MICHIGAN
STATE HIGHWAY DEPARTMENT
G. Donald Kennedy
State Highway Commissioner

REPORT ON CLAIMS PRESENTED BY

W.L. THON COMPANY, CONTRACTOR

MICHIGAN TEST ROAD

By

C. Mansfield

Research Project 39 F-7 (2)

Research Laboratory
Testing and Research Division
Report No. 16
May 16, 1941

During the construction of the design and durability sections of the Michigan Test Road, the personnel of the Research Division were instructed to keep daily records involving the various activities embodied in the construction of the test road. The purpose of these records was to have available information, not only pertinent to the research phase of the work, but also for any other purposes which might arise. In regard to the latter purpose, it was anticipated that since this was an experimental project there would be a possibility that the contractors might submit questionable claims pertaining to certain construction operations encountered during the construction of their respective part of the Test Road.

On March 5th, the Construction Division submitted to the Research Division, a copy of claims presented to G. Donald Kennedy, State Highway Commissioner, by W.L. Thon Company, contractor on projects F 18-20, C4 and F 87-37, C6, design section of the Test Road.

A study has been made of the claims presented by the W.L. Thon Company and the recommendations of the Research Division are set forth in this report.

The claims were presented in eleven separate letters. Each letter pertaining to a different matter has been designated in this report as items I to VII inclusive.

The claim items include such matters as -

I Increased labor and truck costs due to weather conditions.

II Delay due to Jaeger concrete spreading machine.

III Damage to forms due to excess weight and operation of the spreader.

IV Inaccessible roads and excess hauling distances.

V Inaccessible roads and batching plant layout.

VI Construction of sand clay shoulder.

VII Trim and finishing operations.

Item No. I

W.L. Thon Company
3715 Eleventh St.
Wyandotte, Michigan

December 5, 1940

Hon. G. Donald Kennedy,
State Highway Commissioner,
Lansing, Michigan

Dear Sir: F 67-37, C6

Due to the excessively high water table and rainy season our labor costs on paving and batch trucks were increased as follows:

Paving	$ .0983 x 58122.5 syds.	$ 5713.44
Trucks	.0525 x 58122.5 syds.	3051.43
		$ 8764.87

Also such items as, Compensation insurance, Liability, Social Security, Unemployment taxes, gas, oil, greases, burlap, straw increased our cost proportionately with the above mentioned items, amounting to several thousands of dollars, which is not included in above items.

Defining some of the causes of increased costs, from station 91 to 109 the ditches did not dry up all season and the clay beneath the sand cushion came through the sand necessitating a detour of batch trucks of 1.3 miles to lay 79 stations of pavement. Also from station 159 to 216, the same condition existed forcing us to shut down the paver for 2-1/2 days partly retrim the grade and then use duck boards to prevent the clay from coming to the top of the sand subbase.

Very truly yours,

/s/ W.L. Thon

W.L. Thon Company

Item No. I

W. L. THON COMPANY
5715 Eleventh St.
Wyandotte, Michigan

December 5, 1940

Hon. G. Donald Kennedy,
State Highway Commissioner,
Lansing, Michigan

Dear Sir: Re: F 18-20, C4 (Clare)

Due to the excessively high water table and rainy season our labor costs on paving and batch trucks were increased as follows:

Paving	$ .0983 x 73434.8 syds.	$ 7218.64
Trucks	.0525 x 73434.8 syds.	3855.33
		$11073.97

Also such items as, Compensation insurance, Liability, Social Security, Unemployment taxes, gas, oil, greases, burlap and straw increased our cost proportionately with the above mentioned items, amounting to several thousand dollars, which is not included in the above items.

Defining some of the causes of increased costs, from station 91 to 109 the ditches did not dry up all season and the clay beneath the sand cushion came through the sand necessitating a detour of batch trucks of 1.3 miles to lay 79 stations of pavement. Also from station 159 to 216, the same condition existed forcing us to shut down the paver for 2-1/2 days, partly retrim the grade and then use duck boards to prevent the clay from coming to the top of the sand cushion.

