide, and 18 m high in the center of the building. The boilers were to be so large that they would extend from the floor to near the top of the building. The roof of the room would be supported by reinforced concrete columns. A series of metal grate "cat walks" were to be received from Czechoslovakia and installed at various levels around these boilers.

The boilers were to be heated by crude oil, and a reserve supply of this oil sufficient for one day's operation was to be maintained in a room adjoining the boiler room. During the first few years of operation, this crude oil was to be supplied from the Rumanian oil refineries at ONESTI and was to be brought to the factory area by railroad tank cars. At some unknown future date this supply of oil was to be discontinued and the oil was to be supplied from new refineries being constructed south of PITESTI. The oil from the Pitesti refineries was to be delivered to the cellulose industry area by river vessel. The boilers were to be heated by an injection system which would utilize the crude oil and super-heated steam. [redacted] 50X1-HUM

[redacted]

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50X1-HUM

(3) Turbine Section

Construction of the turbine section was to begin in August 1958 and to be completed in December 1959; the equipment was to be installed by August 1960. This section was to supply sufficient electrical power for the entire industrial area including the port, the storage area, and the factory area.

It was to be equipped with 10 steam operated turbines to be supplied by Czechoslovakia. During operation six of these turbines were to be used and four of them were to be maintained as a reserve. Each of them was to be capable of supplying 30,000 kw of power. 40 percent of these turbines had been completed but none of them had been delivered to Rumania.

50X1-HUM

(4) Electrical Distribution Section

50X1-HUM

Construction of this section was to begin in June 1958 and was scheduled to be completed in August 1959. The equipment was to be completely installed by November 1960. the number of distribution panels to be installed in this section or their nomenclature, but this section was to control the distribution of the electrical power generated by the turbines for the port, the storage area, and the factory area.

50X1-HUM

(5) Emergency Power Section

In addition to the turbines it was planned to maintain a section of very large batteries in the power plant, for use in the event the turbines failed to operate. These batteries were to be supplied by Czechoslovakia and would be capable of supplying sufficient electrical power to all installations in the industrial area to allow them to continue to operate for five minutes in the event of a power failure. these batteries were to be very large and were to be received in Rumania sometime in 1959. In addition to the batteries, a power line was to be connected to a 1600 KVA national power line which was located along the nearby highway from BRAILA to VIZIRU to the factory area. This was to be an alternate power supply in the event the time required to repair the turbines should exceed the five minute time allowed by the batteries.

50X1-HUM

50X1-HUM

g. Fire Department

Construction of the building which was to house the fire department was to begin in October 1957 and was to be completed in February 1958. It was to be constructed of brick and was to be two stories high, with a watch tower constructed of brick and reinforced concrete erected on top of it. The building was to be 30 m long and 10 m wide; the tower was to be 20 m high and from 4 to 5 m in diameter. (See Annex N for sketch of this building.)

50X1-HUM

The ground floor was to consist of garages for the fire trucks, a repair shop for the fire-fighting equipment, and a store room for storing chemicals for the foam extinguisher. The second floor was to contain quarters for the fire fighters. The center of the tower was to be hollow for use in hanging the fire hoses to dry.

50X1-HUM

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Equipment to be maintained by the fire department was to consist of four "Magirus" fire trucks to be supplied by East Germany and two foam extinguisher tank trucks which were to be maintained in the storage area by the special fire-fighting detachment. In addition to the motorized fire-fighting equipment, there were to be a series of water fire hydrants constructed throughout the area, the water pressure being supplied by a small pumping station in the factory area.

[redacted] the number of personnel required to man the fire department [redacted] it had been estimated that approximately 150 50X1-HUM persons would be necessary for both the fire department and the railroads.

4. Factory Sub-Area

[redacted] the factory sub-area was to be located on the west side of the factory area and was to be completed sometime in 1958. (See Annex D 50X1-HUM for location of this sub-area.) It was to consist of seven buildings constructed of brick and furnished and equipped by Rumania. These buildings were to include a nursery, a technical school, a hotel, a restaurant, a laboratory, an administration building, and a dispensary.

a. Nursery

This building was to be one story high, 35 m long, and 10 m wide and was to be used by the children of factory workers who were to live at the factory site.

50X1-HUM

b. Technical School

This school was to be two stories high, 40 m long, and 15 m wide and was to be used for training personnel in the manufacture of cellulose products.

[redacted]

c. Hotel

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This hotel was to be two stories high, 45 m long, and 12 m wide and was to contain 80 rooms. [redacted] it would be used as transient quarters for visiting officials from other countries who were connected with the cellulose industry in Rumania.

d. Restaurant

This restaurant was to be two stories high, 50 m long, and 25 m wide. The roof was to be flat and equipped with tables and chairs for use in good weather. The restaurant, operating in three shifts, was to be capable of serving 5,000 persons.

50X1-HUM

e. Laboratory

This laboratory was to be two stories high, 40 m long, and 15 m wide. It was to be used for research for the cellulose industry and for checking the quality of products manufactured by the factories. [redacted]

[redacted]

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f. Administration Building

This building was to be two stories high, 20 m long, and 20 m wide. It was to maintain production records for the various factories, the personnel records of the employees, and to control the shipping of the factory products to consumers. 50X1-HUM the total administrative personnel and service personnel (such as the drivers, mechanics, cooks, waiters, cleaning personnel, etc.) would be approximately 400.

g. Dispensary

The dispensary was to be housed in a two-story building 20 m long and 10 m wide and was to be operated by Rumanian civilian medical personnel. It was to be equipped to perform minor operations and was to contain an unknown amount of unidentified X-ray equipment. The first floor was to contain the examination and treatment rooms and the second floor was to contain the wards with approximately 20 beds. all employees of the cellulose industry were to be required to undergo a final type physical examination every three months because of the nature of the chemicals which would be used in the manufacture of cellulose products. 50X1-HUM

5. Housing Areas

a. North Housing Area

Two housing areas were to be constructed near the factory area, one on the north side of the area and one on the northwest side. The housing area on the north side, consisting of eight large dormitories, was completed in May 1957. these dormitories were being used by the construction crews. After completion of the construction at the industrial area, these dormitories were to be converted into apartments for the factory employees. there were approximately 400 workers living in this area, after conversion of the dormitories there were to be apartments for only 150 factory workers and their dependents. 50X1-HUM 50X1-HUM

In addition to the dormitories there were to be two laundries, two canteens, two small food storage buildings, two bath houses, and two general stores in the area. All these buildings would be one-story high, constructed of brick. The housing area was equipped with its own heating system independent of the factory area. Water for persons residing in the area was obtained from the emergency water supply wells in the factory area.

b. Northwest Housing Area

The other housing area on the northwest side of the factory area, approximately 60 percent completed in June 1957, was to consist of quarters for key personnel of the cellulose industry who could "intervene" in any emergency situation and was called the "Intervention Colony" (sic). All of the buildings in the area were to be constructed of brick and prefabricated concrete. The area was to contain 12 small two-story apartment buildings, each 20 m long and 10 m wide; and five large two-story apartment buildings, two of which were to be 32 m long and 10 m wide and the remaining three to be 65 m long and 10 m wide.

