

100 Years of Road Construction Kent County, Michigan

Joint Meeting

Western Michigan Branch – American Society of Civil Engineers

Western Chapter – Michigan Society of Professional Engineers

April 19, 2011

Prince Center, Calvin College

CREDITS

“The History of Roads in Michigan”

By Dorothy Pohl,
Ionia County Road Commission

Norm Brown, MDOT (retired)

Posted on www.MichiganHighways.org

Site by Chris Bessert

INDIAN TRAILS

- Single File Paths – 12-18” wide
- High dry ground along streams
- Connected main Indian villages, trails to hunting and fishing grounds.

Today, almost all roads radiating from Detroit.

US-2 - Sault Saint Marie to Escanaba

M-35 – Escanaba to Manistique

1805 – FARM TO MARKETS

- Territorial Governor set up road districts.
- Let farmers get to the populated cities. No attempt to connect populated cities.

1816 – MILITARY ROADS

- War of 1812 – Lack of roads hampered war effort.
- Federal government constructed major territorial roads.
- Detroit to Monroe, Toledo, Port Huron, Saginaw, Grand Rapids and Chicago
 - “Rutted, narrow, stump filled, potholes.”



1817 – TOWNSHIP ROAD BUILDING

- Township under direction of the County Commissioners.
- Only five counties: 1 in upper peninsula;
- 1 in northern lower peninsula and upper peninsula; 3 in lower peninsula
- 1827 – Township made solely responsible.
 - 1837 Statehood – Federal government stopped any road building.
 - No State funds – roads fell in disrepair.

1835 – STATE IMPROVEMENTS

- \$5 million in bonds.
- Panic of 1837 – defaulted on bonds.
- Article put in State Constitution to prevent State funding of roads.

1844 – PRIVATE TURNPIKE COMPANIES

Roads were privatized.

Companies chartered by the State.

“Standards”

2-4 rods wide

16 feet “good, smooth, permanent”

Of which 8 ‘ to be of 3” thick planks

202 chartered – most never began operations

TOLLS

2 cents per mile – 2 horse wagons/carts

1 cent per mile – 1 horse

Detroit to Howell was 50 miles long – 10 toll gates.

Very few turned a profit let alone keep up with maintenance costs.

1859 – SWAMP LAND ROADS

1850 – Congress granted State “wilderness lands”

1859 – State legislation designated State roads to be built with proceeds of the sale “swamp land” or the contractor could take ownership of the land.

1881 – Property owners could work off his property tax or pay cash

1883 – Public Act 278 created “road districts”

1887 – Wide Tire Law – 3 ½” or under 25% rebate on taxes

1893 – County Road Act allowed for Road Commissioners by vote of the people

1905 – 18 Road Commissions

1907 – No longer could work off taxes



P0130_P_BOX27_FOLDER3_82236

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7093

BICYCLES

- 1880 – 90'S "Bicycle Craze"
 - Bicycle clubs in cities
- Long distance trips 50 – 100 miles/day
 - Men and women participated
- Persistent in quest for better roads







HORATIO “GOOD ROADS” EARLE

1899 – Head of League of American Wheelmen in Michigan

1901 – National President

1900 – Organized the first International Road Congress in Port Huron.

Main event – First “good roads train”

- * Traction engine

- * Road roller

- * Sprinkler

- * Dump wagons

- * Farm wagons

On railroad cars

- State Senator from Detroit sponsored “committee to study possibility of road improvements”, never mentioned the word “auto”.
 - Encouraged the establishment of a State Highway Department.



1905 – STATE HIGHWAY DEPARTMENT

First head – Good Roads Earle

- Had to get constitution amended to allow the State to fund roads.
- Opposition Farmers – Against centralized government.
- Henry Ford said cars were good enough. The roads didn't need any improvements.



STATE REWARD SYSTEM

\$250 to \$1000/mile to townships and counties
\$90,000 for 2 years statewide

4 types:

- Clay base with gravel surface
- Stone base with gravel surface
- Gravel base with stone surface
 - Macadam

1905 – 2700 autos statewide – 50 cents a year tax

1905 – 68,000 miles

- 30,000 miles of clay
- 26,000 miles of sand
- 3,000 miles of swamp
- 7,700 miles of gravel
- 245 miles of stone or macadam



Woodward Ave 1909



Woodward Ave

1909 – Public Act 283 allowed for the Road Commissions to be established by the County Board of Supervisors

1911 – Kent County Road Commission was organized

1916 – 59 Road Commissions

- 1913 – State Trunkline Act - 3000 mile “State Trunkline” double reward
 - 1915 – Covert Act – First weight tax
- 1916 – Federal Aid Road Act – Congress provided for Federal Aid Routes (not to exceed 7% of millage)
- 1918 – Snow Removal – For roads to factories producing war materials
(none in Upper Peninsula – 590 miles)

World War I

- Toledo to Baltimore – 30 trucks, 21 days – 550 miles = 25 miles/day
- After war in 1919 – Trans Continental Truck Train – Washington D.C. to San Francisco – observer Lt. Col. Eisenhower
89 vehicles, 282 troops, 62 days,
3250 miles = average 58 miles/day – 6 mph



1919 Truck Train

- 1925 – Gasoline Tax – First tax on gasoline

State Highway Department responsible for entire cost of construction and maintenance of State Trunk Lines.

1931 – McNitt Act

- Depression – property tax collection plummeted; delinquencies mounting.
- Gave township road responsibility to Road Commissions – 20% of the mileage a year for 5 years.
 - All 83 Road Commissions had been established.
- Switch of the road fund completely to gas & weight taxes.

- 1940's – Most road work done during the war with funds from the Defense Highway Act of 1941.
- 1947-48 – Good Roads Federation did a needs study. *Effects of Depression* War Effort.
 - 1951 – Act 51 of PA of 1951
- 47% State; 35% Counties; 18% Cities/Villages
 - 1956 – Eisenhower signed Federal Aid Highway Act of 1956 authorizing the Interstate and Defense Highway System, also known as the Interstate System.