Very truly yours,

/s/ W.L. Thon

W.L. Thon Company

Item No. II

W.L. THON COMPANY
3715 Eleventh St.
Wyandotte, Michigan

December 5, 1940

Hon. G. Donald Kennedy
State Highway Commissioner,
Lansing, Michigan

Dear Sir: F 18-20 C4

We wish to call to your attention the fact that the use of the Jaegar Concrete Spreader caused us serious delays in our paving operations while using steel mesh reinforcing. After every fourth batch placed we were required to wait while the spreader was backed up in order to permit the mesh to be placed. After considerable checking we found that a minimum of 45 seconds was lost in addition to all normal operations such as placing mesh etc. This periodic delay caused a suspension of all batching and mixing operations. No delay was experienced when mesh was not used.

A breakdown of costs due to this delay follows:

Sta. 764+00 to 863+60	24759.3	Sq. Yds.	5.3# mesh
863+60 to 955+10	22366.7	" "	3.3# mesh
	47126.0	" "	mesh used

47126 Syds / 6.3 yield per batch = 7480 batches used on reinf. sections

7480 / 5 = 1496 batches delayed.

1496 x 45 sec. = 67320 sec. of 18.7 hours delay

Paving operating cost per hour

Batch trucks, rental	$ 25.50
Labor	100.01
SSI	1.00
Liab. ins.	1.24
Unemp.	3.00
Comp. ins.	4.59
Total cost per hour	$ 135.34

$135.34 cost per hr.
x 18.7 hours delay

$2530.86 cost of delays

Yours truly

/s/ W.L. Thon

W.L. Thon Company

Item No. II

W.L. THON COMPANY
3715 Eleventh St.
Wyandotte, Michigan

December 5, 1940

Hon. G. Donald Kennedy,
State Highway Commissioner,
Lansing, Michigan

Dear Sir: Re: 67-37 C6

We wish to call to your attention the fact that the use of the Jaeger Concrete Spreader caused us serious delays in our paving operations while using steel mesh reinforcing. After every fourth batch placed we were required to wait while the spreader was backed up in order to permit the mesh to be placed. After considerable checking we found that a minimum of 45 seconds was lost in addition to all normal operations such as placing mesh etc. This periodic delay caused a suspension of all batching and mixing operations. No delay was experienced when mesh was not used.

A breakdown of costs due to this delay follows:

Sta. 63+10	to 86+57.5	5903.7	Sq. Yds.	3.3# mesh
112+30	to 116+30	1466.7	" "	5.3# "
118+30	to 124+30	1466.7	" "	3.3# "
		8837.1	" "	reinforced

8837.1 Syds. = 1403 batches used on section
6.3 yield per batch

1403 / 5 = 281 batches delayed

281 x 45 sec. = 12645 sec. = 4.76 hours delay

Paving operating cost per hour

Batch trucks, rental	$ 22.50
Labor	100.01
SSI	1.00
Liab. ins.	1.24
Unemp.	3.00
Comp. Ins.	4.59
Total cost per hour	$135.34

$ 135.34 cost per hour
x 4.76 hours delay
$ 644.22 cost of delay

Very truly yours

/s/ W.L. Thon

W.L. Thon Company

Item No. III

W.L. THON COMPANY
3715 Eleventh St.
Wyandotte, Michigan

December 5, 1940

Hon. G. Donald Kennedy,
State Highway Commissioner
Lansing, Michigan

Dear Sir: Re: F 18-20, C4

We wish to advise that we purchased 3600 lin. ft. of heavy new road rails for the purpose of insuring a good job. We discovered that in using the Jaeger Concrete Spreader as required in this experimental work severe damage was done to these new rails. This spreader was much heavier than represented prior to the awarding of the contract. The relatively short wheel base caused a tremendous side thrust to the rear wheels that bent and twisted the rails.

New, heavy rails should construct 60 miles or approximately 774396 sq. yds. of pavement. We estimate that these rails will not last for more than 30 miles or 387198 sq. yds. average life providing we do not continue the use of the spreader on them.

On this basis we have estimated the damage caused to these rails by using the spreader and request that same be allowed in accordance with the following schedule:

Cost of rails

3600 lin. ft. at	$ 0.76	$ 2736.00
Freight		223.20
Total cost		$ 2959.20

1/2 Total cost as estimated damage - $ 1479.60
$1479.60 equals $0.0112 damage per sq. yd.

