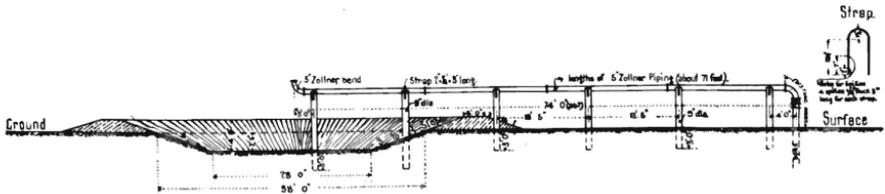


FINISHING OFF BORE HEAD.—CONTROL OF FLOW.

By means of a fitting length, the 10-inch casing is brought to surface level, and is held in position by two hardwood logs, 16 inches diameter by 16 feet long, fitted round the swell on end of casing and bolted together; these two logs bearing on two similar cross-logs firmly bedded in the ground. The 8-inch casing also, by means of a fitting length, is brought to 1 foot above surface, and is secured by a pair of wrought-iron dogs or clamps fitting under the swell on the end of the casing and resting on the timber bed-logs; the 6-inch casing also finishes at same level as the 8-inch. A gun-metal coned casting is then screwed on to top of the 6-inch casing, and bolted to a gun-metal flange screwed on to top of the 8-inch casing. To the top of the coned casting (provided with two 2-inch plugs for branch pipes, and one $\frac{3}{8}$ -inch plug for taking pressures) is bolted a 5-inch Ludlow valve, carrying a 5-inch Zollner bend, to which is connected 74 feet of Zollner 5-inch piping, having a bend turned upwards on its end, through which the water is discharged, and thus aerated before falling into the distributing tank. This arrangement places the bore under complete control without the painful effort of closing valve whilst being parboiled in water issuing at, in some cases, a temperature of 134 degrees Fahrenheit.

DISTRIBUTING TANK.

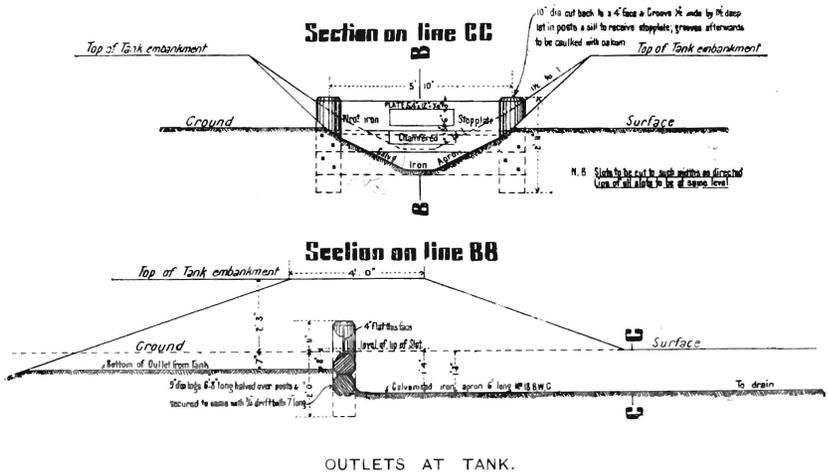
The distributing tank, into which the water from bore is discharged, is simply excavated 2 feet 6 inches deep in the natural surface, and



EXCAVATED TANK AND INLET PIPE FROM BORE.

is 23 feet diameter at bottom and 38 feet at ground level respectively, with inner and outer slopes of 3 to 1, the surrounding bank, 2 feet 3 inches above surface, being 4 feet wide on top. The outlets from tank are placed at such a level as to give a free over-fall for the water discharging into each drain, and consist each of two posts 5 feet

10 inches apart, 2 feet 11 inches long, sunk 2 feet in the ground, on the side of which are halved on and bolted, two 9-inch timber logs; a



$\frac{1}{4}$ -inch wrought-iron stop plate being let into upper sill and caulked. To prevent erosion from the falling water, a galvanized (No. 18 gauge) iron apron 6 feet long is placed in the bottom of drain, secured to outlets and cross-logs with clout-head nails.

Plate 29 shows the bore-head, inlet pipe from the bore, Venturi meter, distributing tank, and tank outlets, at Florida Bore in the Moree District.