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50X1-HUM

The area was to contain 120 apartments sufficient to accommodate 350 factory workers and their dependents. Prior to the time the factories were to begin operating, there were to be approximately 450 persons from the other countries involved in the industry and living in this area. These persons were to be supervisory personnel responsible for assembling and installing the equipment which was to be supplied by their respective countries.

The area was to have a central heating plant which would be supplied with steam from the thermo-electric power plant, a laundry (which was to be located in the heating plant), and a food store for the families residing there.

6. Water Pumping Station

A water pumping station was to be constructed during 1959, north of the "Intervention Colony". This station was to contain a water purification section and was to supply the "Intervention Colony" and factory area with potable water. This water would be supplied from the water supply buildings at the port. In addition, this pumping station would pump water received from the port to the city of BRAILA; purification of the Braila water supply was to be accomplished in the city. Another mission of this pumping station was to supply the water necessary for the operation of the industrial area fire department.

7. Apartment Buildings in BRAILA

Also to be constructed between 1958 and 1960 were 130 blocks of apartment buildings in BRAILA for use by the factory area employees. These apartments were to be constructed on Strada Karl Marx and were to extend from one side of the city to the other. The buildings were to contain 1,500 apartments, accommodating approximately 4,500 persons. These factory employees were to commute from the city to the industrial area on a special streetcar line and by a special train service.

COMMENTS:

1. 50X1-HUM

2. because of the inferior quality of the earth upon which the factory area was to be constructed (the earth was loess), the basement floors of all the buildings had to be constructed with reinforced concrete slabs which extended from one side of the basement to the other and were supported by reinforced concrete beams. Because of the high level of the underground water and to the loess, these concrete flooring slabs and the walls of the basements had to be protected by continuous layers of insulation. This insulation was to consist of many layers of fabric, plastic, asphalt, and soapy chemical powders.

   All buildings in the factory area, with the exception of the smaller buildings, were to be constructed of "monolyte" reinforced concrete. The exterior surfaces of these buildings were not to be plastered but were to be made of translucent glass blocks set in reinforced concrete frames. All roofs were to be made of prefabricated reinforced concrete slabs covered with water repellent insulation on the top. 50X1-HUM

3. the 5,000 employees in the factory area were to be allocated as follows:

   The Cello-Fiber Factory ---------- 600
   The Carton Factory ---------- 800

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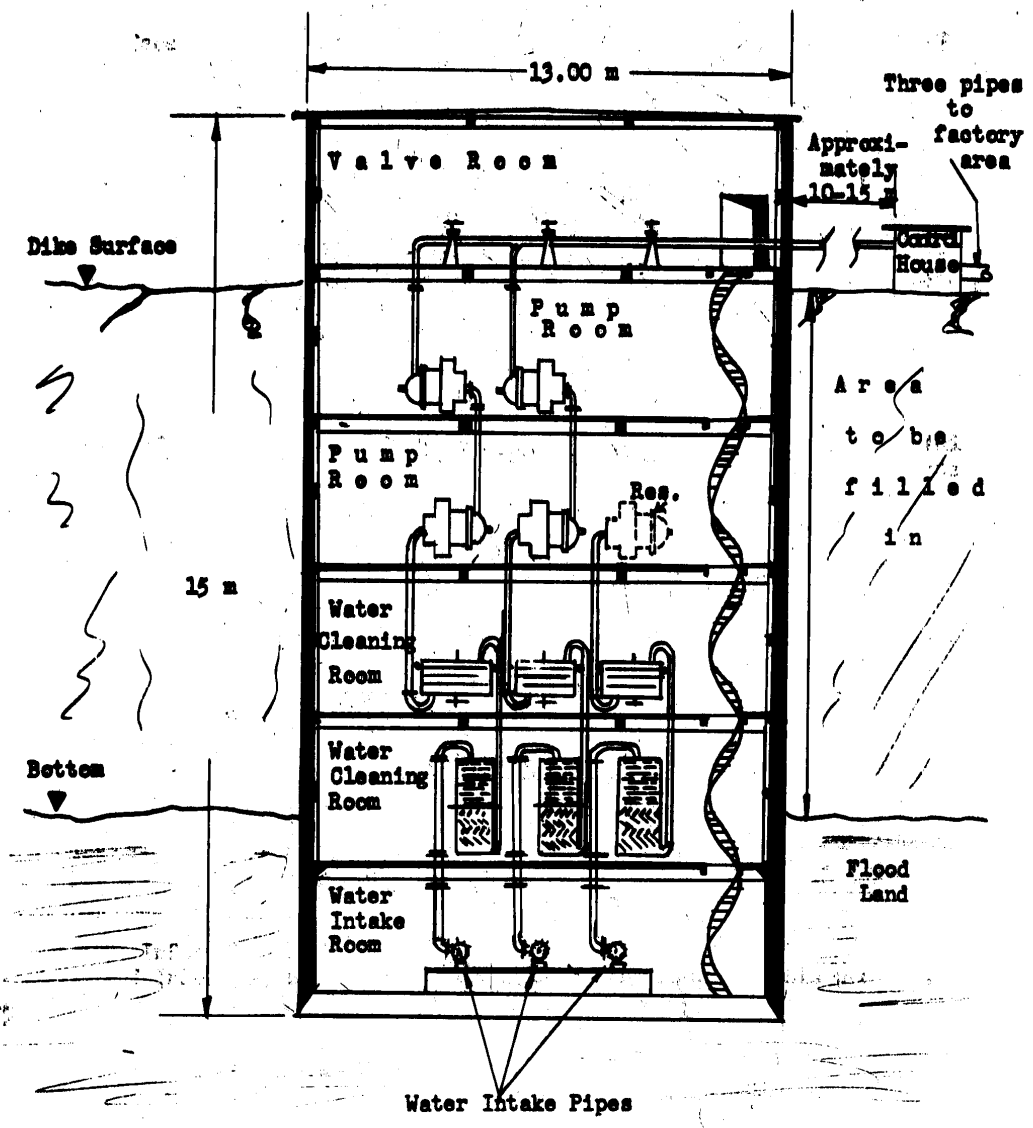
The Waste Material Factory	350
The Cellulose Factory	2,100
The Therme-Electric Power Plant	300
Technicians and Management	300
Administration and Service	400
Railroads and Fire Department	150