131557 syds.
73434.8 sq. yds. in project
$ .0112
$ 822.47 damage to rails

Very truly yours,

/s/ W.L. Thon

W.L. Thon Company

W. L. THON COMPANY
3715 Eleventh St.
Wyandotte, Michigan

December 5, 1940

Hon. G. Donald Kennedy
State Highway Commissioner,
Lansing, Michigan

Dear Sir: Re: F 67-37, C6

We wish to advise that we purchased ~~3600 lineal~~ feat of new, heavy road rails for the above job. We discovered in using the Jaeger Concrete Spreader as required in this experimental work severe damage was done to these new rails. This spreader was much heavier than represented prior to the awarding of the contract. The relatively short wheel base caused a tremendous side thrust to the rear wheels that bent and twisted the rails.

New, heavy rail should construct 60 miles of approximately 774396 sq. yds. of pavement. We estimate that these rails will not last for more than 30 miles of 387198 sq. yds. average life providing we do not continue using the spreader on them.

On this basis we have estimated the damage caused to these rails by using the spreader and request that same be allowed in accordance with the following schedule:

Cost of rails	
3600 lin. ft. at $ .76	$ 2736.00
Freight	223.20
Total cost	$ 2959.20

1/2 total cost as estimated damage $1479.60

$1479.60 / 131557 sqds = $ .0112 damage per sq. yd.

~~58122.5~~ sq. yds. in project
$.0112
$650.97 damage to rails

Very truly yours,

/s/ W. L. Thon

W.L. Thon Company

ITEM No. IV

W. L. THON COMPANY
3715 Eleventh St.
Wyandotte, Michigan

December 5, 1940

Hon. G. Donald Kennedy,
State Highway Commissioner
Lansing, Michigan

Dear Sir: Re: F 18-20, C4

Due to the failure of the access route at the east end of the above project we were forced to retain our former batching plant setup and haul our batches 5.85 miles farther than originally planned. In addition to seriously delaying our operations were required to hire many additional trucks to haul batches this extra mileage.

This was a situation over which we had no control and we therefore request that we be allowed yard mile overhaul for this extra cartage as computed in the following schedule:

Sta.	139+55 to 0+00	13955 ft.	
	0+00 to 13+09	1297 "	
	1062+01 to 905+40	15661 "	
Distance from batching plant to beginning of section.		30913 "	= 5.85 miles

1 batch equals 1.52 cu. yds.
5.85 x 1.52 = 8.89 yd. miles per batch
5666 x 8.89 yd. mi. equals 50371 yd. mi. overhaul
50371 yd. mi. at $0.09 = $4533.39
(5666 batches required from sta. 764 to 905+40)

Very truly yours,

/s/ W.L. Thon

W.L. Thon Company

Item NO. V

W. L. THON COMPANY
3715 Eleventh St.
Wyandotte, Michigan

December 5, 1940

Hon. G. Donald Kennedy
State Highway Commissioner
Lansing, Michigan.

Dear Sir: Re: F 18-20, C4

After leasing a site for the batching plant set up at the east end of the above project and after manufacturing, hauling and stocking 886 cubic yards of aggregate, the access route as indicated for this project failed completely and became impossable. This road was supposed to be a good gravel road but proved to be extremely thin and unstable. This breakup necessitated our abandonment of this site as well as the material stocked.

We, therefore, request that we be allowed the actual cost accrued in stocking this material as listed below:

886	cyds.	Cartage at	$0.468	per yd.	$414.65
886	"	Drivers "	0.235	" "	208.21
886	"	Lease "	0.05	" "	44.30
886	"	Manufg. "	0.63	" "	558.18
Comp. liab, SSL. Unemp, etc.ins. Labor 10% of $766.39					76.64
Total amount of loss					$1301. 98

Very truly yours,

/s/ W.L. Thon

W.L. Thon Company

Item No. VI

W. L. THON COMPANY
5715 Eleventh St.
Wyandotte, Michigan

December 5, 1940

Hon. G. Donald Kennedy
State Highway Commissioner
Lansing, Michigan

Dear Sir: Re: F 18-20, C4

We desire to call your attention to the plans wherein the clay shoulders are shown as being placed in a 3 inch layer on top of the prepared shoulders. We have always understood that the plans and supplemental specifications took precedence over the standard specifications which in this case stated "unless otherwise specified". We figured on the way the plans indicated but we were ordered to first remove the sand to a depth of 6 inches, then place 3 inches of clay and 3 inches of sand on top of the clay mixing the two by harrowing. This procedure of course increased our costs to much more than our contract price.

We therefore respectfully request that an extra compensation of $4.00 per station be allowed for this item.