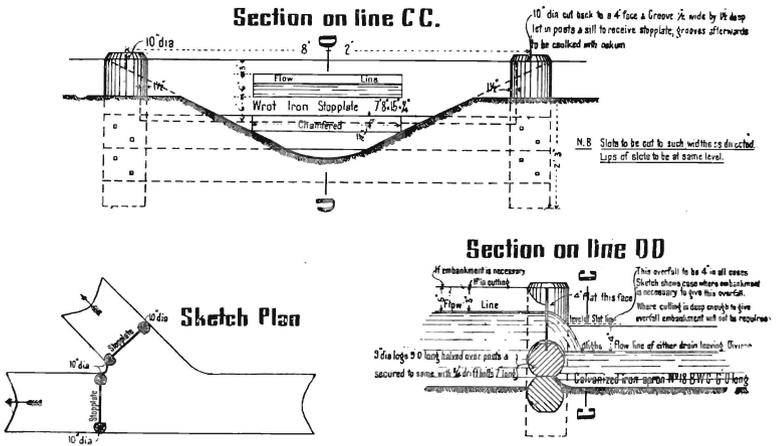
BOX AND STOP-PLATE DIVISORS.

For dividing the water at the branch drains, box divisors (Appendix D) were at first used, which were not only expensive—requiring the services of a skilled carpenter, oftentimes difficult to secure in the back country—but being placed in the bottom of the drain were so affected by the different grades as to render this type of divisor quite inefficient. Hence the introduction of the stop-plate divisor now in general use, which is similar in design to the tank outlets, and with the free



29. FLORIDA BORE.

over-fall provided, is not affected by one drain having a much greater



DIVISOR.

fall than the other. This type of divisor has given great satisfaction: at the small cost of about £7 per pair of stop-plates forming one divisor.

FLUMING.

Although fluming is avoided wherever possible, yet it is sometimes necessary. The fluming (Appendix E) consists of No. 10 black sheet-iron, 3 feet wide in 6 feet lengths bent half round, 19 inches wide at top and 9½ inches deep, two lengths being riveted together with 3/8-inch rivets and the section bolted together with 3/8-inch bolts, a 4 inch x 4 inch x 1/6ths inch lug being riveted to the fluming over each support, and a pipe distance piece provided to maintain the width, through which passes a 3/4-inch bolt secured to tops of timber posts. The fluming is supported at 10 feet intervals by two timber posts, set on a batter of 1 in 5, sunk 3 feet into the ground, and carried by a 6 inch x 4 inch cross-piece checked into posts and secured with two 3/4-inch bolts, the cross-piece being lined through for the seating of fluming, the top of posts being also held by the bolts passing through the lugs of fluming. The inlet end of the fluming is placed 3 inches below the grade line of



DIVISOR, FLORIDA BORE.

drain, whilst the outlet end is 3 inches above same ; the fluming before being forwarded is given a coat of tar applied hot, and cost at Boomi



FLUMING FLORIDA BORE TRUST DISTRICT.

in position, including 414 miles of rail and 56 miles of road carriage and timber supports, £21 per chain.

DISTRIBUTING DRAINS.

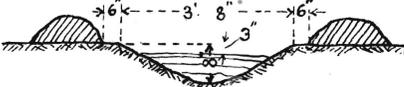
In the construction of distributing drains of the standard sections adopted by the Department of Public Works, which have a bottom width of 12 inches with side slopes of 2 to 1, sometimes a grader is used, with which a cut of 5 inches to nothing is made. It is thus possible, with 4 miles of grader work, to construct a mile of drain of V section, which comes within the minimum departmental specification stipulating for a V drain being 3 inches deeper than the standard section of drain. However, the more usual method is to break up the surface with a

Sketch Sections of Drains.