KENT COUNTY ROAD COMMISSION

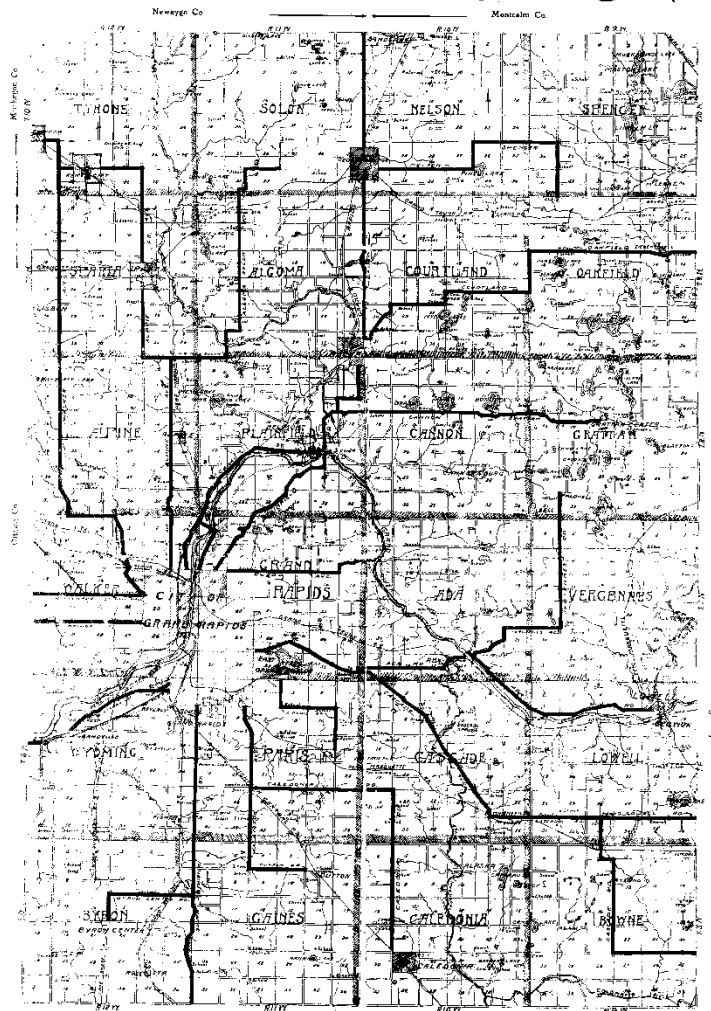
October 1910 – County Board of Supervisors appointed a committee to study established Road Commissions

June 30, 1910 – 3 men were appointed as Road Commissioners

July 15, 1911 – First meeting of the Board of Road Commissioners of the County of Kent

- Board surveyed all the roads in a rented car.
- Hired County Surveyor T.O. Williams to estimate the cost of their proposed improvement plan.
- Surveyed 848 miles – implemented plan for 220 miles - \$600,000 bond issue

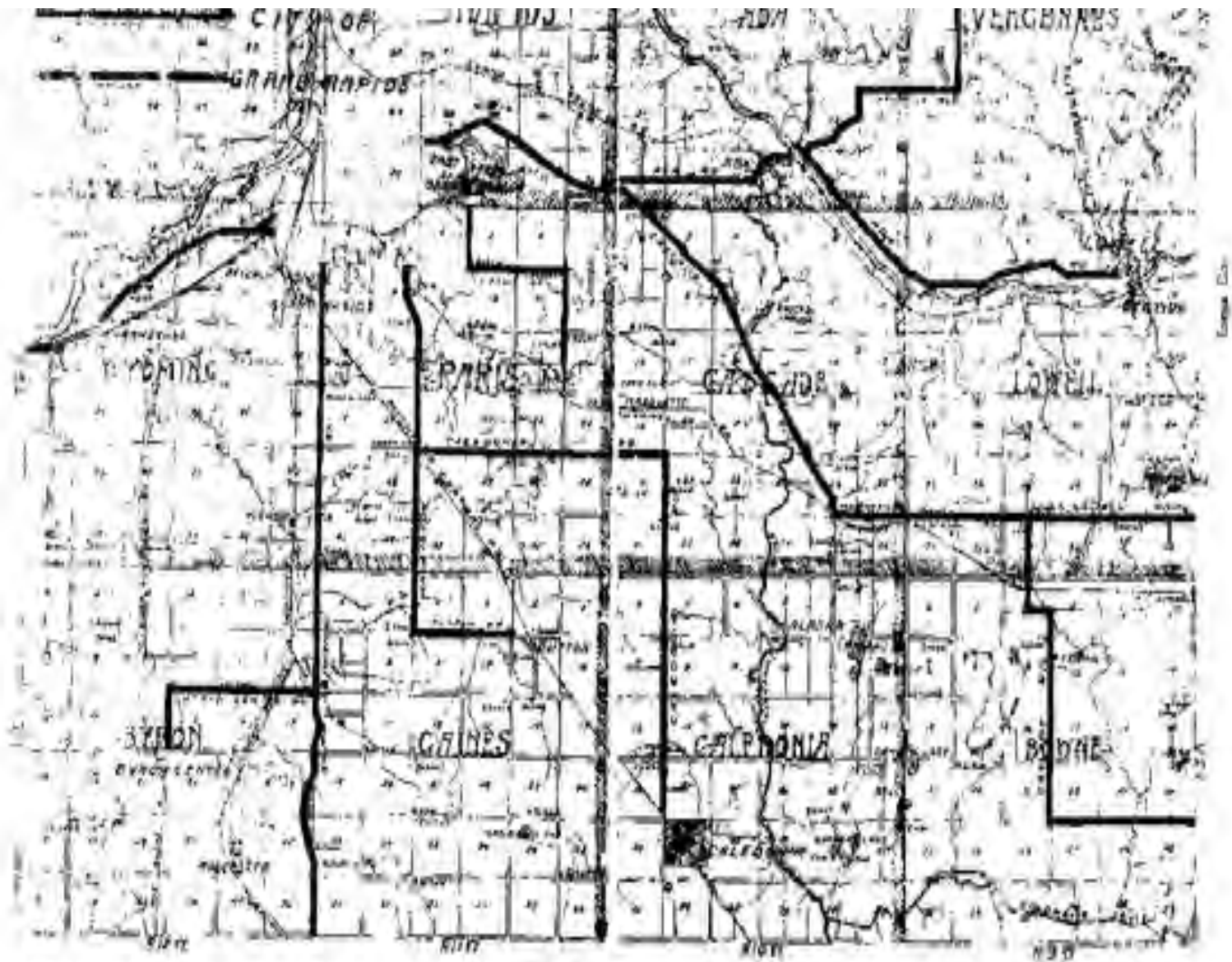
Road Map of Kent County, Michigan



69-34

63-3A





South of Grand Rapids

Early Road Commission

Organization in early 1920's

Office

Finances, bookkeeping, audited every 3 months

Engineering Department

MSHD uses Road Commission engineering staff
for all State road construction projects