297.52 stations at $4.00 $1190.08

Very truly yours,

/s/ W.L. Thon

W.L. Thon Company

Item No. VI

W. L. THON COMPANY
5715 Eleventh St.
Wyandotte, Michigan

December 5, 1940

Hon. G. Donald Kennedy,
State Highway Commissioner
Lansing, Michigan

Dear Sir: Re: F 67-37, 66

We desire to call your attention to the plans for the above project wherein the clay shoulders are shown as being placed in a 4 inch layer on top of the prepared shoulders. We have always understood that the plans and supplementary specifications took precedence over the standard specifications which states "Unless otherwise specified". We figured on the way the plans indicated but we were ordered to first remove the sand to a depth of 6 inches, then place 5 inches clay and 3 inches of sand on top of the clay mixing the two by harrowing. This procedure of course increased our costs to much more than our contract price.

We, therefore, respectfully request that an extra compensation of $4.00 per station be allowed for this item.

234.69 stations at $4.00 $938.76

Very truly yours,

/s/ W.L. Thon

W.L. Thon Company

Item No. VII

W. L. THON COMPANY
3715 Eleventh St.
Wyandotte, Michigan

December 5, 1940

Hon. G. Donald Kennedy,
State Highway Commissioner
Lansing, Michigan

Dear Sir: Re: F 67-37, C4

In view of the fact that we were required to trim and finish the earth grade from station 87+00 to station 136+00 and from station 154+00 to station 225+00 in order that a sand cushion could be placed thereon we respectfully request that allowance be made for this at the rate of $6.00 per station.

Sta.	87+00 to 136+00	49 stations
	154+00 to 225+00	71 "
		120 "

120 stations at $6.00 $720.00

The above work was in addition to the fine grading required to pave.

Very truly yours,

/s/ W.L. Thon

W.L. Thon Company

RESPONSE TO CLAIMS

Item I, projects F 18-20, C4 and F 67-37, C6 concerning increased labor costs on paving and batch trucks totaling $11,073.97 and $8,764.87 respectively.

The grade between stations 91+00 and 109+00 has a one-foot sand cushion of a loose nature and heavy equipment or batch truck naturally rutted the grade badly. Had the grade been maintained or protected with duck boards, a detour would not have been necessary. In the specifications, of 1940 Michigan Section 4.14.03 (B) (b) page 218, it states, "The remainder of the prepared subgrade shall be maintained in its compacted state and true to the required grade and cross section".

The grade was not in the same original compacted condition from station 195+00 to station 216+00 and afforded no difficulty during any weather conditions except for a section between stations 195+00 and 216+00. This latter area did cause a 2-1/2 day delay but it was the result of heavy rains softening the clay underlying the sand cushion. The contractor attempted to resume paving operations the day after it rained, but the grade would not hold the hauling equipment. This required a delay until the grade became sufficiently dry to prevent disturbance of the clay. The item of retrimming the grade was necessary after the hauling equipment disturbed the prepared grade.

This item should not be paid as the evidence shows that the extra cost involved was the result of weather conditions and prevailing grade conditions on which the contractor should have an expectancy or full knowledge and provide against in his original bid quotations. Daily weather observations taken on the project in conjunction with the Research Division

investigations show that it rained on August 25th, from 7 a.m. to 6 p.m., with a total precipitation of 0.46". August 26th, the contractor resumed paving operations and ran into difficulty from the rain soaked subgrade under the sand cushion, disturbing same. Rain fell August 26th at 8 p.m. with a total of 0.20", and again on August 29th with a fall of 1.96". August 30th, a rain of 0.03" and intermittent showers on August 31st. September 1st and 2nd, Sunday and Labor Day respectively, with no paving operations until September 3rd. This conclusively shows that the heavy and consistent rains caused the delays rather than a normal subgrade condition for stations 159+00 to 216+00.

Item II, projects F 18-20, C4 and F 67-37, C6 concerning increased costs totaling $2,530.86 and $644.22 respectively due to delays from the use of the Jaeger concrete spreader.

