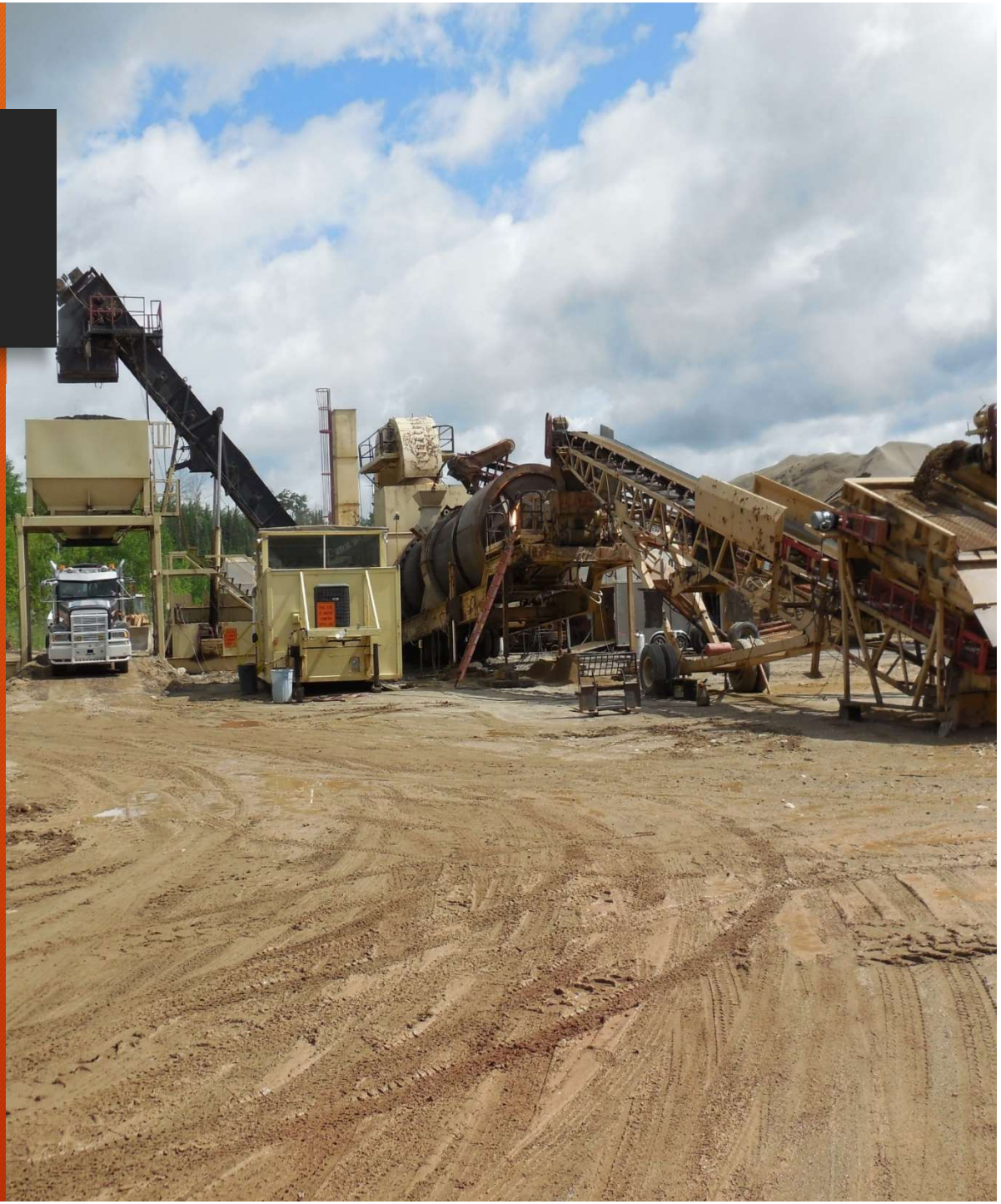
Bituminous Plant Monitor Refresher

Deb Evans:

Mix Design Specialist

Greg Johnson: Assistant Bituminous Engineer



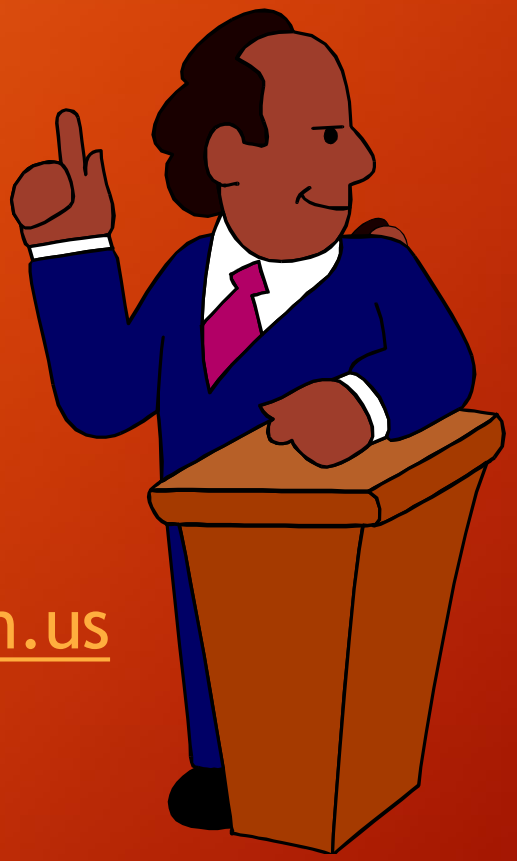
Welcome to Bituminous Office
Feel free to contact us

- John Garrity, P.E. - Bituminous Engineer
- Greg Johnson, P.E. - Assistant Bituminous Engineer
- Chelsea Bennett , P.E. - Assistant Bituminous Engineer
- Joel Ulring, P.E. - Pavement Preservation Engineer
- Deb Evans - Mix Design Specialist
- Ray Betts - Trial Mix Lab Technician

Presenters

- **Deb Evans**– Mix Design Specialist, deb.evans@state.mn.us
- 651-366-5574

- **Greg Johnson -** Asst. Bituminous Engineer, gregory.d.johnson@state.mn.us
- 651-366-5464



Plant Monitor Refresher 2021

- **What is the Plant Monitor?**
  - The Plant Monitor is the Link Between the Project Engineer, Agency's Lab and Contractor's Lab.

**Project Engineer has the ultimate authority on the Project*

Today's Objectives

- Promote uniformity among all personnel performing plant monitoring
- Acquaint personnel with the duties and responsibilities of a Plant Monitor

Plant Monitor Refresher

- Visibility and communication between the contractor and the inspector/monitor is crucial!
- Leave an impression of **" Your Hardhat is Always Around"!**

4 General Areas of Responsibility for a Plant Monitor

- Observe Plant Operations
- Review Contractor's Testing Procedures
- Review Contractor's Documents
- Communicate with Project Personnel on the Progress of the Plant Operations

Prior to the Project

Review Project Proposal and the Special Provisions

MINNESOTA DEPARTMENT OF TRANSPORTATION

395 JOHN IRELAND BOULEVARD MS 650 ST. PAUL, MINNESOTA 55155

********** PROPOSAL **********

FOR HIGHWAY CONSTRUCTION AND MAINTENANCE PROJECTS WITH
BIDS RECEIVED UNTIL 9:30 O'CLOCK A.M. ON
JUNE 26, 2009

Proposal of _____

PARK CONSTRUCTION CO.
23260 MAIN STREET
SUITE 6
HAMPTON, MN 55031
651.437.2512

_____
(AREA CODE-TELEPHONE NUMBER)

TO FURNISH AND DELIVER ALL MATERIALS AND TO PERFORM ALL WORK IN ACCORDANCE WITH THE CONTRACT, THE PLANS AND THE APPROVED DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION, **2005 EDITION"(USING English UNITS),** ON FILE IN THE OFFICE OF THE COMMISSIONER OF TRANSPORTATION EXCEPT AS STATED OTHERWISE IN THE SPECIAL PROVISIONS, WHICH ARE PART OF THIS PROPOSAL, FOR:

STATE PROJECT NO. 2502-23 (T.H. 19=020), 2506-64 (T.H. 52=050) S09164

MINNESOTA PROJECT NO. NH-BRSTP 2510(046)

LOCATION: In Goodhue County on T.H. 19 from 480 feet West of T.H. 52 to 230 feet East of T.H. 52, & on T.H. 52 from T.H. 19 to 1250 feet South of T.H. 19 in Cannon Falls

TYPE OF WORK: Grading, Bituminous Surfacing, & Bridge No. 25022

LENGTH: 0.378 miles

STARTING DATE: August 3, 2009 COMPLETION DATE: October 30, 2009

NOTICE TO BIDDERS: If you are submitting a bid via "Two Way Electronic" bidding, you need not return the hard copy proposal **(all other requirements shall remain in effect)**. If you are utilizing **ANY OTHER ACCEPTED METHOD OF BID SUBMITTAL, YOU MUST RETURN THE DOCUMENTS INDICATED IN 1209**. You must initial changes made in the "Schedule of Prices" and acknowledge addenda on Form 21126D, which is attached to the back of this proposal.

SAFO

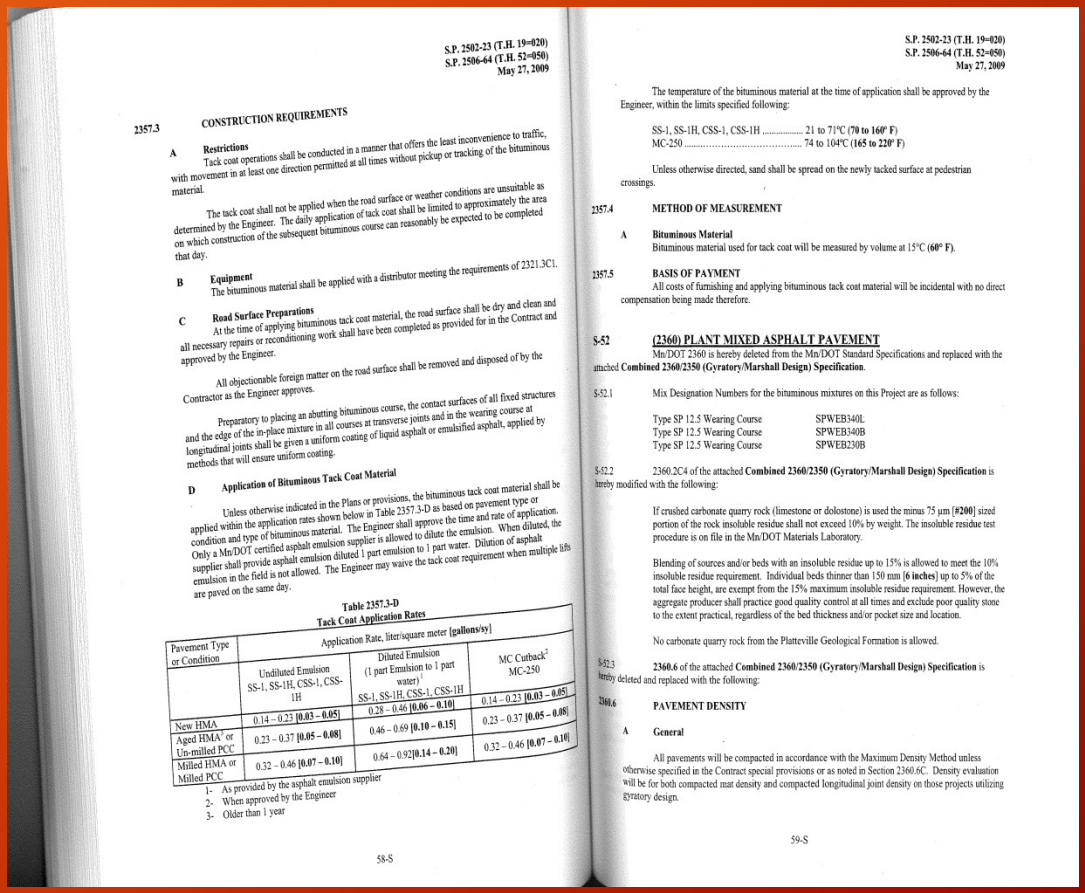
I certify that this Proposal was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Elizabeth A. Buckley

Elizabeth A. Buckley, Special Provisions Engineer JMS
Lic. No. 15494 Date: May 28, 2009

BID RIGGING IS A SERIOUS CRIME. IF YOU HAVE ANY INFORMATION CONCERNING COLLUSIVE BIDDING, EVEN A REQUEST TO SUBMIT A COMPLIMENTARY BID, PLEASE CALL THE MINNESOTA ATTORNEY GENERAL'S OFFICE AT TELEPHONE NO. 651-296-1796

This document is available in alternative formats to individuals with disabilities by calling 1-800-818-6869 or through the Minnesota Relay Service at 1-800-627-3529.vice at 1-800-627-3529.



2357.3 CONSTRUCTION REQUIREMENTS

A Restrictions

Tack coat operations shall be conducted in a manner that offers the least inconvenience to traffic, with movement in at least one direction permitted at all times without pickup or tracking of the bituminous material.

The tack coat shall not be applied when the road surface or weather conditions are unsuitable as determined by the Engineer. The daily application of tack coat shall be limited to approximately the area on which construction of the subsequent bituminous course can reasonably be expected to be completed that day.

B Equipment

The bituminous material shall be applied with a distributor meeting the requirements of 2321.3C1.

C Road Surface Preparations

At the time of applying bituminous tack coat material, the road surface shall be dry and clean and all necessary repairs or reconditioning work shall have been completed as provided for in the Contract and approved by the Engineer.

All objectionable foreign matter on the road surface shall be removed and disposed of by the Contractor as the Engineer approves.

Preparatory to placing an abutting bituminous course, the contact surfaces of all fixed structures and the edge of the in-place mixture in all courses at transverse joints and in the wearing course at longitudinal joints shall be given a uniform coating of liquid asphalt or emulsified asphalt, applied by methods that will ensure uniform coating.

D Application of Bituminous Tack Coat Material

Unless otherwise indicated in the Plans or provisions, the bituminous tack coat material shall be applied within the application rates shown below in Table 2357.3-D as based on pavement type or condition and type of bituminous material. The Engineer shall approve the time and rate of application. Only a Mn/DOT certified asphalt emulsion supplier is allowed to dilute the emulsion. When diluted, the supplier shall provide asphalt emulsion diluted 1 part emulsion to 1 part water. Dilution of asphalt emulsion in the field is not allowed. The Engineer may waive the tack coat requirement when multiple lifts are paved on the same day.

Table 2357.3-D
Tack Coat Application Rates

Pavement Type or Condition	Application Rate, liter/square meter [gallons/sy]		
	Undiluted Emulsion SS-1, SS-1H, CSS-1, CSS-1H	Diluted Emulsion (1 part Emulsion to 1 part water)[1]	MC Cutback[2] MC-250
		SS-1, SS-1H, CSS-1, CSS-1H	
New HMA	0.14 – 0.23 **[0.03 – 0.05]**	0.28 – 0.46 **[0.06 – 0.10]**	0.14 – 0.23 **[0.03 – 0.05]**
Aged HMA[3] or Un-milled PCC	0.23 – 0.37 **[0.05 – 0.08]**	0.46 – 0.69 **[0.10 – 0.15]**	0.23 – 0.37 **[0.05 – 0.08]**
Milled HMA or Milled PCC	0.32 – 0.46 **[0.07 – 0.10]**	0.64 – 0.92**[0.14 – 0.20]**	0.32 – 0.46 **[0.07 – 0.10]**

1- As provided by the asphalt emulsion supplier
2- When approved by the Engineer
3- Older than 1 year

The temperature of the bituminous material at the time of application shall be approved by the Engineer, within the limits specified following:

SS-1, SS-1H, CSS-1, CSS-1H ..... 21 to 71°C (**70 to 160° F**)
MC-250 ..... 74 to 104°C (**165 to 220° F**)

Unless otherwise directed, sand shall be spread on the newly tacked surface at pedestrian crossings.

2357.4 METHOD OF MEASUREMENT

A Bituminous Material

Bituminous material used for tack coat will be measured by volume at 15°C (**60° F**).

2357.5 BASIS OF PAYMENT

All costs of furnishing and applying bituminous tack coat material will be incidental with no direct compensation being made therefore.

S-52 (2360) PLANT MIXED ASPHALT PAVEMENT

Mn/DOT 2360 is hereby deleted from the Mn/DOT Standard Specifications and replaced with the attached **Combined 2360/2350 (Gyratory/Marshall Design) Specification**.

S-52.1 Mix Designation Numbers for the bituminous mixtures on this Project are as follows:

Type SP 12.5 Wearing Course	SPWEB340L
Type SP 12.5 Wearing Course	SPWEB340B
Type SP 12.5 Wearing Course	SPWEB230B

S-52.2 2360.2C4 of the attached **Combined 2360/2350 (Gyratory/Marshall Design) Specification** is hereby modified with the following:

If crushed carbonate quarry rock (limestone or dolostone) is used the minus 75 µm **[#200]** sized portion of the rock insoluble residue shall not exceed 10% by weight. The insoluble residue test procedure is on file in the Mn/DOT Materials Laboratory.

