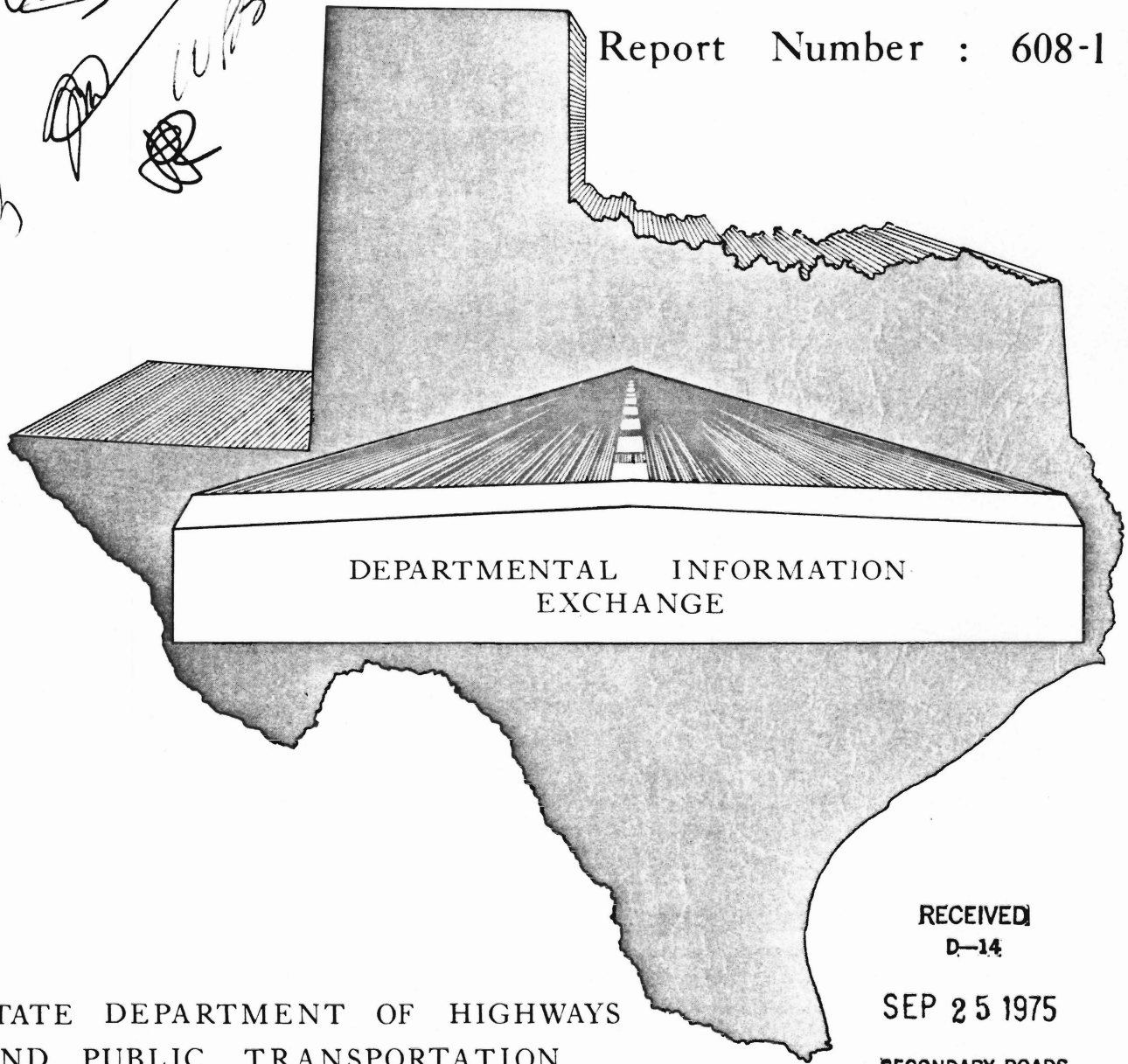


EXPERIMENTAL PROJECTS

FIBERGLASS PLACEMENT

Report Number : 608-1



DEPARTMENTAL INFORMATION
EXCHANGE

STATE DEPARTMENT OF HIGHWAYS
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SECONDARY ROADS
DIVISION

FIBERGLASS PLACEMENT

IH 20, Ector County
Project M-5-13-16
Control 5-13

A NARRATIVE REPORT



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District 6

September, 1975

FIBERGLASS PLACEMENT

The fiberglass placement was started at Station 47+00 on the inside lane, going East on May 25, 1975. This was further east than the first test section where the cracks were mapped, but the new location was necessary because the hot-mix overlay had already been laid across part of the test section on Friday, May 23, 1975. Approximately 525 foot lengths were shot, the material was laid (the glass fiber on tack coat), and each of the lengths was tacked separately. The rate on the first one was approximately .12 of a gallon per SY. At the request of the Company Representative for Burlington glass fiber, the rate was increased for the rest of the shots to approximately .17 or .18 of a gallon per SY. Some slippage of the material was noted as the roller rolled up the hill to tack it down. The roller tended to make the material crawl downhill, so the roller was brought to the top of the slope and rolled downhill to keep from putting so much slack in the material. At first the hot-mix trucks were picking up the fiber, but this improved as the day went along and approximately 2100 feet of the inside lane was completed between about 8:00 and 10:30 a.m. The contractor then laid his material to the county line, turned around and came back on the inside lane. All traffic was detoured from this section of road at the off ramp and was carried on the south frontage road to FM 1788. While laying the fiberglass, going east, the temperature was approximately 71 degrees F. The material laid down had very few wrinkles after the level portion of the run was reached. At approximately 12:30 p.m., the material was laid back to the west. The recorded temperature was