Annex C

SKETCH OF ONE OF THE WATER SUPPLY BUILDINGS PLANNED FOR THE CELLULOSE FACTORY AREA

50X1-HUM



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Annex E

SKETCH OF THE PASTE STORAGE BUILDING AND THE TRANSIT STORAGE BUILDING

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50X1-HUM

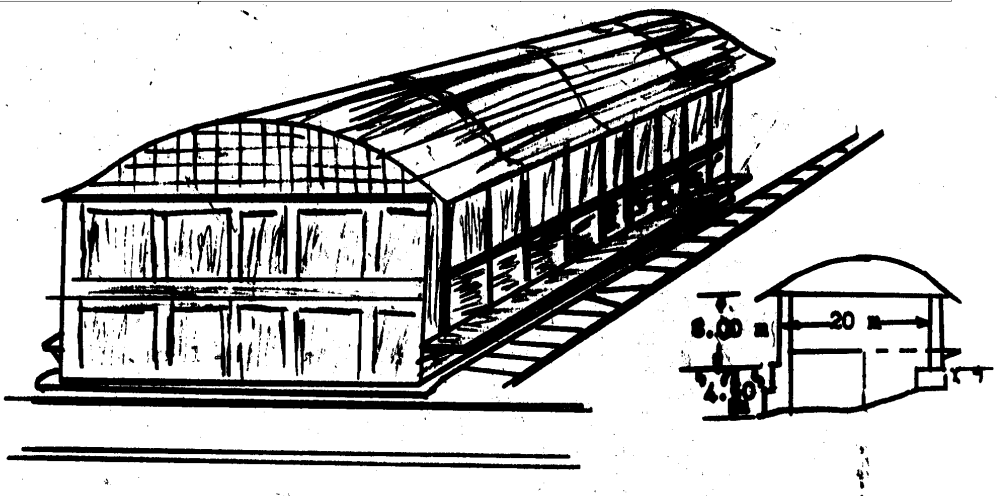
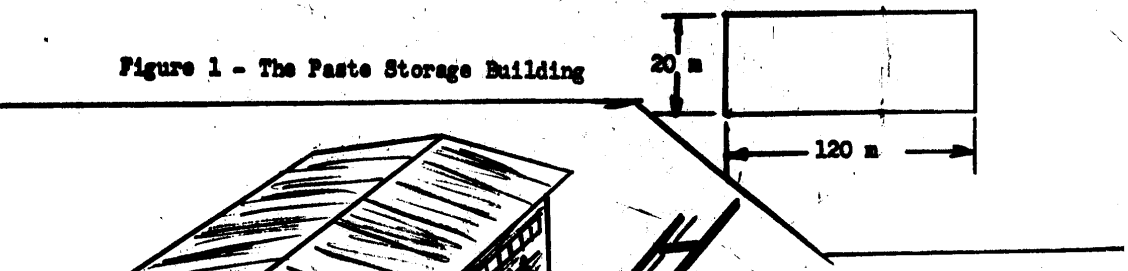
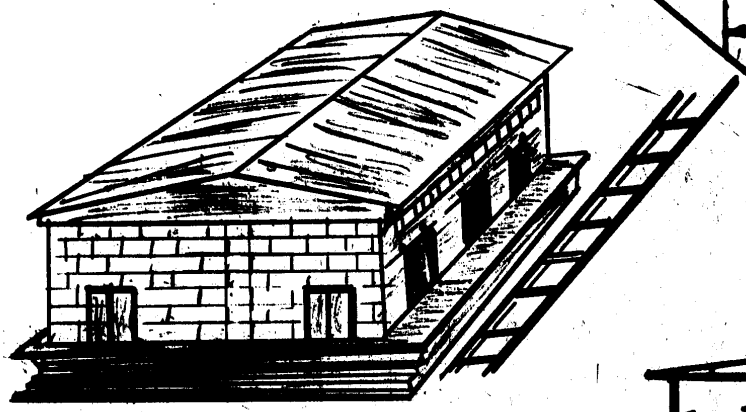


Figure 1 - The Paste Storage Building





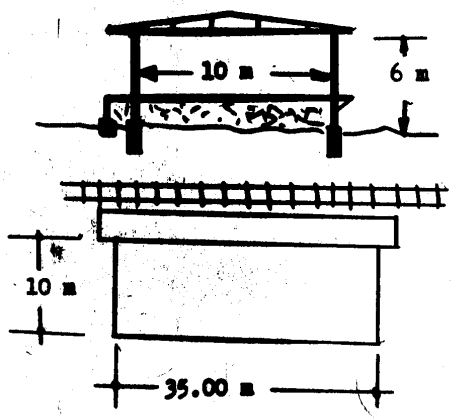


Figure 2 - The Transit Storage Building

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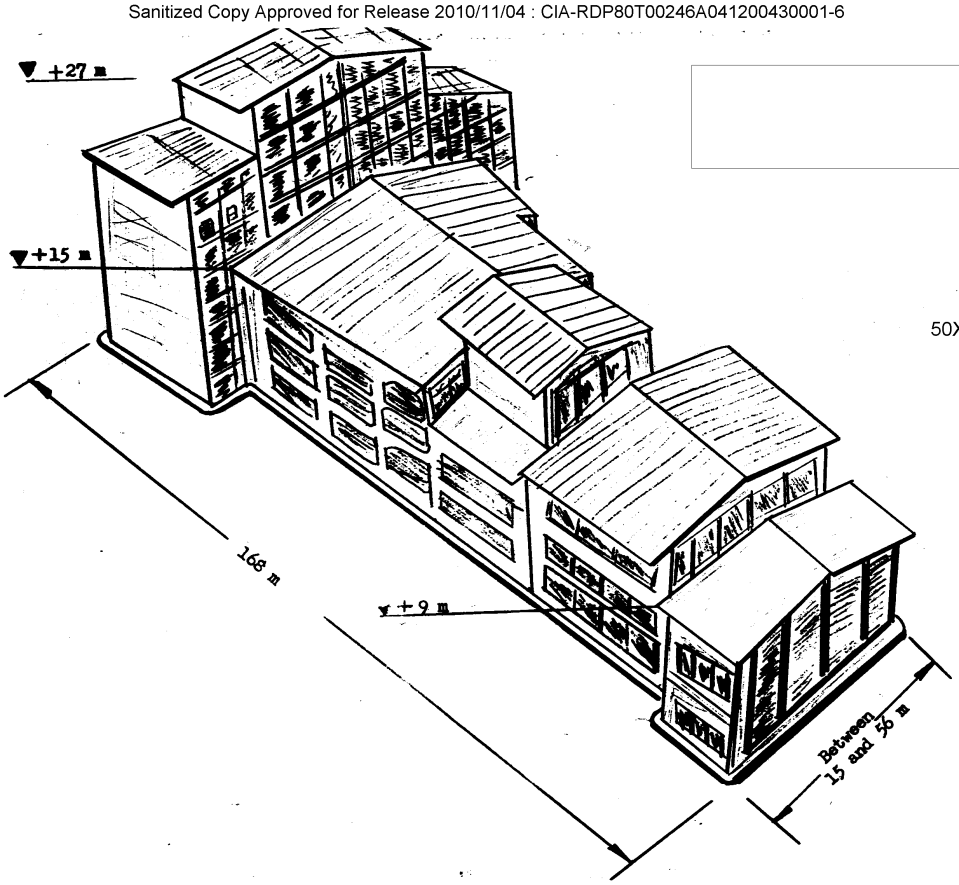

