

Modified Warranty Chip Seals



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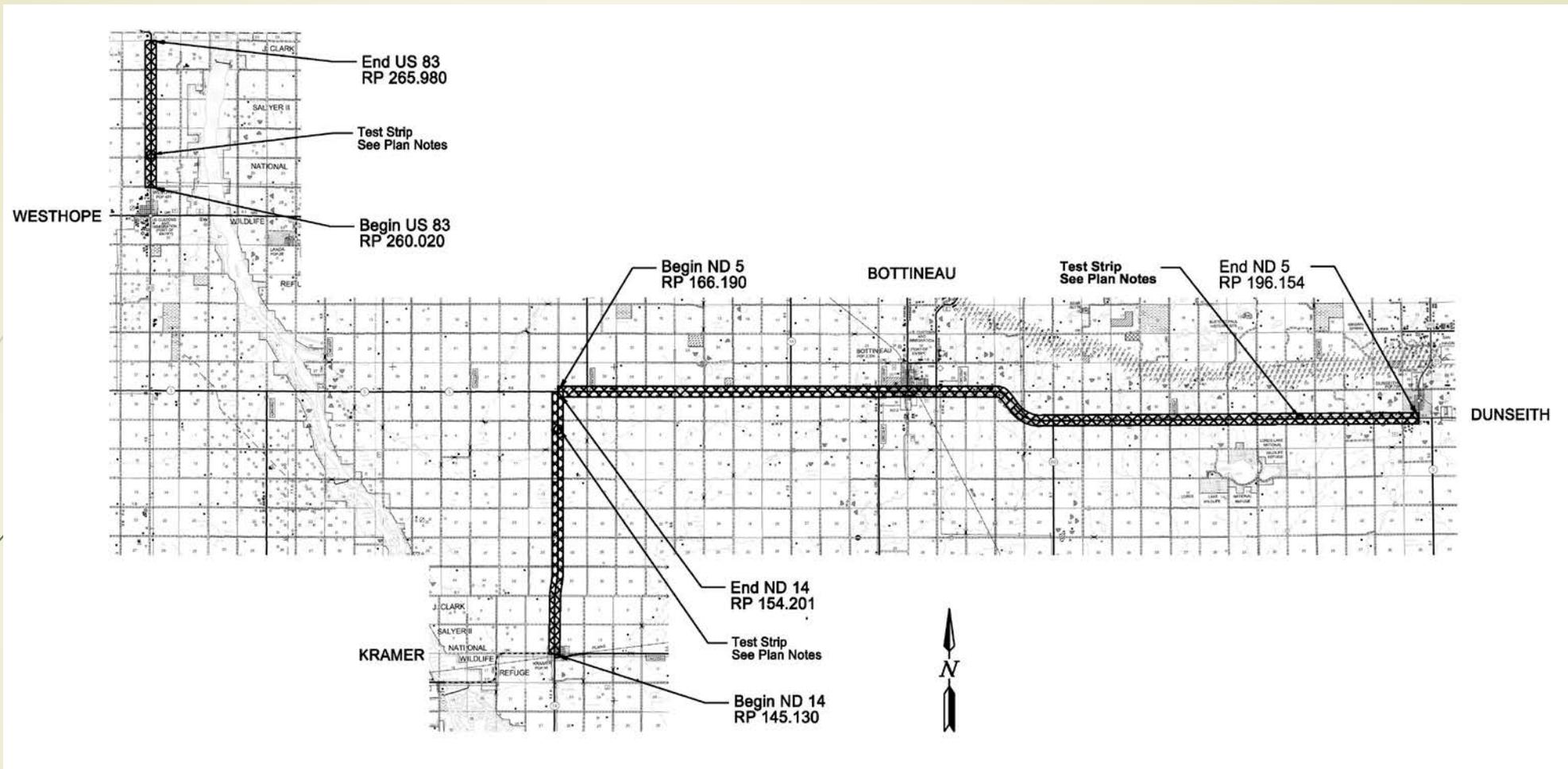
Modified Warranty Chip Seal - What is it?

- ▶ Concept to construct a chip seal project by using test strips as a comparison for acceptance of the remainder of the project and assess any areas of failure.
- ▶ Contractor is responsible for the quality of the work performed.
- ▶ If necessary, the contractor is to return the following construction season and repair any failure areas at their own cost.
- ▶ Cost saving means to administer a chip seal project as it removes the immediate inspection activities.
- ▶ Another tool for the tool box.



History

- ▶ Early Concept in late 2012/early 2013 and was part of the Strategic Business Plan worked on by Minot and Williston Districts and Construction Services.
- ▶ Developed due to:
 - ▶ Amount of work out for bid.
 - ▶ Available Staffing was not present in the oil impacted districts.
 - ▶ Save engineering costs.
 - ▶ Perceived as Minimal Risk.
- ▶ Shelved until early 2016 when the Deputy Director asked for volunteers to test.
- ▶ Minot District volunteered and developed the plan set.
- ▶ ETS developed the Special Provision



Project Location: ND 5, ND 14, and US 83



Project Details

- ▶ Project Number: SS-4-999(030)
- ▶ PCN 21668
- ▶ Total Miles = 45
 - ▶ ND 5 – 30 miles
 - ▶ ND 14 – 9 miles
 - ▶ US 83 – 6 miles
- ▶ Traffic Data
 - ▶ ND 5 – Pass 1576/Truck 219 = 1795 AADT
 - ▶ ND 14 – Pass 310/Truck 70 = 380 AADT
 - ▶ US 83 – Pass 62/Truck 46 = 108 AADT