Blending of sources and/or beds with an insoluble residue up to 15% is allowed to meet the 10% insoluble residue requirement. Individual beds thinner than 150 mm **[6 inches]** up to 5% of the total face height, are exempt from the 15% maximum insoluble residue requirement. However, the aggregate producer shall practice good quality control at all times and exclude poor quality stone to the extent practical, regardless of the bed thickness and/or pocket size and location.

No carbonate quarry rock from the Platteville Geological Formation is allowed.

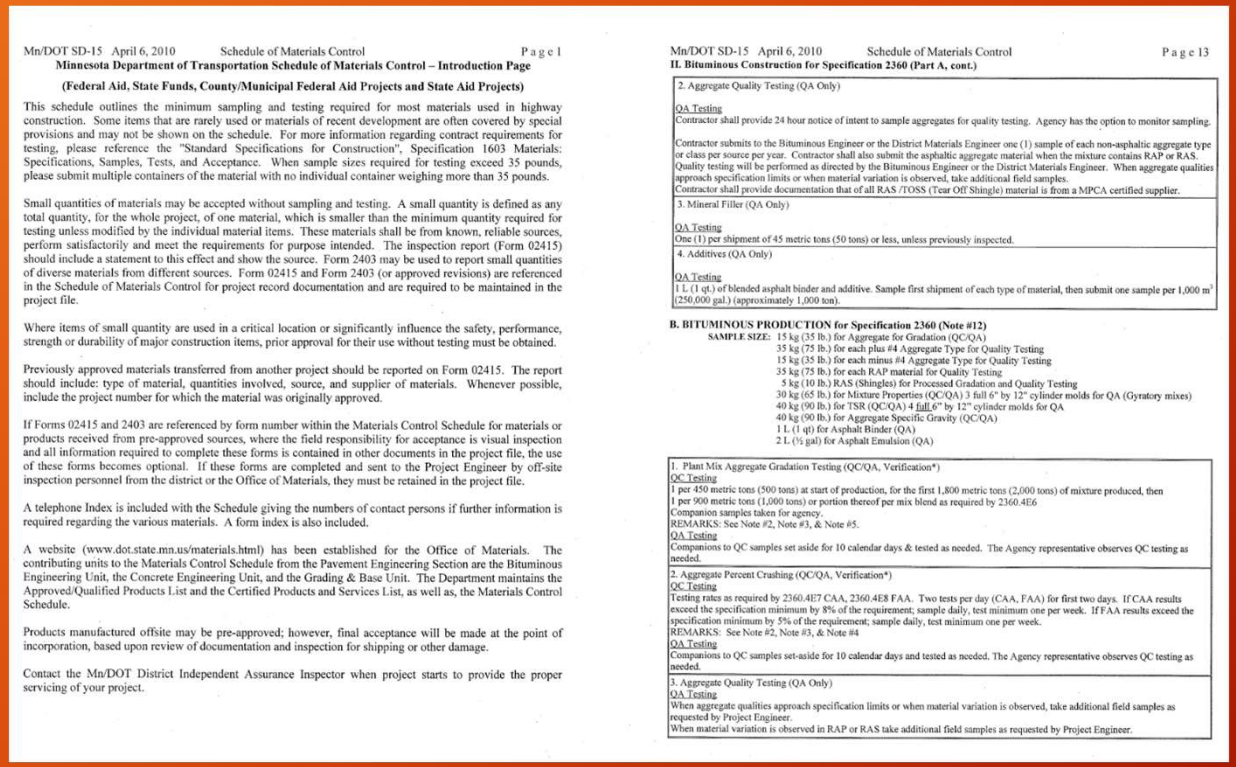
S-52.3 **2360.6** of the attached **Combined 2360/2350 (Gyratory/Marshall Design) Specification** is hereby deleted and replaced with the following:

2360.6 PAVEMENT DENSITY

A General

All pavements will be compacted in accordance with the Maximum Density Method unless otherwise specified in the Contract special provisions or as noted in Section 2360.6C. Density evaluation will be for both compacted mat density and compacted longitudinal joint density on those projects utilizing gyratory design.

Review Schedule of Materials Control



Minnesota Department of Transportation Schedule of Materials Control – Introduction Page

(Federal Aid, State Funds, County/Municipal Federal Aid Projects and State Aid Projects)

This schedule outlines the minimum sampling and testing required for most materials used in highway construction. Some items that are rarely used or materials of recent development are often covered by special provisions and may not be shown on the schedule. For more information regarding contract requirements for testing, please reference the "Standard Specifications for Construction", Specification 1603 Materials: Specifications, Samples, Tests, and Acceptance. When sample sizes required for testing exceed 35 pounds, please submit multiple containers of the material with no individual container weighing more than 35 pounds.

Small quantities of materials may be accepted without sampling and testing. A small quantity is defined as any total quantity, for the whole project, of one material, which is smaller than the minimum quantity required for testing unless modified by the individual material items. These materials shall be from known, reliable sources, perform satisfactorily and meet the requirements for purpose intended. The inspection report (Form 02415) should include a statement to this effect and show the source. Form 2403 may be used to report small quantities of diverse materials from different sources. Form 02415 and Form 2403 (or approved revisions) are referenced in the Schedule of Materials Control for project record documentation and are required to be maintained in the project file.

Where items of small quantity are used in a critical location or significantly influence the safety, performance, strength or durability of major construction items, prior approval for their use without testing must be obtained.

Previously approved materials transferred from another project should be reported on Form 02415. The report should include: type of material, quantities involved, source, and supplier of materials. Whenever possible, include the project number for which the material was originally approved.

If Forms 02415 and 2403 are referenced by form number within the Materials Control Schedule for materials or products received from pre-approved sources, where the field responsibility for acceptance is visual inspection and all information required to complete these forms is contained in other documents in the project file, the use of these forms becomes optional. If these forms are completed and sent to the Project Engineer by off-site inspection personnel from the district or the Office of Materials, they must be retained in the project file.

A telephone Index is included with the Schedule giving the numbers of contact persons if further information is required regarding the various materials. A form index is also included.

A website (www.dot.state.mn.us/materials.html) has been established for the Office of Materials. The contributing units to the Materials Control Schedule from the Pavement Engineering Section are the Bituminous Engineering Unit, the Concrete Engineering Unit, and the Grading & Base Unit. The Department maintains the Approved/Qualified Products List and the Certified Products and Services List, as well as, the Materials Control Schedule.

Products manufactured offsite may be pre-approved; however, final acceptance will be made at the point of incorporation, based upon review of documentation and inspection for shipping or other damage.

Contact the Mn/DOT District Independent Assurance Inspector when project starts to provide the proper servicing of your project.

II. Bituminous Construction for Specification 2360 (Part A, cont.)

2. Aggregate Quality Testing (QA Only) QA Testing Contractor shall provide 24 hour notice of intent to sample aggregates for quality testing. Agency has the option to monitor sampling. Contractor submits to the Bituminous Engineer or the District Materials Engineer one (1) sample of each non-asphaltic aggregate type or class per source per year. Contractor shall also submit the asphaltic aggregate material when the mixture contains RAP or RAS. Quality testing will be performed as directed by the Bituminous Engineer or the District Materials Engineer. When aggregate qualities approach specification limits or when material variation is observed, take additional field samples. Contractor shall provide documentation that of all RAS /TOSS (Tear Off Shingle) material is from a MPCA certified supplier.
3. Mineral Filler (QA Only) QA Testing One (1) per shipment of 45 metric tons (50 tons) or less, unless previously inspected.
4. Additives (QA Only) QA Testing 1 L (1 qt.) of blended asphalt binder and additive. Sample first shipment of each type of material, then submit one sample per 1,000 m^3 (250,000 gal.) (approximately 1,000 ton).

B. BITUMINOUS PRODUCTION for Specification 2360 (Note #12)

SAMPLE SIZE: 15 kg (35 lb.) for Aggregate for Gradation (QC/QA)
35 kg (75 lb.) for each plus #4 Aggregate Type for Quality Testing
15 kg (35 lb.) for each minus #4 Aggregate Type for Quality Testing
35 kg (75 lb.) for each RAP material for Quality Testing
5 kg (10 lb.) RAS (Shingles) for Processed Gradation and Quality Testing
30 kg (65 lb.) for Mixture Properties (QC/QA) 3 full 6" by 12" cylinder molds for QA (Gyratory mixes)
40 kg (90 lb.) for TSR (QC/QA) 4 full 6" by 12" cylinder molds for QA
40 kg (90 lb.) for Aggregate Specific Gravity (QC/QA)
1 L (1 qt) for Asphalt Binder (QA)
2 L (½ gal) for Asphalt Emulsion (QA)

1. Plant Mix Aggregate Gradation Testing (QC/QA, Verification*) QC Testing 1 per 450 metric tons (500 tons) at start of production, for the first 1,800 metric tons (2,000 tons) of mixture produced, then 1 per 900 metric tons (1,000 tons) or portion thereof per mix blend as required by 2360.4E6 Companion samples taken for agency. REMARKS: See Note #2, Note #3, & Note #5. QA Testing Companions to QC samples set aside for 10 calendar days & tested as needed. The Agency representative observes QC testing as needed.
2. Aggregate Percent Crushing (QC/QA, Verification*) QC Testing Testing rates as required by 2360.4E7 CAA, 2360.4E8 FAA. Two tests per day (CAA, FAA) for first two days. If CAA results exceed the specification minimum by 8% of the requirement; sample daily, test minimum one per week. If FAA results exceed the specification minimum by 5% of the requirement; sample daily, test minimum one per week. REMARKS: See Note #2, Note #3, & Note #4 QA Testing Companions to QC samples set-aside for 10 calendar days and tested as needed. The Agency representative observes QC testing as needed.
3. Aggregate Quality Testing (QA Only) QA Testing When aggregate qualities approach specification limits or when material variation is observed, take additional field samples as requested by Project Engineer. When material variation is observed in RAP or RAS take additional field samples as requested by Project Engineer.

Schedule of Materials Control

Will Identify Items that Need to be Sampled

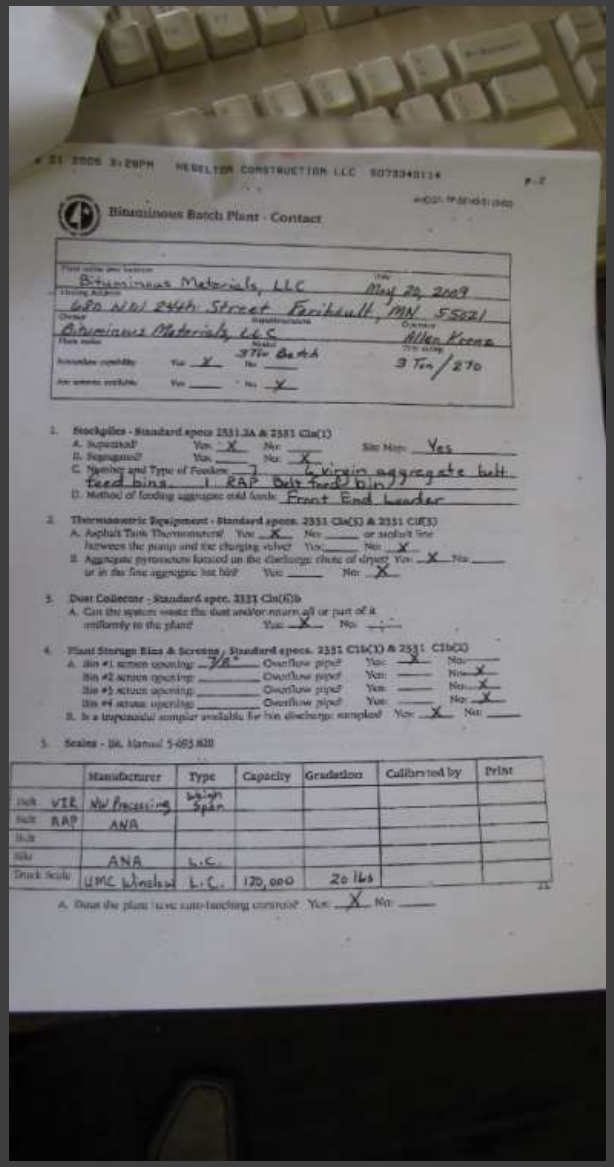
&

Provides the Minimum Sampling and Testing Rates Required for a Project


BEFORE MIX
PRODUCTION BEGINS

Before Production Begins

- Verify that Plant and Lab are Certified per “Certification Procedure” in Specification 2360.2G1a
- Who certifies the plant?



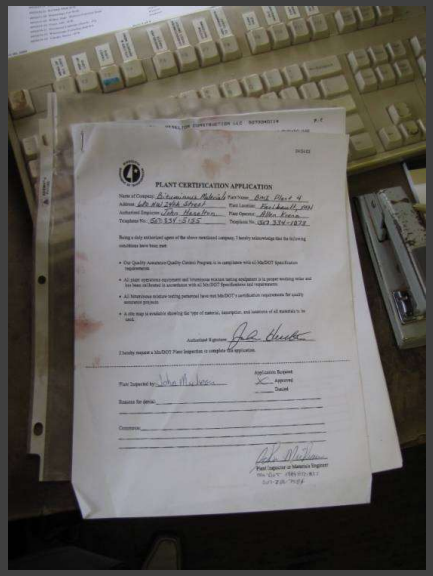
Bituminous Batch Plant - Contact

Bituminous Materials, LLC	May 28, 2009
680 NW 244th Street Faribault, MN 55021	
Bituminous Materials, LLC	Allen Keene
3 Ton Batch	3 Ton/270

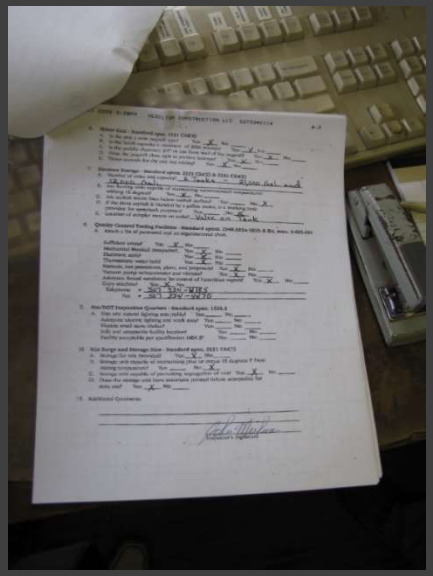
1. Stockpiles - Standard specs. 2331.2A & 2331 C1a(1)
   A. Supervised? Yes: X No: ___ Site Map: Yes
   B. Segregated? Yes: ___ No: X
   C. Number and Type of Feeders: 7 w/main aggregate belt feed bins. 1 RAP belt fed bin
   D. Method of feeding aggregate and fuels: Front End Loader
2. Thermometric Equipment - Standard specs. 2331 C1e(5) & 2331 C1f(3)
   A. Asphalt Tank Thermometers? Yes: X No: ___ or asphalt line between the pump and the charging valve? Yes: ___ No: X
   B. Aggregate pyrometers located on the discharge chute of dryer? Yes: X No: ___ or in the fine aggregate bin? Yes: ___ No: X
3. Dust Collector - Standard spec. 2331 C1e(6)b
   A. Can the system waste the dust and/or return all or part of it uniformly to the plant? Yes: X No: ___
4. Plant Storage Bins & Screens - Standard specs. 2331 C1k(1) & 2331 C1b(2)
   A. Bin #1 screen opening: 3/8" Overflow pipe? Yes: X No: ___
   Bin #2 screen opening: ___ Overflow pipe? Yes: ___ No: X
   Bin #3 screen opening: ___ Overflow pipe? Yes: ___ No: X
   Bin #4 screen opening: ___ Overflow pipe? Yes: ___ No: X
   B. Is a tripper-type sampler available for bin discharge samples? Yes: X No: ___
5. Scales - Bit. Manual 5-685.020

	Manufacturer	Type	Capacity	Graduation	Calibrated by	Print
Belt VIR	NW Processing	Weigh Span				
Belt RAP	ANA					
Belt						
Silo	ANA	L.C.				
Truck Scale	UMC Winsted	L.C.	120,000	20 lbs		

A. Does the plant have rain-barring controls? Yes: X No: ___



PLANT CERTIFICATION APPLICATION



Plant Certification Document

- Form TP 02142-02 or 02143-02
- https://www.dot.state.mn.us/materials/bituminousplantpage.html

Dryer Drum Plant – Certification Report

Name of Company	Plant Name	Plant #
	Commercial #12 Eden Prairie	BP025

Address	Plant location
Authorized Employee	**Plant Operator**
Telephone No:	**Telephone No:**

Plant Model:	Model	TPH Rating

Permanent ☐ Portable ☐

Being a duly authorized agent of the above mentioned company, I hereby acknowledge that the following conditions have been met:

- Our Quality Assurance/Quality Control program is in compliance with all MnDOT specification requirements.
- All plant operations equipment and bituminous mixture testing equipment is in proper working order and has been calibrated in accordance with all MnDOT specifications and requirements.
- All bituminous testing personnel have met MnDOT's technical certification program requirements for quality management.
- A site map is attached showing the type of material, description, and locations of all materials to be used.