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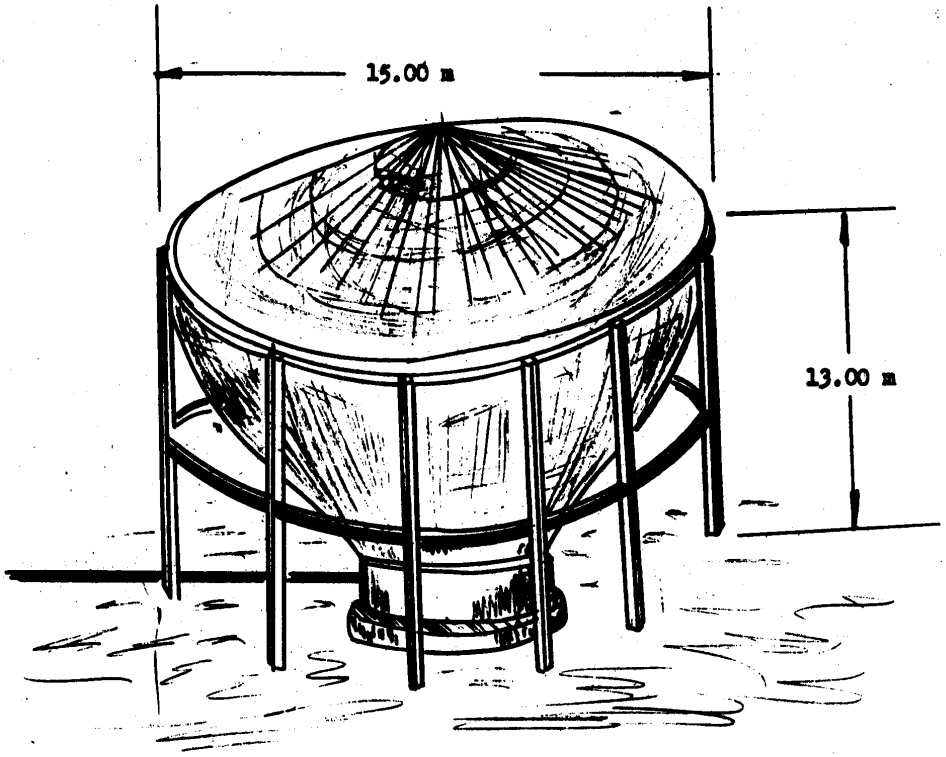
Annex G

SKETCH OF THE GREASE-WATER EMULSION VATS

50X1-HUM



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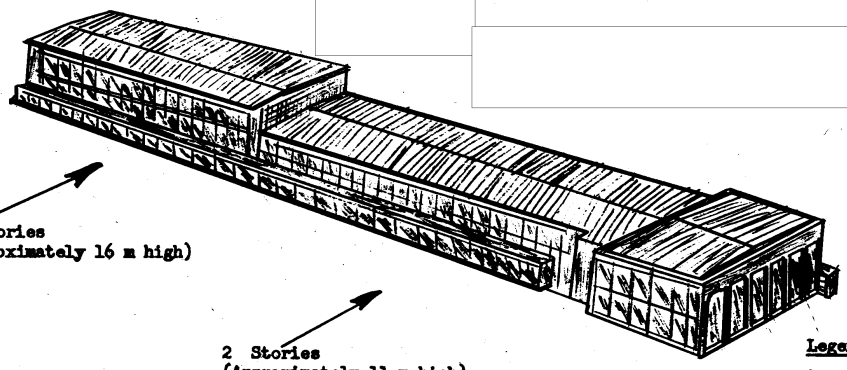
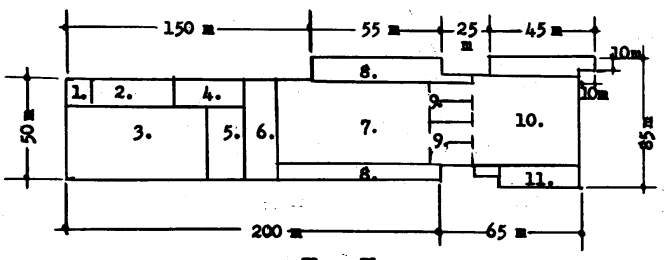
Annex H

SKETCH OF THE CELLULOSE FACTORY





Floor Plan

Legend:

1. Technical management.
2. Caustic-water preparation.
3. Cooking vats.
4. Electrolysis Section.
5. Caustic-water extraction.
6. Sorting Section.
7. Dehydration Section.
8. Laboratories and technical operations; small repair shops.
9. Drying, pressing, and baling rooms.
10. Storage room.
11. Distribution Section.

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-24-

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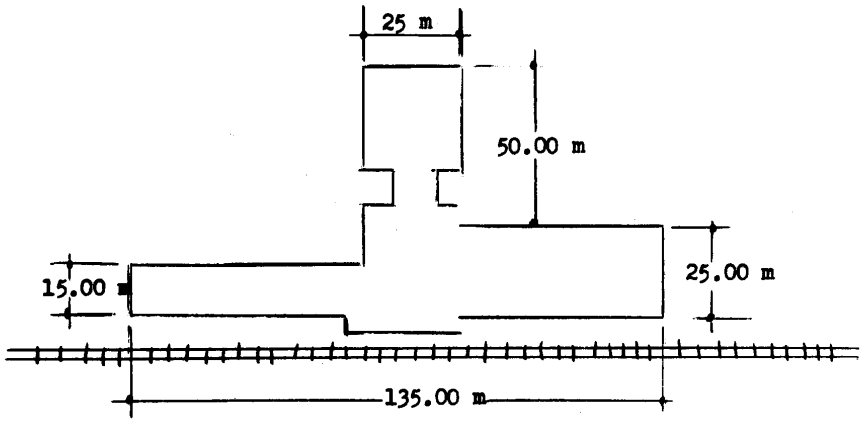
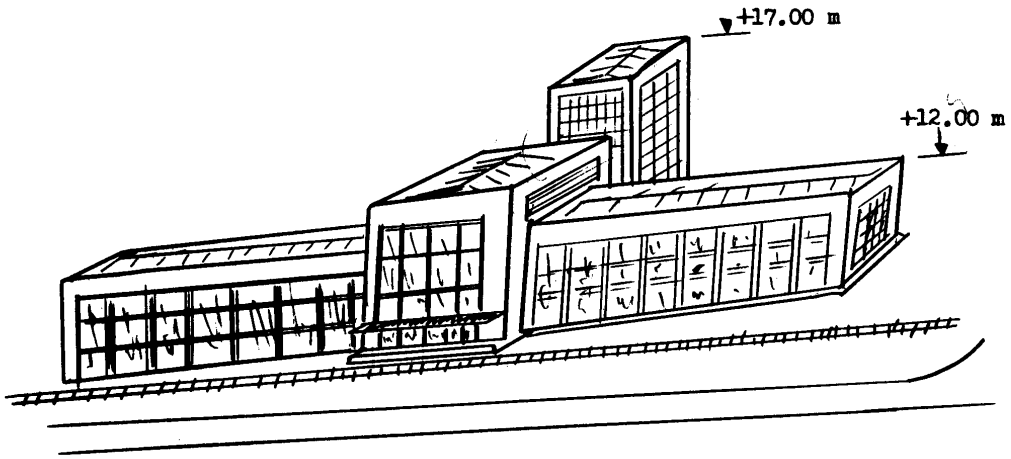
Annex I