75% MSDH, 25% KCRC

Forestry Department

Highway beautification

tree planting

brushing, trimming

supervise utilities installation



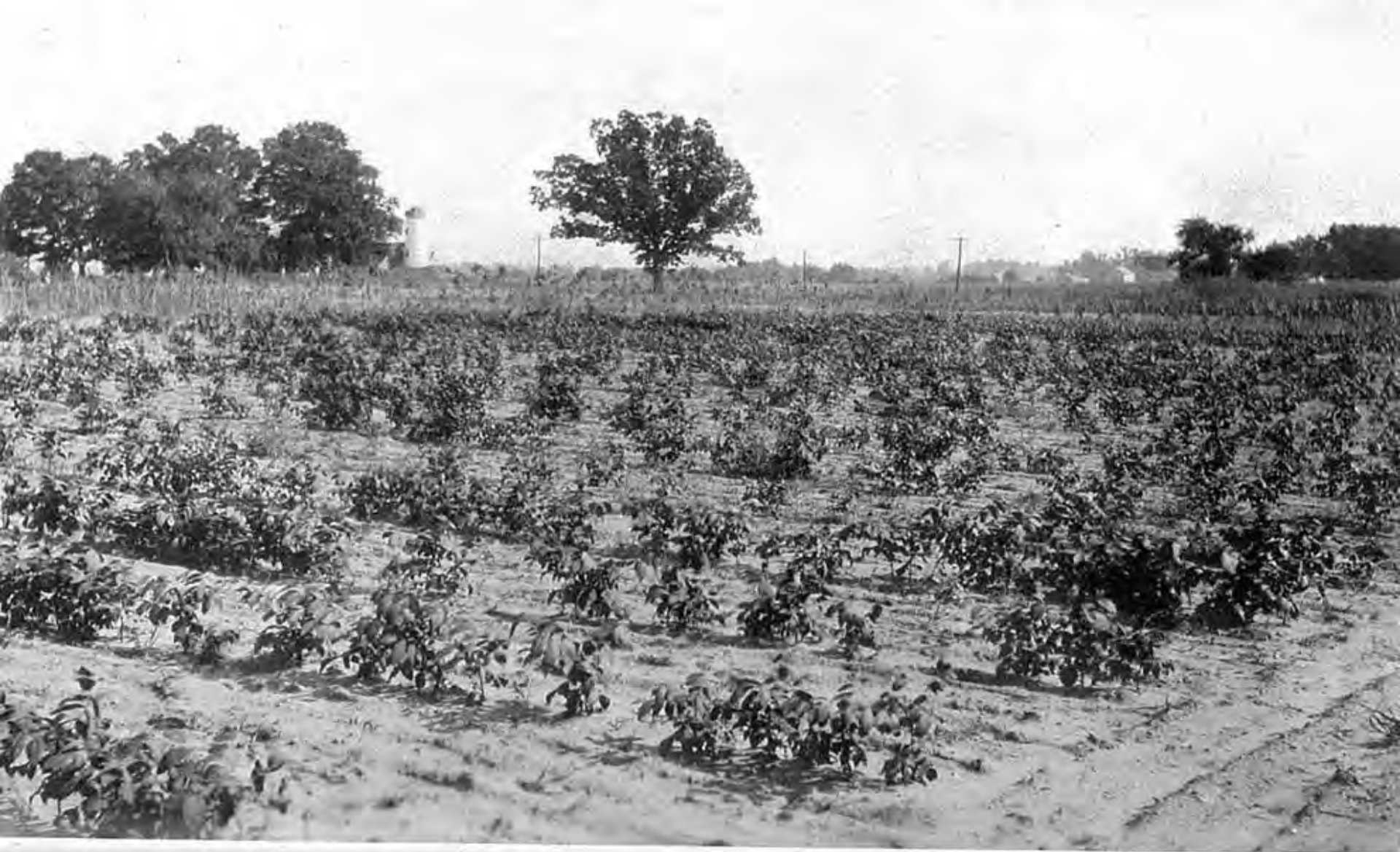
Forestry crew trimming trees on the South Division Road (T. L. No. 13)



Looking West on the Knapp concrete road. Note how telephone wires have been lowered to avoid trimming trees. Credit this to our Forestry Department.



On the Walker Road near Kent City showing high and low pole lines placed so as to avoid trimming and mutilating trees. This work is controlled by our Forester.



Another view in the County Nursery showing about 8,000 walnuts raised from the seed and now less than a year old.

Road Commission Nursery

Signing

Installed Road side signing

Installed directional signing

Assisted by Grand Rapids Motor Club

There are no street name signs



Signs like this one have been placed 500 feet each side of all railroad crossings in the County, except on State Trunk Lines



