"*Using Super Blocks as Cattleguard Bases*"

COUNTY INFORMATION

Fremont County
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Problem Statement

Fremont County has many cattleguards. They have been installed with different types of materials, such as old bridge timbers, railroad ties, or whatever else was available. The wood rots out, and the county has an ongoing battle to keep timbers under the cattleguards. Budgetary constraints made the State's cement boxes a bad choice. The L type cement bases are also expensive, and they have only 10" of clearance below the bottom of the cattleguard so they have to be cleaned out frequently. An inexpensive, durable cattleguard base with enough clearance below the grate would save the County time and money.

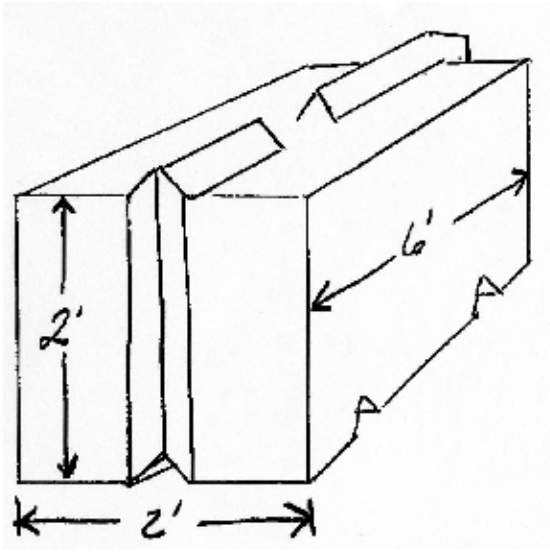
Discussion of Solution

Two concrete companies, one in Lander and one in Riverton, started making what they call a "super block" out of their excess concrete. We looked them over and decided to give them a try. The results were good: a solid base and a lip around the cattleguard keep it in place. Fremont County uses an HS 20 rated A type or the square tubing cattleguards. These grates and super blocks handle heavy oilfield traffic without any problems.

Installing a 24' cattleguard takes 8 – 2' x 6' super blocks, 10 blocks if you want to box in the ends. In addition, there is 24" of clearance below the grates, so they don't have to be cleaned out very often. Installing super blocks as bases requires a good, solid bottom that is level and well compacted.

Super blocks come in three sizes, 2' x 2', 2' x 4', and 2' x 6'. Other uses for the super blocks include small bridge and pipe wings, retaining walls, storage bins, barriers, and flood water diversion.

Another good cattleguard installation is using old motor grader tires against a tie instead of wings. It seems like every time we put up a wing, the ranchers complain that the cattle walk across them, so they tie old barrels, old tires, pallets, or whatever they can find to the wings. With the super block base, there is just enough room to set a tie next to the block and a tire between the tie and the cattleguard. You can wire the tire to the tie and still get the cattleguard out to clean it without having to remove the tie. Drilling breakaway holes in the tie makes the installation more crashworthy. You still have the full 24' of width and a place for your used tires. The ranchers have had no problems and the installation looks good, too.



Cost

2' x 6' super blocks: $45 - $50 each

10 super blocks/cattleguard: ~$500/cattleguard base

Savings/Benefits

Cost savings are about $29 per year per cattleguard when compared to timber bases, ignoring benefits to the traveling public from less frequent maintenance and a better ride. Cost savings are greater when compared to the state box or L type blocks, though the impact to the traveling public would be about the same for these installations. Using super blocks as cattleguard bases provides a better ride for the public at less cost to the County.

30 Year Life Cycle Cost Analysis: Cattleguard Bases

Installation Type	Timber	State Box	L Type Block	Super Block
Installation Labor Cost	$500	$500	$500	$500
Installation Material Cost	$50	$3000	$2000	$500
Installation Cost	$550	$3500	$2500	$1000
Installation Frequency	10 years	30 years	30 years	30 years
30 Year Installation Cost	$1650	$3500	$2500	$1000
Installation Cost per Year	$55	$117	$83	$33
Clean Out Cost	$50	$50	$50	$50
Clean Out Frequency	3 years	5 years	2 years	5 years
30 Year Clean Out Cost	$500	$300	$750	$300
Clean Out Cost per Year	$17	$10	$25	$10
Total 30 Year Cost	$2150	$3800	$3250	$1300
Total Cost per Year	$72	$127	$108	$43
Cost per Year for 20 Cattleguards	$1433	$2533	$2167	$867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