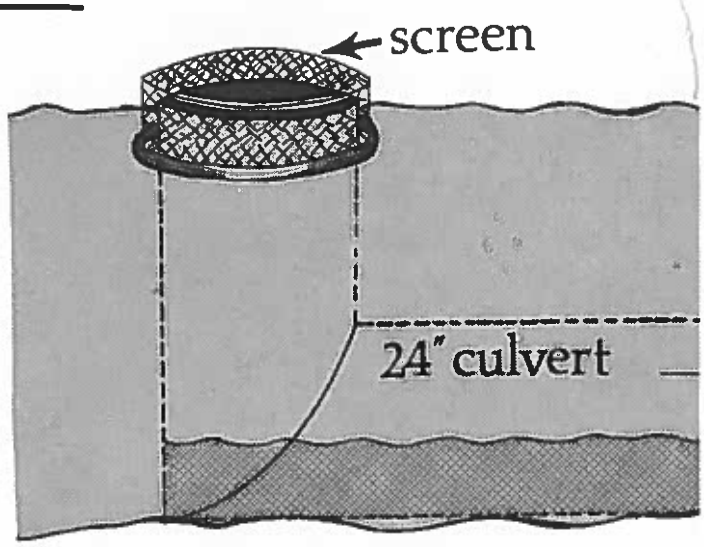
The "STANDPIPE"— a new management tool



By Fred Williams
Sport Fish Division
Glennallen

ONE OF THE WAYS the Alaska Department of Fish and Game increases sport fishing opportunities is rehabilitation and restocking of roadside lakes. A lake which is selected is usually treated with rotonone (a fish toxicant not harmful to human or domestic animals) to remove competing scrap fish. After the lake returns to normal, it is restocked with game fish species.

Lakes chemically treated by the Sport Fish Division must be free of inlets or outlets, thus providing control over reinfestation of competitive "rough fish" species. Various investigations have determined that little survival of stocked fry or fingerlings occurs where undesirable species are present.

In lakes with outlets, stocked coho salmon exhibit a strong tendency to migrate to the ocean in their second year of life, and rainbow trout often migrate downstream for spawning purposes. In most cases, neither species returns to the lake.

Unfortunately, Alaska has many more lakes with inlet and outlet systems than without them. Thus the management opportunities for improving recreational fishing within a given geographical area may be severely reduced.

One answer to the problem of controlling the return of undesirable species following rehabilitation, as well as the outmigration of stocked game fish, is to screen the outlet streams.

However, problems can arise when lake outlets are screened over. Leaves, vegetation, and other floating debris can often plug an outlet screen in a matter of a few days, causing the structure to wash out. Also, it is not economically feasible to check an outlet screen several times a week to prevent destruction of the facility. Therefore, when establishing the design for outlet structures, effectiveness, maintenance and initial cost must all be considered.

After lengthy consideration of design and operational problems in such lakes, Sport Fish biologists decided to experimentally install and evaluate a "standpipe" structure

SCREENED BOX TOP when placed over positioned standpipe, the screen prevents fish migration and eliminates debris clogging problems.