SKETCH OF THE WATER PROCESSING STATION





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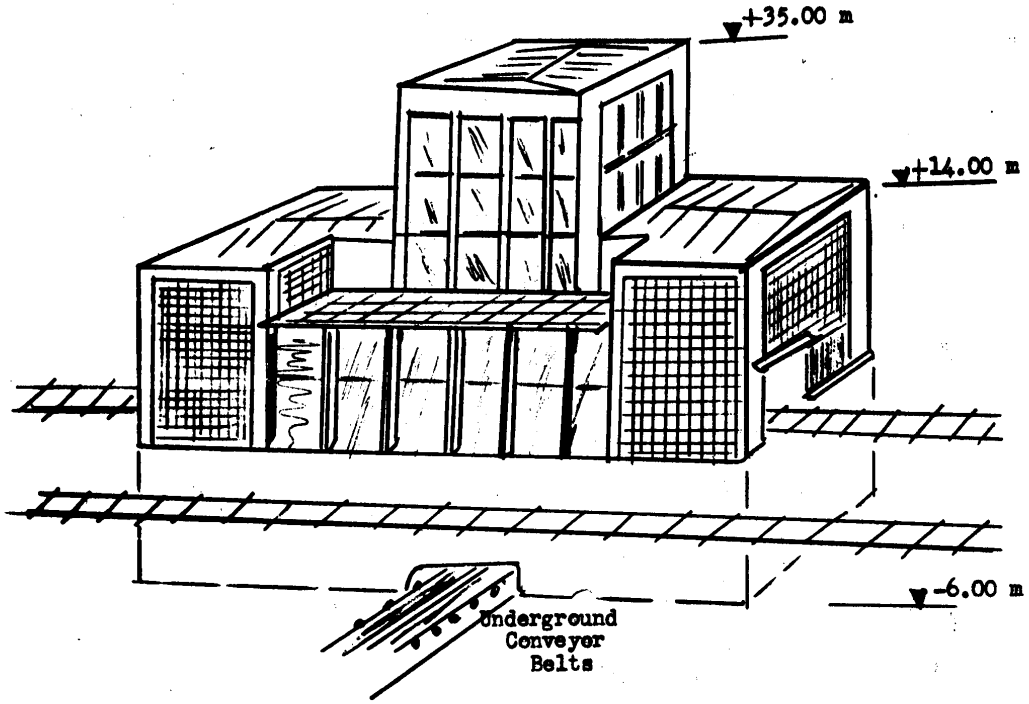
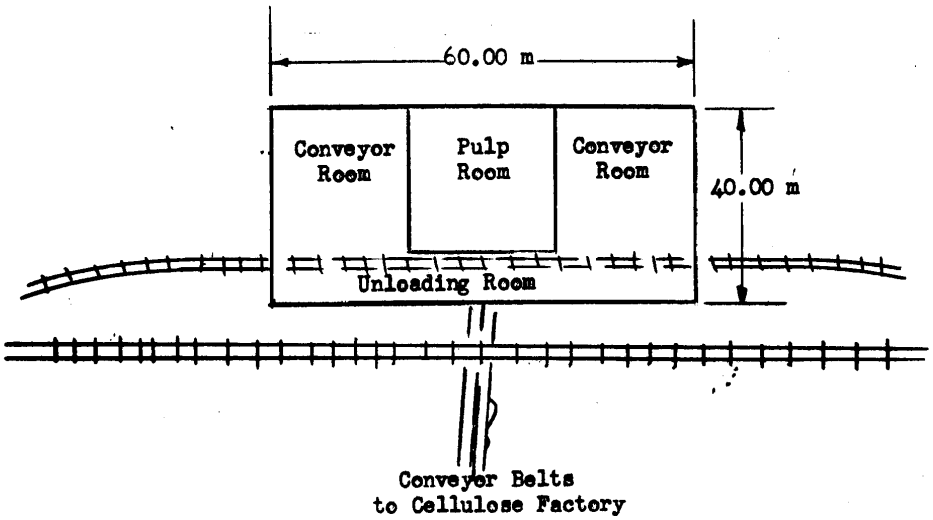
Annex J

SKETCH OF THE PULP MANUFACTURING PLANT

50X1-HUM





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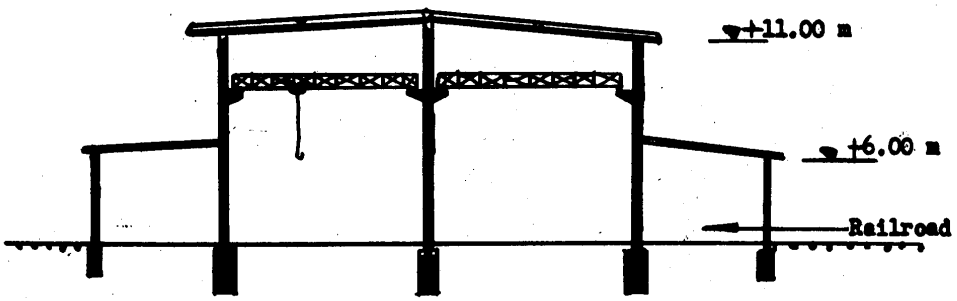
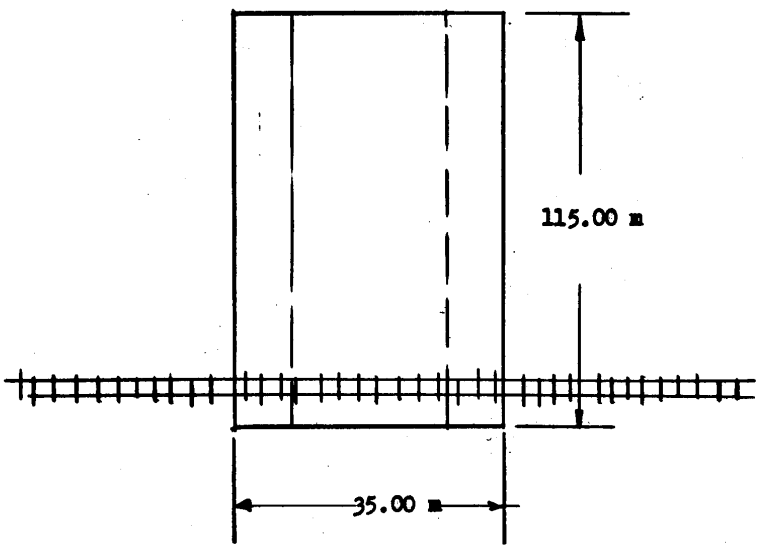
Annex K

