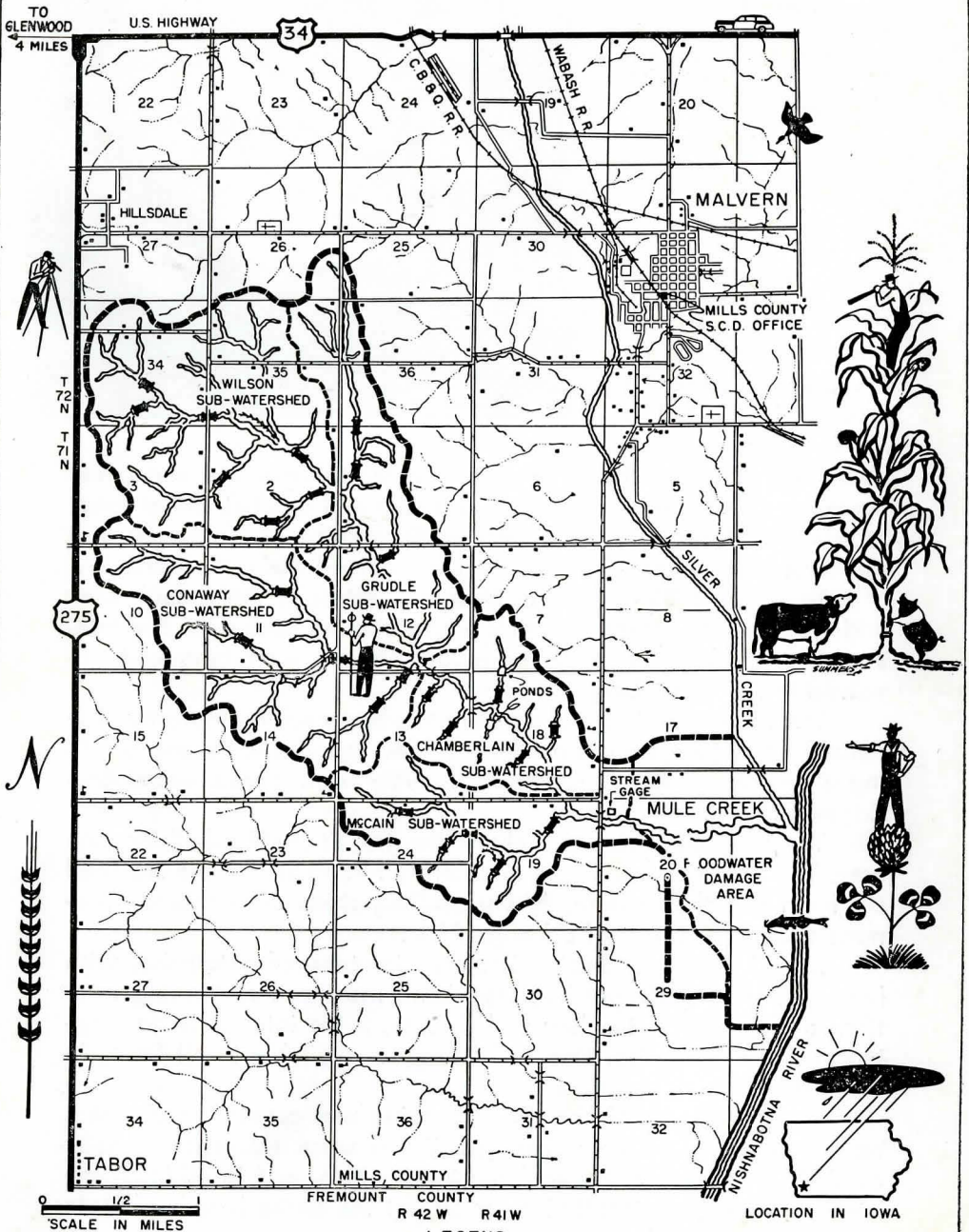


MULE CREEK WATERSHED

MILLS COUNTY IOWA



WATERSHED BOUNDARY ---
 STREAM, INTERMITTENT ---
 SECTION NUMBER --- 25
 BUILDINGS ---
 BRIDGE ---
 ROADS, ALL WEATHER --- DIRT ---

LEGEND

MEASURES
 STABILIZING AND SEDIMENT
 CONTROL MEASURES
 DROP INLET ---
 CHUTE ---
 DIVERSION DITCH ---

Dam at junction of Dick-
ersbach, Haney, Wilson and
Graves farms. Drainage
area 1558 acres. 12½ acre
pond, drop inlet detention
type dam, height of dam 42
ft., length 820 ft.