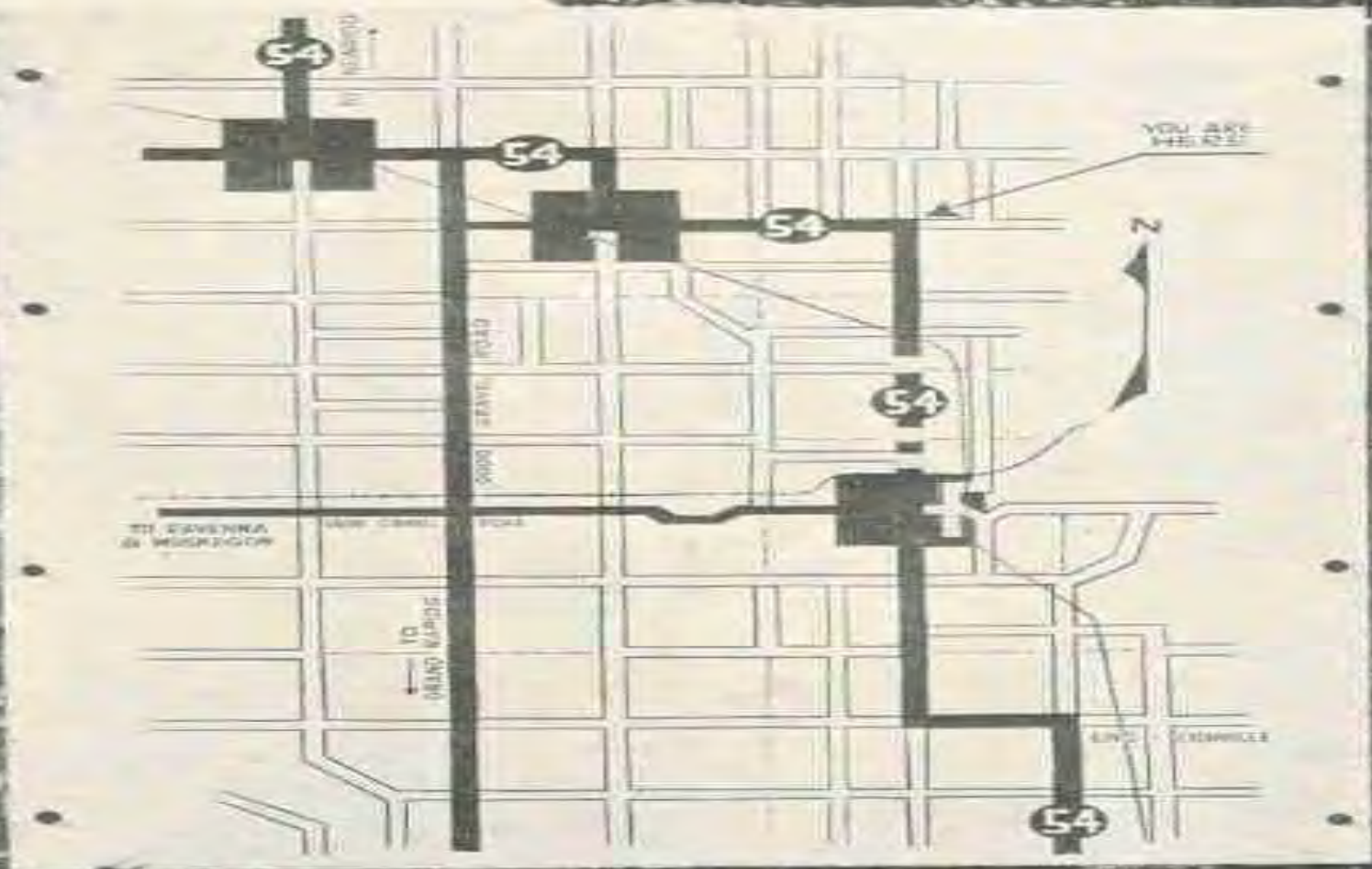
A typical Kent County road sign and a good example of the markers erected to guide motorists over the new inter-County trunk lines such as C-601 and C-484 indicated here.



Many corners and curves have been recently safe-guarded by this kind of marking



Centerline Painting



“Detour Map”

Equipment

Switched to all motor vehicles in 1923

No more horse teams

New Office & Garage Building – 1924



One of our truck-scraper outfits for maintaining gravel roads. This type of equipment saved us many thousands of dollars this season



This is our first new truck, purchased to replace old worn-out war equipment.

1924 United



New Office & Garage 1924

County Parks

Board of Road Commissioners also Board of Park
Trustees

First Park – Gordon Park
Northland Dr. between Cedar Springs
and Sand Lake

“Maintenance”

By Road Commission Forces and Contractors

345 miles of Road

- Gravel 252 miles – scrape & dust layer
 - Macadam – 7 ½ miles – add tar for surface treatment
- Concrete – 81 miles, 16'–20' wide, shoulder work
- Asphalt – 4 ½ miles, 6" concrete base, 2" asphalt top



Looking East on the Carlisle Road during grading operations



Cedar Springs-Solon Road showing flat earthgrade. First step in the construction of a gravel road.



Looking East on the Cedar Springs-Solon Road just after the top course of gravel had been placed and the grade trimmed.



Spreading Calcium Chloride to lay the dust on T. L. No. 16 just East of Lowell.



One of our portable gravel screens operating in the Cascade Pit.



Portable KCRC gravel screening plant



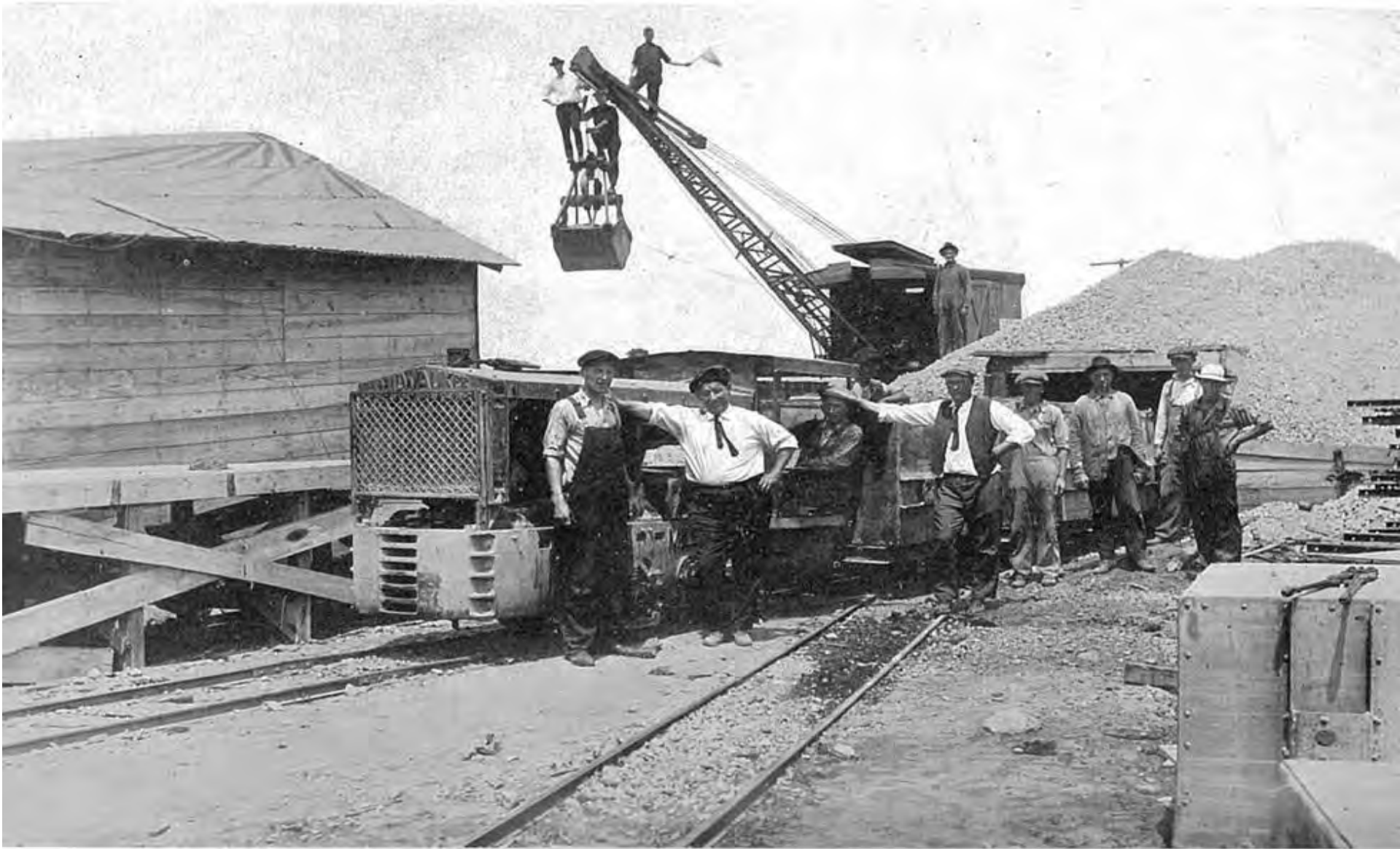
One of our portable screening plants operating in a pit on the Canal Road. This shows how we get gravel out of a bad place.