SKETCH OF THE CELLULOSE FACTORY REPAIR SHOP

50X1-HUM





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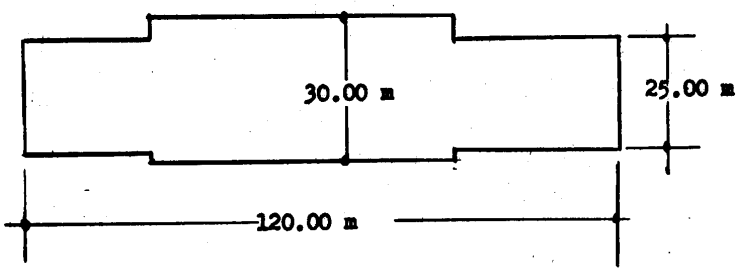
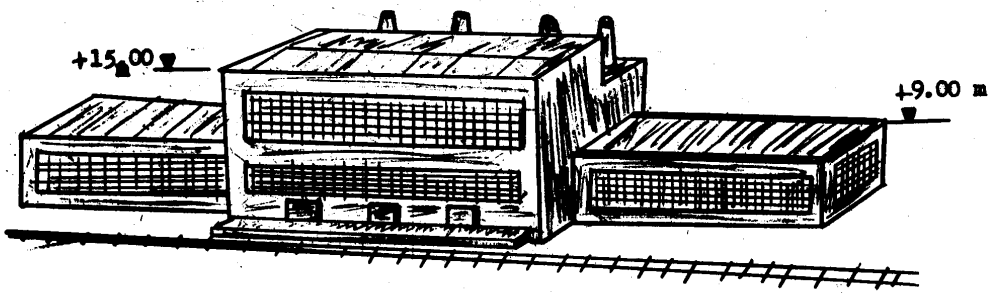
Annex L

SKETCH OF THE CHEMICAL RECLAMATION BUILDING





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Annex M

SKETCH OF THE THERMO-ELECTRIC POWER PLANT

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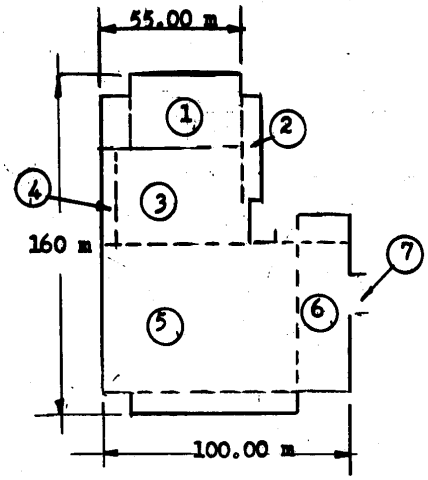
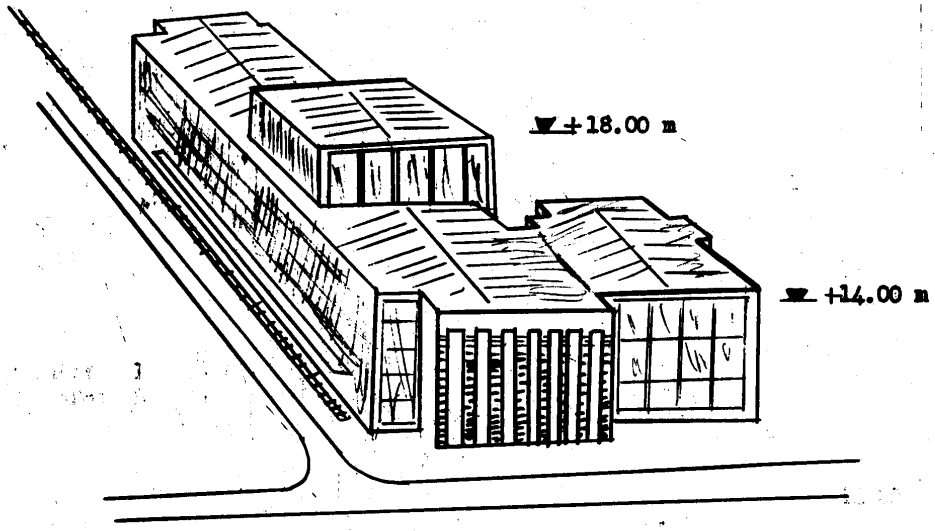
Legend:

1. Water preparation before boiling.
2. One-day crude oil reserve.
3. Boiler room.
4. Batteries.
5. Turbines.
6. Electric distribution room.
7. Control Department.





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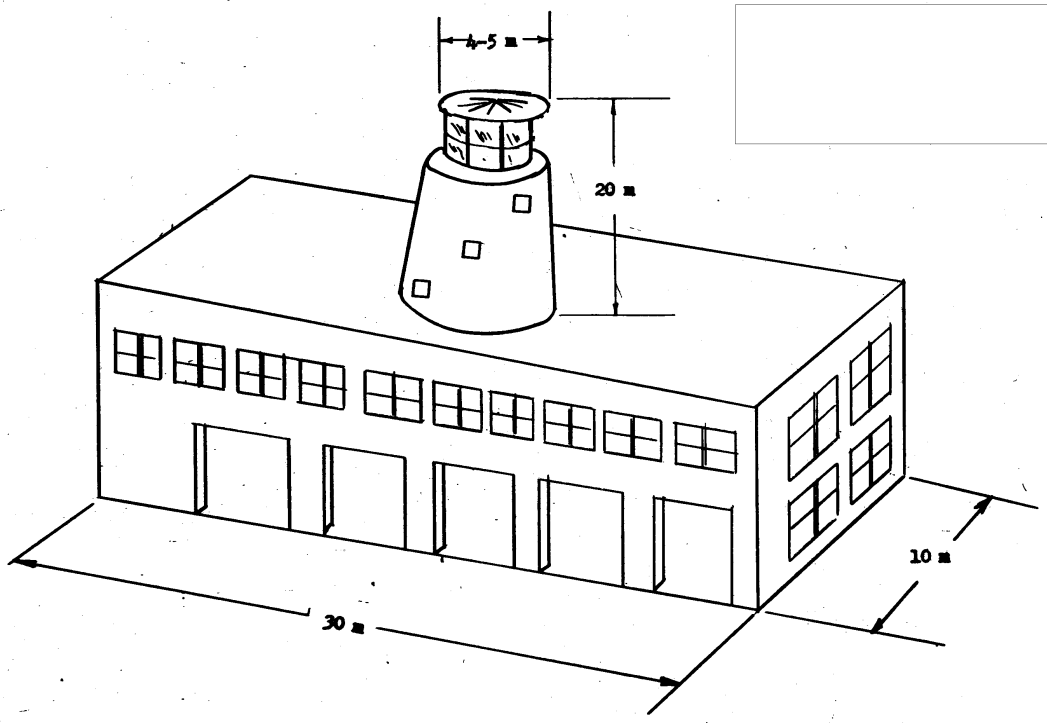
Annex M