Bid

- ▶ February 3, 2017 Bid Opening
- ▶ Completion date of August 15, 2017
- ▶ Engineer's Estimate was \$1,227,585
- ▶ Low bidder was Morris Seal Coat & Trucking at \$1,190,860
- ▶ Second Bidder was Bituminous Paving at \$1,240,599
- ▶ Third Bidder was Asphalt Technologies at \$1,599,951



Construction

- ▶ Testing
 - ▶ Contractor informed the district when chip stockpiles were available.
 - ▶ District representative took 3 samples.
 - ▶ District tested those samples and gave approvals.
- ▶ Test Strips
 - ▶ 3 Test Strips -1000' long each. One on each segment of highway.
 - ▶ Locations directed in the plans.
 - ▶ No Blotter use allowed on Test Strip
 - ▶ Allowed contractor to proceed once Test Strip was approved.

Test Strips



Test Strips





Construction



- ▶ Materials
 - ▶ CRS2P at a rate between 0.38-0.43 Gal/SY – Averaged 0.40 Gal/SY
 - ▶ Cover Coat Class 41-M at a rate between 20-25 lb./SY – Averaged 23 lb./SY
 - ▶ Fog Oil – CSS1H at a rate of 0.05 Gal/SY
 - ▶ Oil acceptance based on certification and performance.
- ▶ Secondary Review
 - ▶ To be conducted before May 15, 2018.
 - ▶ District and contractor representatives will meet on site to review the project.
 - ▶ Any areas found not to meet the condition of the Test Strips are to be repaired by the contractor prior to September 1, 2018.
- ▶ Payment
 - ▶ Chip Seal was paid by the Square Yard. Price includes Chip, CRS2P, and fog oil.
 - ▶ Contract Bond, Mobilization, Traffic control, and pavement marking paid by normal units.



Deliverables

- ▶ Contractor provides the following to the district upon completion:
 - ▶ Log showing daily and running totals of:
 - ▶ Aggregate
 - ▶ Seal Coat Oil
 - ▶ Fog Seal Oil

How did it turn out?

- Great!
- Good chip embedment.
- Good oil coverage.
- Little or no bleeding.



Early Review

September 2017



January 2018



Early Review

September 2017



January 2018



Risks/Concerns

➤ Risks

- Contractors have more of the risk on a project like this. They do not have control of the winter maintenance that the roadways will see.
- Additional contractor risk is suppliers providing poor or dirty materials.
- Department risk is the additional time/labor/travel costs to review in the spring and quantify any failures.
- Late season chip seal projects run a higher risk of failures.
- Department may see higher costs to seal coats if failures are seen, however at this time it is not showing an increase to the bids.

➤ Concerns

- Drilling/Rowing
- Traffic control
 - Not being maintained or removed timely.



Snowplow Damage





Adjustments

- ▶ Require additional material be in stockpile locations prior to beginning Test Strips. Recommending minimum of half of plan quantity for each segment.
- ▶ Test Strips are in odd locations. Recommend the Test Strip locations be determined by the engineer in the field.
- ▶ Shot rate application range. Recommend tightening up to 0.40-0.43 Gal/SY
- ▶ Deliverables by the contractor. Recommend adding the contractor keep a log of length of project completed each day.



What did others think?

- ▶ District Thoughts
 - ▶ Went well.
 - ▶ No issues.
 - ▶ Plan to do it again.
 - ▶ Other districts still have reservations about using. Wanted to see how this project worked. Some districts are going to try a project as well.
- ▶ Contractor's Thoughts
 - ▶ Felt it went really well and was a good experience.
 - ▶ This was the first of this type of project they had done and would do it again.
 - ▶ Biggest concern was the time factor in the spec for the test strip.
 - ▶ Other concerns included what is to be done with dirty or large material.
 - ▶ Good communication with the district personnel if there were questions. Only a call away.

Cost Comparisons

- ▶ Analyzed using what data was available from recent projects. (2015-2017)
- ▶ Utilized costs from 3 types of management.
 - ▶ Consultant Management
 - ▶ District Management Using Transportation Technicians
 - ▶ District Management with Modified Warranty Special Provision

	Miles	Construction Cost/Mile	Engineering Cost/Mile	Total Cost/Mile
Consultant PM	114	\$31,254	\$3,285	\$34,539
Trans Techs	40	\$22,747	\$475	\$23,222
Special Provision	45	\$26,464	\$240	\$26,704



Take Aways

- ▶ It works.
- ▶ There is a cost savings to the Department
- ▶ Frees up staff for other work
- ▶ A minimal risk means to manage a Chip Seal for the Department
- ▶ Another tool for the tool box



What's Next?

- ▶ Minot District will utilize the Modified Warranty Chip Seal SP on 3 additional chip seal projects in 2018.
 - ▶ ND 23, ND 28 – 60 Miles
 - ▶ ND 41, US 52 – 53 Miles
 - ▶ ND 60, ND 5, and ND 256 – 56 Miles
- ▶ Two other districts have decided to try this SP.



QUESTIONS