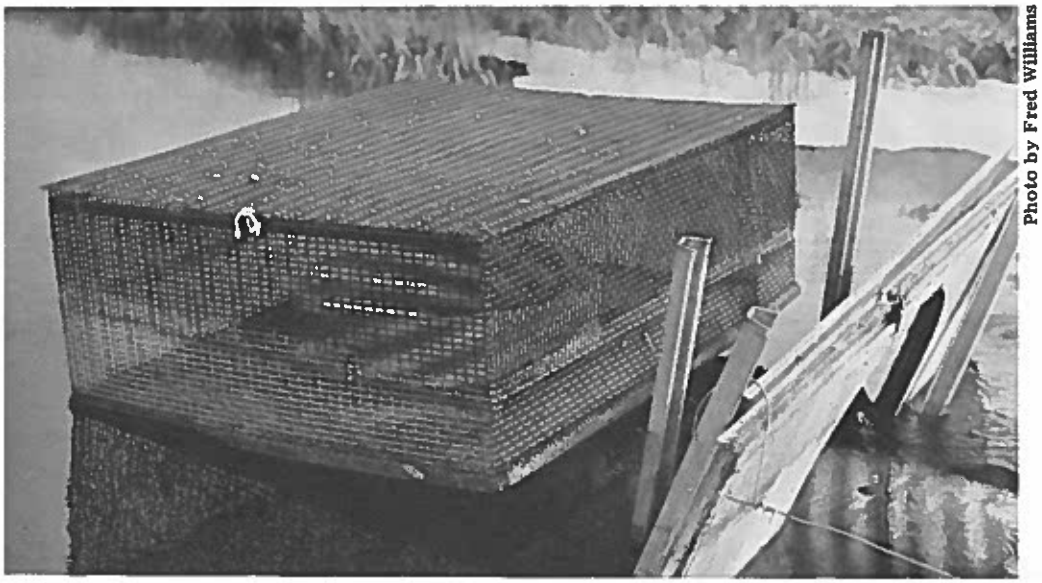
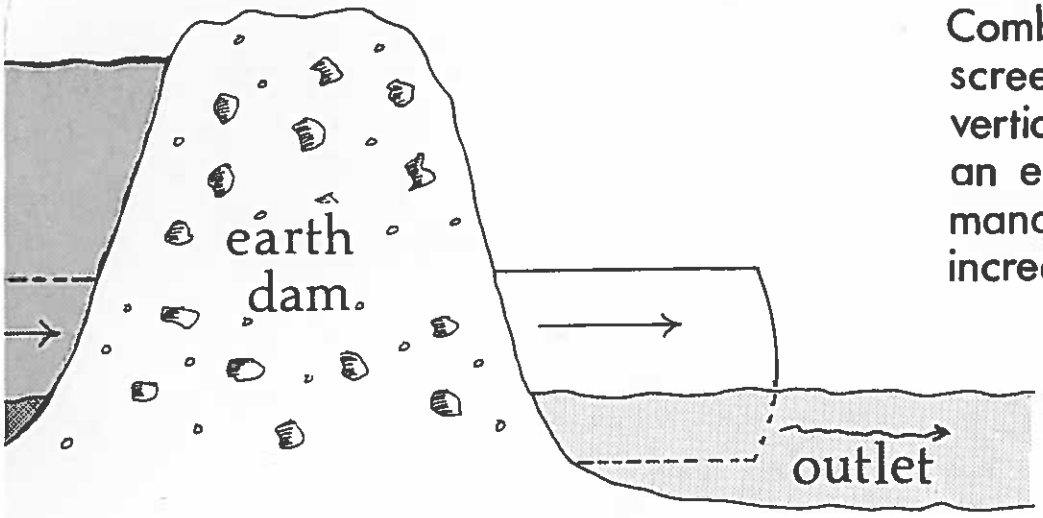


Photo by Fred Williams



Combining the use of a screened box and a vertical fall to create an efficient and inexpensive management tool for increased aquatic production

commonly used in "Lower 48" farm ponds.

The selected site was the outlet of Tex Smith Lake, located at Mile 161 of the Glenn Highway. The standpipe (described in the diagram and pictures) was installed by Sport Fish personnel in 1975. The structure has been evaluated throughout the year, especially during the critical winter and spring periods of 1976. It has proven to be a very satisfactory device requiring little maintenance and cleaning, and even winter icing presented no problems.

A screened box, together with a vertical fall, prevents fish from passing through the standpipe in either direction. Game fish cannot enter the pipe from the lake because they are stopped by the screen. Meanwhile, incoming rough fish are unable to jump high enough to clear the vertical section, and even if a fish were to clear the vertical passage, it would still be stopped by the screen.

An additional benefit of the standpipe is that by the height of its vertical section, it establishes and maintains a desired water level in the lake. Thus, it appears the present management problems will be eliminated through the use of this structure. In addition, some degree of lake stabilization and a resultant increase in aquatic production may be enjoyed as a bonus.