Mule Creek is a tribu-
tary of the West Nish-
nabotna River, and the
entire Mule Creek Wa-
tershed is located in
Mills County, Iowa

about four miles southwest of the town of Malvern. The watershed
averages about three miles wide and five and one-half miles long.
Mule Creek flows in a south-easterly direction, and discharges into
the West Nishnabotna River five miles south of Malvern, Iowa.

There are 6,811 acres (10.6 square miles) in the upland area
and 1,202 acres (1.9 square miles) in the bottom land area. The total
area is 8,013 acres (12.5 square miles). There are 61 farm units in-
volved in the watershed.

The topography of the watershed is approaching maturity. The
natural drainage system is moderately developed. The upland is roll-
ing, 9 to 14%; to gently rolling, 5 to 9%; with broad undulating
ridges 2 to 5%.

The watershed lies entirely in the transition Marshall-Monona
area. The dark colored ridges and gently rolling slopes are Marshall
silt loam and the moderately dark rolling areas are generally Mo-
nona with small spots of calcareous Ida.

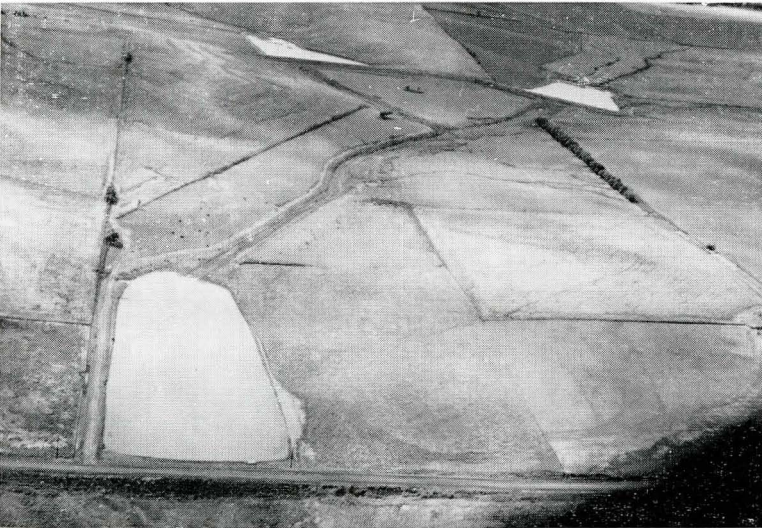
Mixed livestock farming is the major type of enterprise, with
hogs and beef cattle predominant. With more soil conserving rota-
tions and good rotation hay and pasture, more interest is develop-
ing in dairy enterprise. Electrical energy is available to all farms in
the watershed.

Gully erosion and/or valley trenching was common and was a
serious problem in the watershed. There were twenty-two major
overfalls that were active and causing concern, and in addition the
banks were cutting into fields for almost the entire length of Mule
Creek and its branches.

Gullies cause the destruction of land and the depreciation of
adjoining land. In numerous fields small gullies had developed to



Gully on Plumb Estate, operated by Harold Blackman. Before photo, taken Nov. 1953. Gully extends into Hilton and Miller farms.



Completed dam on Plumb Estate and dams on Hilton and Miller farms. County road over top of dam, constructed in cooperation with Mills County Supervisors.

the point where they could not be crossed with farm machinery. This progressive development often divided a field into two or three units, the smaller areas no longer being economical units to farm. Gullies, once started, continue to grow and eventually develop into major problems. Side gullies one-half mile long, with a depth of ten to twenty feet and a width of forty to sixty feet were not uncom-

mon. These gullies developed rapidly, often extending as much as 100 feet or more in a single year.

Farmers in the Mule Creek area requested assistance from the Mills County Soil Conservation District Commissioners on July 1, 1949. On October 6, 1949, these farmers organized the Mule Creek Watershed Association and elected five Directors.

A planned program of conservation practices for all farms in the watershed was adopted by the watershed directors on April 10, 1950.

Of the 61 units in the watershed all are District Cooperators as of this date.