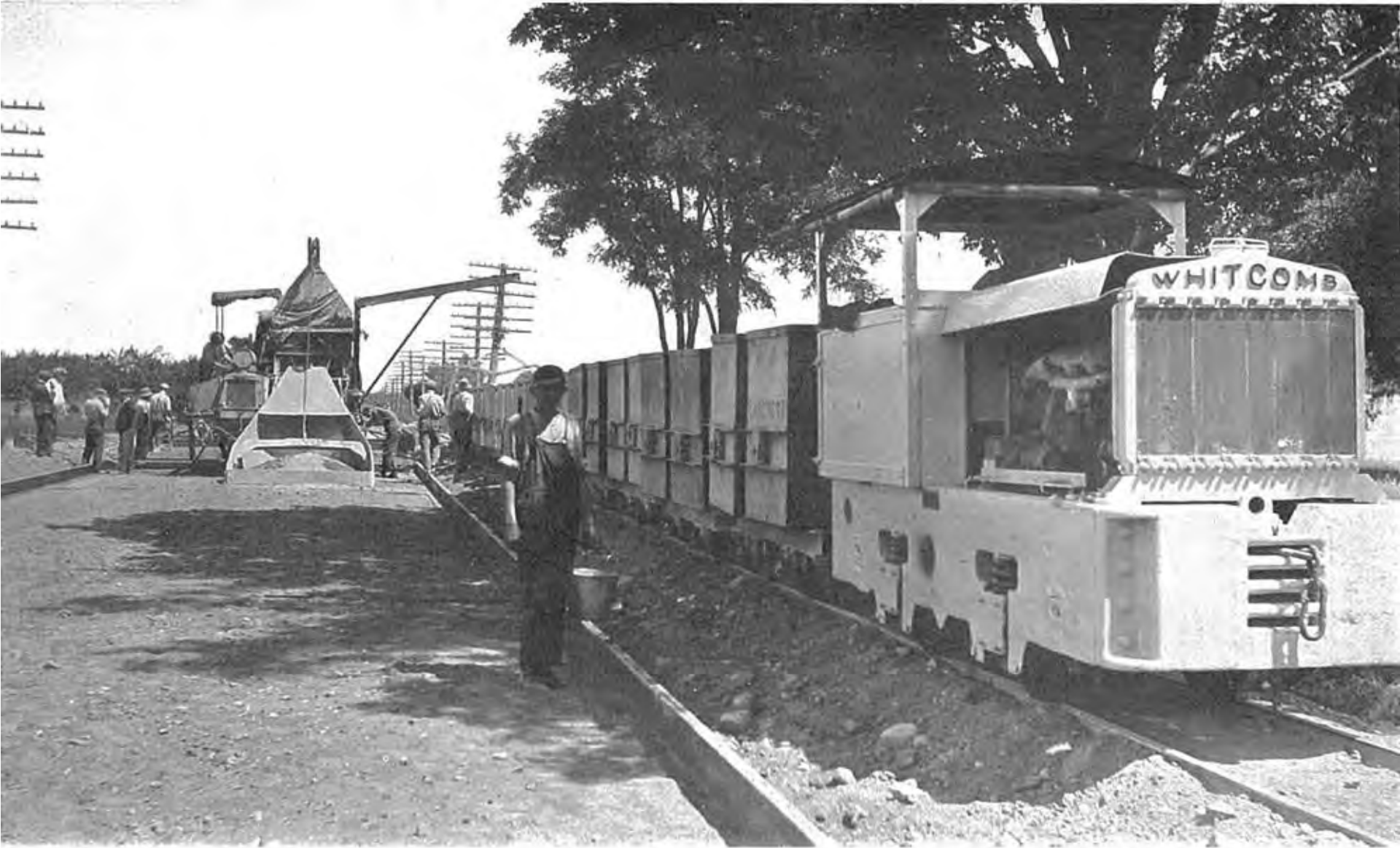
Division near 76th Street



Unloading gravel and sand and placing over tunnel at Carlisle.