74 degrees F. The skies were overcast but in the afternoon there was some sunshine and the glass fiber seemed to be wrinkling more (after the initial rolling) than it did in the morning. An AC-3 tack coat was used. The wind turned up the edge of the fiber along the south side of the roadway. Ten to fifteen mile per hour winds were experienced in the afternoon with fifteen to twenty mile gusts. The wind blew under the edge of the material, causing it to roll up much worse than anticipated. There was also a considerable amount of wrinkling of the material. The Company Representative requested that the laying of the material be stopped. He did not want to finish laying the last 525 feet of asphalt that was shot, but he was informed that the material would be rolled. Then the situation would be analyzed and the rolling possibly stopped at that time.

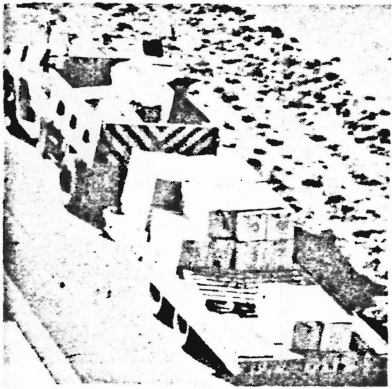


FIGURE 1

The material was delivered to the project in 500' rolls, 52" wide in boxes.

FIGURE 2

The roll was mounted on a roller to lay the material. The personnel are threading the material under the roller to roll it onto the pavement. A tack coat has been placed on top of the pavement. A tack coat of .15 gal/sy is ordinarily sufficient, according to company representative. It was necessary to go to .17 to .18 gal/sy on this particular project because the surface was a fresh seal coat which was placed as an underseal for the hot-mix overlay.

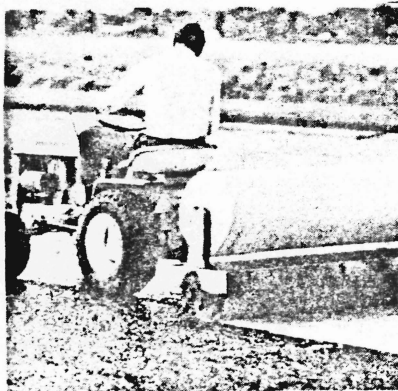
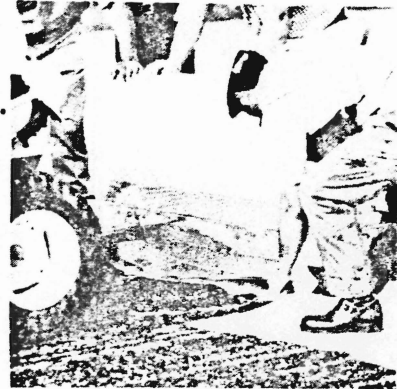


FIGURE 3

The roller was pulled by a garden type tractor. A pointer was used to assist in driving straight. The material does tend to buckle if the line is not kept straight while driving.