Contractors Authorized Printed Name: _____

Contractors Authorized signature: _____

Date: _____

Comments: _____

_____

_____

_____

1. Stockpiles/Cold Feed Bins

			Agency Verified
A. Is Aggregate Storage Satisfactory	Yes ☐	No ☐	☐
B. Are stockpiles separated properly?	Yes ☐	No ☐	☐
C. Is segregation evident?	Yes ☐	No ☐	☐
D. Is there contamination?	Yes ☐	No ☐	☐
E. Has a site map been provided?	Yes ☐	No ☐	☐
F. Number of Cold Feed Bins:	Virgin:	Recycle:	

			Agency Verified
G. Cold feed scalping installed to control maximum particle size?	Yes ☐	No ☐	☐
	Virgin:	Recycle:	
H. Do cold feed bins perform properly?	Yes ☐	No ☐	☐
I. Are cold aggregate feeders calibrated?	Yes ☐	No ☐	☐

(include calibration documentation)

			Agency Verified
J. Are all cold agg feeding continuously?	Yes ☐	No ☐	☐
K. Are there partitions high enough to prevent bin intermingling?	Yes ☐	No ☐	☐

COMMENTS: Plant Temp. Gun: _____

_____

_____

_____

2. Asphalt Handling

			Agency Verified
A. Asphalt tank thermometers?	Yes ☐	No ☐	☐
B. Asphalt Tank Sizes and Locations noted on map?	Yes ☐	No ☐	☐

SIZES, PG GRADES:

Tank 1:		PG:	
Tank 2:		PG:	
Tank 3:		PG:	
Tank 4:		PG:	

			Agency Verified
C. Are heating units capable of maintaining recommended temperatures within 10 degrees?	Yes ☐	No ☐	☐
D. Asphalt Grades in each tank labeled on map?	Yes ☐	No ☐	☐
E. Are systems interlocked to stop all feed components if either the aggregate or asphalt feed stops?	Yes ☐	No ☐	☐

3. Dust Collector

A. Can the system waste the dust and/or return all or part of it uniformly to the plant?	Yes ☐	No ☐	☐

4. **Bituminous Control** — Agency Verified

A. Plant equipped with a working tank or a metering — Yes ☐ No ☐ ☐

B. Is sampling valve located between pump and — Yes ☐ No ☐ ☐

C. Is the asphalt delivery meter accurate within +/- 1%? — Yes ☐ No ☐ ☐

(include calibration documentation)

5. **Scales – Bituminous Manual 5 - 693.82**

(include calibration documentation)

Digital

	Manufacturer	Type	TPH	Grad.	Calibrated by	Print	Span	Date
Belt RAP								
Belt RAP								
Belt VIR								
Belt VIR								
Belt RAS								
AC Meter: 1								
AC Meter: 2								
Warm mix								
Silo 1								
Silo 3, 4 and 5								
Truck Scale								

6. **Drum Mixer** — Agency Verified

A. Manufacturer specified angle of drum within limits? — Yes ☐ No ☐ ☐

B. Plant Recordation system collecting and saving — Yes ☐ No ☐ ☐

(Include sample copy of printout to this form.)

7. **Mix Surge and Storage Bins** — Agency Verified

A. Storage for mix provided? _____ BINS — Yes ☐ No ☐ ☐

B. Storage Unit capable of maintaining plus or minus 9 Degrees F from mixing temperature? — Yes ☐ No ☐ ☐

C. Type of Batcher? _____

D. Discharge gate opening/closing efficiently? — Yes ☐ No ☐ ☐

E. Does automatic weigh scales have all information required in 2360.2.G.8? — Yes ☐ No ☐ ☐

(Include a sample copy to this document)

8. **Misc.** — Agency Verified

A. Non-petroleum distillates used as release agent? — Yes ☐ No ☐ ☐

B. Is there a sampling device at plant? — Yes ☐ No ☐ ☐

C. Warm Mix Asphalt.

a. Is plant equipped with a foaming device? — Yes ☐ No ☐ ☐

b. Is plant equipped with an other WMA additive device? — Yes ☐ No ☐ ☐

TYPE: _____

D. Weight ticket includes required documentation? — Yes ☐ No ☐ ☐

(Include a sample copy to this document)

9. Quality Control Testing Facilities

A. Attach a list of personnel and an organizational chart.

	Name	Phone	Tech cert
Field Superintendent			
EMAIL:			
Production Superintendent			
EMAIL:			
Plant Operator			
EMAIL:			
Mix Designer			
EMAIL:			
Laboratory Technician			
EMAIL:			
Laboratory Technician			
EMAIL:			

B. Equipment checklist

		Agency Verified		
Lab Thermometers?	☐	☐		
Calibrated?	☐	☐	DATE:	
Ignition Oven?	☐	☐		
Calibrated?	☐	☐	DATE:	
Gyratory Compactor?	☐	☐		
Calibrated?	☐	☐	DATE:	
Gyratory molds?	☐	☐		
Calibrated?	☐	☐	DATE:	
Electronic scale?	☐	☐		
Calibrated?	☐	☐	DATE:	
Ovens?	☐	☐		
Calibrated?	☐	☐	DATE:	
Mechanical Shaker?	☐	☐		
Calibrated?	☐	☐	DATE:	
Gradation Sieves?	☐	☐		
Calibrated?	☐	☐	DATE:	
Vacuum pump w/manometer and vibrator?	☐	☐		
Calibrated?	☐	☐	DATE:	
Thermostatic water bath and suspension apparatus at proper temperature?	☐	☐		
Calibrated?	☐	☐	DATE:	
FAA Cone and Equipment?	☐	☐		
Calibrated?	☐	☐	DATE:	

Rice Containers: Verified Weekly

Container ID	Dry Tare Weight	Wet Tare Weight
A		
B		
C		

		Agency Verified
Copy machine?	☐	☐
Computer?	☐	☐
Printer?	☐	☐
Internet/Email?	☐	☐
Microsoft Excel, 2010 or newer?	☐	☐
Calibration records of equipment in laboratory?	☐	☐

COMMENTS:

Certification Verified By: Printed Name:

Certification Verified By: Signature:

Date.

Certification Procedure for Contractor

- Complete Certification form and request for plant inspection
- Provide a site map of stockpile locations
- Pass plant and testing facility inspection.
- Obtain a Mixture Design Report (MDR) prior to production

Plant Calibration

- AC Pump calibration
- Scale(s)
- Belts

QC LAB EQUIPMENT CALIBRATIONS

- CALIBRATION DOCUMENTATION
  - Lab Scales
  - Gyratory Compactor & Molds
  - Thermometers
  - Sieves
  - Rice Container/pycnometer
  - Residual Pressure Manometer or Vacuum Gauge

CALIBRATIONS

- Watch for equipment that is not serviceable

Maintaining Certification

- The plant must produce, test, and document all certified plant asphalt mixtures in accordance with the specification requirements on a continuous basis. (2360.2G.1.b)
- Certified after winter suspension or if the plant is moved.
- Revocation of Certification, if:
  - Mix does not meet requirements
  - Failure to meet testing rates
  - Records are falsified

Plant Certification Quiz

- What must be completed before producing material for a project ?
- What happens if a portable plant is moved?
- What equipment needs to be Calibrated ?
- Who calibrates the plant?

Plant Operations

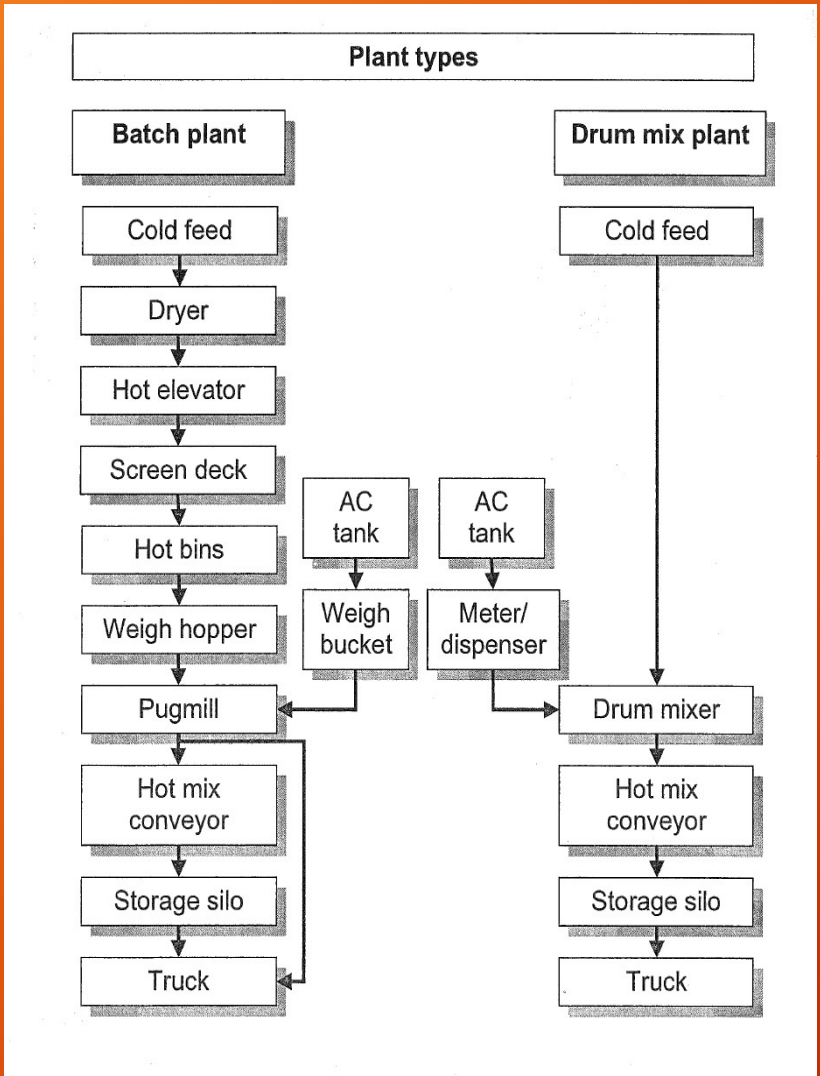
PLANTS

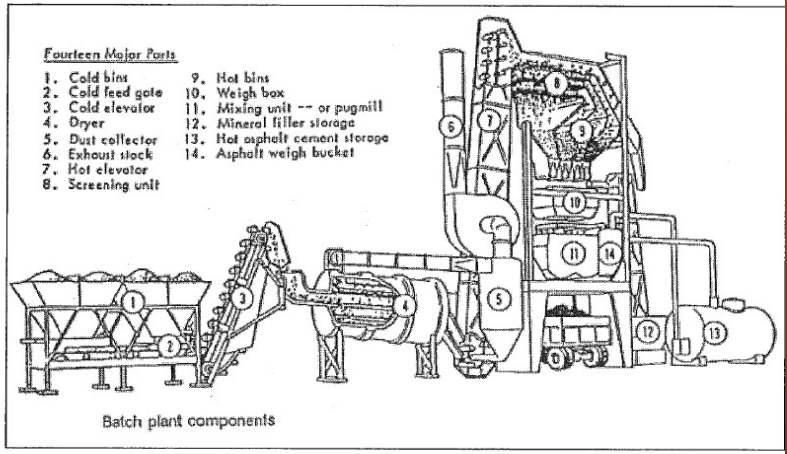
Counter-Flow Drum Plant
Permanent Location➔

➔Portable Counter-Flow
Drum Plant

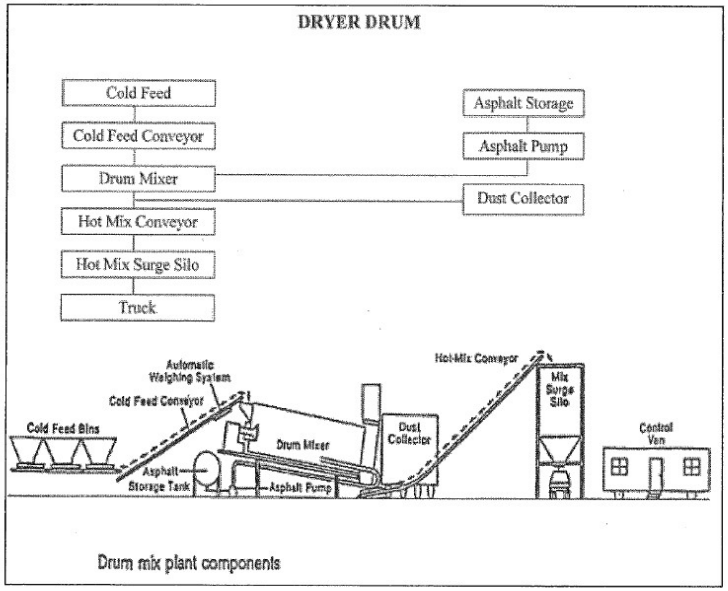
Batch Plant w/Screen Deck➔

PLANTS





Batch plant components



Drum mix plant components

Be AWARE of HAZARDS

Be AWARE of HAZARDS

Routinely Check Cold Feed Bins for Proper Operation

OVERFLOWING BINS

Check Aggregate Belts For Proper Operation

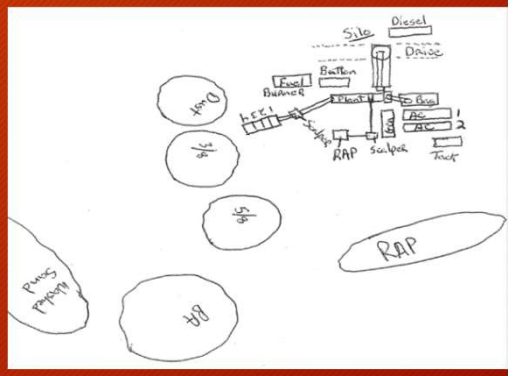
Do Not Make Any Adjustments To Contractor's Equipment!

AGGREGATE STOCKPILES


Stockpile
ID

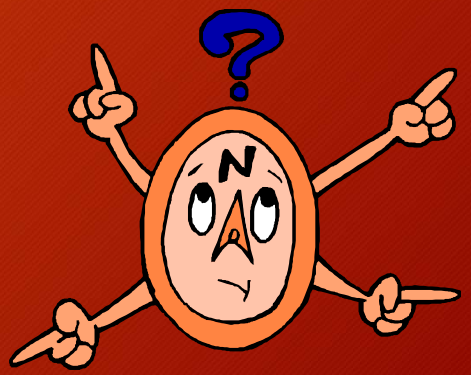
STOCKPILES

- Review the Site Map & Aggregate Stockpile Locations



- Know - Which is What! Where is What! What is What!

  How much of what, etc.



Check Stockpiles for Contamination !

A “GREEN” STOCKPILE ?

Objectionable Material in Aggregate

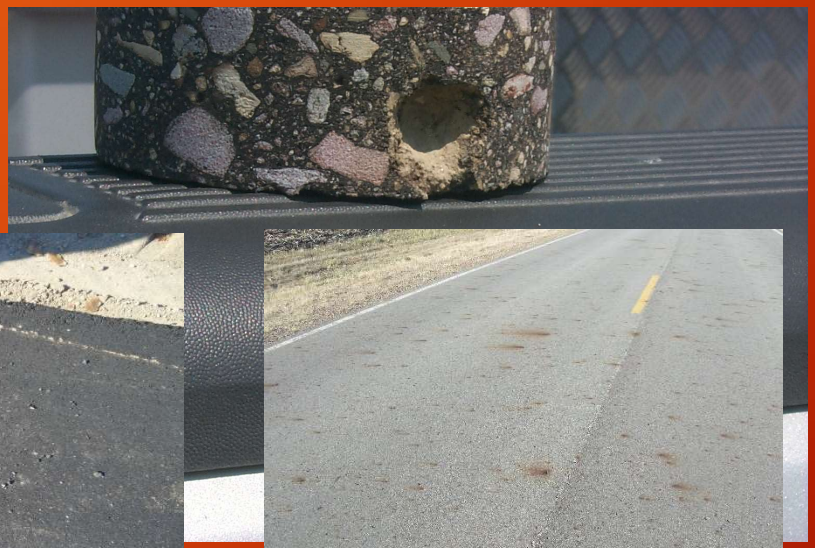
- Spec 3139.2A: “Do not use graded aggregate containing objectionable materials including:”

  Metal Plastic

  Glass Brick

  Wood Rubber

Contamination Can Lead to Pavement Issues!



CHECK the RAP PILES

Objectionable Material in RAP

- Spec 3139.2B.11: “Do not use RAP containing objectionable materials including:”

  Metal Plastic

  Glass Brick

  Wood Rubber

- Debris

Contamination Leads to Pavement Issues !