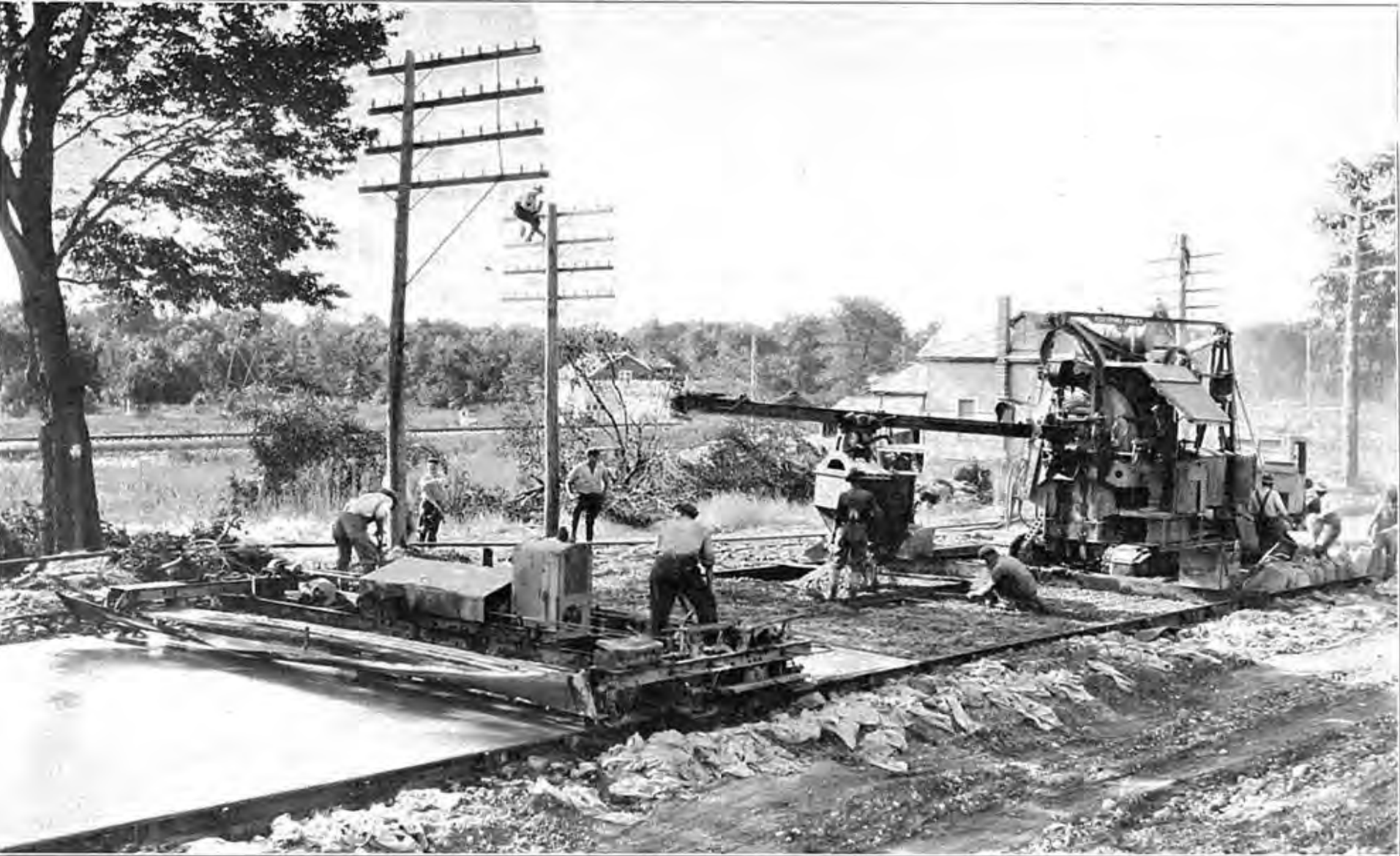
Unloading and proportioning plant of the Ford Construction Company at Carlisle. Note industrial train emerging from tunnel.



Laying concrete with a 21-E mixer and industrial railway on M-13 south of Grand Rapids.



Division



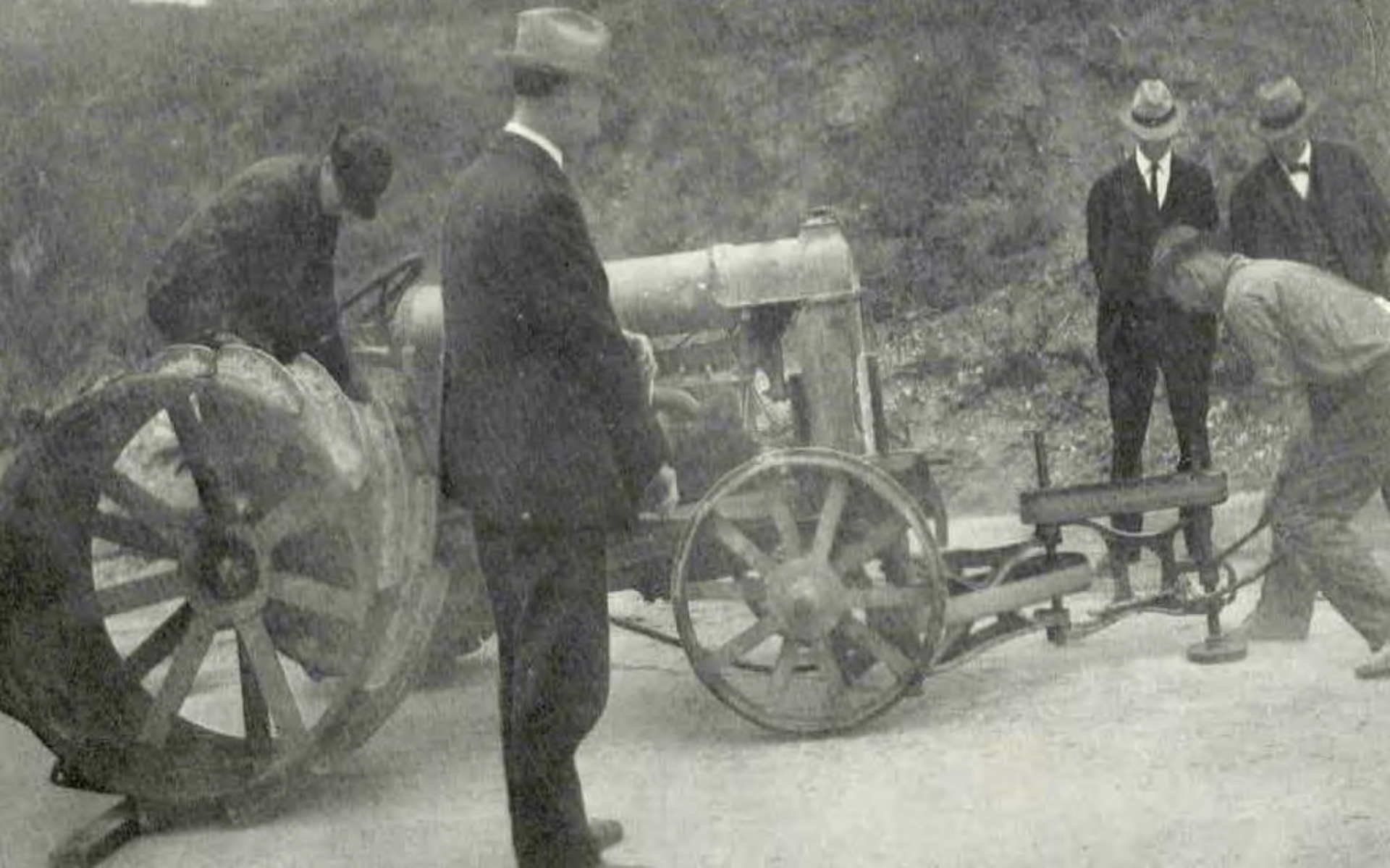
Mixing, placing and finishing concrete on the West River Road near Comstock Park.



