IA AGGREGATES EVALUATION
PERFORMANCE EVALUATION

SiteManager ID: _____ **PHONE #:** _____

Technician: _____ **EMAIL:** _____

DATE: _____ **Level:** FULL AGGREGATES

	PASS	FAIL
AASHTO R 90		
AASHTO R 76		
AASHTO T-11		
AASHTO T-27		
OHD L 48		

OVERALL RATING:	**PASS**	**FAIL**

OHCMTB#:

Technician (Signature): _____

OHCMTB#:

IA Observer(Signature): _____

IA Checklist
R 90 Sampling Aggregate Products

Procedure		P	F	NA
A. Conveyor Belt Discharge				
1	Use a container that will catch the full stream of material as it's discharged, without overflowing.			
2	Pass a sampling device, at a constant speed and perpendicular to the flow of the material through the full stream of the material once in each direction without overfilling. Include all material that may adhere to the sampling device when emptying the container, or divert the full stream of material into a container.			
3	Obtain multiple equal increments when one increment is insufficient for the required testing.			
4	Combine the increments to form a single sample.			
5	Ensure the size of the field sample meets or exceeds the recommended minimum mass needed or stated in Table 1 of R 90			
Procedure		**P**	**F**	**NA**
B. Conveyer Belt				
1	Stop the conveyer belt and insert two templates conforming to the shape of the belt into the aggregate.			
2	Remove the material inside the templates, include all of the material adhering to the belt.			
3	Obtain multiple equal increments when one increment is insufficient for the required testing.			
4	Combine the increments to form a single sample.			
5	Ensure the size of the field sample meets or exceeds the recommended minimum mass needed or stated in Table 1 of R 90.			
Procedure		**P**	**F**	**NA**
C. Stockpiles (Manual Sampling)				
1	**Coarse Aggregate** - Shove a board against the vertical face behind sampling location to prevent sloughing. Discard sloughed material to create the horizontal surface. Obtain sample from the horizontal surface.			
2	**Coarse Aggregate** – Obtain at least one increment of equal size from the top, middle, and bottom thirds of the pile.			
3	**Fine Aggregate** - Remove the outer layer and sample from the material beneath.			
4	**Fine Aggregate** – Obtain equal increments from a minimum of five random locations in the pile.			
5	**Fine Aggregate** – If a sampling tube is used to extract increments. Sampling Tube - the plastic, aluminum, or similar tube whose diameter is at least three times the nominal maximum aggregate size. The end of the tube may be angled to assist sampling.			
6	**Coarse & Fine Aggregate** – Combine the increments to form a single sample.			
7	Ensure the size of the field sample meets or exceeds the recommended minimum mass needed or stated in Table 1 of R 90.			

	Procedure	P	F	NA
D.	**Roadway – In-Place (Bases and Sub-bases)**			
1	Randomly select the areas from which increments will be taken. Obtain representative sample after spreading and before compacting.			
2	Insert the shovel to the full depth of the material, excluding the underlying material, roll back the shovel and lift the material slowly to avoid material rolling off the shovel.			
3	Repeat as necessary.			
4	Ensure the size of the field sample meets or exceeds the recommended minimum mass needed or stated in Table 1 of R 90.			
	Procedure	**P**	**F**	**NA**
E.	**Flat Surface Created by a Loader (Power Pile)**			
1	Direct the loader operator to enter the stockpile with bucket at least 1 foot off the ground without contaminating the stockpile. Discard the first bucket full. Re-enter the stockpile and obtain a full loader bucket of the material.			
2	Form a small sampling pile at the base of the stockpile by gently rolling the material out of the bucket with the bucket just high enough to permit free flow of the material. Repeat as necessary.			
3	Create a flat surface by having the loader back drag the small pile.			
4	Obtain increments from at least three randomly selected locations on the flat surface at least 1 foot form the edge. Fully insert the shovel, excluding the underlying material, roll back the shovel and lift the material slowly out of the pile to avoid material rolling off the shovel.			
5	Combine the increments to form a single sample.			
6	Ensure the size of the field sample meets or exceeds the recommended minimum mass needed or stated in Table 1 of R 90.			

Remarks:

