

Contract Awarded For Buildings At Marmora Mine

BETHLEHEM MINES CORPORATION START BIG CONSTRUCTION PROGRAM

The biggest construction program ever undertaken in this part of Ont. will be started within a week or two at Marmora Mine of Bethlehem Mines Corporation. The Canadian Turner Company Limited, with Head Office in New York city, has been awarded the contract to build the whole plant. This will include the crushing structures, etc. The contract is for one year of operations.

Mr. Bill Bear will be the resident engineer in charge of construction for the Canadian Turner Company Ltd. When operations get in full swing from 75 to 100 men will be employed. The superintendent's office staff and key men will be brought in by the company but it is planned to employ a large number of local men as well. Mr. Francis Rothernel will be supervising engineer for Bethlehem Mines Corporation in connection with construction work.

In a number of cases employees of the company are planning to bring their families with them if living accommodations can be secured. The influx of new residents will create a housing problem, and any who can provide suitable rooms or a small apartment or take in boarders may render a community service as well as secure extra revenue for themselves. No elaborate expenditure would be wanted as the building operations will only last about a year.

The erection of the new buildings indicates that within a year or so Marmora Mine will be in active production of iron ore. Operations in providing shipping facilities at the new harbour south of Picton are progressing steadily and will be ready when needed.

The new 'Lookout' erected by Bethlehem Mines Corporation, just outside the fence and not far from the office, is proving to be a very popular spot. Those who are at all familiar with operations going on at the mine realize that it would be impractical to allow all the visitors who come on the property, except on special occasions. The Lookout enables anyone interested to watch a good deal of the operations as well as if they were on the property. The fact there are persons on it most of the day is proof that it is appreciated.

MARMORA HERALD

30 JUL, 1953

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Great Progress At Marmora Mine

Only about two months have passed since the visit of Premier Frost and Party to the Marmora Mine of Bethlehem Mines Corporation, but any person who visited the mine on that occasion would find a very big difference at the present time. The progress of development both in the opening of the mine pit and the building program is surprising.

The removal of the overburden of rock on the site of the future mine pit proceeds almost like clock work. At first glance, as one stands on the built up area where rock has been built up area where rock has been crushed rock until it is almost as smooth as a paved road, the manner in which big trucks loaded with rock are rushing in various directions seems almost confusing. One soon realizes however that it is all part of a master plan. Drilling is carried on at different points at the same time and after the rock has been blown up the immense shovels load it into trucks and each truck has a particular place at which it dumps. The shovels lift about six tons at a time and three shovelful load a truck. About 20 trucks are in constant operation and there is practically no waiting either at the point where they load or unload. The level area over which they travel is so wide that there is no danger of collision of the trucks and no waiting for one to pass. The big Euclid trucks have right of way over any other traffic.

About 750,000 tons of rock is being moved in a month and the excavation is now down a depth of over 50 feet. One very noticeable thing is the systematic way in which this vast quantity of rock is being disposed of so as to continually improve the appearance of the property. The rock is also being used to surround and isolate the power houses. The rock is gradually being piled up until it is considerably higher than the top of the houses and if by any chance there should be an explosion the blast would shoot up into the air instead of spreading out horizontally where it might do great damage. Each of the two powder houses will hold about 25 tons of dynamite, but they are so constructed that an explosion is almost impossible, unless caused by a lightning bolt or some other very unusual cause.

Work on the new buildings is proceeding very satisfactorily and it is expected they will be ready to open up early in April.

The office will be very commodious and up-to-date. The building is 140 x 50 feet, of steel and concrete construction, facing north. The accounting offices will extend along the western end of the building. The executive offices of the officials are in the eastern part of the building and will be of sound proof construction. There will also be a large room for a complete filing system, large wash rooms with shower baths, etc. It will be one of the finest offices in this part of Ontario and we hope to be able to give a much more complete description when it and the other 'big building are ready for opening.

Adjoining the office building on the east side is the employees' "dry". In this building there will be lockers for all the employees and showers, wash basins; toilets, etc.

To the east of this building again will be the warehouse and repair building. This building is about 280 feet long and 60 feet wide of steel and concrete construction with asbestos siding. This will house the various stores required for operations as well as a complete repair shop for the mining equipment and trucks.

The store rooms are along each side separated from the rest of the room by a wire mesh partition.