Curing a 20-ft. concrete road by the ponding method—the West River Road near Comstock Park.

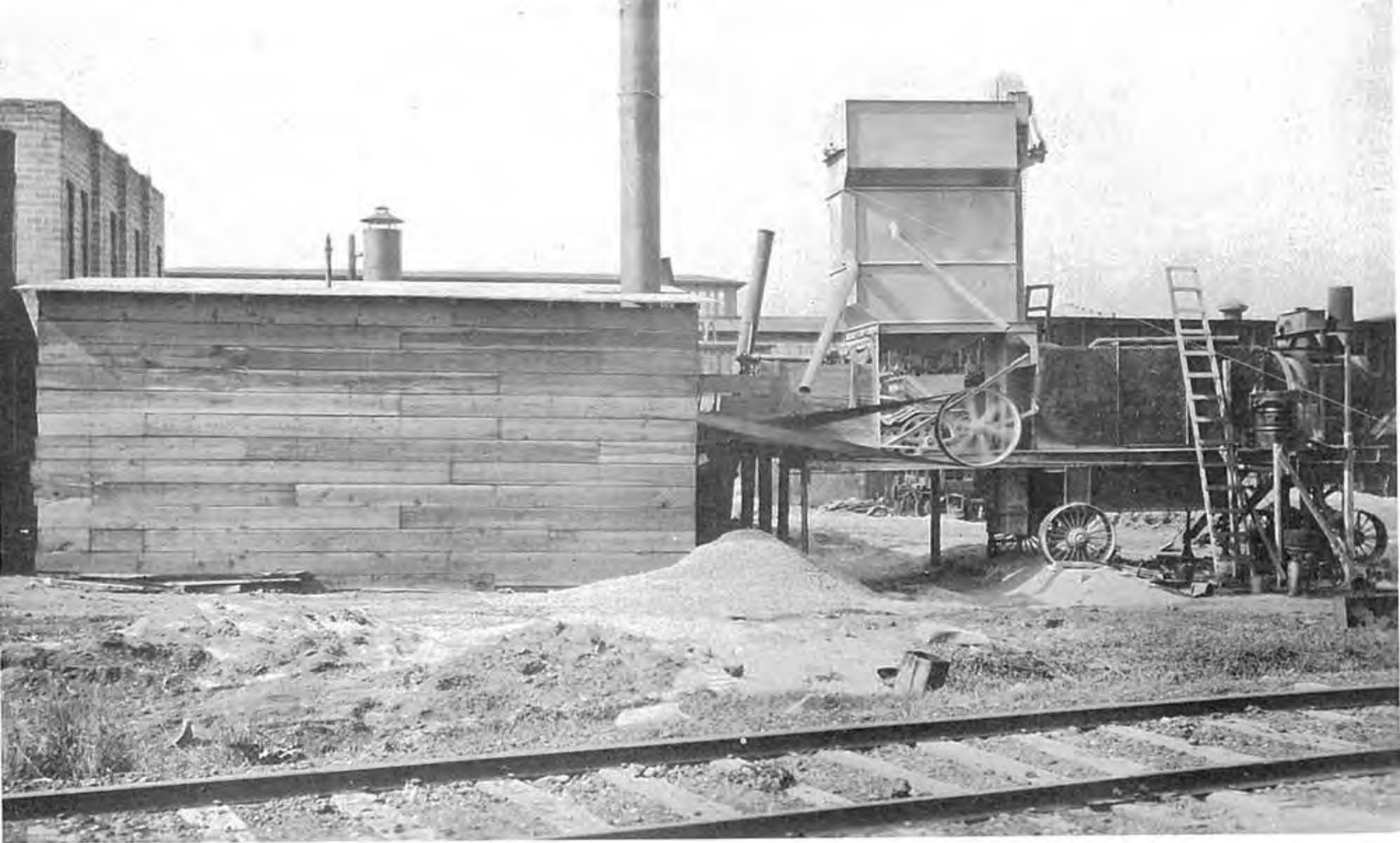


Laying concrete on the new route of M-39 northeast of Alto.





Grinding down high spots on a new concrete pavement.