Beavers, which have been an everpresent problem with other structures, do not seem to be a problem with standpipes. Since the lake outlet is located away from the shore, the animals cannot build dams to halt the flow of water.

The standpipe water control structure can be used in many situations and should prove especially applicable on lakes and ponds with small outlets.

Programs such as this are financed by sport fish license sales for the direct benefit of all sport fishermen in Alaska. This standpipe control structure is one of the many "tools" developed and utilized by the Sport Fish Division to produce more angling opportunities for the sport fishermen. ✶

Fred T. Williams was graduated from the University of Wyoming in 1952 with a B.S. degree in wildlife management. He began his fisheries career with the Wyoming Game and Fish Commission in 1949 while still in college. He joined the Alaska Department of Fish and Game in 1963 and is now stationed at Glennallen.

BIOLOGISTS SUPERVISE positioning of the low maintenance standpipe at the Tex Smith Lake installation.

Photo by Fred Williams



Max pulsed
Maintaining large bubble
outlet
outlet stream

Trapper Dam
7/15/74

30'

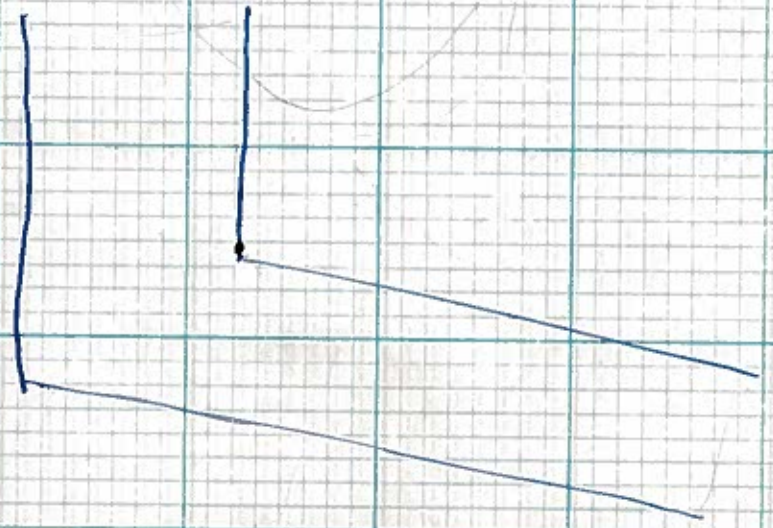
26'