MARMORA HERALD
19 FEB, 1953
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PROGRESS AT BETHLEHEM MINES CORP. MARMORA IRON MINE

For the first time since last fall we visited Marmora Iron Mine recently and the changes and developments are simply astounding. Knowing that about 30,000 tons of rock are being moved every 24 hours, one naturally expected a big change in the area where the ore pit will be operated, but the extent of the area over which the rock taken from the pit has been distributed and the surface levelled by the big bulldozers until it is almost like a floor is really surprising.

The roads, which have been, or are being constructed are evidence of the magnitude of the operations which are being carried on. The road from the site of the mills and buildings under construction to Mud Lake would do credit to any Highway Construction Company. The total distance is probably about 1½ miles and several rods from the shore of the lake was swamp or quicksand. In places crushed rock had to be dumped to a depth of about 25 feet before a solid bottom could be found. A broad solid road is now nearly completed, with the exception of a bridge which has to be constructed. Not only does the road run to the edge of the lake, but also about 100 feet into the lake.

The reason for extending the road into the lake is that the water required in the operation of the plant will be brought from Mud Lake through a 10 inch pipe. A pump house will be erected and pumps installed at the end of the road to pump the water and force it through the pipe to the mill.

Already the pipe has been welded in sections of about 120 feet in length and placed along the side of the road. Eventually it will be laid in trenches about 3 feet deep along the edge of the road and covered so as to prevent freezing. The pipe line will be completed by the time the buildings are completed and the plant ready for operation.

Not far from the lake and on the east or north side of the road an immense reservoir is being constructed to take care of the tailings or refuse from the mills, when the ore is being separated from the rock. The forming of the reservoir, which includes a sort of ravine, is by dumping rock, removed from the mine area, along its edge and then covering the rock with a few feet of clay to prevent the seepage of the water and tailings through the space between the rock. As the reservoir gradually fills the refuse will sink to the bottom and the water will overflow.

A 5 inch iron pipe line will convey the tailings from the mills to the reservoir. Where the pipe line starts a thickening process will take place by which part of the water will be filtered from the tailings and returned to the mill to be used again in the treatment of the ore. A lot of concrete construction is necessary to carry out the thickening process.

In going from the buildings area to the lake one crosses a by-pass over the railway. From the by-pass a new spur line, laid by the C. N. Ry., which is about 500 feet long is seen. Bethlehem Mines Corp. is also laying two spur lines, one to the pellet mill and another to another part of the plant.

Excavation of a roadway and the construction of the permanent road into the pit is also well under way. This road will be used for trucks used in the pit for hauling the ore to the skips or for any other requirement in the pit. One surprising feature of the route of the new road is that part of it runs through earth 25 or 30 feet deep. Over most of the property the rock is comparatively close to the surface, but this section is quite different.

The stripping of the rock overburden at the mine is proceeding like clock work. About every minute one of the fleet of the big Euclid trucks is dumping a load of crushed rock at a designated spot around the property. A more powerful explosive is being used for the blasts to loosen the rock which is broken up much finer than the original blasts did, and this facilitates the loading of the trucks.

We noticed a new style of drill in the pit. The joy drills, which do such great work in the limestone rock, sinking a 6½ inch hole 20 to 30 feet an hour, is practically useless when it reaches the ore bed. A new Ingersoll Rand Quarrymaster drill has been secured and is found to work effectively in the hard iron ore bed.

Near the original buildings we noticed two new buildings since our last visit. The smaller one, to the east of the driveways is the core house. The interior is fitted up with racks in which the cores taken from the preliminary drillings of the property will be stored and labelled. The cores from each hole will be kept separate and the labels will show the various depths from which each section was taken. It will be possible when operations start to compare the actual results with the statistics gathered by tests made with the cores.

Another quonset hut has been erected near the original one. It is the same height and width as the first one but not quite as long. At present it is being used as a store house by Canadian Turner Construction Company, but will be converted to other uses by Bethlehem Mines Corp. when the plant is in operation.

Already preparations are being made for hoisting the ore from the pit to the mills when mining operations start. Two large steel skips have already arrived. They will operate on parallel incline railway tracks with cables so that when one goes up the other will go down. In that way the only weight that will have to be lifted will be the ore, the ascending and descending skips being of equal weight. The skips will hold 22 tons of ore, the same quantity as a Euclid truck. The trucks will operate in the pits and carry the ore from the big loading shovels to the skip, where the load from the truck will fill the skip.

The incline tracks will be about 500 feet long and two big steel drums about 12 feet in diameter will control the cables which will hoist and lower the skips. The big drums will be operated by electricity and have brakes and various safety devices. The skips will dump the ore into the primary crusher which will be situated close to the incline tracks.