FIGURE 4

The tack coat has been placed and the first width of glass fiber is being placed. An attempt is being made to lay this on the tack coat. The contractor's hot mix equipment is immediately behind the operation.

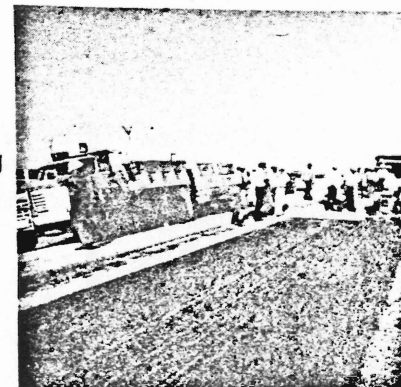


FIGURE 5

The first width of fabric has been laid on a 12' lane. The tack coat was about .12 gal/sy and some skips can be observed in the tack coat where good coverage was not obtained.

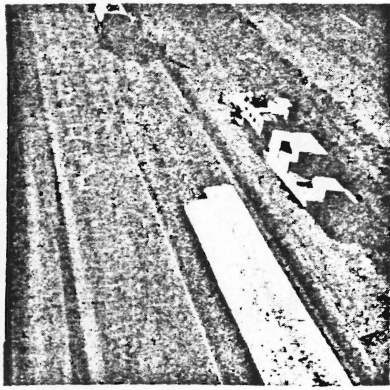


FIGURE 6

Two widths of material have been put down.

FIGURE 7

The third width is being laid with four inch overlays between mats to give a 12' wide lane.

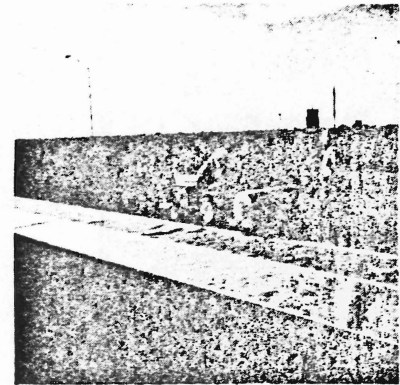


FIGURE 8

The roller has now rolled one half of the material into the tack coat. It is now ready for overlaying with hot mix.

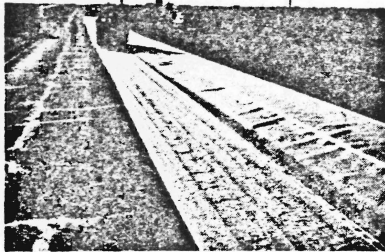


FIGURE 9

The ends of the material were at the same place when it was laid. As the roller came up a grade separation grade, it tended to make the material pull downhill and buckle. The roller was removed and brought to the top of the hill and rolled downhill only.

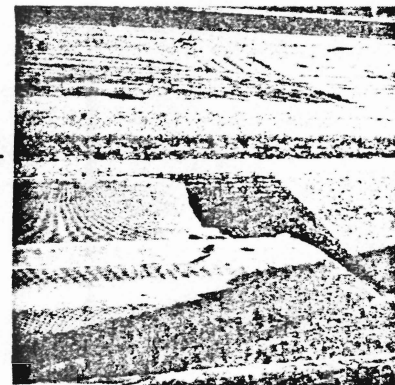
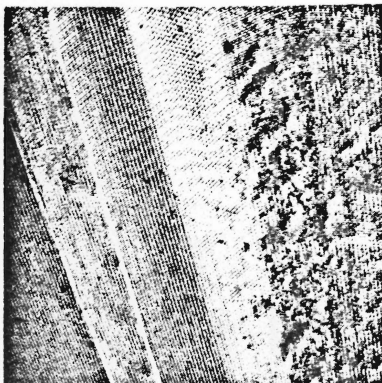


FIGURE 10

It will be noted that the squares in the material have been pulled at the meeting between the section that has been rolled and the one that has not. The fabric on the left has been pulled by the roller while rolling up the grade separation at a location downhill from where the photo was made.