Surface

Outlet

Lake Bottom

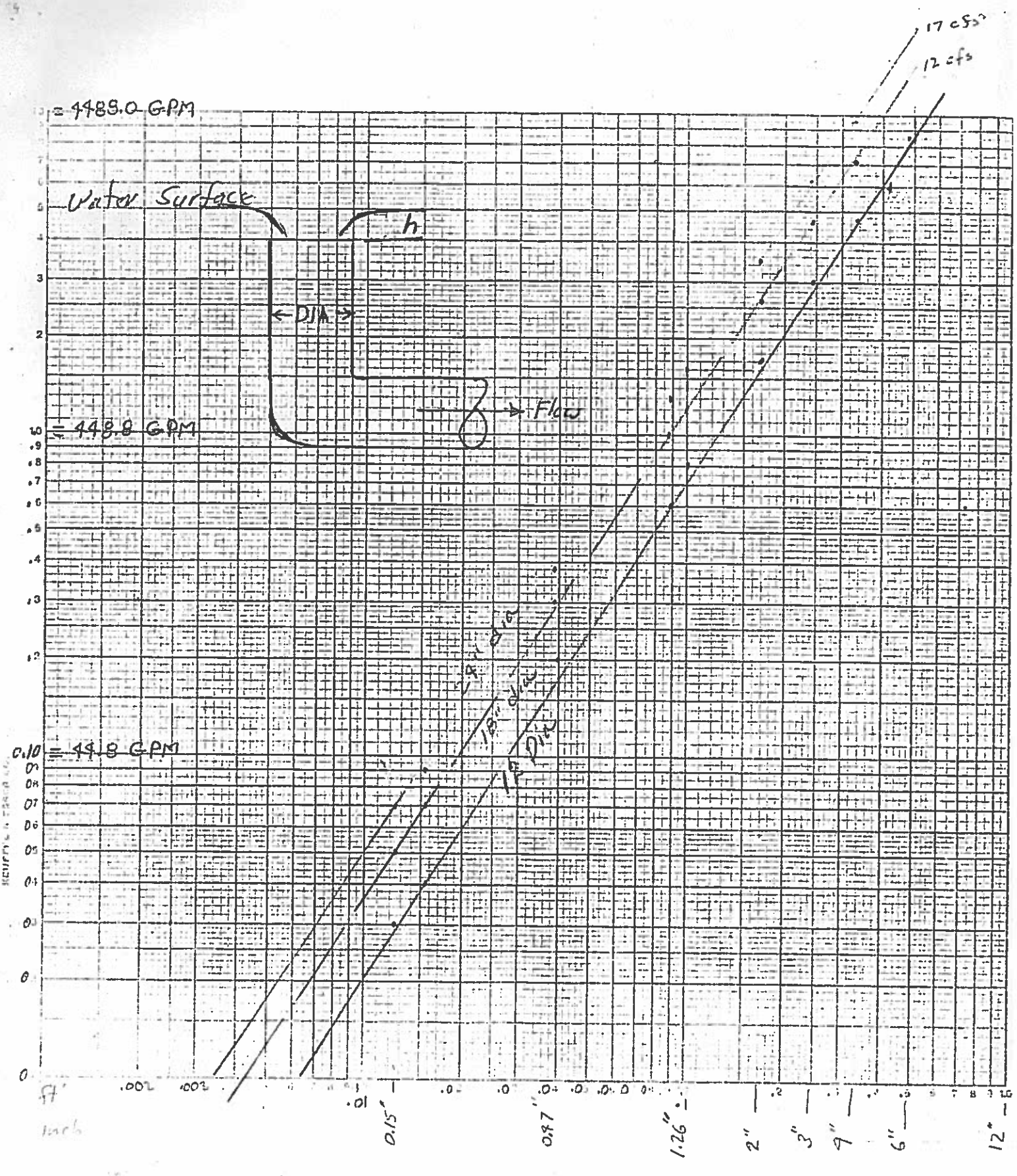
Outlet Stream



Cunningham 12 July 11

Water level Control for Small Ponds & Lakes

1/2



h = Depth of Spill

2672-238

Call Cunningham (Glenn) – on vacation until April 15.

