

# A Page of Costs

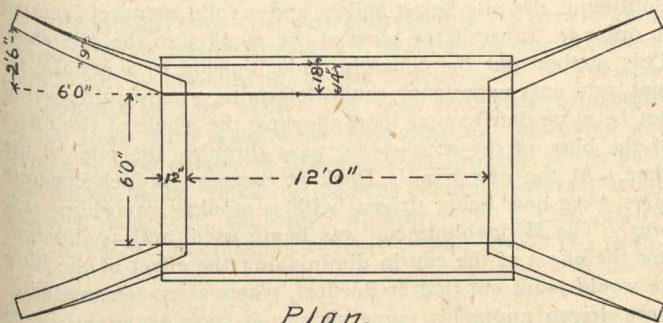
ACTUAL, ESTIMATED, AND CONTRACTED.

## A HIGHWAY CULVERT.

Concrete for culverts is now used almost universally. We give here the cost of a 6 foot culvert built on a rural road.

A timber bridge with an eight-foot opening formally spanned the stream at this point so that very little excavation was required.

The lumber and forms used on this job were used before and were used afterwards on a number of similar culverts,



Plan.

so that only the lumber actually wasted is charged against this work:

Digging out foundations—

One man one day at \$1.75 per day.....\$ 1 75

Making forms—

One man four days at \$2.50..... 10 00

Cement, 17 barrels at \$2.50 per barrel ..... 42 50

Mixing and filling in concrete—

Two men 3½ days at \$1.75 per day..... 12 25

Moving mixer to work ..... 2 50

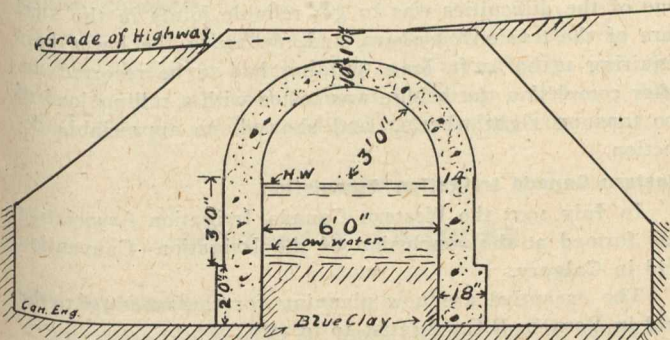
Rent of mixer four days at \$3 per day..... 12 00

Hauling lumber to work ..... 3 00

Two hundred F.B.M. at \$20 per thousand.... 4 00

Seventeen yards gravel at \$1 per yard ..... 17 00

Total .....\$105 00



End Elevation.

Altogether there were 15 cubic yards of concrete placed. This makes the cost per yard \$7.

Because of the narrow embankment the mixer could not be brought nearer than within 50 feet of the culvert.

## COST OF HIGHWAY BRIDGES.

To estimate quickly and with a fair degree of accuracy the probable cost of highway bridges, a matter of some importance with district and county engineers.

During 1907 the Ontario Government erected a number of such bridges and we give the cost of the superstructure, the cost per linear foot covering supplying and erection of all material.

### In Algoma District, Ontario.

Goulais River Bridge.—The steel superstructure of this bridge, consisting of two spans of 102 feet each, 16 feet in

width, and heavy enough to carry, in the future, a concrete floor, cost \$22.67 per lineal foot.

Spanish River Bridge, Webbwood.—The bridge is a substantial structure, having a central span 170 feet in length, and two spans of 50 feet each. The central span has a clear headway of 30 feet above the ordinary high water of the river. These steel spans are supported on steel pedestals 21 feet 6 inches in height, which rest upon piers 17 feet in height above summer level. A timber trestle approach 140 feet in length, is constructed on the west side, and 50 feet in length on the east side. The total length of the bridge floor is 465 feet. The steel superstructure cost \$29.63 per lineal foot.

Thessalon Bridge.—A steel superstructure 100 feet in length and 14 feet in width, erected at the town of Thessalon to replace an old timber structure. The foundations of this bridge are pile abutments. The superstructure cost \$27.30 per lineal foot.

Larchwood Bridge.—A steel bridge was erected across the Vermillion River close to Larchwood Station, having a span of 123 feet. The steel superstructure cost erected \$24.35 per lineal foot.

### Temiskaming District.

La Blanche River Bridge, Tomstown.—A timber bridge having three spans of 60 feet each, and two spans of 37 feet each, with a total length of flooring of 314 feet, was erected early in the year across La Blanche River, at Tomstown. The floor of the bridge is 36 feet above low water level, being made high enough to permit the steamers plying on this river to pass under. The piers are constructed of framed bents supported on piles and sheeted with three-inch planking. Cost complete \$20 per lineal foot.

New Liskeard Bridge.—The new bridge has a roadway 22 feet in clear width, with a footwalk six feet in width; it consists of one centre span 75 feet and two approach spans of 45 feet each, making the total length 165 feet. The substructure is of concrete upon pile foundation. Total cost \$50.45 per lineal foot.

## LOADING BY STEAM SHOVEL.

The cost of loading cars by means of steam shovels is difficult to estimate. For no fault of the shovel crew the shovel is idle much of the time.

The following gives the figures for four consecutive days. A ninety-ton shovel with a 2½ yard dipper was used. Material, light gravel. The wage bill was made up as follows:

Engineer at \$4.80 per day.....	\$ 4 80
Craneman at \$3.45 per day .....	3 45
Fireman at \$2.00 per day .....	2 00
Six trackmen at \$1.75 per day .....	10 50
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	\$20 75
For the four days at \$20.75 per day.....	\$83 00

The number of yards moved was:

First day .....	3,080 cubic yards
Second day .....	3,276 " "
Third day .....	2,912 " "
Fourth day .....	3,220 " "

Total ..... 12,488 cubic yards

This gives the cost for loading at .065 cents per cubic yard. No allowance has been made for fuel, water, oil or repairs.

## EARTH EXCAVATION.

Earth excavation prices when the quantity to be excavated is large runs about 22 to 25 cents per cubic yard.