SHINGLES (RAS)

Shredded RAS

"Corn Flakes"
Fails Spec Gradation

"Coffee Grounds"
Meets Spec Gradation

Extraneous Waste in RAS

- Includes Metals
- Glass
- Rubber
- Nails
- Soil
- Brick
- Tars
- Wood
- Paper
- & Plastic

TYPES of RAS PRODUCTS

- **MWSS** (Manufactured Waste Scrap Shingle)
- **TOSS** (Tear Off Scrap Shingle)

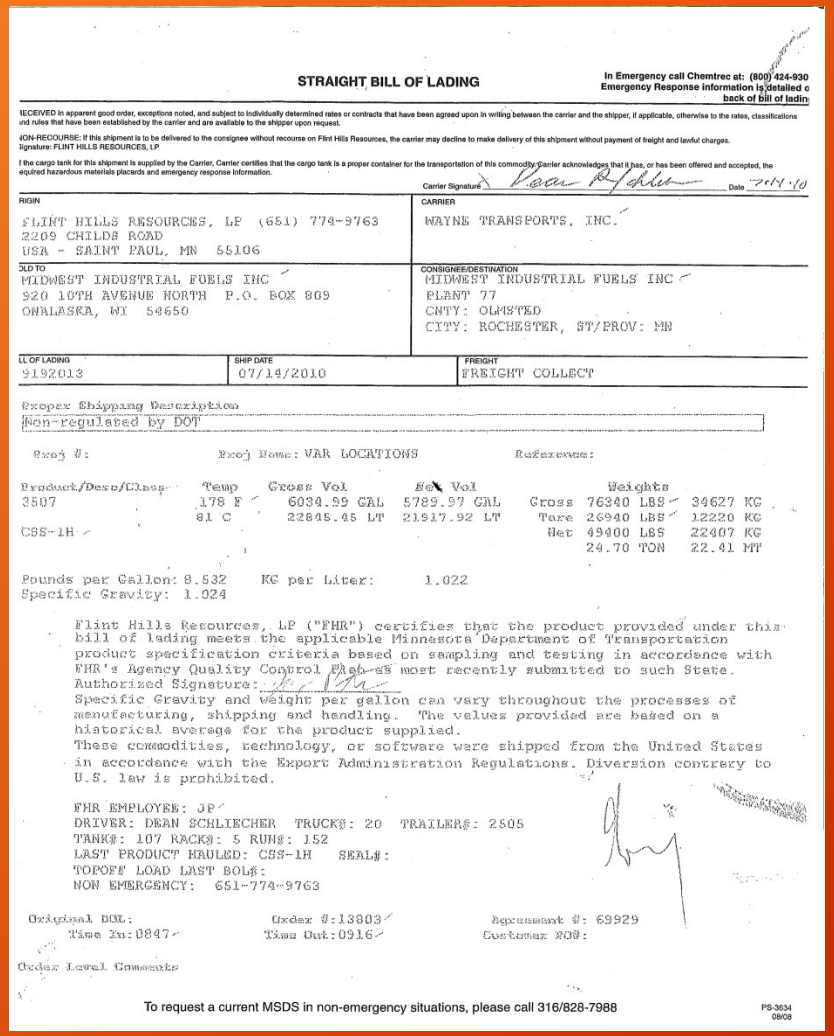
Plant Monitors!

If there's a visual change to the product! Sample & Submit!

Don't want "Corn Flakes"

Be Aware of New Materials Hauled Into the Plant Site

Asphalt Binder



STRAIGHT BILL OF LADING

In Emergency call Chemtrec at: (800) 424-930
Emergency Response information is detailed o
back of bill of ladin

RECEIVED in apparent good order, exceptions noted, and subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and the shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper upon request.

NON-RECOURSE: If this shipment is to be delivered to the consignee without recourse on Flint Hills Resources, the carrier may decline to make delivery of this shipment without payment of freight and lawful charges.
Signature: FLINT HILLS RESOURCES, LP

If the cargo tank for this shipment is supplied by the Carrier, Carrier certifies that the cargo tank is a proper container for the transportation of this commodity. Carrier acknowledges that it has, or has been offered and accepted, the required hazardous materials placards and emergency response information.

Carrier Signature [signature] Date 7/14/10

ORIGIN	CARRIER
FLINT HILLS RESOURCES, LP (651) 774-9763 2209 CHILDS ROAD USA - SAINT PAUL, MN 55106	WAYNE TRANSPORTS, INC.
SOLD TO MIDWEST INDUSTRIAL FUELS INC 920 10TH AVENUE NORTH P.O. BOX 809 ONALASKA, WI 54650	CONSIGNEE/DESTINATION MIDWEST INDUSTRIAL FUELS INC PLANT 77 CNTY: OLMSTED CITY: ROCHESTER, ST/PROV: MN

BILL OF LADING	SHIP DATE	FREIGHT
9192013	07/14/2010	FREIGHT COLLECT

Proper Shipping Description
Non-regulated by DOT

Proj #: Proj Name: VAR LOCATIONS References:

Product/Desc/Class	Temp	Gross Vol	Net Vol		Weights	
3507	178 F	6034.99 GAL	5789.97 GAL	Gross	76340 LBS	34627 KG
	81 C	22845.45 LT	21917.92 LT	Tare	26940 LBS	12220 KG
CSS-1H				Net	49400 LBS	22407 KG
					24.70 TON	22.41 MT

Pounds per Gallon: 8.532 KG per Liter: 1.022
Specific Gravity: 1.024

Flint Hills Resources, LP ("FHR") certifies that the product provided under this bill of lading meets the applicable Minnesota Department of Transportation product specification criteria based on sampling and testing in accordance with FHR's Agency Quality Control Plan as most recently submitted to such State.
Authorized Signature: [signature]
Specific Gravity and weight per gallon can vary throughout the processes of manufacturing, shipping and handling. The values provided are based on a historical average for the product supplied.
These commodities, technology, or software were shipped from the United States in accordance with the Export Administration Regulations. Diversion contrary to U.S. law is prohibited.

FHR EMPLOYEE: JP
DRIVER: DEAN SCHLIECHER TRUCK#: 20 TRAILER#: 2505
TANK#: 107 RACK#: 5 RUN#: 152
LAST PRODUCT HAULED: CSS-1H SEAL#:
TOPOFF LOAD LAST BOL#:
NON EMERGENCY: 651-774-9763

Original BOL: Order #:13803 Agreement #: 69929
Time In:0847 Time Out:0916 Customer PO#:

Order Level Comments

To request a current MSDS in non-emergency situations, please call 316/828-7988

PS-3634
08/08

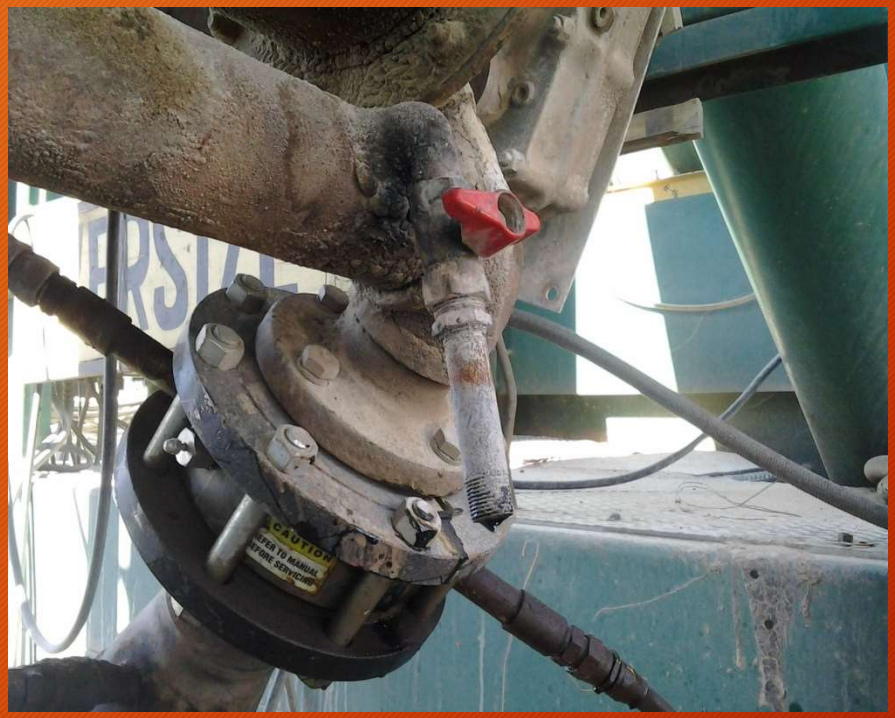
- Confirm PG Grade required for project
- Check invoices for correct asphalt grade
- Collect certified and signed asphalt cement invoices each day

ASPHALT BINDER

Single tank plants may have issues when changing PG grades under MSCR.

Asphalt Binder

Observe Sampling



- Collect & Submit Asphalt Samples

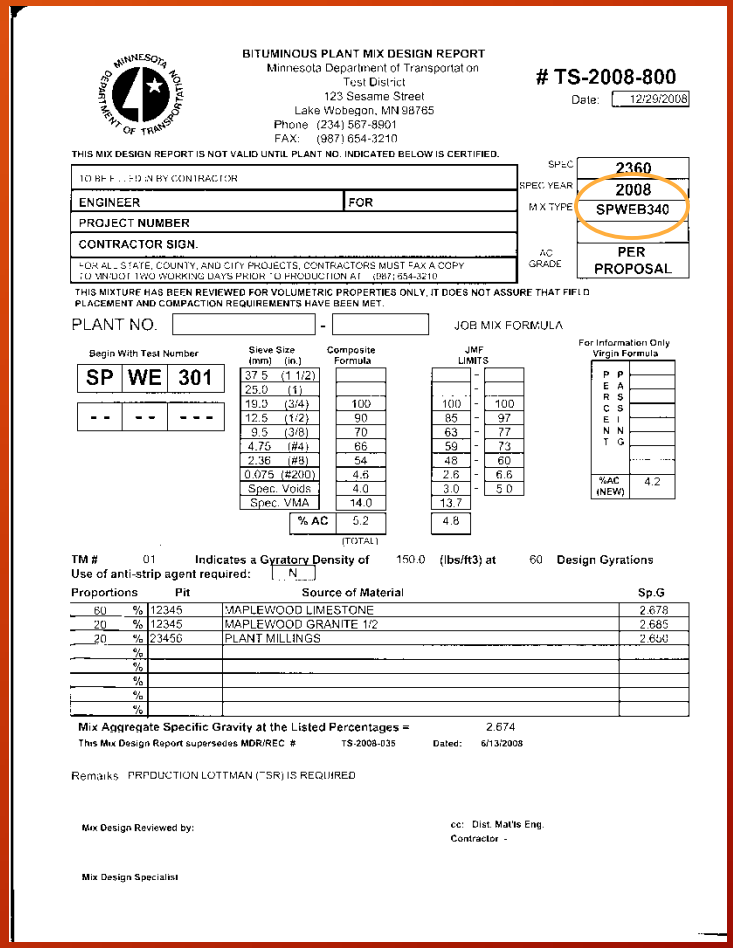
Sampling Asphalt Emulsion

What's Wrong with This Picture?

THE MIXTURE!

Mixture Type

- Verify that the right mix is being used on the project –
- Check Mixture Design Report (MDR) and verify that mix type matches with the mix being produced



BITUMINOUS PLANT MIX DESIGN REPORT
Minnesota Department of Transportation
Test District
123 Sesame Street
Lake Wobegon, MN 98765
Phone (234) 567-8901
FAX: (987) 654-3210

TS-2008-800
Date: 12/29/2008

THIS MIX DESIGN REPORT IS NOT VALID UNTIL PLANT NO. INDICATED BELOW IS CERTIFIED.

TO BE FILLED IN BY CONTRACTOR
ENGINEER | FOR
PROJECT NUMBER
CONTRACTOR SIGN.
FOR ALL STATE, COUNTY, AND CITY PROJECTS, CONTRACTORS MUST FAX A COPY TO MNDOT TWO WORKING DAYS PRIOR TO PRODUCTION AT (987) 654-3210

SPEC 2360
SPEC YEAR 2008
MIX TYPE SPWEB340
AC GRADE PER PROPOSAL

THIS MIXTURE HAS BEEN REVIEWED FOR VOLUMETRIC PROPERTIES ONLY. IT DOES NOT ASSURE THAT FIELD PLACEMENT AND COMPACTION REQUIREMENTS HAVE BEEN MET.

PLANT NO. - JOB MIX FORMULA

Begin With Test Number: SP | WE | 301

Sieve Size (mm)	(in.)	Composite Formula	JMF LIMITS		For Information Only Virgin Formula
37.5	(1 1/2)		-		PERCENT PASSING
25.0	(1)		-		
19.0	(3/4)	100	100	100	
12.5	(1/2)	90	85 -	97	
9.5	(3/8)	70	63 -	77	
4.75	(#4)	66	59 -	73	
2.36	(#8)	54	48 -	60	
0.075	(#200)	4.6	2.6 -	6.6	
Spec. Voids		4.0	3.0 -	5.0	%AC (NEW) 4.2
Spec. VMA		14.0	13.7		
% AC		5.2	4.8		
		[TOTAL]			

TM # 01 Indicates a Gyratory Density of 150.0 (lbs/ft3) at 60 Design Gyrations
Use of anti-strip agent required: N

Proportions	Pit	Source of Material	Sp.G
60 %	12345	MAPLEWOOD LIMESTONE	2.678
20 %	12345	MAPLEWOOD GRANITE 1/2	2.685
20 %	23456	PLANT MILLINGS	2.690
%			
%			
%			
%			
%			

Mix Aggregate Specific Gravity at the Listed Percentages = 2.674
This Mix Design Report supersedes MDR/REC # TS-2008-035 Dated: 6/13/2008

Remarks PRODUCTION LOTTMAN (TSR) IS REQUIRED

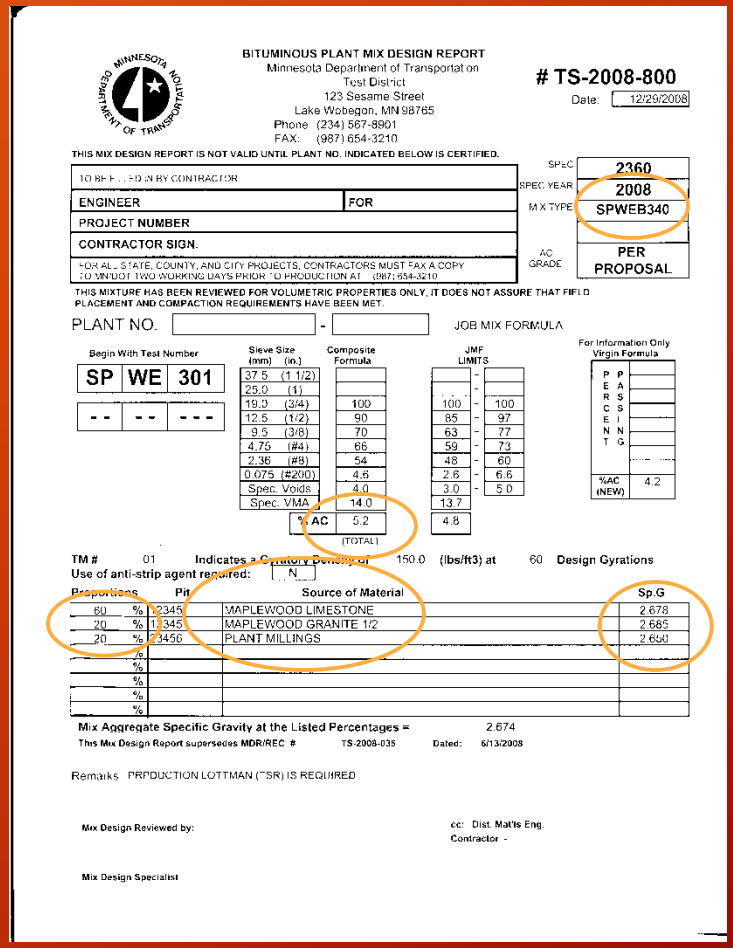
Mix Design Reviewed by:

cc: Dist. Matls Eng.
Contractor -

Mix Design Specialist

THE MDR

- Mixture Design Report (MDR). Its the Contractor's recipe.
- Verify that it matches with what's entered on the Test Summary Sheet (TSS)



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SPEC YEAR 2008
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PLANT NO. - JOB MIX FORMULA

Begin With Test Number: SP WE 301 / - - - - - -

Sieve Size (mm)	(in.)	Composite Formula	JMF LIMITS		For Information Only Virgin Formula
37.5	(1 1/2)		-		PERCENT PASSING
25.0	(1)		-		
19.0	(3/4)	100	100 -	100	
12.5	(1/2)	90	85 -	97	
9.5	(3/8)	70	63 -	77	
4.75	(#4)	66	59 -	73	
2.36	(#8)	54	48 -	60	
0.075	(#200)	4.6	2.6 -	6.6	
Spec. Voids		4.0	3.0 -	5.0	
Spec. VMA		14.0	13.7		
% AC		5.2 (TOTAL)	4.8		%AC (NEW) 4.2

TM # 01 Indicates a Gyratory Density of 150.0 (lbs/ft3) at 60 Design Gyrations
Use of anti-strip agent required: N

Proportions	Pit	Source of Material	Sp.G
60 %	12345	MAPLEWOOD LIMESTONE	2.678
20 %	12345	MAPLEWOOD GRANITE 1/2	2.685
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%			
%			
%			
%			
%			

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Remarks PRODUCTION LOTTMAN (TSR) IS REQUIRED

Mix Design Reviewed by:

cc: Dist. Matl's Eng.
Contractor -

Mix Design Specialist

Mixture Temperatures

- Using infrared gun shoot mix temperature leaving the drum
- Check temperature of mix leaving drum against control panel readout
- Make note in diary

What's the Temperature?