The building programme, which is being carried on by the Canadian Turner Construction Company Limited is right up to schedule and is well advanced, but we will have to wait until next week for some description of the buildings, equipment, etc.

MARMORA HERALD
27 MAY, 1954
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BUILDING PROGRAM WELL ADVANCED AT MARMORA MINE

Last week we referred to preparations for hoisting the ore at Marmora Iron Mine from the pit to the primary crusher. Since our previous visit to the mine a lot of work has been done and the building in which the big drums, which will operate the cables which hoist and lower the skips, is nearly enclosed. This building is 50 to 75 feet east of the primary crusher and an opening, probably 15 feet high, is left in the west side of the building and the cables will operate through this opening.

The cables will pass over the primary crusher and a very strong steel frame work will be erected to support them and from this they will drop to the skips to which they will be attached. On the start the skips will be hoisted from the bottom of the pit to the top of the crusher building, a distance of about 155 feet, where they will automatically dump the ore, which will pass through the primary crusher. The building will not be as large as some of the other buildings, but by ordinary standards it will be large and of very strong construction.

The primary crusher is the second largest manufactured and will crush chunks of ore up to 48 inches in diameter. It is immensely powerful, the main shaft being of solid steel and is about 30 inches in diameter. It will crush the ore to pieces about 3 to 5 inches in diameter. The hardness of the ore, compared to rock, is shown by the fact that the Joy drills, which will drill in rock 20 to 30 feet an hour, will not penetrate the ore bed and a powerful Quarry-Master Drill has to be used.

From the primary crusher the ore is conveyed by conveyor belts to ore bins, which are of heavy concrete construction, and where the ore will pile up. The bins are not enclosed in a building. The ore will feed from openings in the bottom of the bins on to a Weightometer conveyor belt, which will weigh it. This belt will carry it to the secondary crusher, where it will be crushed to maximum size of 1 to 1½ inches. In the secondary crusher there will be magnetic rolls which will separate the ore from part of the rock. The building for the secondary crusher is not started yet.

It is estimated that of the daily tonnage from the mine, approximately 3,000 tons, 1000 tons of rock will be separated at this stage. This rock will be stored up and will be available for fills, road buildings, or any other purpose for which crushed rock may be required.

From the secondary crusher the ore is conveyed by belts to an immense cement silo. In fact there are two of these silos. A big steel structure is being erected to carry the belts to the top of the silos.

After leaving the silos the ore is conveyed to the rod and ball mill. Water is used in the various processes in this mill. The rod mill is a very large cylinder with numerous rods extending the length. The ore, which is 1 to 1½ inches in size when it enters the cylinder comes out about the size of buckshot. From there it goes through the ball mills and comes out like sand. In the ball mills there are balls of steel of various sizes which grind the ore fine.

The building for the rod and ball mills is nearing completion. The buildings are all of steel construction covered with a heavy asbestos type siding. This siding is a grayish white and is very hard and tough. It comes in sheets with special sizes and shapes for corners, and other purposes. In the north end of this building there will be office space and a laboratory for making tests of the ore in the various processes.

Along the east side there is a great collection of electric switch panels and the electricity for all the buildings will be controlled from this one central panel. This building is about 200 feet long, 60 feet wide and 50 feet high.

Just east of the rod and ball mill is a large thickening tank. The tank is 100 feet in diameter. The walls are of heavily reinforced concrete and are 12 feet high. In this tank sands and water will be stirred and part of the water filtered out. This water will be returned to the mill and used in the various processes again.

From the magnetic rolls circuit the concentrates are pumped to the thickener and then to the top of the pellet mill into disc filters, which extract most of the remaining water, and then into distribution boxes and then to balling drums. In the balling drum the concentrates are mixed with fine coal and this mixture is rolled into balls approximately one inch in diameter. From the balling drums the pellets pass onto shuttle cars, then are lowered into a large furnace, which is heated by oil. There are four units in this building. From the furnaces the pellets will go to a large storage bin, which will be built above the railway tracks, a spur line of the C.n.R. running to the side of the pellet mill.

The pellet mill is the largest of the buildings, but is of the same kind of construction. It is over 240 feet long, about 100 feet wide and 80 feet high. Other smaller buildings will be constructed for various purposes. All the buildings will be insulated, both walls and roofs.

Not only is the extent of the building program and the class of buildings erected almost incredible to most people, but the whole change made in the area of the mine shows the great amount of planning and engineering skill involved in the development of the mine.

MARMORA HERALD
3 JUNE, 1954
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