R parking

Fred Harding ☐

~~Call Dr. Howard~~

Call Fred Hardin

19.91

Oakum

2672-237

Sam

5610 approved for portable units

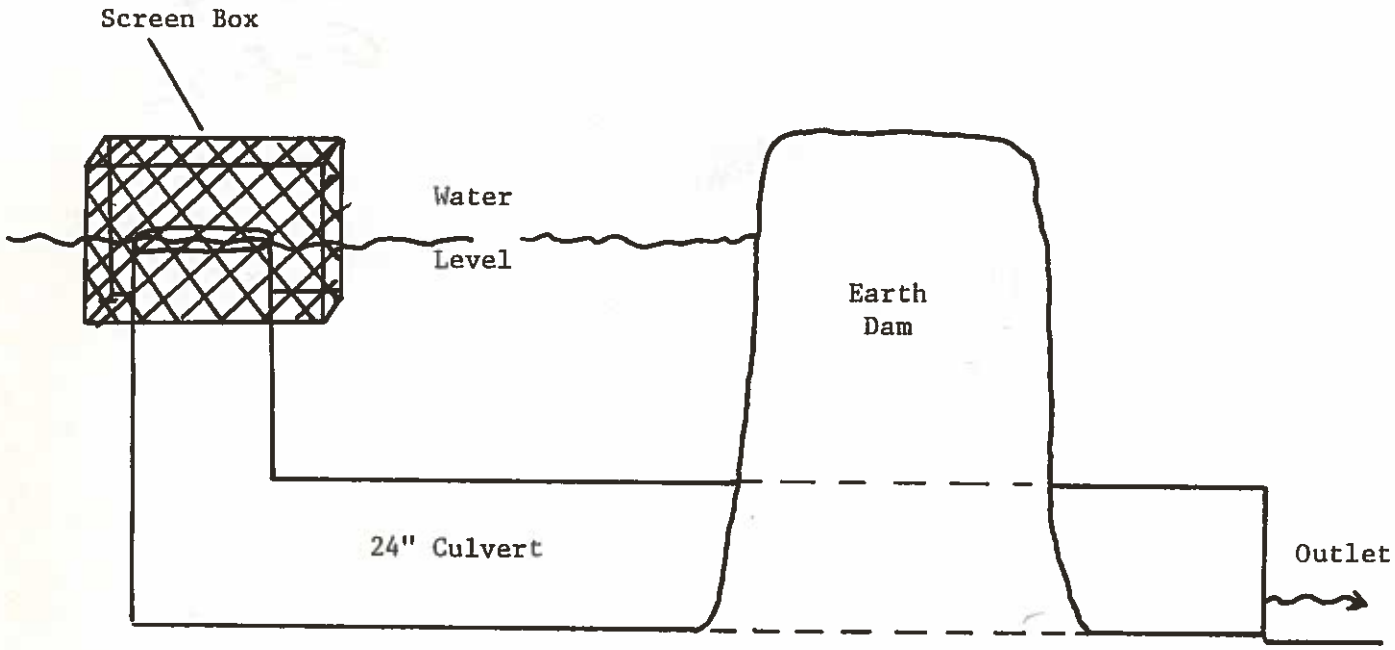
oakum or non-oil
inside a plastic bag
pack it in

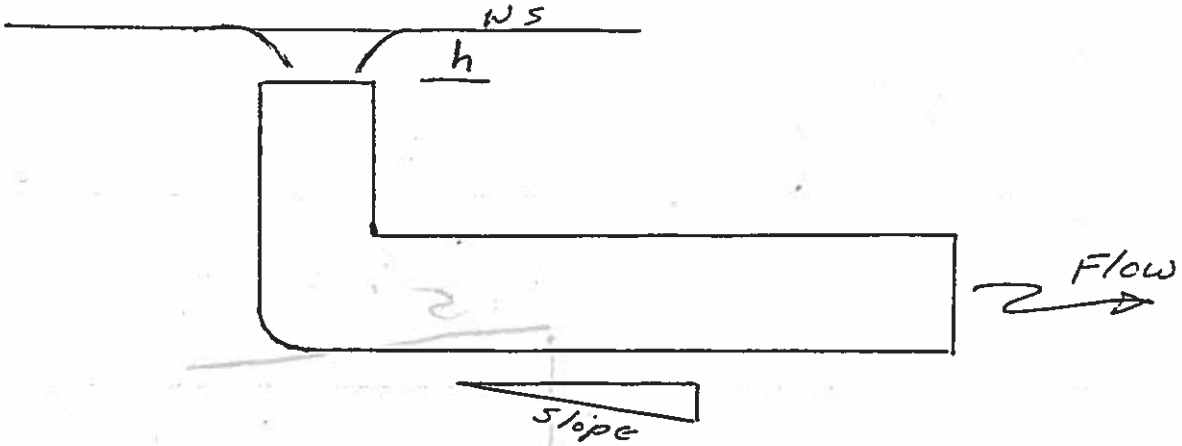
Ken HDE
Advance Equipment 1 [illegible] 6434
6497

7015 Old ~~46~~ Seward Hwy

Ups side of Hwy

Figure 4. Outlet Control Structure. Tex Smith Lake.