The Willite Road Construction Company's Asphalt Plant at Sparta



Laying 2-inch Asphalt Top (Topeka mix) on T. L. No. 54 North of Sparta



Burton Street



Burton Street



Tarring Cracks and Joints on a Concrete Road

Crack sealing



Robinson Road

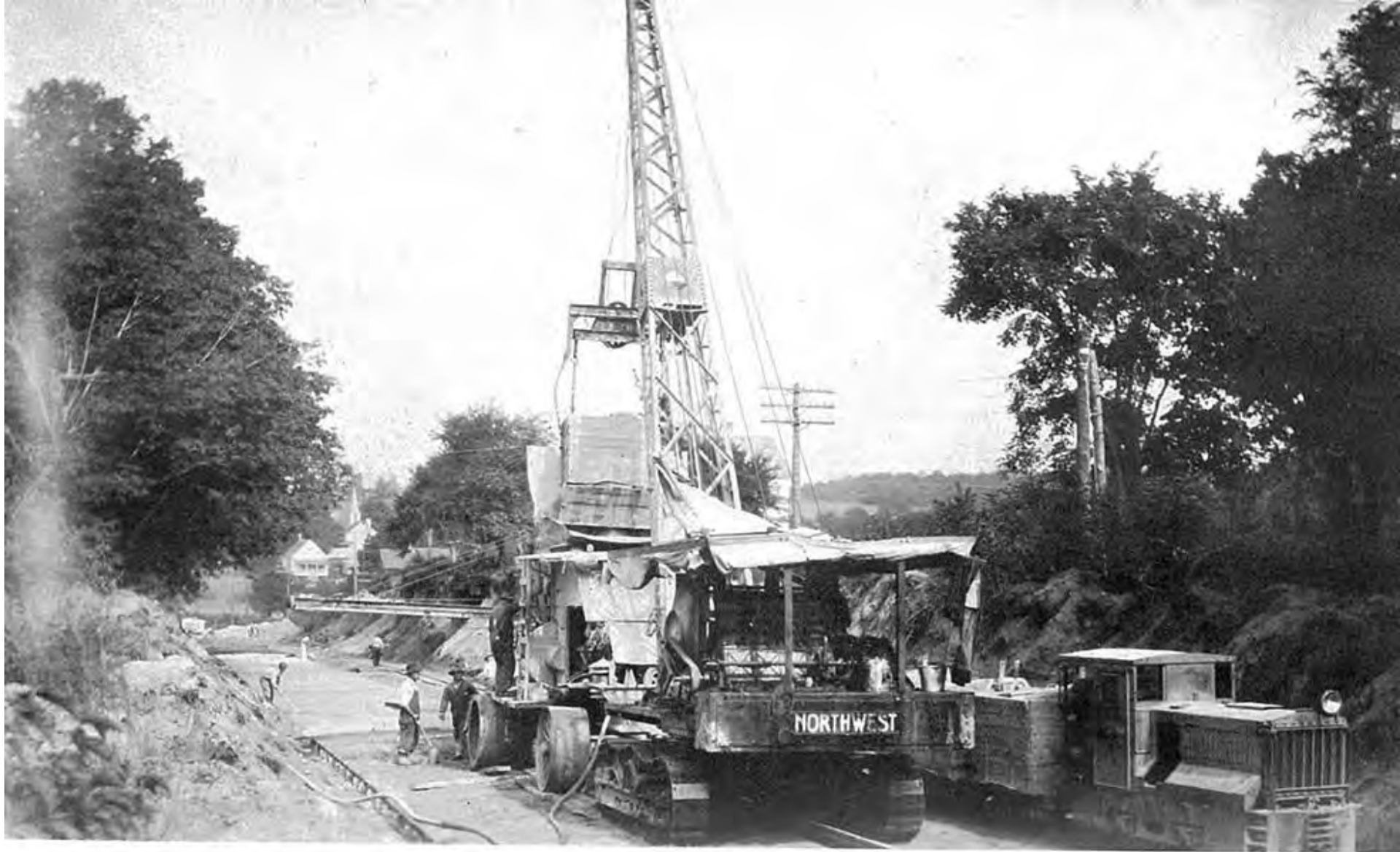


This is just a sample of the many miles of grading which was done on M-16 during the winter.





Making a cut with gasoline shovel and industrial railway in the hill just east of the Cascade Bridge on M-16.



Paving the south half of a 30-foot road up the hill just east of the Cascade bridge on M-16.



Another view of the washing plant and stockpiles at Cascade; also a fleet of the contractor's trucks.

Bridges

Repair old trusses

Construct new concrete bridges

Construct new concrete culverts



Knapp Bridge—placing seal coat of tar on new floor to waterproof the surface.



Placing new floor and guard rail on the Knapp Bridge over Grand River. Traffic was not interrupted while this work was being done.



The Alaska Bridge which has been given a new floor, two coats of paint and a new guard rail.



Pine Island



Pine Island



Pine Island



New Bridge over Rouge River on the West River Road, looking upstream.



A typical reinforced concrete box culvert under construction on M-13 south of Grand Rapids.



The new grade separation on South Division Ave. (U. S. 131)



This type of snowplow equipment handles all of our snow removal work except very heavy drifts.



Clearing the roads for action. This powerful truck equipped with a blade plow makes short work of drifts and snow windrows such as the one shown here.

1930's

- Bituminous Paving

“Retread” – cold mix in place

“Prime” – prime and seal

- Bridge Repair – many lasting into the 1970's



Grading



Grading



Rolling Gravel



Grading 1939



Priming 1939



Spread stone



Priming again



Mixing



Grading cold mixture



Grading mixture



Rolling



Grading



Priming



Spreading Stone



Oberley 1940



Oberley 1940



Ide Pit 1936







29d.



North Park St 1934



North Park St 1934



Division over the Rogue River



18 Mile over the Rogue River



1935



1935

2-56



1939



1939

1940's

- Maintain existing infrastructure with reduced staff.
 - Support the war effort.
- Street naming and house numbering system.
 - Installed street signs countywide.

1950's – 1960's

- Post war boom – new equipment
- 1958 – 1968 Construction of freeways
in Kent County
- US-131, 108th to 14 Mile, I-96, I-196



Allis Chalmers 1950's Bulldozer



Allis Chalmers 1950's Bulldozer



Cat Dozer and cable scraper



Cat RD-6



Cat RD-6



1953 Cat Diesel #12



1953



Eastern Heights (South of 44th) between Eastern and Kalamazoo



1953 Cat D337 Powered Crusher



Lorain Moto-Crane



Gradall - Wing Ave 1963



B & E Cable Hoe



B & E Cable Shovel



Euclid Scraper
L.W. Edison had a big fleet of these



World's Largest Scrapers



Close up of LeTourneau LT 360 8 Diesel 5080 Hsp 360 ton capacity



LeTourneau

LeTourneau's Equipment Line



Michigan Loader



KCRC Michigan w/Snow Blower



US131 & 44th Street



Ada Garage 1962
Tandem Trucks V-Box



Bagged Calcium Chloride



Spreading Chloride

1970's

new improved equipment

(No longer history 😊)



Cat 225 - 1972



Koehring 1066



Eaton Loader



Curb Machine 1st one in Kent County 1973



Koehring Excavator

Today's Methods



Crush & Shape Lincoln Lake Ave.



Crush & Shape Lincoln Lake Ave.



Crush & Shape Lincoln Lake Ave.











Patterson Ave



Patterson Ave



Patterson Ave



Patterson Ave

Pavement Preservation

- Crack Sealing
- Chip Sealing
- Slurry Sealing



Crack Cleaning



Crack Sealing



Wedging



2009/07/08



2009/07/08



Slurry Seal



Micro surfacing



Micro surfacing



Micro surfacing

Today's Equipment



Flowboy with Paver



Flowboy with Paver



Flowboy et up for winter maintenance



Pre-Wet Station



Anti Icing Truck



2011 Freight Liner

Kent County Road Commission 1911 – 2011 100 Years Serving the Driving Public