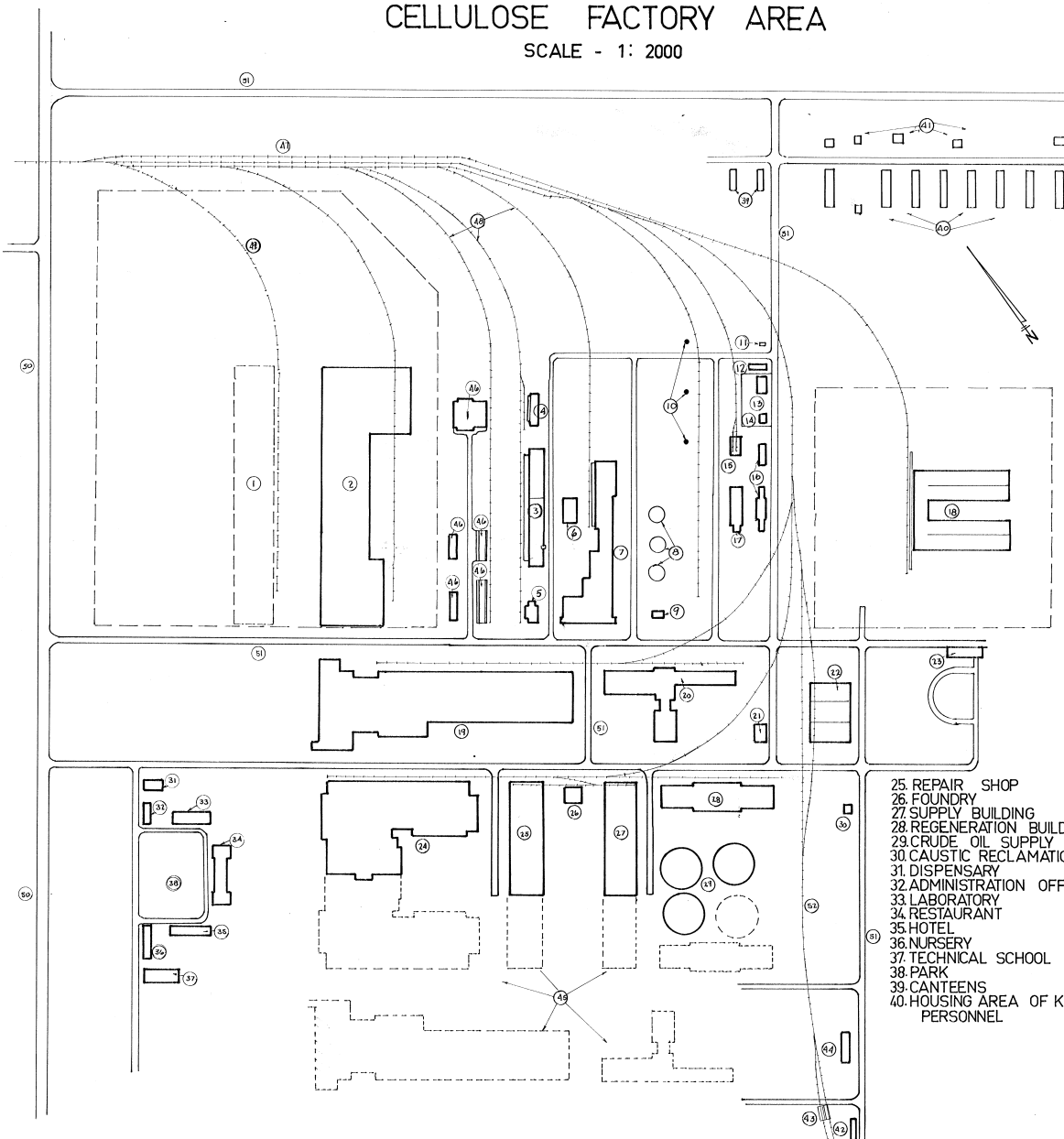
SKETCH OF THE MAIN FIRE DEPARTMENT BUILDING



