

from the tunnel shell and these, in turn, support the two trolley wires, which are about six inches lower. The insulators are twelve feet apart.

In the tunnel cuts and in the yards, a single catenary construction is employed; this consists of a heavy steel messenger cable which is supported by insulators on steel bridges which span the tracks and from these cables the trolley is hung by vertical hangers made of galvanized iron pipe cut in varying lengths and so distributed as to avoid any sag in the trolley lines. The trolley is staggered, or diverted from a straight line, in order to distribute the wear on the pantagraph shoes when a locomotive is passing under it. In addition to the locomotive feeders, there are two, three phase cables for the tunnel lights and motor driven pumps in the tunnel, two for the three pumps at the tunnel portal, Port Huron, and two for the three pumps at the tunnel portal, Sarnia, and power feeders and arc light feeders for light and power in the tunnel yards, engine houses and passenger stations at Port Huron and Sarnia. These cables are carried through the tunnel in concrete duct lines built on each side of the tunnel; paper insulated, lead sheathed cables are employed.

The tunnel is lighted by 480 16 c.p. incandescent lamps, spaced 25 feet apart on each side and alternated so as to bring a light every 12½ feet. The transformers for this lighting deliver current at 440 volts.

There are a number of indicating lightning arresters connected to the aerial lines and, so far, these have given satisfactory results except that slight inconvenience has been felt at times due to birds perching on the arcing tips and thus causing a short circuit.

On account of 25 cycle current being employed, it was deemed advisable to operate all arc lamps through the medium of a mercury vapor rectifier.

POWER STATION.

The Power Station is situated on the bank of the St. Clair River at Port Huron, Mich. It is constructed of concrete to the level of the turbine room floor and above this are paving blocks, corniced and coped with concrete. The roof consists of cinder concrete and is almost flat, only sufficient slope being allowed to permit of proper drainage. The turbine room is lofty and well lighted with incandescent lamps supported by artistic wall brackets and Nernst lamps supported by the roof trusses above the crane girders. The walls are lined with white enamel brick to a height of 8 feet from the floor and above this is sand lime brick. In the front of the building are the superintendent's office, switch board room and engineers' room; each of which is finished in black oak,