What's too Hot?

- Rule of Thumb

  if >325ºF Verify
- 2360 Spec- Max mix temp = 30ºF above the Suppliers Recommended Maximum Mixing Temp.

WARM MIX

- It's Hot Mix produced at a lower temp!
- Typically at 30°F or lower than HMA w/same PG binder
- Chemical Additive or Foaming Process is used

WARM MIX

- WMA allowed on all Projects.
- Engineer must be notified if WMA is to be used.
- Must be noted on Test Summary Sheet
- Note compaction temperature on sample card

WARM MIX & PLANT MONITORING

- Tracking WMA projects
- Make note on sample cards
    - *Type of Warm Mix used?
    - *Plant Mixing Temperature?
    - *Gyratory Compaction Temperature?

TRUCK LOADING

TRUCK LOADING

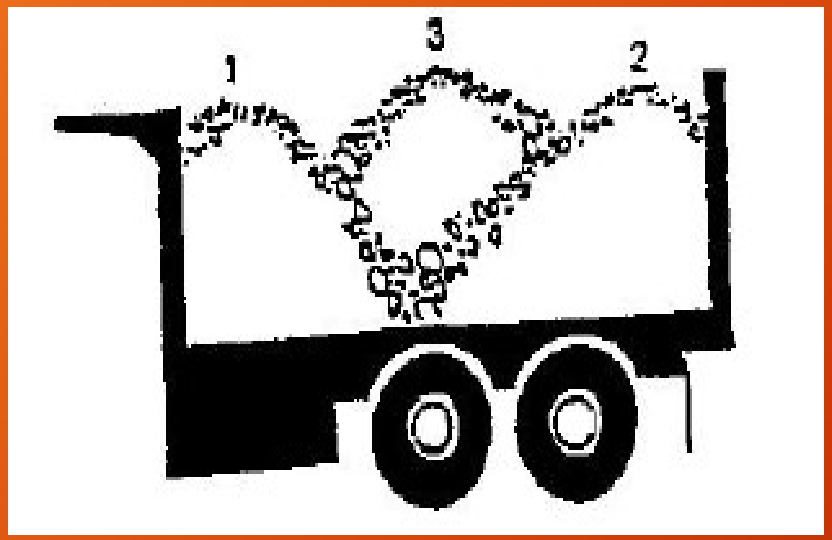
- Weekly scale checks
- What is the release agent used on the truck beds—NO Petroleum based solvents!
- Tarps – when are they needed? Rain, Cool weather, Long hauls, Long wait times.

  You tell them when to use them.

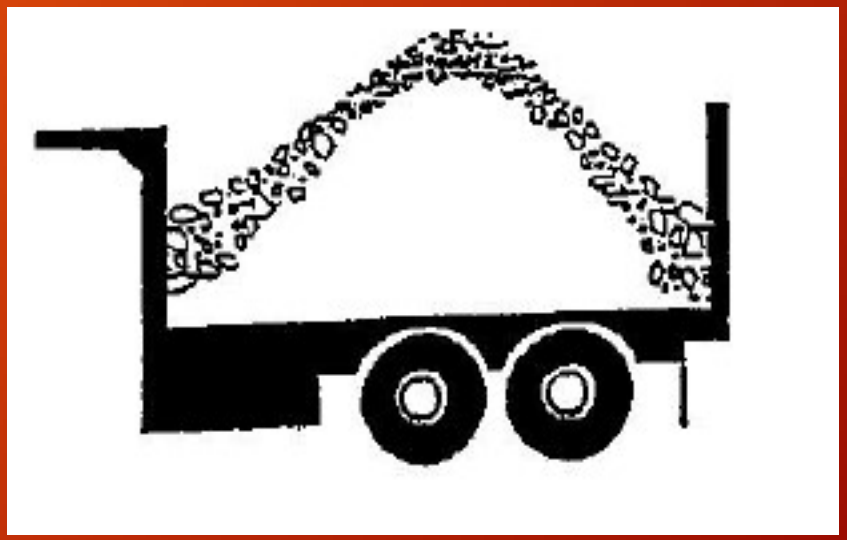
Are Trucks Being Tarped if Needed ?

Note How the Trucks are Being Loaded !

How Are the Trucks Being Loaded ?

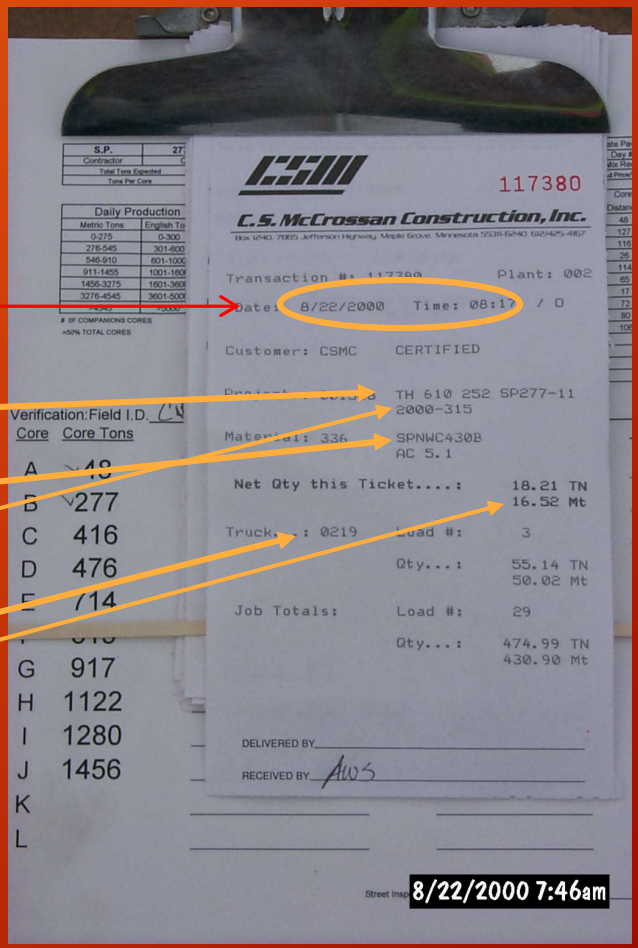


VS



Truck Weigh Tickets

- Verify that the computer generated ticket has the following information.
  - Project number
  - Mix designation including binder grade
  - MDR number
  - Truck ID & tare
  - Net mass
  - Date & time of loading



PLANT RECORDATION

PLANT RECORDATION

- **2360 Spec Requirement:**

  Contractor must furnish an electronic printout from an automatic plant blending control system at 20 minute intervals.

- **Intent :**

  *Is to verify & document the plant's settings.

  *Used in verifying the amount of Add AC for the % New AC Ratio requirement.

NEW AC to TOTAL AC RATIO (Binder Replacement)

- Purpose: To ensure a certain amount of new asphalt binder is being incorporated into the mixture.

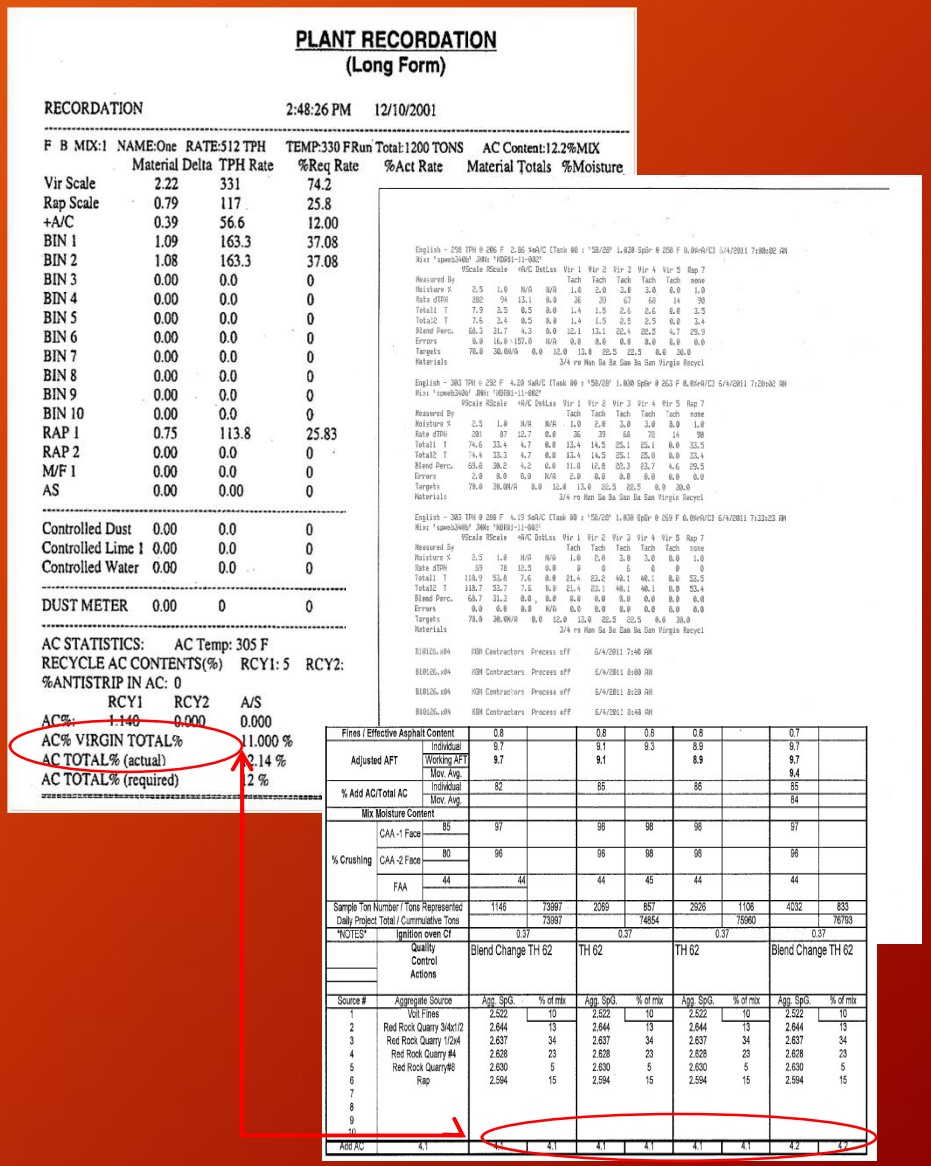
- Reason

PRINTOUT REQUIREMENTS

- Both virgin & recycle belt feed rates (tons/hr)
- Feeder bin percentages
- Total % AC in mixture
- % Add AC (new asphalt)
- Mix Temp
- Mix Designation (code)
- Date & time
- Current tons produced & daily cumulative tons produced at time of printout
- Daily: SPAN values

Plant Recordation

- **Steps for a Plant Monitor:**
  - -Collect printouts
  - -Focus on % new AC (add AC).
  - -Verify reported % Add AC listed on Test Summary Sheet



PLANT RECORDATION
(Long Form)

RECORDATION 2:48:26 PM 12/10/2001

F B MIX:1 NAME:One RATE:512 TPH TEMP:330 F Run Total:1200 TONS AC Content:12.2%MIX

	Material Delta	TPH Rate	%Req Rate	%Act Rate	Material Totals	%Moisture
Vir Scale	2.22	331	74.2			
Rap Scale	0.79	117	25.8			
+A/C	0.39	56.6	12.00			
BIN 1	1.09	163.3	37.08			
BIN 2	1.08	163.3	37.08			
BIN 3	0.00	0.0	0			
BIN 4	0.00	0.0	0			
BIN 5	0.00	0.0	0			
BIN 6	0.00	0.0	0			
BIN 7	0.00	0.0	0			
BIN 8	0.00	0.0	0			
BIN 9	0.00	0.0	0			
BIN 10	0.00	0.0	0			
RAP 1	0.75	113.8	25.83			
RAP 2	0.00	0.0	0			
M/F 1	0.00	0.0	0			
AS	0.00	0.00	0			
Controlled Dust	0.00	0.0	0			
Controlled Lime 1	0.00	0.0	0			
Controlled Water	0.00	0.0	0			
DUST METER	0.00	0	0			

AC STATISTICS: AC Temp: 305 F
RECYCLE AC CONTENTS(%) RCY1: 5 RCY2:
%ANTISTRIP IN AC: 0

	RCY1	RCY2	A/S
AC%:	1.140	0.000	0.000

AC% VIRGIN TOTAL% 1.000 %
AC TOTAL% (actual) 2.14 %
AC TOTAL% (required) 2 %

Fines / Effective Asphalt Content		0.8		0.8	0.8	0.8		0.7	
Adjusted AFT	Individual	9.7		9.1	9.3	8.9		9.7	
	Working AFT	9.7		9.1		8.9		9.7	
	Mov. Avg.							9.4	
% Add AC/Total AC	Individual	82		85		86		85	
	Mov. Avg.							84	
Mix Moisture Content									
% Crushing	CAA -1 Face 85	97		96	98	98		97	
	CAA -2 Face 80	96		96	98	98		96	
	FAA 44	44		44	45	44		44	
Sample Ton Number / Tons Represented		1146	73997	2069	857	2926	1106	4032	833
Daily Project Total / Cummulative Tons			73997		74854		75960		76793
NOTES	Ignition oven Cf	0.37		0.37		0.37		0.37	
	Quality Control Actions	Blend Change TH 62		TH 62		TH 62		Blend Change TH 62	

Source #	Aggregate Source	Agg. SpG.	% of mix	Agg. SpG.	% of mix	Agg. SpG.	% of mix	Agg. SpG.	% of mix
1	Volt Fines	2.522	10	2.522	10	2.522	10	2.522	10
2	Red Rock Quarry 3/4to1/2	2.644	13	2.644	13	2.644	13	2.644	13
3	Red Rock Quarry 1/2x4	2.637	34	2.637	34	2.637	34	2.637	34
4	Red Rock Quarry #4	2.628	23	2.628	23	2.628	23	2.628	23
5	Red Rock Quarry#8	2.630	5	2.630	5	2.630	5	2.630	5
6	Rap	2.594	15	2.594	15	2.594	15	2.594	15
7									
8									
9									
10									
Add AC		4.1	4.1	4.1	4.1	4.1	4.1	4.2	4.2

WHAT IF PLANT'S NOT EQUIPPED WITH PRINTOUT CAPABILITY?

- Engineer May Waive Printout Requirements.
- However A Daily Spot Check will be Required a an Alternate Process for Verifying Add AC.

AC RATIO & THE TEST SUMMARY SHEET

- The Add AC Fields Need To Be Entered For Each QC Sample
- Plant Monitor's Job - Verify Add AC
- If Mix Fails To Meet Ratio Minimums, A Message Appears Stating "Stop Production"

NEW AC RATIO DURING PRODUCTION

- If the individual or moving average ratio drops below the minimum requirement, the Contractor must 

PRODUCTION and make adjustments .

QC/QA & VERIFICATION SAMPLES

QC / QA SAMPLE DEFINITIONS

- QC Sample – Process sample, used to control the mixture production process. Location determined and sampled by the Contractor.
- QA Sample – The Agency's companion to the Contractor's QC sample.
- Verification Sample – Sample which is taken by the Agency to assure compliance of the Contractors Quality Control Program. Location determined by Agency. Sampled by either Agency or Contractor.
- Verification Companion Sample– The companion to the Agency's verification sample.

Mn/DOT's QC/QA PROCESS

SAMPLING & SPLITTING

- **Agency is required to witness all QC/QA sampling and splitting.**

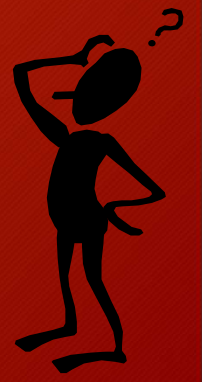
- **After splitting, Agency must take possession of all the (QA) splits.**

SAMPLE TESTING

- **Contractor tests all QC splits**
- **At the end of the day the inspector randomly selects one of the QC/QA splits as the "Verification " sample.**
- **QA Sample is sent to District Lab for testing.**
- **Agency will retain possession of other QA splits for min 10 days.**

VERIFICATION SAMPLING

- Agency must take a daily random sample.
- Contractor must test these “Verification Companion” samples.
- This random sample will replace the next scheduled QC sample.
- KEEP EM GUESSING!