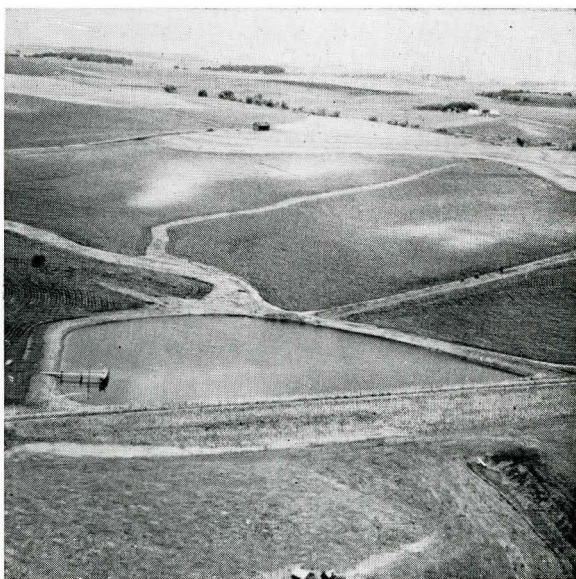
The practices planned in the Mule Creek Watershed and the to-date accomplishments are listed below:

Practice	Unit	Planned	Completed
Stabilizing Structure	Number	24	24
Fencing (for conservation)	Rods	30,277	20,281
Contouring	Acres	4,720	3,129
Terraces	Miles	281	185
Diversion Terrace	Miles	24	18
Waterways	Acres	226	94
Pasture Seeding	Acres	177	81
Wild Life Planting	Acres	91	14

TOTAL WATERSHED PROTECTION COSTS

County cost	\$ 87,414.00
Farmer's cost	183,139.00
Federal cost	451,530.00
Total	722,083.00

Detention type drop inlet dam on Austin Bass farm. Drainage area 194 acres, permanent pond 2 acres, height of dam 20 ft., length of dam 670 ft.





Looking west from Conaway dam, relocated road and concrete flume at upper center of photo. This structure built in cooperation with Mills County Supervisors.

Of the \$183,139.00 that farmers are contributing by construction of conservation practices, easements and rights-of-way, the value of the farmer's contribution to date is \$122,974.00 or 67% of the total.

The 1954 and 1955 crop years were extremely droughty and 99% of the seedings were lost, but prior to 1954, 85% of the upland was operated under the pattern of a five year rotation, 40% corn, 40% alfalfa-brome and 20% oats; and with normal moisture, will again be operated in this pattern.

The stabilizing structure program consists of twenty-three pipe drop inlet dams and one chute structure. Four of the drop inlets and the chute were constructed on or connected to County road right-of-way, and were constructed jointly by the County and Federal Government.

Survey and design of these structures was started in September 1953, the first contract was awarded in April 1954 and the structures will be completed in September 1956.

BENEFITS FROM THE PROGRAM

The combined program of land treatment and flood prevention measures will reduce upland erosion damage 88%. The rate of land destruction by gully erosion is reduced 89% and land depreciation by gully erosion is reduced 85%. Damage from sheet erosion is reduced 90%.

Floodwater damage to bottomland area will be reduced 81%, and total annual rate of sediment production is reduced 87%.

The estimated ratio of the total average annual benefit, \$54,980 to the total average annual value of the cost, \$32,291.00 is \$1.70 to \$1.00.

MAINTENANCE

The Mule Creek Watershed Conservancy District, under provision of State enabling legislation, has been organized for the purpose of assuming the responsibility for over-all periodic inspection of the measures primarily for flood prevention and for maintenance of the stabilizing and sediment control structures located on private lands. The annual maintenance cost will be provided by the land owners of the Conservancy District on the basis of the benefits accruing to each farm in proportion to the total.

The Mills County Board of Supervisors maintains all highway structures installed and all other road areas featuring stabilization of critical runoff and sediment production.

The landowners and operators will maintain the land treatment measures in accordance with the provisions of the farmer-district cooperative agreements.

Construction on the Mule Creek Project will be completed one year ahead of schedule. This would have been impossible without the assistance and excellent cooperation received from the Mills County Board of Supervisors, Mills County District Commissioners, and the Watershed Board of Directors. These men have given many hours of their time to the planning and operation of the project, and each man is to be especially commended for his fine work. A project such as Mule Creek can not be successful without such bodies as these to work with the local people.

Troy Rhody, County Engineer, and Wm. Van Orsdel, chairman of County Supervisors, check the inlet structure of dam on Timmons farm.