Some slight delays were encountered by the use of the spreader when the concrete operations began but after the crew became familiar with the equipment and coordinated the various phases of construction the delays became negligible. The following procedure was used: Concrete was placed by mixer bucket and the spreader distributed the concrete to the level required for placing the reinforcing. As soon as the spreader passed over a large enough area to permit the placing of the reinforcing mats, the same were placed behind the spreader. In the meantime the paver kept operating. The only delay resulted when the spreader was returned beyond the steel reinforcing to permit placing of the concrete for the second course. A batch or two of concrete could have been placed on the grade immediately at the paver and no loss in mixing operations would have resulted. Had the concrete spreader not been used on this project the contractor would have been required to re-

place the finishing machine as it would have been incapable of properly finishing the concrete due to the nature of the concrete mix, the result of the aggregates used, processed by the contractor. It was evident quite often that as soon as the spreader left an inch or two of concrete for the finishing machine, trouble resulted and necessitated returning the spreader and relieving the load. The harshness of the concrete mix absolutely retarded the obsolete one screed finishing machine. The specifications definitely state that the finishing machine shall be of standard make manufactured not previous to 1934. This piece of equipment did not meet these requirements and was waived with the anticipation and proven aid the concrete spreader would give in consolidating the concrete. Therefore, it is highly probable that the contractor included these delays in his time loss. Certainly a loss of 45 seconds for each fifth batch is out of the question. Possibly a 9 second delay would be more in keeping with the true delay encountered. It is without any question that where no reinforcement was used the spreader accelerated the paving operations and in turn balanced any loss of time where steel reinforcing was used.

Item III, projects F 18-20, C4 and F 67-37, C6 concerning damage to road rails amounting to $822.47 and $850.97 respectively.

The concrete spreader weighed 9,800 pounds on the forms having a wheel center to center distance of 9'0" approximately. This piece of equipment is heavier than a standard finishing machine but the wheel base is greater. A finishing machine comparable to one that would have been required on this project had not the spreader been used weighs 7,000 pounds on wheels 6'5" center to center.

The contractor construes that new road rails should construct 60 miles of concrete pavement. He estimates the loss after completion of these contracts as one-half due to damage by concrete spreader. An anticipated life of 30 miles of pavement construction is expected. Although his estimated damage is high still the claim should only amount to a total of $936.40 for both contracts as 10.152 miles have been constructed and 30 miles expected leaving a damage equivalent to approximately 20 miles of expectant life of equipment or one third of the initial cost or $548.39 for project F 18-20, C4 and $438.01 for project F 67-37, C6 rather than $822.47 and $650.97 respectively for F 18-20, C4 and F 67-37, C6. The validity of this claim is a matter of the Construction Division.

Item IV, projects F 18-20, C4 concerning failure of access road for establishing new plant set-up to reduce batch haul distance amounting to $4,533.39.

There are no items in the contract guaranteeing any access roads into this project. The natural soil deposit, being sand of a loose nature and with the extremely inadequate construction of county roads for heavy hauling, the possibilities for efficient transportation was limited. The access road, a county road mentioned, failed to stand up when the aggregates were hauled in to the new plant set-up because of one location consisting entirely of sand on a hazardous curve. The owners and drivers of the trucks refused to haul over this section because of the nature of the roadway. No attempts were made by the contractor to maintain this entrance into the project and abandoned this method for the original set-up. This item certainly should have been checked in detail before bidding the project and provisions made

at that time. The Michigan State Highway Department should not be held responsible on this delay and resultant claim.

Item V, project F 18-20, C4 relative to leasing batching plant set-up on east end of project, hauling and abandoning of 686 cubic yards of aggregate.

This item again fails to show cause for claim and can be referred to Item IV as both claims are related. Here, again, the contractor failed to foresee or maintain this county road resulting in truck owners and drivers refusing to haul. There is no basis for payment of this claim.

Item VI, projects F 18-20, C4 and F 67-37, C6, regarding extra cost for manipulation of clay for shoulders totaling $1,190.08 and $938.76 respectively.

The contractor is vague in his description as to the method to be used in constructing clay surfaces, 3" compacted. There is no stipulation in the supplemental specifications as to the method of construction required which automatically refers this item to the standard specification. Herein it is definitely stated that when clay is used, Method No. 1 shall apply unless otherwise provided. As no other provisions were made, Method No. 1 was required and the contractor constructed the clay surfaces 3" compacted as specified. Therefore, this claim is of no value because he merely followed the specification requirements.

Item VII, project F 67-37, C6, concerning trim and finish the earth grade station 87+00 to station 136+00 and between stations 154+00 and 225+00 to place a sand cushion.

The validity of this claim cannot be determined by the Research Division and shall have to be acted upon by the Construction Division.