ANNEX D

CELLULOSE FACTORY AREA

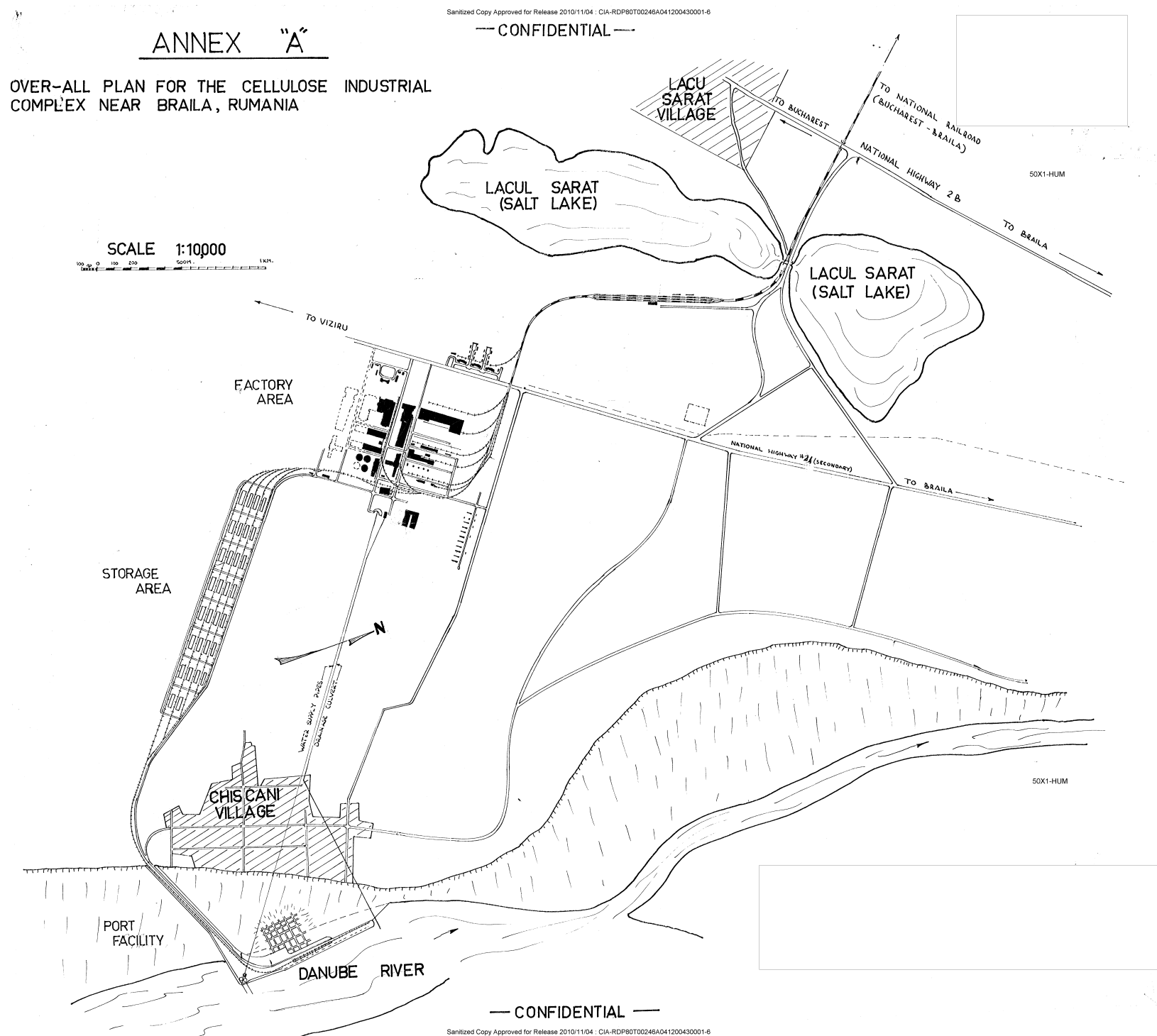
SCALE - 1: 2000



1. THE NITRO-CELLULOSE FACTORY
2. THE CELLO-FIBER FACTORY
3. PASTY CHEMICAL MIXTURE STORAGE
4. TRANSIT STORAGE
5. SPECIAL OIL STORAGE
6. LIME STORAGE
7. THE CARTON FACTORY BUILDING
8. GREASE WAFER EMULSION VATS
9. STATION FOR TREATING WATER WITH CAUSTIC
10. EMERGENCY WATER SUPPLY
11. FUEL SUPPLY POINT FOR FACTORY VEHICLES
12. GARAGE FOR SMALL VEHICLES
13. VEHICLES REPAIR SHOP
14. CONCRETE PLATFORM OF THE REPAIR SHOP
15. LOCOMOTIVE REPAIR SHOP
16. ADMINISTRATIVE BUILDING FOR THE CONSTRUCTION WORK
17. TRUCK GARAGE
18. WASTE PROCESSING PLANT
19. CELLULOSE FACTORY
20. WATER PROCESSING PLANT
21. LIME AND SULPHATE SODA STORAGE
22. PULP MANUFACTURING PLANT
23. OXIDATION AND DECONTAMINATION STATION
24. THERMO-ELECTRIC POWER PLANT
25. REPAIR SHOP
26. FOUNDRY
27. SUPPLY BUILDING
28. REGENERATION BUILDING
29. CRUDE OIL SUPPLY
30. CAUSTIC RECLAMATION STATION
31. DISPENSARY
32. ADMINISTRATION OFFICE
33. LABORATORY
34. RESTAURANT
35. HOTEL
36. NURSERY
37. TECHNICAL SCHOOL
38. PARK
39. CANTEENS
40. HOUSING AREA OF KEY PERSONNEL
41. BATHS, LAUNDRY, ETC
42. WEIGHING STATION
43. RAILROAD WEIGHING SCALES
44. FIRE STATION
45. FACTORY EXPANSION AREA
46. TEMPORARY STRUCTURES
47. SWITCH YARD (RAILROAD)
48. SERVICE RAILROAD
49. PLANNED RAILROAD LINES
50. NATIONAL HIGHWAY # 21
51. PORT HIGHWAY
52. PORT RAILROAD

ANNEX "A"

OVER-ALL PLAN FOR THE CELLULOSE INDUSTRIAL COMPLEX NEAR BRAILA, RUMANIA



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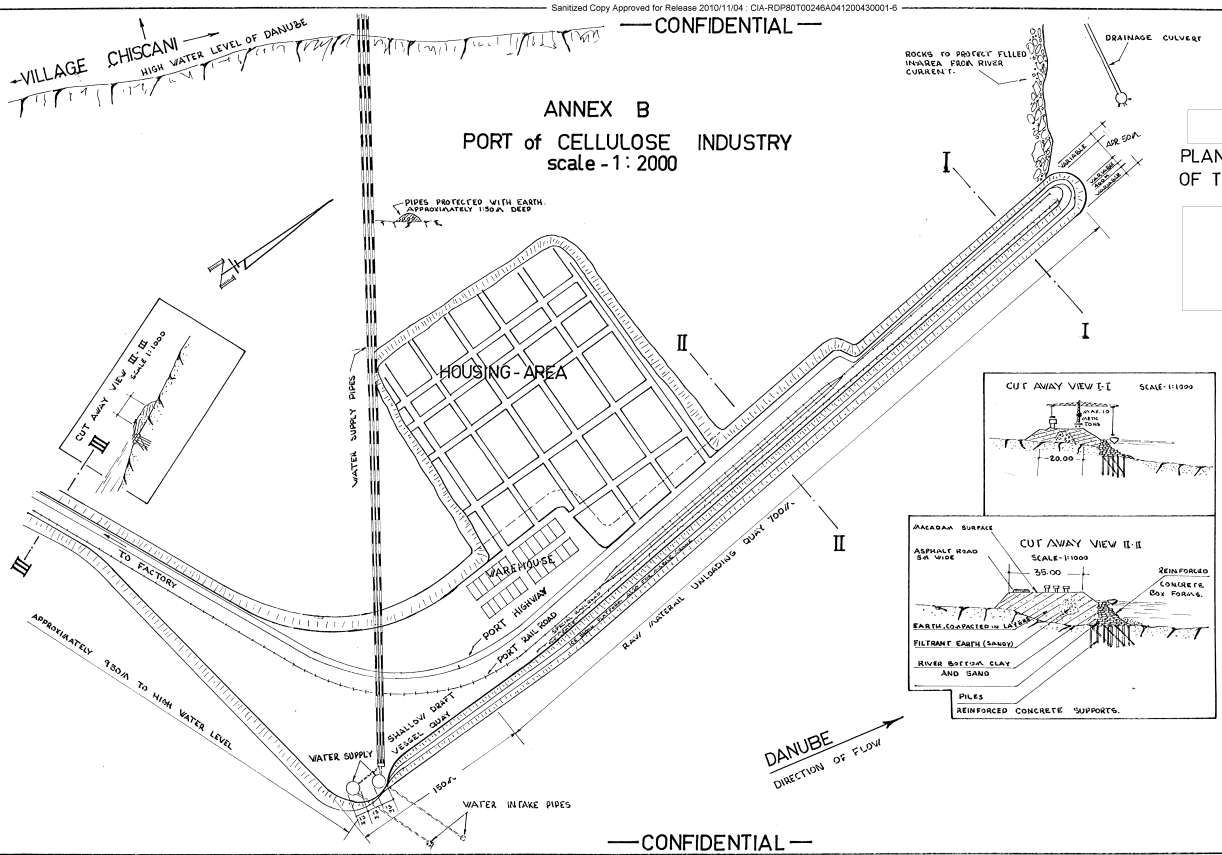
ANNEX B

PORT of CELLULOSE INDUSTRY

scale - 1 : 2000



REPRODUCTION OF THE PLANS USED IN THE PLANNING OF THE INDUSTRIAL PORT.

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