Ensure that the Required Number of Samples & Tests are Being Performed!

- Refer to The Schedule of Materials Control.

SCHEDULE OF MATERIALS CONTROL

- Take a look at how it is set up.
- Is there enough tests or too few?
- Do you know what to do if the schedule is not met (missing tests, failing tests)

SMC QC/QA Sampling & Testing Rates for Spec 2360

- **Start Up Rate:** 1/500 tons for 1st 2000 tons
- **Production Rate:** 1/1000 tons
- How Many Samples & Tests Required for A Day?

Divide the planned production for the day by the required rate. Round up to the next higher whole number.

ex: 3750 tons ÷ 1000 = 3.75 or (4 QC samples)

RANDOM NUMBERS for SAMPLING

- Confirm the random numbers for the daily tonnage.
- Good idea if 1st sample for the day is taken earlier rather than later.

RANDOM NUMBER GENERATION

- Use ASTM D 3665 Section 5

  or

- Use an Engineer Approved Alternate Method

SAMPLING LOCATIONS

- QC/QA Samples: Contractor's Choice - Truck Box or Behind the Paver
- Verification Samples:

  Agency's Choice
- Lottman (TSR) Sample:

  Agency's Choice-

  *Bit Office Recommends Truck Box or Windrow Sampling for TSR Sample

TRUCK BOX SAMPLING

- Yes or No?
- What are your thoughts?

REQUIRED QC TESTING

- Testing includes: Gmb of Gyratory Pucks, Rice, %AC, Gradation, FAA & CAA
- Calculations required: adj AFT, Voids, Fines to Effective & % new AC Ratio
- Mixture Moisture Content: Only when directed by the Engineer.
- TSR Testing as directed by the Engineer
- AC Binder:1st load then 1/250,000 gal

MONITORING the QC /QA TESTING

Monitoring the QC Testing

- The Plant Monitor's duties include observing the QC testing on a random basis.

- Verify that the contractor's tester has a current Technical Certification Card.


STATE OF MINNESOTA

[redacted] Tech Id: 1[redacted]

Firm: Braun Intertec

Issued: 05/28/2014 LEVEL I ~~LEVEL II~~

Aggregate Production YES

Bituminous Plant 05/31/2017

Concrete Field 05/31/2016

Concrete Plant 05/31/2017

Grading & Base 05/31/2017

- The 2360 Spec requires that individuals performing process control testing must be certified as a Level 1 Bituminous Quality Management (QM) Tester.

- Individuals making plant process adjustments must be certified as Level II Bituminous QM Mix Designer.

Establishing An Ignition Oven Correction Factor

On First Day of Production

- Both QC & QA Labs Establish CF From Plant Mix
- CF Will be Based Off a Chemical Extraction by QA Lab and QC does **2 ignitions burns**
- Follow Process in the Appendix for Lab Procedure 1853

REVIEWING THE QC TESTING

On A Daily Basis Observe the Following

- Sample Splitting/Batching
- Gyratory Compaction
- Ignition or Chemical Extraction
- Max Gravity Testing (RICE)
- Bulk Gravity Testing
- Gradation Process
- % Crushing (includes FAA)
- Core Testing

QC/QA Mixture Samples

- Make sure companion QA samples and Contractors compacted specimens are saved and numbered

  (min. 10 calendar days).

- Check to make sure that Sample Identification Card is filled out correctly for District Lab samples (Verification Sample)

Mix Moisture Testing

- Two moisture tests can be performed.
  - Total moisture in the mix behind the paver must be less than 0.3%. Take sample from behind the paver and place in a seal container.
  - Ignition Oven Correction is a portion of the ignition oven sample that is placed in the drying oven to determine amount of moisture in the aggregate and would be counted as AC if not determined.

SAMPLE CARDS

MnDOT TP-02412-01
LAB I.D. NUMBER

Minnesota Department of Transportation
Bituminous Mixture Sample Identification Card

M.D.R. No. _____

Date Sampled _____ Field I.D. _____

Spec. No. _____ Spec. Year _____

☐ S.P. Proj. No. _____ Dist. No. ___ T.H. No. _____

☐ S.A.P. Project Eng. _____ Cell No. _____

☐ Maint. Submitted by _____ Cell No. _____

☐ Co./City Job → (Co./City name) _____

Mix Designation _____ Paving Contractor _____

Pit No./Name _____ Sampled from _____

Remarks:

Date Received:

REQUIRED DATA:

A.C. Specific Gravity	
-4 Composite Agg SpG	
Agg. Blend Composite SpG	
Compaction Temp.	
Grams Mix Compacted	

If retest check here ⇨ ☐

CHECK TESTS REQUIRED	Available Contractor Results
☐ Air Voids	
☐ Bulk SpG (gyratory)	
☐ Max SpG (rice)	
☐ A.C. Ignition Oven	
☐ Extracted Agg. Gradation	
☐ AFT (calculated)	
☐ CAA (course agg. crushing)	
☐ FAA (fine agg. angularity)	
☐ A.C. Chemical extraction	
☐ TSR	

Report will be e-mailed.

Monitor e-mail _____

Contractor e-mail _____

Comments:

VERIFICATION SAMPLE

- The Contractor must test all verification companions and include results in the QC program.

  Purpose: Verifies QC Testing Process. Checks testing tolerances between Contractor and Mn/DOT test results.

What Happens if Testing Tolerances are Not Met ?

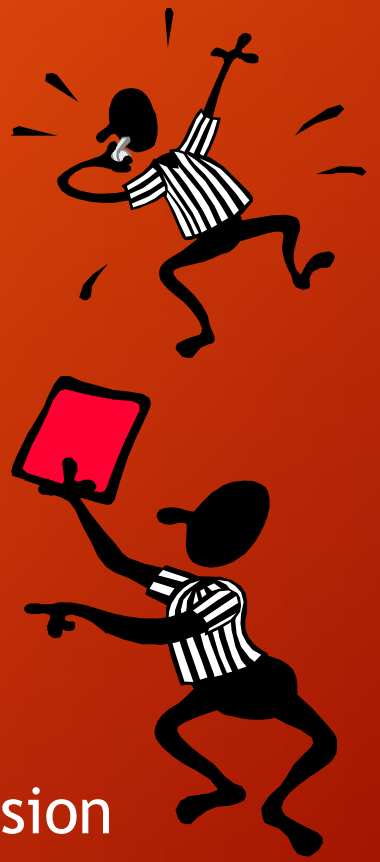
- **By Spec Agency Retests Sample,**

- **If Retest is Within Tolerance!**

Contractor's result is used for acceptance.

- **But!**

➢**If the Retest is Not Within Tolerance!**



Acceptance is Based on Agency's results.

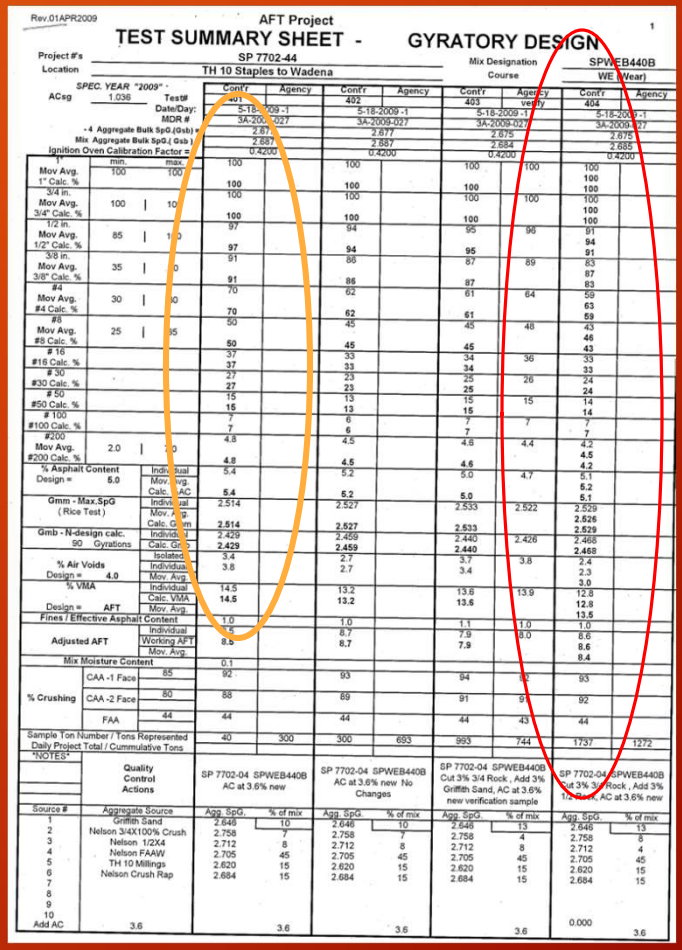
In addition:

*An investigation begins immediately to determine the cause.

*<u>Previous and subsequent</u> QA (companion) samples are taken into possession and tested by the agency until tolerances are met.

RECORDING TEST RESULTS

- Ensure Verification results are being entered on Test Summary Sheets (TSS)
- Failing test results are required to be reported to the Engineer Daily!



Rev.01APR2009

AFT Project

TEST SUMMARY SHEET - GYRATORY DESIGN

Project #'s: SP 7702-44

Location: TH 10 Staples to Wadena

Mix Designation: SPWEB440B

Course: WE (Wear)

SPEC. YEAR "2009"

ACsg: 1.038

	Cont'r	Agency	Cont'r	Agency	Cont'r	Agency	Cont'r	Agency
Test#	401		402		403		404	
Date/Day: MDR #	5-18-2009-1 3A-2009-027		5-18-2009-1 3A-2009-027		5-18-2009-1 3A-2009-027		5-18-2009-1 3A-2009-027	
-4 Aggregate Bulk SpG.(Gsb) =	2.87		2.877		2.675		2.675	
Mix Aggregate Bulk SpG.(Gsb) =	2.887		2.887		2.684		2.685	
Ignition Oven Calibration Factor =	0.4200		0.4200		0.4200		0.4200	
1" min. / max.	100		100		100		100	
Mov Avg. 1" Calc. %	100		100		100		100	
3/4 in.	100		100		100	100	100	
Mov Avg. 3/4" Calc. %	100		100		100		100	
1/2 in.	97		94		95	96	91	
Mov Avg. 1/2" Calc. %	97		94		95		94	
3/8 in.	91		86		87	89	83	
Mov Avg. 3/8" Calc. %	91		86		87		87	
#4	70		62		61	64	59	
Mov Avg. #4 Calc. %	70		62		61		63	
#8	50		45		45	48	43	
Mov Avg. #8 Calc. %	50		45		45		46	
# 16	37		33		34	36	33	
#16 Calc. %	37		33		34		43	
# 30	27		23		25	26	24	
#30 Calc. %	27		23		25		24	
# 50	15		13		15	15	14	
#50 Calc. %	15		13		15		14	
# 100	7		6		7	7	7	
#100 Calc. %	7		6		7		7	
#200	4.8		4.5		4.8	4.4	4.2	
Mov Avg. #200 Calc. %	4.8		4.5		4.6		4.5	
% Asphalt Content Design = 5.0 — Individual	5.4		5.2		5.0	4.7	5.1	
Mov. Avg.							5.2	
Calc. AC	5.4		5.2		5.0		5.1	
Gmm - Max.SpG (Rice Test) — Individual	2.514		2.527		2.533	2.522	2.529	
Mov. Avg.							2.526	
Calc. Gmm	2.514		2.527		2.533		2.529	
Gmb - N-design calc. 90 Gyrations — Individual	2.429		2.459		2.440	2.426	2.468	
Calc. Gmb	2.429		2.459		2.440		2.468	
% Air Voids Design = 4.0 — Isolated	3.4		2.7		3.7	3.8	2.4	
Individual	3.8		2.7		3.4		2.3	
Mov. Avg.							3.0	
% VMA — Individual	14.5		13.2		13.6	13.9	12.8	
Calc. VMA	14.5		13.2		13.6		12.8	
Design = AFT — Mov. Avg.							13.5	
Fines / Effective Asphalt Content — Individual	1.0		1.0		1.1	1.0	1.0	
Adjusted AFT — Working AFT	8.5		8.7		7.9	8.0	8.6	
Mov. Avg.			8.7		7.9		8.6	
							8.4	
Mix Moisture Content	0.1							
% Crushing — CAA -1 Face 85	92		93		94	93	93	
CAA -2 Face 80	88		89		91	91	92	
FAA 44	44		44		44	43	44	
Sample Ton Number / Tons Represented	40	300	300	693	993	744	1737	1272
Daily Project Total / Cummulative Tons								

NOTES

Source #	Aggregate Source	Quality Control Actions	Agg. SpG.	% of mix	Agg. SpG.	% of mix	Agg. SpG.	% of mix	Agg. SpG.	% of mix
			SP 7702-04 SPWEB440B AC at 3.6% new		SP 7702-04 SPWEB440B AC at 3.6% new No Changes		SP 7702-04 SPWEB440B Cut 3% 3/4 Rock , Add 3% Griffith Sand, AC at 3.6% new verification sample		SP 7702-04 SPWEB440B Cut 3% 3/4 Rock , Add 3% 1/2 Rock, AC at 3.6% new	
1	Griffith Sand		2.646	10	2.646	10	2.646	13	2.646	13
2	Nelson 3/4X100% Crush		2.758	7	2.758	7	2.758	4	2.758	8
3	Nelson 1/2X4		2.712	8	2.712	8	2.712	8	2.712	4
4	Nelson FAAW		2.705	45	2.705	45	2.705	45	2.705	45
5	TH 10 Millings		2.620	15	2.620	15	2.620	15	2.620	15
6	Nelson Crush Rap		2.684	15	2.684	15	2.684	15	2.684	15
7										
8										
9										
10									0.000	
Add AC	3.6			3.6		3.6		3.6		3.6

TESTING TOLERANCES

- For Allowable Test Tolerances Between Contractor and Mn/DOT

See Table 2360-9 in 2360 Spec

Table 2360-9 Allowable Differences between Contractor and Department Test Results*	
Item	**Allowable Difference**
Mixture bulk specific gravity (G_{mb})	0.030
Mixture maximum specific gravity (G_{mm})	0.019
Adjusted AFT (calculated)	1.2
Fine Aggregate Angularity, uncompacted voids (U) %	1
Coarse Aggregate Angularity, % fractured faces (%P)	15
Aggregate Individual Bulk Specific Gravity (+ No. 4 [+4.75 mm])	0.040
Aggregate Individual Bulk Specific Gravity (- No. 4 [-4.75mm])	0.040
Aggregate combined blend Specific Gravity (G_{sb})	0.020
Tensile strength ratio (TSR), %	Table 2360-7
Asphalt binder content:	
Meter method, %	0.2
Spot check method, %	0.2
Chemical extraction methods, %	0.4
Incinerator oven, %	0.3
Chemical vs. meter, spot check, or incinerator methods	0.4
Incinerator oven vs. spot check	0.4
Gradation sieve, *% passing:*	
1 in [25.0 mm], ¾ in [19.0 mm], ½ in [12.5 mm], ⅜ in [9.5 mm]	6
No. 4 [4.75 mm]	5
No. 8 [2.36 mm], No. 16 [1.18 mm], No. 30 [0.60 mm]	4
No. 50 [0.30 mm]	3
No. 100 [0.15 mm]	2
No. 200 [0.075 mm]	1.2
* Test tolerances listed are for single test comparisons.	

TESTING TOLERANCE QUIZ

TEST tolerance for the **Ignition Burn (AC%)** is _____

TEST tolerance for **Bulk Gravity (Gmb)** is _____

TEST tolerance for **Rice (Gmm)** is _____

TEST tolerance on the **#200 sieve** is _____

TEST tolerance for **adjusted AFT** is _____

TESTING TOLERANCE QUIZ

TEST tolerance for the **Ignition Burn (AC%)** is 0.3

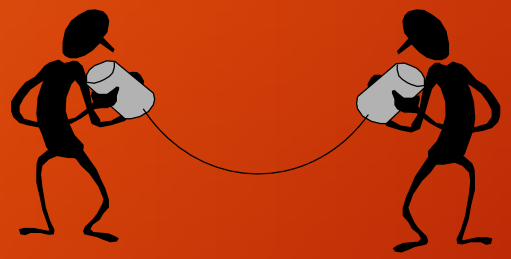
TEST tolerance for **Bulk Gravity (Gmb)** is 0.030

TEST tolerance for **Rice (Gmm)** is 0.019

TEST tolerance on the **#200 sieve** is 1.2

TEST tolerance for **adjusted AFT** is 1.2

MIXTURE FAILURES



- Make sure all mix property failures are reported to Contractor's Project Supervisors and to the Project Engineer.
- Notify District Laboratory on failures, any retesting needs to be completed in a timely manner.
- Note material out of specification and corrective actions in plant diary.