12" CMP

Will drown out and flow full when h ≈ 5 inches this requires a slope of 1" in 10' on the discharge end which is probably too steep to install at the site you are thinking about. Q = 7.0 cfs

18" CMP

At h = 6" Q will be 12 cfs
Slope required 0.4' in 10'

24" CMP

At h = 6" Q = 17 cfs
Slope required 0.2' in 10'

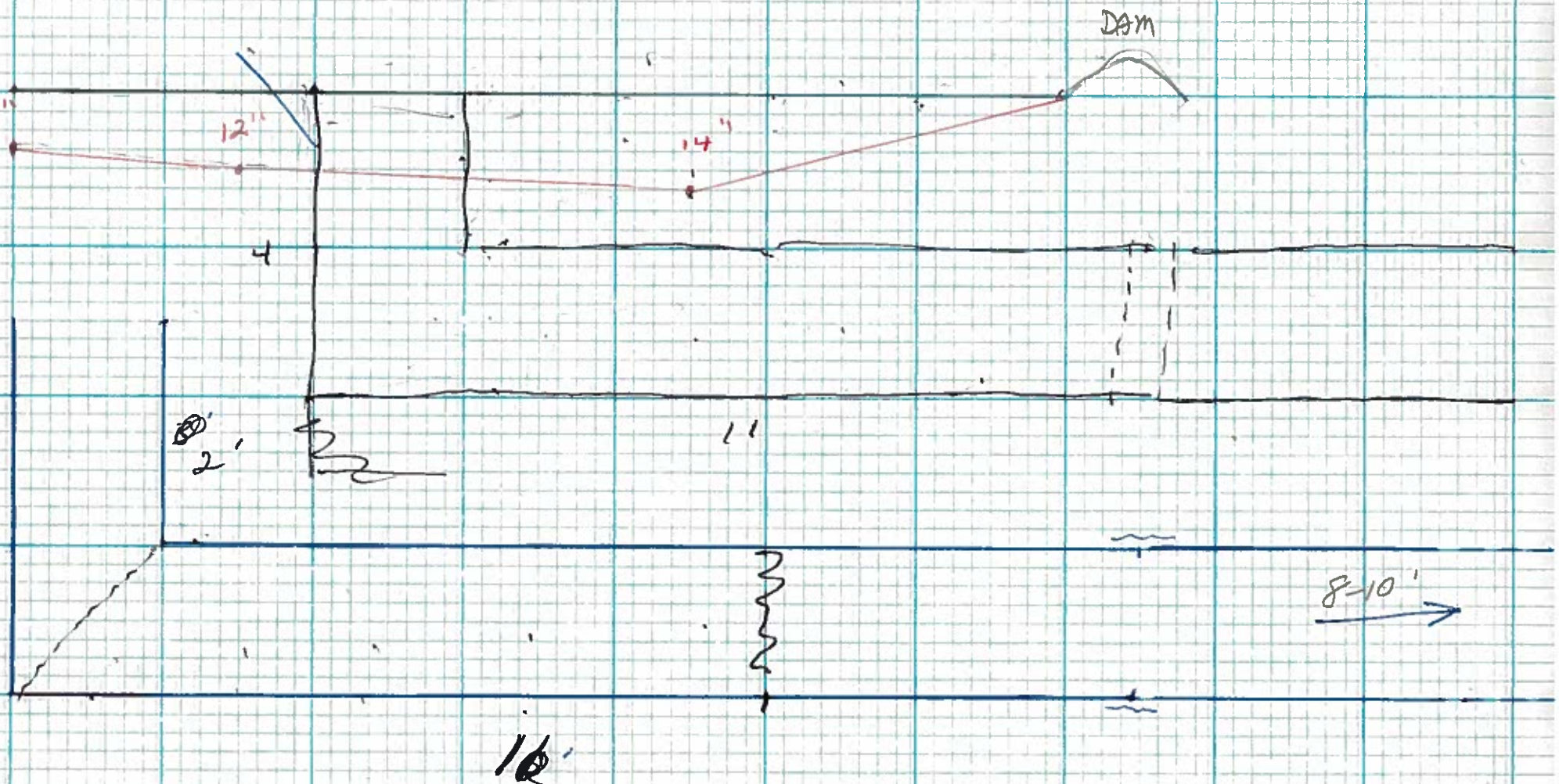
Recommend

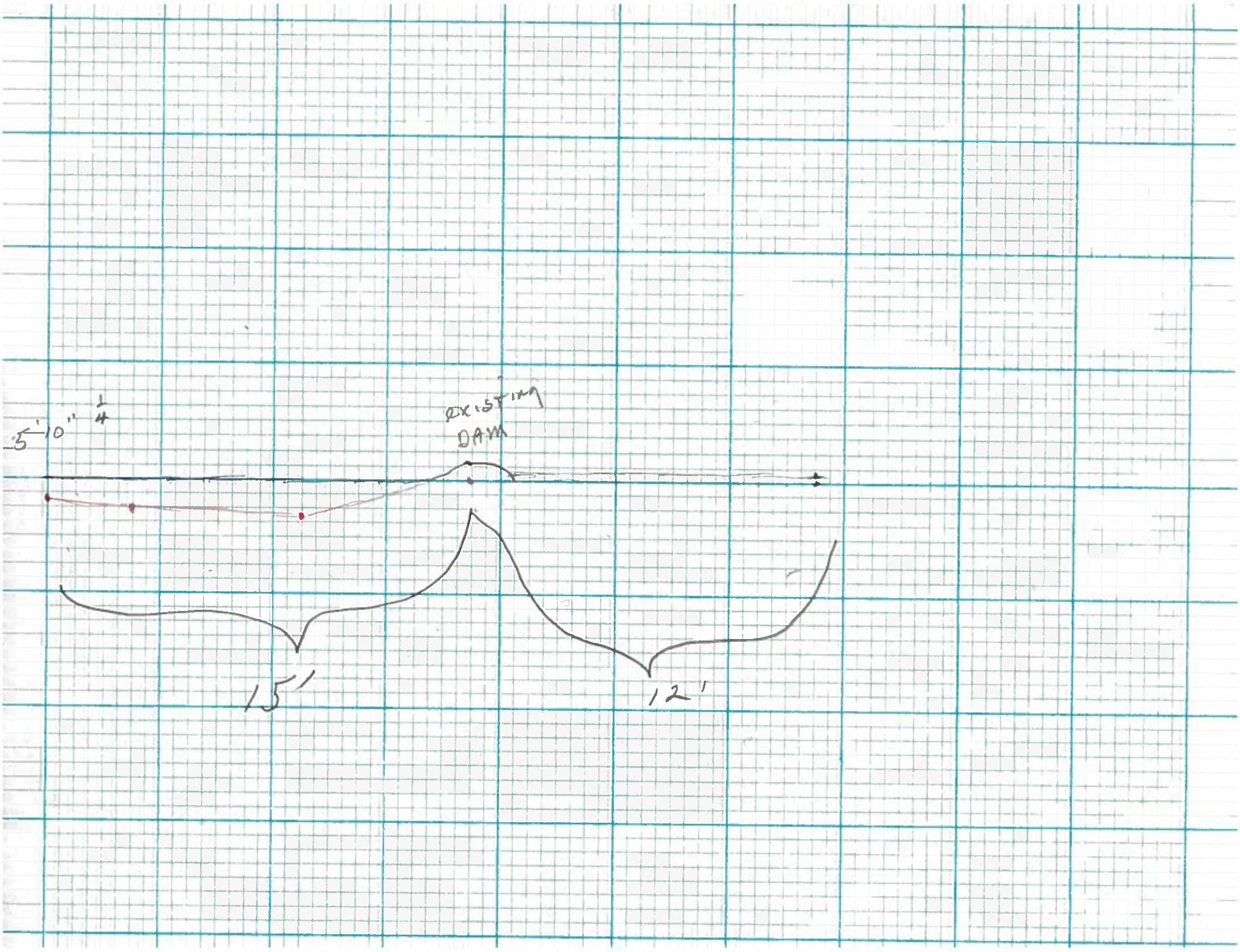
18" CMP at a slope of 0.3' in 10'
(6" in 20')

Tex Smith

Pickup Bentonite at Main

See Cunningham




5'
10'
1/4
EXISTING
DAM
15'
12'