Drains from K to L, L to M -----

Distance 4M 10C, 6M 5C -----

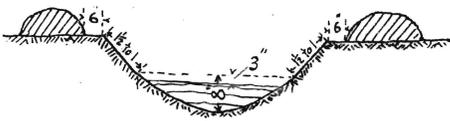
Minimum Section in Cut



Minimum Section part Cut & part fill



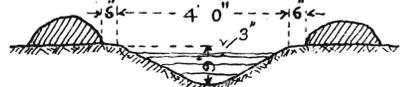
Section where deeper than Minimum Cut



Drains from K to N -----

Distance 6M 10C -----

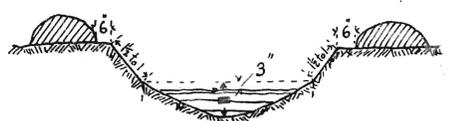
Minimum Section in Cut



Minimum Section part Cut & part fill



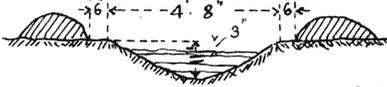
Section where deeper than Minimum Cut



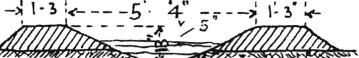
Drains from P to K -----

Distance 16M 0C -----

Minimum Section in Cut



Minimum Section part Cut & part fill



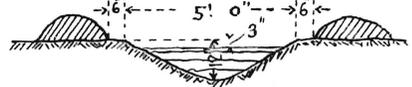
Section where deeper than Minimum Cut



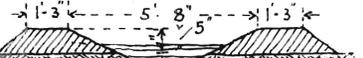
Drains from P to R -----

Distance 5M 4C -----

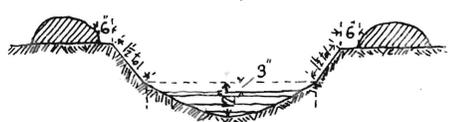
Minimum Section in Cut



Minimum Section part Cut & part fill



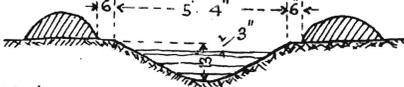
Section where deeper than Minimum Cut



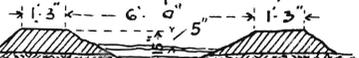
Drains from P to S -----

Distance 4M 10C -----

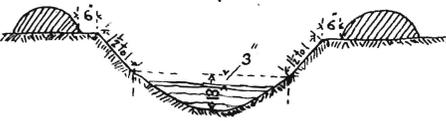
Minimum Section in Cut



Minimum Section part Cut & part fill



Section where deeper than Minimum Cut



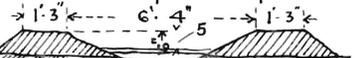
Drains from O to P -----

Distance 2M 3C -----

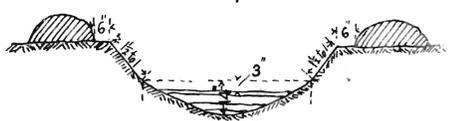
Minimum Section in Cut



Minimum Section part Cut & part fill



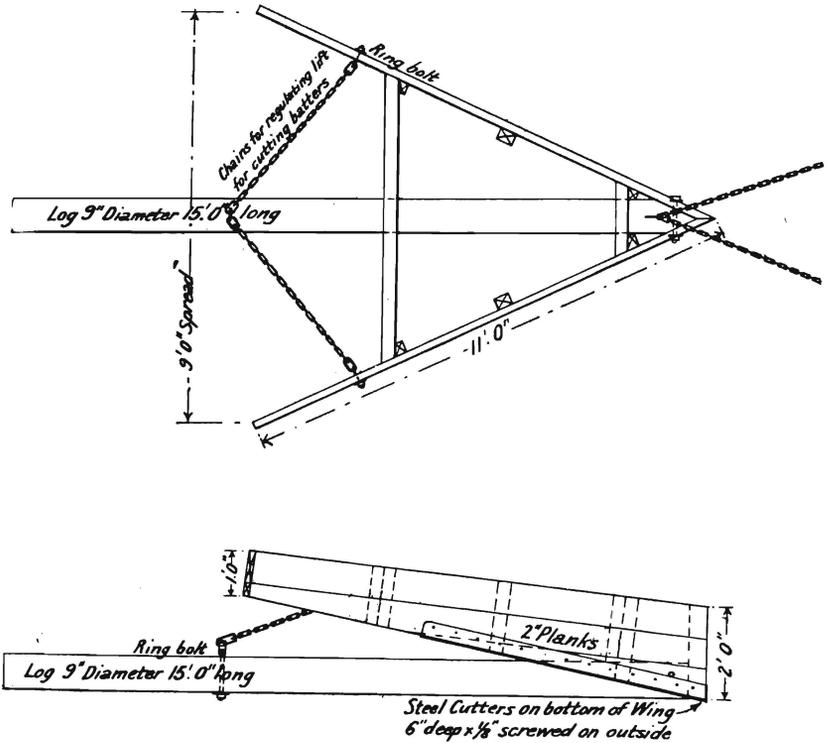
Section where deeper than Minimum Cut





GRADER.

plough drawn by ten horses and weighing some 3 cwt., and to then remove the spoil with a delver drawn by some fourteen horses. The delver used by Mr. Contractor Meaney in the Moree District consists of two wings 11 feet long, formed of 2-inch planking joined at one end to form the nose, and then spread out in the form of a V 9 feet wide at



MEANEY AND POLDEN'S DELVER.

end, and stiffened with two cross-pieces of 2-inch planking. The wings are 2 feet deep at nose, being tapered off on bottom to 1 foot at ends; steel cutters 6 inches deep by $\frac{1}{8}$ inch thick are secured to bottom of wings with wood screws; a log 9 inch diameter by 15 feet long is fastened to the nose of delver with stout fencing wire; whilst a chain fastened to the log with an eye-bolt is connected to each wing, by which