QA TEST RESULTS

- The Agency is responsible for communicating the QA-Verification test results to the Contractor in a timely manner!

- Guide for minimum QA/Verification testing turnaround.

Test	Time for Delivery (Field to Lab)	Laboratory Turnaround Time
Verification Samples	1 working day	2-3 working days
Density Cores	1 working day	2 working days

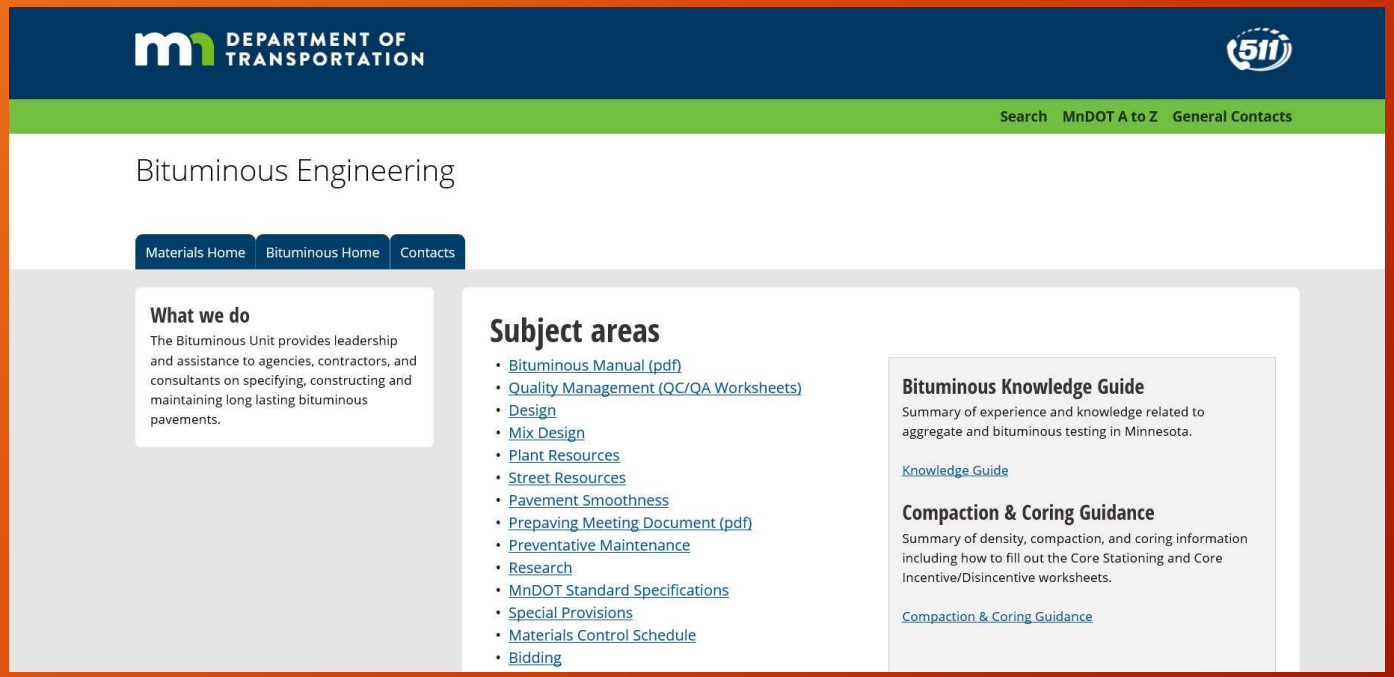
What If A Contractor Is Not Following A Testing Procedure!

- “If the Engineer observes that the contractor is not performing sampling and quality control tests in accordance with the applicable test procedures, the Engineer may stop production until the contractor takes corrective action.” Refer to- 2360.2G2
- The Engineer will notify the contractor of observed deficiencies promptly, both verbally and in writing.
- 1501 “Authority of the Engineer” grants great discretion and power.

TEST SUMMARY SHEETS

TEST SUMMARY SHEETS

- Make sure the most recent Mn/DOT TSS is being used. Go to the Bituminous Office website:



http://www.dot.state.mn.us/materials/bituminous.html

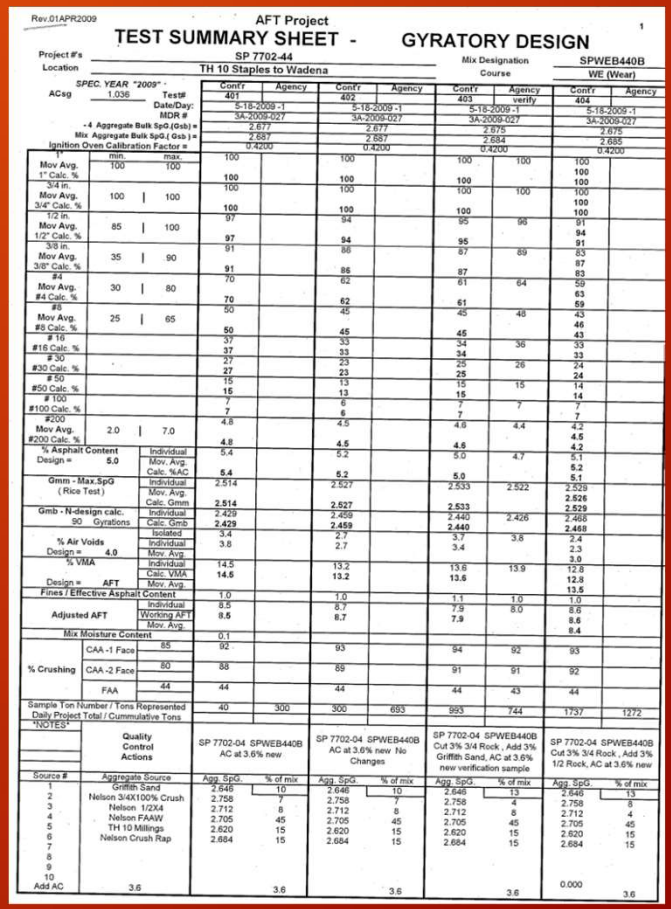
New Additions

- Bituminous Manual
- Dave Linell's Knowledge Guide
- Compaction and Coring Guidance

TEST SUMMARY SHEETS

Monitor's Responsibility: Review TSS for accuracy and completeness.

- Verify Aggregate products, %, & SpG listed on TSS to the MDR info.



Rev.01APR2009

AFT Project

TEST SUMMARY SHEET - GYRATORY DESIGN

1

Project #'s: SP 7702-44
Location: TH 10 Staples to Wadena
Mix Designation: SPWEB440B
Course: WE (Wear)

SPEC. YEAR "2009"
ACsg 1.036
Test#
Date/Day:
MDR #
-4 Aggregate Bulk SpG.(Gsb) =
Mix Aggregate Bulk SpG.(Gsb) =
Ignition Oven Calibration Factor =

			Contr	Agency	Contr	Agency	Contr	Agency	Contr	Agency
			401		402		403	verify	404	
			5-18-2009 -1		5-18-2009 -1		5-18-2009 -1		5-18-2009 -1	
			3A-2009-027		3A-2009-027		3A-2009-027		3A-2009-027	
			2.677		2.677		2.675		2.675	
			2.687		2.687		2.684		2.685	
			0.4200		0.4200		0.4200		0.4200	
	min.	max.								
Mov Avg. 1" Calc. %	100	100	100		100		100	100	100	
			100		100		100		100	
3/4 in. Mov Avg. 3/4" Calc. %	100	100	100		100		100	100	100	
			100		100		100		100	
1/2 in. Mov Avg. 1/2" Calc. %	85	100	97		94		95	98	91	
			97		94		95		94	
3/8 in. Mov Avg. 3/8" Calc. %	35	90	91		86		87	89	83	
			91		86		87		87	
#4 Mov Avg. #4 Calc. %	30	80	70		62		61	64	59	
			70		62		61		59	
#8 Mov Avg. #8 Calc. %	25	65	50		45		45	48	43	
			50		45		45		46	
# 16 #16 Calc. %			37		33		34	36	43	
			37		33		34		33	
# 30 #30 Calc. %			27		23		25	26	33	
			27		23		25		24	
# 50 #50 Calc. %			15		13		15	15	24	
			15		13		15		14	
# 100 #100 Calc. %			7		6		7	7	14	
			7		6		7		7	
#200 Mov Avg. #200 Calc. %	2.0	7.0	4.8		4.5		4.6	4.4	4.2	
			4.8		4.5		4.6		4.5	
% Asphalt Content Design = 5.0		Individual	5.4		5.2		5.0	4.7	5.1	
		Mov. Avg.							5.2	
		Calc. %AC	5.4		5.2		5.0		5.1	
Gmm - Max.SpG (Rice Test)		Individual	2.514		2.527		2.533	2.522	2.529	
		Mov. Avg.							2.526	
		Calc. Gmm	2.514		2.527		2.533		2.529	
Gmb - N-design calc. 90 Gyrations		Individual	2.429		2.459		2.440	2.426	2.468	
		Calc. Gmb	2.429		2.459		2.440		2.468	
% Air Voids Design = 4.0		Isolated	3.4		2.7		3.7	3.8	2.4	
		Individual	3.8		2.7		3.4		2.3	
		Mov. Avg.							3.0	
% VMA Design = AFT		Individual	14.5		13.2		13.6	13.9	12.8	
		Calc. VMA	14.5		13.2		13.6		12.8	
		Mov. Avg.							13.5	
Fines / Effective Asphalt Content			1.0		1.0		1.1	1.0	1.0	
Adjusted AFT		Individual	8.5		8.7		7.9	8.0	8.6	
		Working AFT	8.5		8.7		7.9		8.6	
		Mov. Avg.							8.4	
Mix Moisture Content			0.1							
% Crushing	CAA -1 Face	85	92		93		94	92	93	
	CAA -2 Face	80	88		89		91	91	92	
	FAA	44	44		44		44	43	44	
Sample Ton Number / Tons Represented			40	300	300	693	993	744	1737	1272
Daily Project Total / Cummulative Tons										

NOTES

	Quality Control Actions	SP 7702-04 SPWEB440B AC at 3.6% new		SP 7702-04 SPWEB440B AC at 3.6% new No Changes		SP 7702-04 SPWEB440B Cut 3% 3/4 Rock , Add 3% Griffith Sand, AC at 3.6% new verification sample		SP 7702-04 SPWEB440B Cut 3% 3/4 Rock , Add 3% 1/2 Rock, AC at 3.6% new	
Source #	Aggregate Source	Agg. SpG.	% of mix	Agg. SpG.	% of mix	Agg. SpG.	% of mix	Agg. SpG.	% of mix
1	Griffith Sand	2.646	10	2.646	10	2.646	13	2.646	13
2	Nelson 3/4X100% Crush	2.758	7	2.758	7	2.758	4	2.758	8
3	Nelson 1/2X4	2.712	8	2.712	8	2.712	8	2.712	4
4	Nelson FAAW	2.705	45	2.705	45	2.705	45	2.705	45
5	TH 10 Millings	2.620	15	2.620	15	2.620	15	2.620	15
6	Nelson Crush Rap	2.684	15	2.684	15	2.684	15	2.684	15
7									
8									
9									
10								0.000	
Add AC		3.6	3.6		3.6		3.6		3.6

TEST SUMMARY SHEETS

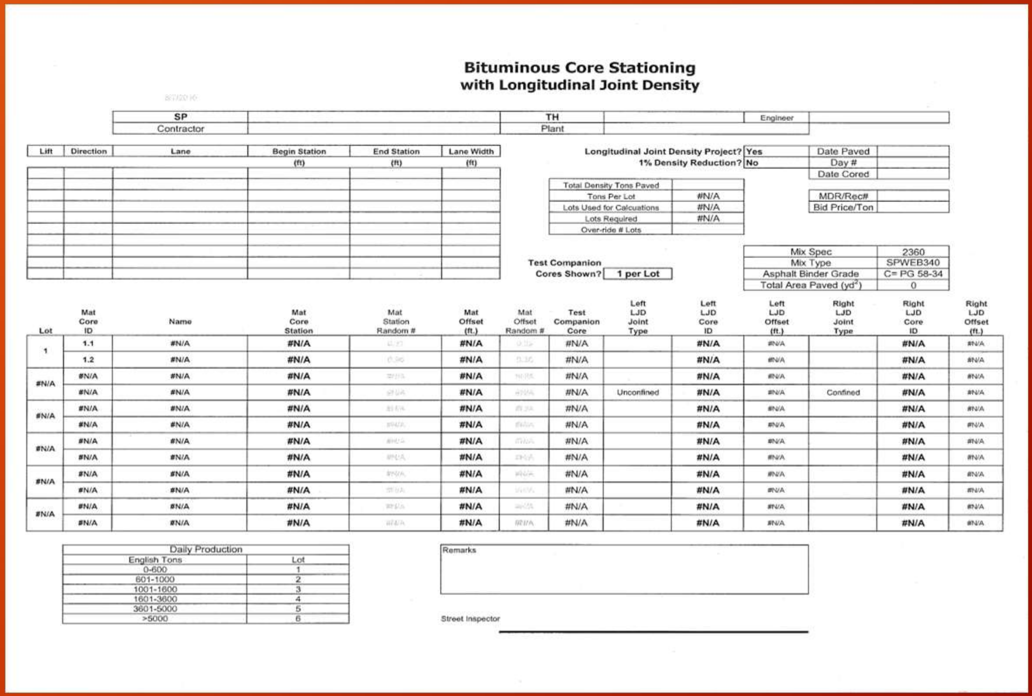
- Verify the recorded QC results
- Make sure Agency results are being recorded.
- Verify the % Add AC

  *Check recordation printouts for comparisons
- Identify Failing Mixture
- Make sure TSS (Excel) is sent daily to the District Materials Laboratory and/or others as requested

Core Testing

CORE STATIONING

- Complete the Core Stationing Worksheet for Random Core Locations.
- See Bituminous Office website for most recent Worksheets



Bituminous Core Stationing with Longitudinal Joint Density

SP		TH		Engineer	
Contractor		Plant			

Lift	Direction	Lane	Begin Station (ft)	End Station (ft)	Lane Width (ft)

Longitudinal Joint Density Project?	Yes	Date Paved	
1% Density Reduction?	No	Day #	
		Date Cored	

Total Density Tons Paved	
Tons Per Lot	#N/A
Lots Used for Calcuations	#N/A
Lots Required	#N/A
Over-ride # Lots	

MDR/Rec#	
Bid Price/Ton	

Test Companion Cores Shown? 1 per Lot

Mix Spec	2360
Mix Type	SPWEB340
Asphalt Binder Grade	C= PG 58-34
Total Area Paved (yd^2)	0

Lot	Mat Core ID	Name	Mat Core Station	Mat Station Random #	Mat Offset (ft.)	Mat Offset Random #	Test Companion Core	Left LJD Joint Type	Left LJD Core ID	Left LJD Offset (ft.)	Right LJD Joint Type	Right LJD Core ID	Right LJD Offset (ft.)
1	1.1	#N/A	#N/A	[illegible]	#N/A	[illegible]	#N/A		#N/A	#N/A		#N/A	#N/A
	1.2	#N/A	#N/A	[illegible]	#N/A	[illegible]	#N/A		#N/A	#N/A		#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	[illegible]	#N/A	[illegible]	#N/A		#N/A	#N/A		#N/A	#N/A
	#N/A	#N/A	#N/A	[illegible]	#N/A	[illegible]	#N/A	Unconfined	#N/A	#N/A	Confined	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	[illegible]	#N/A	[illegible]	#N/A		#N/A	#N/A		#N/A	#N/A
	#N/A	#N/A	#N/A	[illegible]	#N/A	[illegible]	#N/A		#N/A	#N/A		#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	[illegible]	#N/A	[illegible]	#N/A		#N/A	#N/A		#N/A	#N/A
	#N/A	#N/A	#N/A	[illegible]	#N/A	[illegible]	#N/A		#N/A	#N/A		#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	[illegible]	#N/A	[illegible]	#N/A		#N/A	#N/A		#N/A	#N/A
	#N/A	#N/A	#N/A	[illegible]	#N/A	[illegible]	#N/A		#N/A	#N/A		#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	[illegible]	#N/A	[illegible]	#N/A		#N/A	#N/A		#N/A	#N/A
	#N/A	#N/A	#N/A	[illegible]	#N/A	[illegible]	#N/A		#N/A	#N/A		#N/A	#N/A

Daily Production	
English Tons	Lot
0-600	1
601-1000	2
1001-1600	3
1601-3600	4
3601-5000	5
>5000	6

Remarks

Street Inspector

CORES

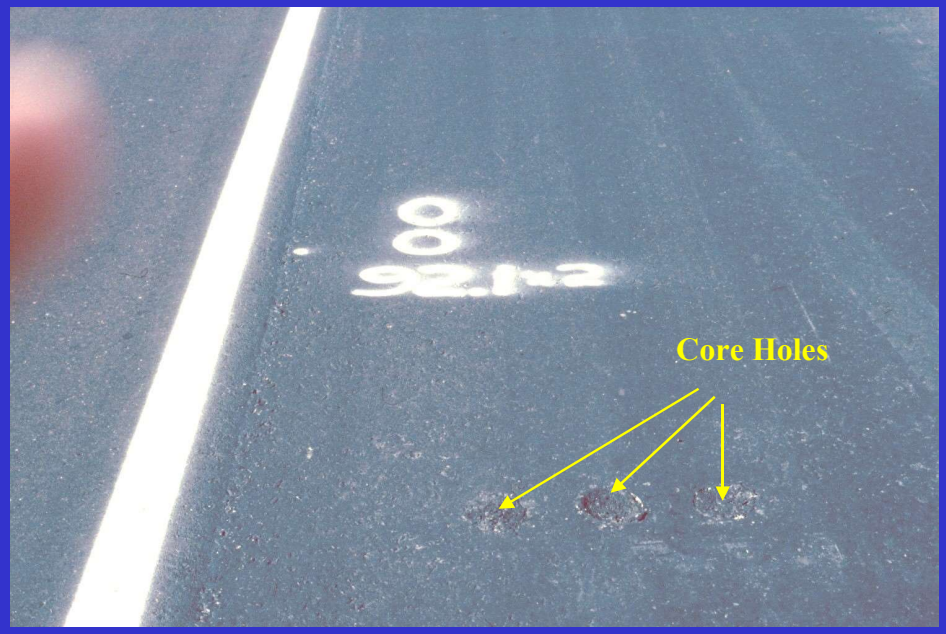
- Agency marks the core locations.
- Each lot has two core locations & each core has a companion
- LJD cores - mark as Confined or Unconfined

(5000 tons 1 lot more 2 lots)

- The contractor drills, measures, cuts, & trims the cores.

Do These Pictures Have Anything in Common With Horseshoes?

Marked Core Location Vs. Cored Location



Is Agency watching Contractor cut the cores?

LONGITUDINAL JOINT CORES

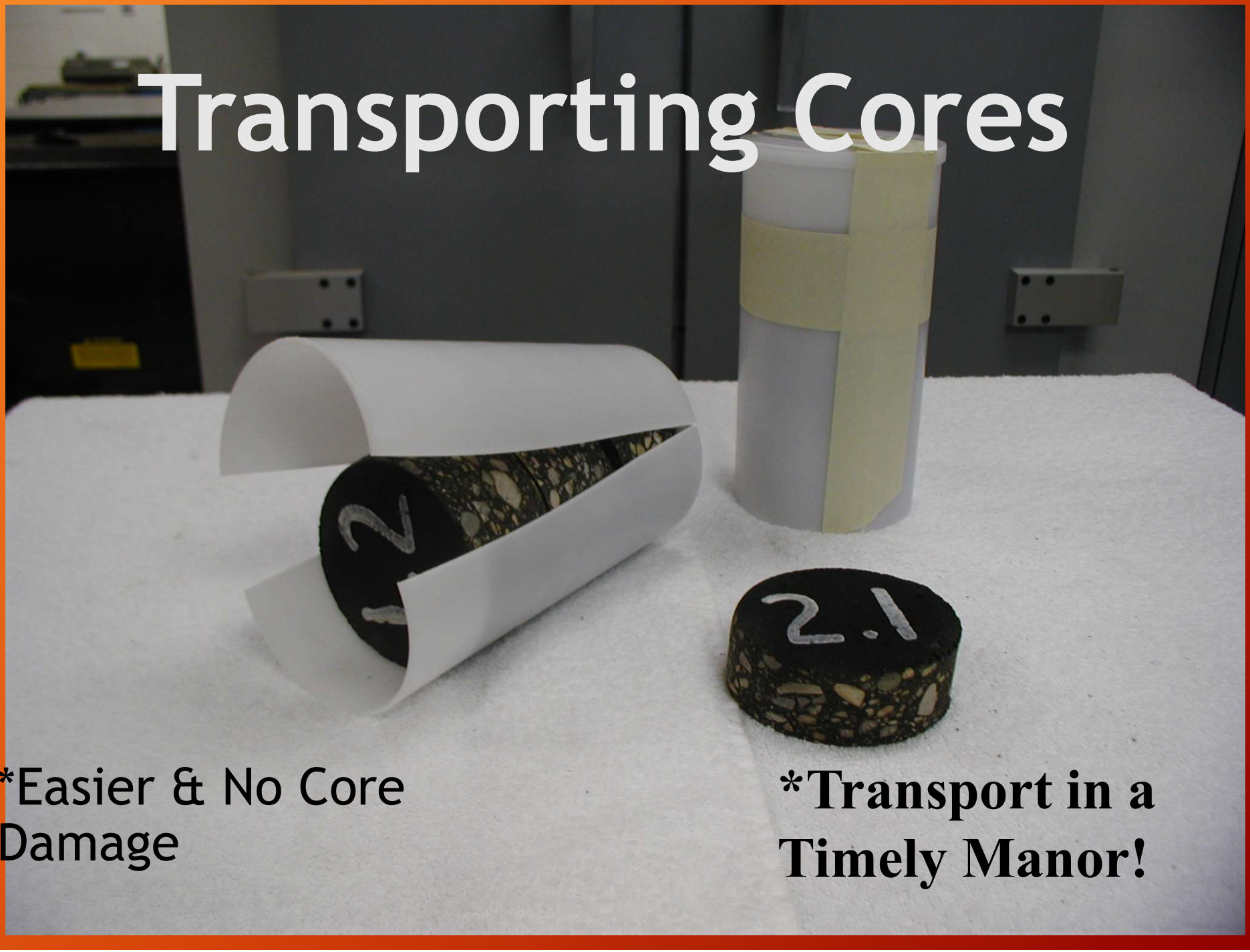
- Outer edge of core barrel needs to be within 6” of the joint.
- Companion core 12” longitudinally

LJD MARKING TEMPLATE

Core Location

Core Identification

Transporting Cores



*Easier & No Core Damage

***Transport in a Timely Manor!**

Core Testing – SPEC 2360.3D.1.i

CORES WILL BE TAKEN AND TESTED BY THE CONTRACTOR, HOWEVER, THE CONTRACTOR SHALL "***SCHEDULE THE APPROXIMATE TIME OF TESTING DURING NORMAL PROJECT WORK HOURS SO THE ENGINEER MAY OBSERVE AND RECORD THE SSD AND IMMERSED WEIGHT OF THE CORES***."

Core Density Testing

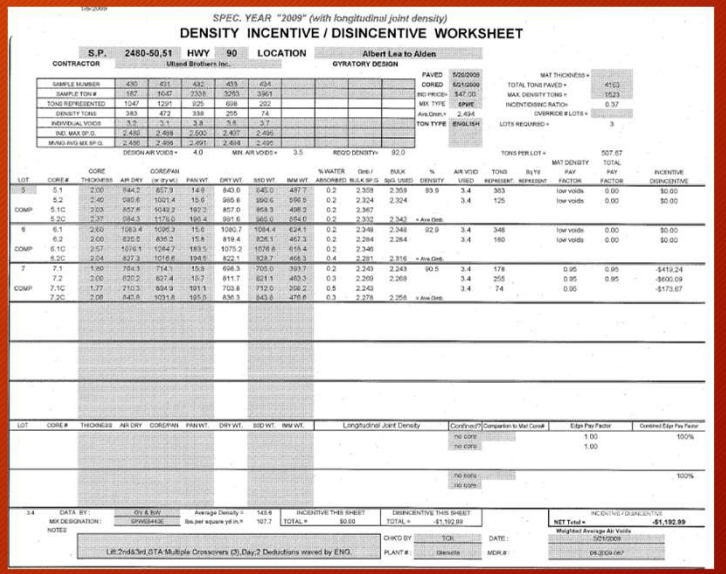
- Verify the initial air dry wt. just prior to immersing the cores into the water bath.
- Plant Monitor needs to witness and verify the SSD & Immersed wts of contractors cores.
- Final Oven dry wt. –

  During the drying process, the cores

  are chopped apart to ensure all moisture is off. Min 3 hrs in oven at 230 ± 9°F

Core Density Sheets

- Be Aware of Mixing Different Spec Yrs & Worksheets
- Review Contractor's Final Data.
- Input Agency's Companion Core Data
- Communicate Results to both Contractor & Project Engineer
- Send as Excel spread-sheet



SPEC. YEAR "2009" (with longitudinal joint density)

DENSITY INCENTIVE / DISINCENTIVE WORKSHEET

S.P. 2480-50,51 HWY 90 LOCATION Albert Lea to Alden

CONTRACTOR Ulland Brothers Inc. GYRATORY DESIGN

SAMPLE NUMBER	430	431	432	433	434				
SAMPLE TON #	187	1647	2338	3263	3961				
TONS REPRESENTED	1047	1291	625	698	282				
DENSITY TONS	383	472	338	255	74				
INDIVIDUAL VOIDS	3.3	3.1	3.8	3.6	3.7				
IND. MAX SP.G.	2.488	2.488	2.600	2.407	2.496				
MVNG AVG MX SP.G.	2.488	2.488	2.491	2.488	2.495				

PAVED 5/20/2009
CORED 6/21/2009
MIX TYPE SPWE
Ave.Gmm.= 2.494
TON TYPE ENGLISH
LOTS REQUIRED = 3

DESIGN AIR VOIDS = 4.0 MIN. AIR VOIDS = 3.5 REQ'D DENSITY= 92.0

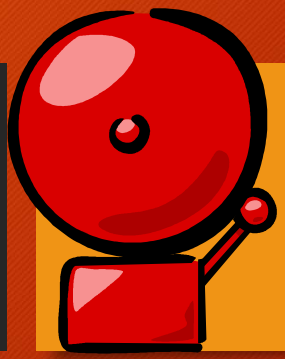
LOT	CORE #	CORE THICKNESS	CORE/PAN AIR DRY	CORE/PAN (w dry wt)	PAN WT.	DRY WT.	SSD WT	INW WT	% WATER ABSORBED	Gmb / BULK SP.G	BULK Sp.G. USED	% DENSITY	AIR VOID USED	TONS REPRESENT.	Adj'd REPRESENT	MAT DENSITY PAY FACTOR	TOTAL PAY FACTOR	INCENTIVE DISINCENTIVE
5	5.1	2.00	844.2	857.9	14.8	843.0	845.0	487.7	0.2	2.309	2.358	89.9	3.4	383		low voids	0.00	$0.00
	5.2	2.40	980.6	1001.4	15.6	965.8	990.6	596.9	0.2	2.324	2.324		3.4	125		low voids	0.00	$0.00
COMP	5.1C	2.03	857.6	1043.2	192.2	857.0	858.3	498.0	0.2	2.367								
	5.2C	2.37	984.3	1176.0	191.4	981.6	985.9	574.0	0.2	2.332	2.342	= Ave.Gmb						
6	6.1	2.60	1083.4	1096.3	15.6	1080.7	1084.4	624.1	0.2	2.348	2.348	92.9	3.4	348		low voids	0.00	$0.00
	6.2	2.00	835.0	850.2	15.8	819.4	826.1	467.3	0.2	2.284	2.284		3.4	160		low voids	0.00	$0.00
COMP	6.1C	2.57	1076.1	1264.7	188.5	1075.2	1076.8	619.4	0.2	2.346								
	6.2C	2.04	827.3	1016.8	194.5	822.1	828.7	468.3	0.4	2.281	2.316	= Ave.Gmb						
7	7.1	1.80	784.3	714.1	15.8	698.3	705.0	393.7	0.2	2.243	2.243	90.5	3.4	178		0.95	0.95	-$419.24
	7.2	2.06	830.2	827.4	15.7	811.7	821.1	463.3	0.3	2.269	2.269		3.4	255		0.95	0.95	-$600.09
COMP	7.1C	1.77	710.3	894.9	191.5	703.8	712.0	398.2	0.5	2.249			3.4	74		0.95		-$173.67
	7.2C	2.08	840.8	1031.8	195.5	836.3	843.8	476.8	0.3	2.278	2.256	= Ave.Gmb						

LOT	CORE #	THICKNESS	AIR DRY	CORE/PAN	PAN WT.	DRY WT.	SSD WT	INW WT.	Longitudinal Joint Density	Confined?	Comparison to Mat Cored	Edge Pay Factor	Combined Edge Pay Factor
										no core		1.00	100%
										no core		1.00	
										no core			100%
										no core			

3.4 DATA BY: Dy & SW Average Density = 143.6 INCENTIVE THIS SHEET DISINCENTIVE THIS SHEET INCENTIVE / DISINCENTIVE
MIX DESIGNATION: SPWE340E lbs.per square yd in.= 107.7 TOTAL = $0.00 TOTAL = -$1,192.99 NET Total = -$1,192.99
NOTES

Lift:2nd&3rd,GTA Multiple Crossovers @Lday;2 Deductions waved by ENG. CHKD BY TCR DATE: 5/21/2009
PLANT #: Glenville MDR #: Weighted Average Air Voids 06-2009-067

Companion Core ($G_{mb)}$ Results



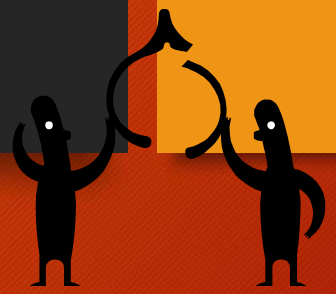
- Anytime the G_{mb} difference between companion cores is **0.050** or greater**,**

  something is wrong.

  Either one of the cores was damaged, the cores were not companions, or someone made an error in the testing or computations.

- If this occurs, the problem should be brought to the attention of the Project Engineer, investigated, and recoring may be necessary.

CORES - TWO TOLERANCES



- 1st .030 Tolerance
  Between Companion Cores

- 2nd (√n) Shrinking Tolerance
  Day's avg- Agency vs Contractor

- Density Worksheet will apply both!

SHRINKING CORE TOLERANCE

- Only for cores meeting the .030 (1st tolerance)
- Tolerance Will be Variable Depending on How Many Cores Are Compared.
- Shrinking Tolerance Equals .030 Divided by the Square Root of the Number of Cores Compared ($0.030 \div \sqrt{n}$)
- If This Tolerance is Exceeded, All the Agency's Test Results Will be Substituted for the Contractor's Results for That Day's Paving.

OPTIONAL AGENCY ONLY CORE TESTING

- **Contractor can request all cores be tested by the agency. Refer to 2360.3D.3**
- **Resulting in :**

  No companion core testing.

  No Shrinking Tolerance.

  Less Holes in the Road.

Anyone Allowing It?

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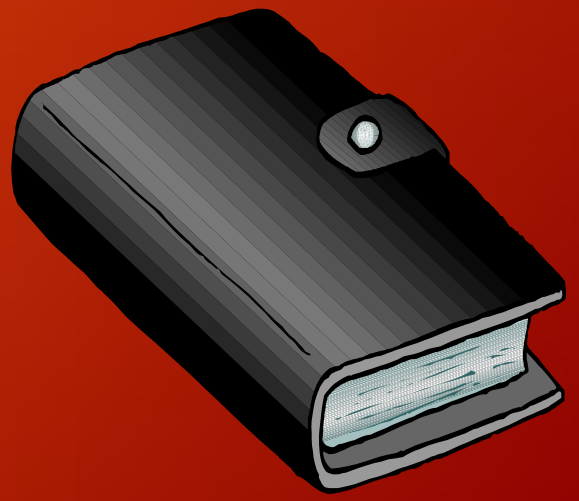
RECORD KEEPING

RECORD KEEPING

- Keep excellent records to determine compliance with contract documents and to substantiate payments to the contractor.

- Keep a written diary/daily work report (DWR)of the principle activities that occur.



What Should Go in Diary?

NOTHING BUT THE FACTS!

- Weather conditions
- Important conversations
- Visitors on site
- Unusual incidents
- Equipment breakdowns
- Length of work stoppages
- Number of personnel and types of equipment affected by work stoppages

NOTHING BUT THE FACTS!

- Changes in the appearance of materials
- Out of tolerance or failing tests
- Verbal orders received
- Agreed upon changes
- Photographs of the work provide a valuable supplement to the written records and reports.
- Usually not a problem having too much information

What should NOT go in diary?

DAILY DIARY

- Claims & Lawsuits Have Been Settled Based on the Information in a Diary!

PROJECT AUDITS

NEEDED DOCUMENTATION

- Plant Certification
- Tech Certifications
- MDRs
- Scale Checks
- AC Bills of Lading
- Weigh Tickets
- Test Summary Sheets

- Core Stationing Worksheet
- Core Worksheets
- ERD Files
- Ride Quality Worksheets
- Recordation Files
- Plant Diary
- Street Diary


Questions ?