IA Checklist
T 11 Total Materials Finer than 75-µm (No. 200) Sieve

No.	Item	P	F	NA
1	Was correct size sample used? Was it split down to test size?			
2	Dry test sample to a constant mass at 230+/- 9ºF (110 +/- 5ºC). Determine the mass to the nearest 0.1% of the mass of the test sample.			
3	Place sample in container, add sufficient water to cover it.			
4	Agitate the sample to separate fine particles from coarse particles. Bring fines into suspension.			
5	Immediately pour wash water over a nest of two sieves, between the range of the No. 8 to the No. 16, and the 75-µm (No. 200).			
6	Take care to avoid, as much as feasible, the decantation of coarser particles of the sample.			
7	Repeat steps 3 through 6 until wash water is clear. Note: When using a mechanical washing apparatus the sample shall not be washed for more than 10 minutes in accordance with T 11, Sec. 5.6, Note 1.			
8	Return all particles retained on sieves to washed sample by flushing.			
9	Dry the washed aggregate to a constant mass at a temperature of 230+/- 9ºF (110 +/- 5ºC) and determine the mass to the nearest 0.1%			
10	Calculate the amount of material passing the 75-µm (No. 200) sieve by washing and add the amount of material passing the 75-µm (No. 200) sieve by dry sieving in accordance with T 27.			
11	Report the results to the nearest 0.1%, except if the result is 10% or more, report the percentage to the nearest whole number.			
No.	**Equipment**	**P**	**F**	**NA**
1	Are Calibration records current?			
2	Sieves-A nest of two sieves, the lower being a 75-µm (No. 200) sieve and the upper being a sieve with openings in the range of No. 8 to No. 16, both conforming to the requirement of ASTM E11.			
3	Container-A pan or vessel of a size sufficient to contain the sample covered with water and to permit vigorous agitation without loss of any part of the sample or water			
4	Oven-An oven of sufficient size, capable of maintaining a uniform temperature of 230+/- 9ºF (110 +/- 5ºC).			
5	Balance-The balance shall have sufficient capacity, be readable to 0.1 percent of the sample mass or better, and conform to the requirements of AASHTO M231.			
6	Mechanical Washing Apparatus - A sample shall not be washed for more than 10 minutes when using a mechanical washing apparatus. Wash intervals greater than 10 minutes have been shown to cause significant amounts of degradation depending on the aggregate type. T 11, Sec. 5.6, Note 1.			

Remarks:

IA Checklist
T 27 Sieve Analysis of Fine and Coarse Aggregate

Procedure		P	F	NA
1	Sample the Aggregate in accordance with R 90. Thoroughly mix the sample and reduce it to an amount suitable for testing using the applicable procedures described in R 76. The sample for test shall be the approximate mass desired when dry and shall be the end result of the reduction. Reduction to an exact predetermined mass shall not be permitted.			
2	Fine Aggregate-The size of the test sample of aggregate, after drying, shall be 300g minimum.			
3	Coarse Aggregate-The mass of the test sample shall conform to the table in Section 7.4 of AASHTO T 27. (See Table 1 on page 2 of checklist.)			
4	If the sample has not been subjected to testing by T 11, dry it to a constant mass at a temperature of 110 +/- 5º C (230 +/- 9 º F). Determine and record the mass of material to the nearest 0.1 percent of the original dry sample mass.			
5	Select sieves with suitable openings to furnish the information required by the specifications covering the material to be tested. Use additional sieves as desired or necessary to provide other information, such as fineness modulus, or to regulate the amount of material on a sieve to meet the requirements of Annex A1. Nest the sieves in order of decreasing size of opening from top to bottom and place the sample, or a portion of the sample if it is to be sieved in more than one increment, on the top sieve.			
6	Agitate the sieves by hand or mechanical apparatus for a sufficient period, established by trial or checked by measurement of actual test sample, to meet the criterion for adequacy of sieving described in Annex A2 of T 27.			
7	Prevent an overload of material on an individual sieve as described in Annex A1 by one or a combination of methods found in Section 8.3.1 of T 27.			
8	Sieve until not more than 0.5% by mass of the total sample passes a given sieve with 1 minute of hand sieving as described in Annex A2 of T 27.			
9	Determine the mass of material retained on each sieve to the nearest 0.1%			
10	If the sample was previously washed, AASHTO T 11, add the mass of material passing the 75µm (#200) sieve determined by washing to the mass of material passing by dry sieving.			
11	The total mass of material after sieving should check within 0.3% of the mass of the original dry sample to use results for acceptance purposes.			
12	Calculate the percentages passing each sieve to the nearest 0.1% on the basis of the total mass of the initial dry sample.			
13	Calculate the fineness modulus, when required, and report to the nearest 0.01.			
14	Report percentages to the nearest whole number, except if the percent passing the #200 sieve is less than 10%, it shall be reported to the nearest 0.1%.			

Equipment		**P**	**F**	**NA**
Balance				
1	Are calibrations records current?			
2	A balance of sufficient capacity, be readable 0.1% of the sample mass or better and conforms to the requirements of AASHTO M 231			
3	Sieves conforming to the requirements of ASTM E11			
4	Mechanical sieve shaker, if used, creates motion of the sieves, causes the particles to bounce, tumble or otherwise turn. The sieving action is such that the criterion for adequacy of sieving described in Annex A2 of T 27, is met in a reasonable time period.			
5	Oven-An oven of appropriate size capable of maintaining a uniform temperature of 110 +/- 5º C (230 +/- 9º F)			