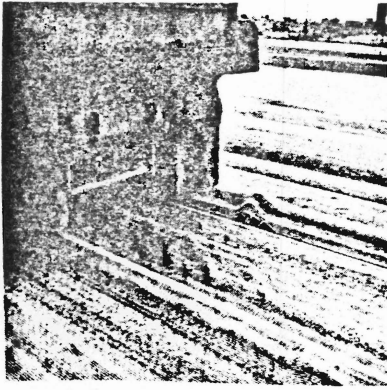


FIGURE 11

It will be noted behind the truck, that there is some wrinkling and pulling up immediately behind the tires.

FIGURE 12

The hot mix machine is coming forward. The first truck has hooked on and the laying operation is underway.



FIGURE 13

This gives an indication as to what was experienced as far as buckling on a portion of the material. The tack coat seemed to stick to the tires and pick up the material. This particular section was tacked a little light and this possibly contributed to the problem.

FIGURE 14

When the project was first started, everything was running well. This particular section laid down fairly well and had no wrinkles or buckles.

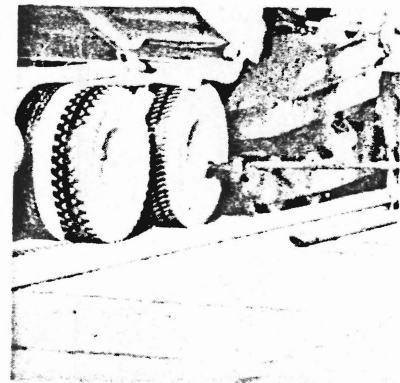


FIGURE 15

This shows the total operation while in progress. The hot mix machine is in the background and the pneumatic roller is on the right hand side. The glass fiber is being rolled out on the left side of the roadway.



FIGURE 16

Some problems were encountered with the wind blowing the material up before it was rolled into the tack coat.

FIGURE 17

Another view of the wind problem. The tack coat in this view was about .17 gal/sy and was ample. The temperature had risen a little over the earlier temperature and the asphalt being used did not hold the material down during the fifteen to twenty mile per hour cross wind.



FIGURE 18



The roller operation is shown here. The edge of the material is blowing up due to the high cross wind.

FIGURE 19

Some of the edges blew up, rolled over, and caused a problem. All of the wrinkles could not be straightened out and were laid over with hot-mix.

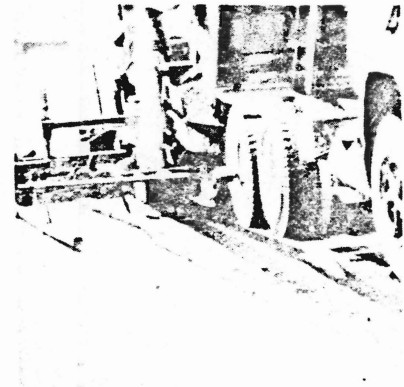


FIGURE 20

Here is an indication of the problems encountered when the end of a roll is rolled over and precautions are not taken to keep it from sticking to the tires.

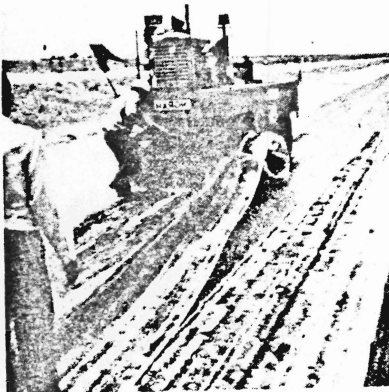




FIGURE 21

This indicates the cracking problems on the uncovered lane and is the type of cracking which an attempt was made to keep out of the new overlay. A problem arose when the hot-mix machine started a new roll of glass fiber. The fabric would stick to and roll up around the wheels of the hot-mix machine if it had not been tucked under the previous roll, and a little hot-mix material coated on top of the fabric prior to running over it with the hot-mix machine.

FIGURE 22

A general view of the total operation.