Table 1

Type of Aggregate	**Nominal Maximum Size Square Openings, mm (in.)**	**Minimum Mass of Test Sample kg (lb)**
	9.5 (3/8”)	1 (2)
	12.5 (1/2”)	2 (4)
#67 Aggregate, Type ‘A’ Agg Base, Type ‘E’ TBSC	19.0 (3/4”)	5 (11)
#57 Aggregate	25.0 (1”)	10 (22)
	37.5 (1 ½”)	15 (33)
	50 (2”)	20 (44)
	63 (2 ½”)	35 (77)
	75 (3”)	60 (130)
	90 (3 ½”)	100 (220)
	100 (4”)	150 (330)
	125 (5”)	300 (660)

Remarks:

IA Checklist
R 76 Reducing Samples of Aggregate to Testing Size

Procedure		P	F	NA
Method A: Mechanical Splitter				
1	Fine Aggregate: Check moisture condition of the sample. If the sample has free moisture on the particle surface, the entire sample may be dried to at least SSD condition prior to reduction by splitter. Coarse Aggregate: Moisture condition not specified in AASHTO R 76, Sect. 5.2.			
2	Check sample splitter openings. (Their number, no less than 8 for coarse aggregate and no less than 12 for fine aggregate, and width relative to maximum size of aggregate, for coarse the openings shall be approximately 50% larger than the largest particle in the sample)			
3	Place the field sample in hopper or pan and uniformly distribute it from edge to edge.			
4	The rate at which the sample is introduced shall be such as to allow free flowing through chutes into receptacles.			
5	Reintroduce the portion of the sample in one of the receptacles as many times as necessary to reduce the sample to specified testing size in accordance with Table 1, on page 3, of T 27 evaluation checklist.			
Method B: Quartering				
1	The sample is placed on a hard clean, level surface.			
2	Mix the material thoroughly by turning the entire sample over three times. With the last turning, shovel the entire sample into a conical pile.			
3	Flatten the conical pile to a uniform thickness and diameter by pressing down on the apex with a shovel so that each quarter sector of the resulting pile will contain material originally in it.			
4	The diameter should be approximately four to eight times the thickness.			
5	Divide the flattened mass into four approximately equal quarters with a shovel or a trowel and remove two diagonally opposite quarters, including all the fine material, and brush the cleared spaces clean.			
6	Remix and quarter the remainder of the sample until the sample is reduced to the appropriate test size. (See #5 above)			
Method C: Miniature Stockpile Sampling (Damp Fine Aggregate Only)				
1	Place the original sample on a hard clean, level surface where there will be neither loss of the original sample or accidental addition of foreign material to the sample.			
2	Mix the material thoroughly by turning the entire sample over three times. With the last turning, shovel the entire sample into a conical pile.			
3	If desired, flatten the conical pile to a uniform thickness and diameter by pressing down on the apex with a shovel so that each quarter sector of the resulting pile will contain material originally in it.			
4	Obtain a sample for each test by selecting at least five increments of material at random locations from the miniature stockpile, using a small sampling thief, small scoop, or spoon.			

Remarks:

IA Checklist
OHD L-48
METHOD OF TEST FOR
DETERMINING PERCENT DUST COATING OF COVER AGGREGATES
FOR BITUMINOUS SURFACE TREATMENTS

Procedure:		**P**	**F**	**NA**
1	Sample the aggregate in accordance with R 90.			
2	Thoroughly mix the sample and reduce it to an amount suitable for testing using the applicable procedures described in R 76. The sample for test shall be approximately of the mass desired when dry and shall be the end result of the reduction. Reduction to an exact predetermined mass shall not be permitted.			
3	The mass of the test sample shall conform with Table 1 on page 2.			
4	Dry the sample to a constant mass at a temperature of 230 ± 9°F (110 ± 5°C).			
5	Allow the sample to cool to room temperature.			
6	Shake the sample over a No. 8 (2.36 mm) sieve and discard the fraction passing the No. 8 (2.36 mm) sieve. Agitate the sieve for a sufficient period to separate the plus and minus No. 8 (2.36 mm) size fraction, but not so great as to create additional fines through degradation of the coarse particles.			
7	Prevent an overload of the sieve by one of the methods described in T 27.			
8	Determine the mass of the sample to the nearest 0.1 g			
9	Wash the sample as described in T 11, Procedure A - Washing With Plain Water, making sure to return all material retained on the wash sieves to the sample.			
10	Dry the washed aggregate to a constant mass at a temperature of 230 ± 9°F (110 ± 5°C).			
11	Allow the sample to cool to room temperature.			
12	Determine the mass of the washed sample to the nearest 0.1 g			
13	Perform Calculations as shown below. (Calculations)			
14	Report the percent dust coating to the nearest 0.1 percent.			

Table 1

Nominal Maximum Size Aggregate, (in)	Min. Mass of Test Sample (g)
3/8	1000
½	2000

Note - The nominal maximum size of aggregate as defined in AASHTO T 2

Calculations

Calculate the percent dust coating as follows:

$$A = [(B - C) / B] \times 100$$

Where: A = percent dust coating
B = dry mass of sample before washing, g; and
C = dry mass of sample after washing, g.

Remarks: