IA ASPHALT EVAULATION
PERFORMANCE EVAULATION

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

Technician: _____ **E-Mail:** _____

DATE: _____ **Level:** Full Asphalt

	PASS	FAIL
OHD L-65		
AASHTO R-47		
OHD L-26		
AASHTO T-30		
AASHTO T-176		
ASSHTO T-312		
OHD L-45 (CORELOK)		
OHD L-14(ROADWAY CORE)		
OHD L-14(LAB MOLDS)		
OHD L-14 NUCLEAR		
AASHTO T-209		
OHD L-5		

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

OHCMTB#:

Technician (Signature): _____

OHCMTB#:

IA Observer(Signature): _____

IA Checklist
OHD L-65 Standard Method for Sampling Asphalt Mixtures

	Procedure	P	F	NA
	Sampling from Transport Units			
1	Determine the un-compacted asphalt mixture locations in accordance with OHD L-56. Visually divide the haul unit into approximately three or four equal sections. Remove approximately 0.15 m to 0.3 m (6 to 12 in.) of material from the top of the sampling area.			
2	Obtain an increment from the exposed surface.			
3	Repeat in each of the remaining sections.			
4	Combine the increments to form a sample of the required size			
	Procedure	**P**	**F**	**NA**
	Sampling Using Attached Sampling Devices			
1	Determine the un-compacted asphalt mixture locations in accordance with OHD L-56. Attached sampling devices are normally permanently attached devices that allow a sampling receptacle to pass perpendicularly through the entire stream of asphalt mixture. The operation of the mechanical sampling system may be hydraulic or pneumatic and allows the sampling receptacle to pass through the stream twice, once in each direction, without overfilling. A sampling device may also divert the entire stream into a sampling receptacle.			
2	Lightly coat the sampling receptacle attached to the sampling device with a release agent or preheat it, or both, to approximate the discharge temperature of the mix.			
3	Pass the receptacle twice through the material perpendicularly without overfilling.			
4	Transfer asphalt mixture from the sample receptacle to the sample container without loss of material.			
5	Repeat until the proper sample size has been obtained			
	Procedure	**P**	**F**	**NA**
	Sampling from a Paving Auger			
1	Determine the un-compacted asphalt mixture locations in accordance with OHD L-56. Obtain samples from the end of the auger using a square head shovel.			
2	Place the shovel in front of the auger extension, with the shovel blade flat upon the surface to be paved over.			
3	Allow the front face of the auger stream to cover the shovel with asphalt mixture, remove the shovel before the auger reaches it by lifting as vertical as possible. Place asphalt mixture in a sample container.			
4	Combine the sample increments to form a sample of the required size.			

	Procedure	P	F	NA
	Stockpiles: Sampling from a Flat Surface Created by a Loader			
1	Determine the un-compacted asphalt mixture locations in accordance with OHD L-56. Direct the loader operator to enter the stockpile with the bucket at least 0.3 m (1 ft.) above ground level without contaminating the stockpile. Obtain a full loader bucket of the asphalt mixture; tilt the bucket back and up.			
2	Form a small sampling pile at the base of the stockpile by gently rolling the asphalt mixture out of the bucket with the bucket just high enough to permit free-flow of the mixture. Repeat as necessary.			
3	Create a flat surface by having the loader "back-drag" the small pile.			
4	Obtain approximately equal increments from at least three randomly selected locations on the flat surface at least 1 ft. from the edge.			
5	Full insert the shovel, exclude the underlying material, roll back the shovel and lift the asphalt mixture slowly out of the pile to avoid mixture rolling off the shovel.			
6	Combine the sample increments to form a sample of the required size.			
	Procedure	**P**	**F**	**NA**
	Stockpiles: Sampling from a Horizontal Surface on the Stockpile Face			
1	Determine the un-compacted asphalt mixture locations in accordance with OHD L-56. Create horizontal surfaces with vertical faces in the top, middle, and bottom third of the stockpile with a shovel or a loader if one is available.			
2	Shove a flat board against the vertical face behind the sampling location to prevent sloughing of asphalt mixture. Discard the sloughed mixture to create the horizontal surface			
3	Obtain the sample from the horizontal surface as close to the intersection as possible of the horizontal and vertical faces.			
4	Obtain at least one sample increment of equal size from each of the top, middle, and bottom thirds of the pile as shown in figure 3.			
5	Combine the sample increments to form a single sample of the required size.			

	Procedure	P	F	NA
	Sampling Compacted Asphalt Mixtures			
1	Determine the sample (core) locations in accordance with OHD L-56.			
2	Determine the appropriate number of samples (cores) necessary to perform the needed task. For example, the Resident Engineer's Acceptance Procedure for Roadway Density is three samples (411.04.N.2.b).			
3	When obtaining more than one core per location, cut the cores parallel to the traffic direction. Cores should not be less than 2 inches nor more than 6 inches apart.			
4	Core holes should be filled as soon as possible, but within 24 hours of cutting.			

IA Checklist
OHD L-45
METHOD OF TEST FOR
DETERMINING THE SPECIFIC GRAVITY AND UNIT WEIGHT
OF COMPACTED BITUMINOUS MIXTURES USING THE CORELOK™ APPARATUS

		P	F	NA
1	Bring the specimen to room temperature at 77º ± 9º F (25º ± 5º C).			
2	Record the initial dry mass of the specimen to the nearest 0.1% of sample mass or better as (A).			
3	Seal the specimen in the CoreLok™ in a calibrated bag. The vacuum pump should run for 45 seconds			
4	Set the sealing bar timer to a setting that ensure complete sealing. A setting of 4 is generally adequate for most bags. The bag should not be stretched or burned. This would indicate a setting too high.			
5	Place specimen into the appropriately sized bag. Specimens of 4 inches (100mm) and 6 inches (150mm) diameter and less than 2" (50mm) in height typically only require a small bag. The large bag may be required should the specimen exceed these dimensions.			
6	Grip the specimen with one hand while holding the bag in the other and slip the specimen into the bag. There should be near one inch of slack between the specimen and the back end of the bag. Gently position bag and specimen onto the sliding plate. The smoother side of the specimen should rest on the sliding plate to reduce the chance of punctures in the bag. Filler plates may need to removed or added. Use as many filler plates as possible but do not force the lid down or allow the lid to touch the specimen.			
7	Position the sealed specimen in the vacuum chamber to overlap the open end on the sealing bar by at least one inch. Check the bag to ensure no wrinkles along the sealing bar.			

8	Close the lid. Hold down firmly for two to three seconds. The vacuum pump will start, the pump timer red indicator will light, and the cycle will begin. Shortly after the vacuum begins, stop holding the lid down as it will stay closed on its own at that point. As the automatic cycle begins the vacuum gauge needle, or LCD screen, will move up to 28 to 30 inches of mercury mark. A minimum of 10 TORR is required. The vacuum should be verified with a calibrated vacuum gauge annually. The bag will appear to puff up and this is normal. When the seal bar indicator light comes on the seal bar raises up, pinches the bag shut and heat seals it. Once sealed, the de-vac valve opens and air reenters the chamber. Since the inside of the bag is still evacuated, the atmospheric pressure outside the bag will collapse it tightly around the specimen.			
9	Carefully remove the sample from the chamber. Pull gently on the plastic to ensure that the bag is tightly conformed to the sample. A loose bag indicates an air leak and the process must be redone.			
10	Calculate the mass of the sealed specimen in air by summing the masses recorded as A (Weight of Dry Specimen in Air) and Bag Weight. Designate this mass as B. Record to nearest 0.1% of sample mass or better.			
11	Within one minutes after sealing, immerse the sealed specimen in the water bath at 77° ± 1.8 F (25° ± 1° C) until the weight stabilizes. The plastic is easily punctured so, care must be taken to ensure no punctures occur during this process. A vinyl coated specimen holder for the water bath is generally provided with the CoreLok™ apparatus. Do not allow the bag to touch the sides of the water bath. The bag and specimen must be completely immersed in water. Record the immersed weight (E) to the nearest 0.1% of sample mass or better.			
12	Remove the sealed specimen from the water bath and remove the plastic bag. Care should be taken to not damage the specimen during bag removal. Weigh the specimen (C) and compare to the initial weight. The check passes if less than 0.08 percent is lost or no more than 0.04 percent is gained. A loss indicates sample material loss, and a gain indicates a possible bag leakage problem. Remove the bag, and restart the process if this check fails.			

IA Checklist
OHD L-26
METHOD "A"
ASHALT CONTENT BY IGNITION OVEN

Procedure		P	F	NA
1	The bituminous mixture used for preparing the test sample will be obtained in accordance with OHD L-65. The test sample will be prepared by splitting or quartering this material, in accordance with AASHTO R 47, to the appropriate size as shown in Table 1 below.			
2	If the mixture is not sufficiently soft to separate with a spatula or trowel, place it in a large flat pan and warm to 257 ± 9°F [125 ± 5°C] for 25 minutes. The sample will not be heated for more than 1 hour.			
3	The minimum mass of the test sample is governed by the maximum aggregate size in the mixture. The maximum aggregate size for the purposes of these test methods is defined as the smallest sieve through which 100 percent of the material is required to pass. The maximum mass of the sample shall not be more than 500 g greater than the minimum mass. No sample shall be less than 1,000 g. (See table 1)			
4	Split or quarter the remaining mixture to obtain a test sample for moisture and volatile determination. The size of the test sample should be the same as recommended in Table 1 or 1,000 ± 250 g. Place the test sample in a tared pan and determine the mass to the nearest 0.1 g and record as W_{1m}. Dry to a constant mass in an oven at a temperature of 257 ± 9°F [125 ± 5°C]. Determine the mass of the sample to the nearest 0.1 g and record as W_{5m}. The moisture and volatiles weights are used in the determination of bitumen content, as shown in calculations, on page 2. **NOTE:** The same test specimen may be used for the moisture and volatiles determination and bitumen determination.			
5	Preheat the ignition furnace to 1,000°F [538°C]. Record the furnace temperature (set point) prior to the initiation of the test. For Troxler oven, record temperature used.			
6	Enter the correction factor (IOC) for the specific mix to be tested, as shown on the approved mix design, in the ignition furnace.			
7	Weigh and record the weight of the two sample baskets and catch pan (with guards in place).			
8	Evenly distribute the mix between each basket, keeping the material approximately 1 in. away from the edges of the basket.			
9	Weigh and record the sample, baskets, and catch pan. Calculate and record the initial weight of the sample specimen (total weight minus the weight of the sample basket assembly).			
10	Input the initial weight of the sample specimen in whole gram into the ignition furnace controller. Verify that the correct weight has been entered.			

11	Open the chamber door and place the sample baskets in the furnace. Close the chamber door and verify that the sample weight (Including the baskets) displayed on the furnaces scale equals the total weight recorded in step 9 within 5 g. Differences greater than 5 g of failure of the furnace scale to stabilize may indicate that the sample baskets are contacting the furnace wall. Initiate the test by pressing the start/stop button. This will lock the sample chamber and start the combustion blower.			
12	Allow the test to continue until the stable light and audible stable indicator indicate the test is complete. Press the start/stop button. This will unlock the sample chamber and cause the printer to print out the test result.			
13	Open the chamber door, remove the sample baskets and allow to cool to room temperature (approximately 30 minutes). Allow the specimen to cool to room temperature in the sample baskets.			
14	Empty the contents of the baskets into a flat pan. Use a small wire sieve brush to ensure that any residual fines are removed from the baskets.			
15	Perform the gradation analysis according to AASHTO T 30.			
16	Percent bitumen reported to the nearest tenth.			

Table 1

Maximum Aggregate Size (in)	Maximum Aggregate Size (mm)	Minimum Mass of Sample (g)	Mixture Types
1.5	37.5	2500	S2, OGBB
1	25.0	2000	S3
3/4	19.0	1500	S4, SMA, PFC, RBL, UTBWC (Type C)
1/2	12.5	1200	S5, OGFSC, Micro Surfacing (Types II and III), UTBWC (Type B)
3/8	9.5	1000	S6, Micro Surfacing (Type I), UTBWC (Type A)

Calculations

$$\%\, \boldsymbol{AC} = \frac{\frac{(\boldsymbol{P_{5m}\, x\, W_{1m}})}{\boldsymbol{100}} - (\boldsymbol{W_{1m} - W_{5m}})}{\boldsymbol{W_{5m}}}\, \boldsymbol{x\, 100}$$

Where:
- % AC = Percent asphalt cement (percent bitumen);
- P_{5m} = Apparent asphalt content from ignition oven;
- W_{1m} = Mass of moisture sample before drying; and
- W_{5m} = Mass of moisture sample after drying.

Remarks:

IA Checklist
OHD L-14
Method 1 – Density of Compacted Specimens (ROADWAY CORES) Determination of Bulk Specific Gravity and Percent Absorption of Compacted Specimens

Procedure		P	F	NA
1	Cool Specimen to room temperature. (77º +/- 9º)			
2	Tare scales, with weighing apparatus attached.			
3	Bring water to specified temperature. (77º +/- 1.8º). Water bath should be equipped with an overflow to maintain constant water level.			
4	Submerge specimen in water and take a reading of the weight after 4 +/- 1 minute. Record weight to 0.1% of sample mass.			
5	Surface dry specimen with a damp towel immediately and weigh within specified tolerance, 0.1% of sample mass. Record weight.			
6	Place specimen in a dry pan of known weight and dry the specimen to a constant mass at a temperature of 125º +/- 5ºF. If the dry mass is determined last and the specimens are not required to be saved or used for comparison testing, the specimens may be dried to a constant mass at 230º +/- 9ºF.			
	If using Vacuum Drying test procedures as an alternative to oven drying roadway cores. Use Procedures (7 – 15)			
7	Specimens shall be kept and stored at temperatures above 15ºC (60º F).			
8	Plug the unit into a power outlet and turn on the switch.			
9	Dry the moisture trap (if necessary) and the specimen (vacuum) chamber. Run the unit without any specimens. The unit should display a pressure value that indicates a known dry point. If the unit fails to achieve a dry point pressure value, as recommended by the manufacturer, check that the lid and all hose connections are well sealed. If needed, refer to the manufacturer's troubleshooting instructions.			
10	Measure the sample temperature with a handheld infrared thermometer. Make sure the specimen temperature is above 15ºC (60º F).			
11	Remove any standing water from the surface of the specimen by using a paper towel or an absorptive cloth.			
12	Place specimen inside the vacuum chamber.			
13	Place lids on the vacuum chamber and moisture trap(if applicable). Press "Start" to begin the drying process.			
14	The machine will automatically stop when the specimen is dry. The unit shall be calibrated at the factory or by the operator to sense a "dry specimen condition." The pressure is monitored throughout the drying process to ensure "dry specimen condition" pressure is achieved in the unit.			

15	Perform the vacuum drying procedure at least twice, with a mass determination after each cycle. Verify constant mass is achieved in accordance with the constant mass definition in T 166 Section 3.1.2. "Constant Mass" – shall be defined as the mass at which further drying does not alter the mass by more than 0.05 percent when weighed at 2-h intervals when using oven drying, or by more than 0.05 percent when weighed after at least two drying cycles of the vacuum-drying apparatus.			
16	Cool specimen and pan to room temperature, (77º +/- 9º).			
17	Weigh to specified tolerance, 0.1% of sample mass and record weight.			
18	Was the absorption of the specimen above or below 2.0%?			
19	Calculate the specific gravity of the specimen to tolerance, (.001), as shown below.			

Calculate the bulk specific gravity of the specimen as follows (round and report the value to the nearest 0.001).

$$Gmb = \frac{A}{B - C}$$

Where:

G_{mb}	=	Bulk Specific Gravity
A	=	Dry weight of specimen in air
B	=	Weight of surface-dry specimen in air
C	=	Weight of specimen in water

NOTE: The Bulk Specific Gravity of a lab-molded specimen is commonly referred to as the Lab-molded Specific Gravity. The Bulk Specific Gravity of a roadway core is commonly referred to as the Core Specific Gravity.

Calculate the percent water absorbed by the specimen on a volume basis as follows:

$$\%\ Water\ Absorbed\ by\ Volume = \frac{B - A}{B - C}\ x\ 100$$

Remarks:

IA Checklist
OHD L-14
Method 1 – Density of Compacted Specimens (LAB MOLDED SPECIMENS) Determination of Bulk Specific Gravity and Percent Absorption of Compacted Specimens

Procedure		P	F	NA
1	Cool Specimen to room temperature. (77º +/- 9º)			
2	Weigh specimen in air to the specified tolerance, (0.1 % of sample mass) and, record weight.			
3	Tare scales, with weighing apparatus attached.			
4	Bring water to specified temperature. (77º +/- 1.8º)			
5	Submerge specimen in water and take a reading of the weight after 4 +/- 1 minute. Record weight to 0.1% of sample mass.			
6	Surface dry specimen with a damp towel immediately and weigh within specified tolerance, 0.1% of sample mass. Record weight.			

Calculate the bulk specific gravity of the specimen as follows (round and report the value to the nearest 0.001 gram):

$$G_{mb} = \frac{A}{B - C}$$

Where:

G_{mb}	=	Bulk Specific Gravity
A	=	Dry weight of specimen in air
B	=	Weight of surface-dry specimen in air
C	=	Weight of specimen in water

NOTE: The Bulk Specific Gravity of a lab-molded specimen is commonly referred to as the Lab-molded Specific Gravity. The Bulk Specific Gravity of a roadway core is commonly referred to as the Core Specific Gravity.

Calculate the percent water absorbed by the specimen on a volume basis as follows:

$$\%\ Water\ Absorbed\ by\ Volume = \frac{B - A}{B - C}\ x\ 100$$

Remarks:

IA Checklist
T 30 Mechanical Analysis of Extracted Aggregate

Procedure		P	F	NA
1	Dry the sample, if necessary, until further drying at 110 +/- 5º C (230 +/- 9º F) does not alter the mass by more than 0.1 percent in accordance with T 30, Sec. 7.1, Note 3. Determine and record the mass of the sample to the nearest 0.1g.			
2	Place the test sample in a container and cover it with water. Add the wetting agent in accordance with T 30, Sec. 7.2, Note 5.			
3	Agitate the contents of the sample vigorously, bringing the fines into suspension and immediately decant the wash water over a nest of two sieves consisting of a No. 10 or No. 16 superimposed on a No. 200 sieve.			
4	Use care to avoid, as much as possible, the decantation of the coarse particles of the sample onto the sieve nest.			
5	Repeat the operation until the wash water is clear. Do not overflow or overload the No. 200 sieve. Note: Limit agitation by mechanical washing equipment to a maximum of 10 min. in accordance with T 30, Sec. 7.2.			
4	Return all material retained on the nested sieves to the container.			
5	Dry the washed aggregate in the container to a constant mass in accordance with T 255. When an oven is used, dry at a temperature of 110 +/- 5º C (230 +/- 9º F). Determine its mass to the nearest 0.1%.			
6	Select sieves with suitable openings to furnish the information required by the specifications (JMF) covering the material to be tested. Additional sieve sizes may be used to regulate the amount of material on a sieve to meet the requirements of Annex A2. 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.			
7	Agitate the sieves by a mechanical apparatus for a sufficient period, established by trial or checked by measurement on the actual test sample, to meet the criteria for adequacy of sieving described in Annex A1 of T 30. Continue sieving for a sufficient period and in such a manner that, after completion, not more than 0.5% by mass of the total sample passes any given sieve during 1 minute of hand sieving as described in Annex A1.			
8	Limit the quantity of material on a given sieve so that all particles have the opportunity to reach sieve openings a number of times during the sieving operation. Do not overload sieves; see Annex A2.			
9	Determine the mass of material retained on each sieve to the nearest 0.1%			
10	The mass of dry material passing the #200 sieve by dry sieving shall be added to the mass removed by washing, and if applicable, the mass of mineral matter in the asphalt binder, in order to obtain the total passing the #200 sieve. The masses of the fractions retained on various sieves and the total passing the #200 sieve shall be converted to percentages by dividing each by the total mass of the aggregate in the HMA from Section 7.1 of T 30			
11	Report the percentages passing each sieve to the nearest whole number except on the #200 sieve which will be reported to the nearest 0.1%.			
12	Total the mass of all individual increments and check that it is within 0.2% of the mass after washing.			

Remarks:

IA Checklist
OHD L-14
Method 2 – In-Place Density of asphalt mixture by the Nuclear Method

Procedure		P	F	NA
1	Verbal: Explain warming up of gauge.			
2	Did Technician place gauge on standard block correctly.			
3	Did Technician take standard count and record the counts.			
4	**Verbal: Where and when should standard counts be taken? Answer:** Standardization of the gauge on the reference standard is required at the start of each day's use and a permanent record of these data shall be retained. Standard counts should be taken in the same environmental conditions as the actual measurement counts.			
5	The standardization shall be performed with the gauge at least 10 m (30 Ft.) away from other radioactive sources and clear of large masses or other items which may affect the reference count rates.			
6	Test sites closer than 24" from any vertical mass or less than 12" from a vertical pavement edge, use gauge manufacturer's correction procedure.			
7	Enter unit weight of mix, in pcf, into gauge. (Marshall)			
	The Gauge is at least 3 m (10 Ft.) away from large objects. Other radioactive sources must not be within 10 m (30 Ft.) .			
8	**Have the Tech verbally explain the use of a filler material between gauge and the surface. Answer:** Maintain maximum contact between the base of the gauge and the surface of the material under test. Use filler material to fill surface voids. Spread a small amount of filler material over the test site surface and distribute it evenly. Strike off the surface with a straightedge (such as a lathe or flat-bar steel) to remove excess material. Filler Material is defined as: Fine-graded sand from the source used to produce the asphalt pavement or other acceptable materials.			
9	***Alternate Method No. 1—90-Degree Rotation*:** Place the gauge on the test site perpendicular to the direction of travel of the rollers. Using a crayon or chalk, mark the outline or footprint of the gauge. Then place the probe in the backscatter position. Take a 1-min test, and record the (wet) density reading. (see Figure 1)			
10	Rotate the gauge 90 degrees centered over the original footprint (see Figure 1). Mark the outline or footprint of the gauge. Take another 1-min test and record the (wet) density reading.			
11	If the difference between the two 1-min tests is greater than 40 kg/m_3 (2.5 lb/ft_3), retest in both directions. If the difference of the retests is still greater than 40 kg/m_3 (2.5 lb/ft_3), test at 180 and 270 degrees.			

Procedure		P	F	NA
12	The density reported for each test site shall be the average of the two individual 1-min. (wet) density readings.			
13	***Alternate Method No. 2—180-Degree Rotation*:** Place the gauge on the test site parallel to the direction of travel of the rollers. Using a crayon or chalk, mark the outline or footprint of the gauge. Then place the probe in the backscatter position. Take a 1-min test and record the (wet) density reading. (see Figure 2)			
14	Rotate the gauge 180º centered over the original footprint (see Figure 2). Take another 1-min test and record the (wet) density reading.			
15	If the difference between the two 1-min tests is greater than 40 kg/m3 (2.5 lb/ft3), retest in both directions.			
16	The density reported for each test site shall be the average of the two individual 1-min (wet) density readings.			
17	***Alternate Method No. 3*:** Place the gauge on the test site parallel to the direction of travel of the rollers. Using a crayon or chalk, mark the outline or footprint of the gauge. Then place the probe in the backscatter position. Take a 4-min test and record the (wet) density reading.			
18	**Verbal:** Does the gauges need to cool between measurements if surface is hot? Answer: Yes			
19	**How many tests are required to do a correlation? Answer:** The initial correlation must include at least 10 core locations prior to the possible elimination of specific core sites as defined in T 355 Appendix X 1. The final correlation must have a minimum of 5 and no more than 10 core locations. With in-place nuclear gauge readings corresponding for each core location.			
20	**How often should you do a new correlation? Answer**: The correlation procedure must be repeated if there is a new job mix formula. Adjustments to the job mix formula beyond tolerances established in the contract documents will constitute a new job mix formula. A correlation factor established using this procedure is only valid for the particular gauge and in the mode and at the probe depth used in the correlation procedure. If another gauge is brought onto the project, it shall be correlated using the same procedure. Multiple gauges may be correlated from the same series of cores if done at the same time.			

Remarks:

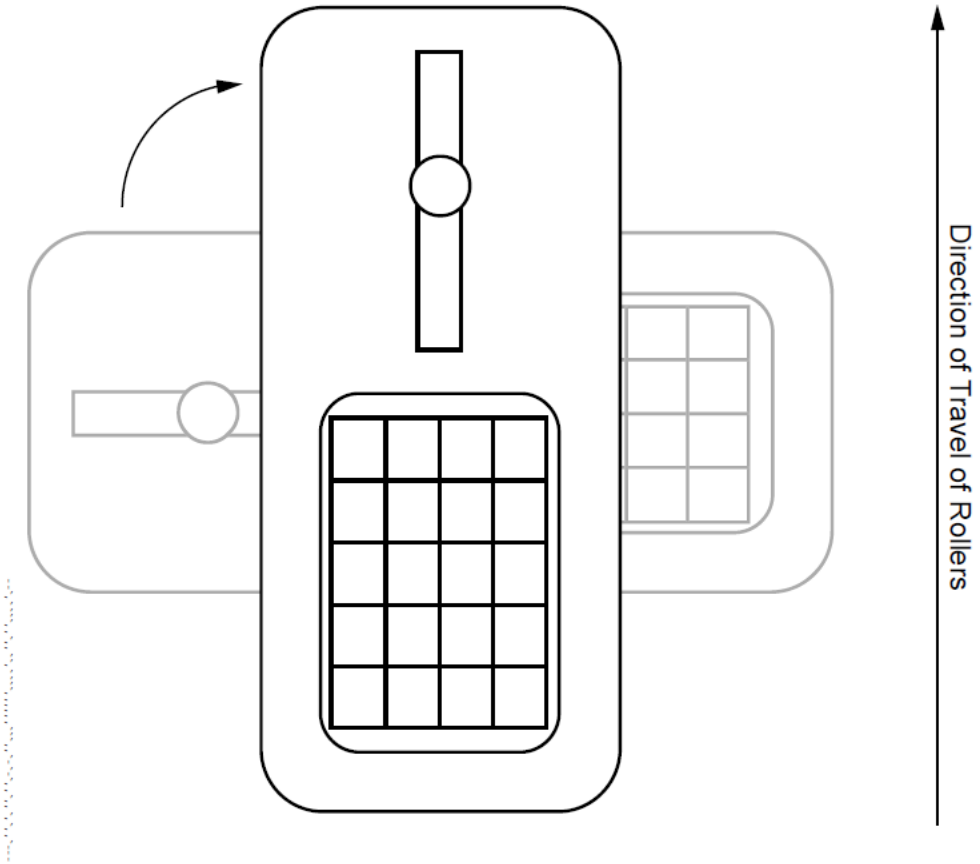

Figure 1—Footprint of the Gauge Test Site (Gauge is Rotated 90 Degrees between Readings)

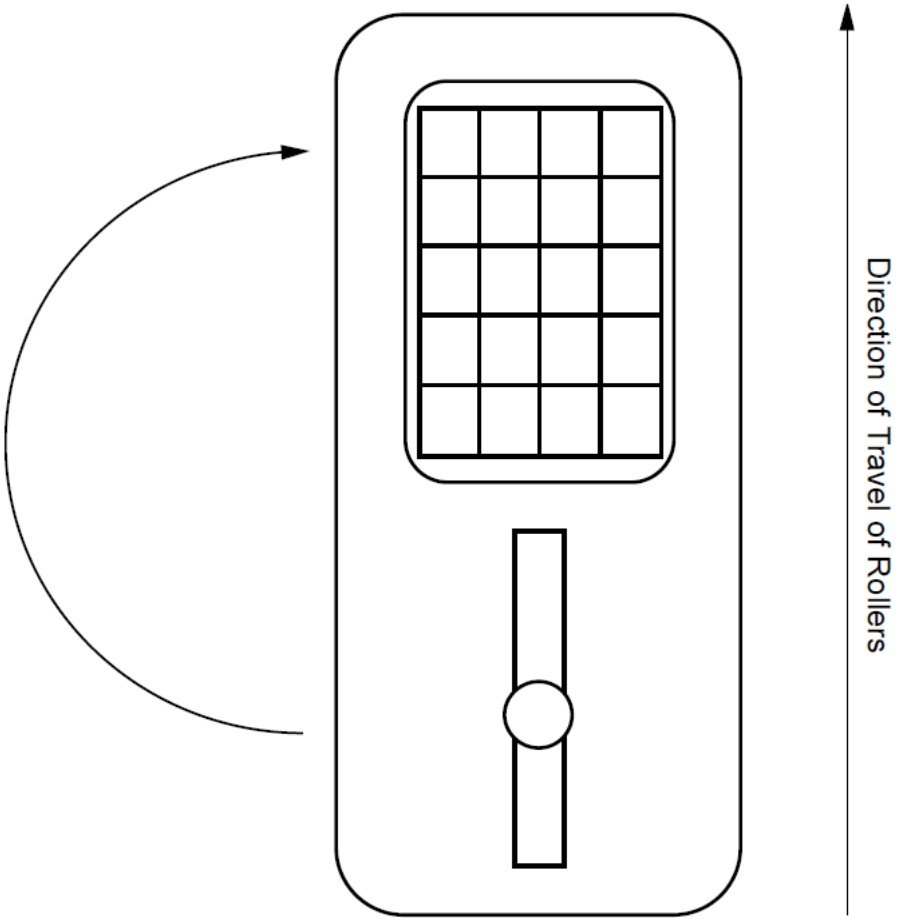

Figure 2—Footprint of the Gauge Test Site (Gauge is Rotated 180 Degrees between Readings)

IA Checklist
T 176 Plastic Fines in Graded Aggregates and Soils by Use of Sand Equivalent (Alternate Method 2-pre Wet)

No.	Item	P	F	NA
1	Shake material over a #4 sieve.			
2	Pulverize lumps of fine grained material so they may pass through the #4 sieve also.			
3	Clean all fines from particles retained on the #4 sieve and include them in the passing material.			
4	Split or Quarter -#4 materials to yield 500 to 750 grams.			
5	Perform fragile cast test for proper moisture content. Moisten if necessary, to obtain the fragile cast, and place in covered pan for specified tempering period (15 minutes minimum).			
6	Mix sample with splitting cloth by lifting and rolling opposite corners of the cloth until sample appears homogenous.			
7	Push tin through pile against hand to overflowing and compact with palm of hand.			
8	Remix sample, as stated in #6			
9	Fill a second tin , as stated in #7			
10	Place tins in oven at 110 +/- 5º C(230 +/- 9º F)			
11	Dry to a constant weight.			
12	Cool to room temperature.			
13	Fill graduated cylinder to the 4.0 +/- 0.1 inch mark with working solution.			
14	Pour prepared test sample from tin into cylinder using a funnel to avoid spillage.			
15	Tap the bottom of the cylinder to remove any air and thoroughly wet material.			
16	Allow to stand and soak for 10 minutes, +/- 1 minute.			
17	Loosen material in cylinder before shaking. Place stopper in cylinder.			
18	If using a mechanical shaker, shake cylinder and contents for 45, +/- 1 second. If shaking by hand, shake at 90 cycles in approximately 30 seconds using a throw of 229 +/- 25mm (9 +/- 1”). A cycle is defined as a complete back and forth motion.			
19	Set cylinder upright and remove stopper. Rinse material from stopper, with irrigation tube, back into cylinder.			
20	Place irrigation tube into material, rinsing fines from the sides. Apply proper action until all fines are flushed from bottom and cylinder is filled with solution to the 381mm mark.			
21	Allow to stand for 20 minutes, +/- 15 seconds.			
22	Read and record sand and clay readings correctly.			
23	Compute and record results correctly.			
24	Insure all equipment used meets requirements shown in AASHTO T176.			

Remarks:

IA Checklist
T 312 Superpave Gyratory

Procedure		P	F	NA
1	Were samples properly split to testing size?			
2	Are proper sample weights being used?			
3	Where do the weights come from? Ans. Mix Design			
4	Heat field samples uniformly to 300º F(149º C) for no more than 4 hours, according to 2009 ODOT Specifications, section 708.13, footnote b. Warm Mix Asphalt is conditioned at the temperature specified on the mix design. (For the lab molds only)			
5	Is machine calibrated? How often is it to be calibrated?			
6	Were the molds and plates pre-heated to the proper temperature?			
7	Place base plate in mold.			
8	Place paper gasket over base plate.			
9	Fill the mold in one lift as specified. Molds should be re-heated for 5 minutes @ 300 ºF after each test. * For Warm Mix re-heat mold at temperature specified in step #4.			
10	Level material in mold.			
11	Place paper gasket and top plate(if required) on top of material and slide mold into compactor.			
12	Are proper gyrations and pressure set on the machine?			
13	Start Superpave Gyratory Compactor.			
14	Insure that all equipment used meets the requirements shown in AASHTO T312.			

Remarks:

IA Checklist
R 47 Reducing Samples of Hot Mix Asphalt (HMA) to Testing Size

Splitter (Type A (Quartermaster)or Type B (Riffle))		**P**	**F**	**NA**
1	Was splitter cleaned and lubed, and in good working condition.			
2	Was the splitter lubed with an agent that wouldn't affect asphalt binder properties?(Not solvent or petroleum based product)			
3	How many equal-width chutes are required on a riffle splitter and what are the requirements for the width of the chutes? No fewer than 8 (Large Splitter), no fewer than 12 (Small Splitter). Minimum width approximately 50% larger than the largest particle to be split.			
4	Was the flow of material controlled to flow smoothly without restrictions or loss of material?			
5	Were the correct weights split out for required test?			
Quartering Method				
1	Was a quartering template used or a straightedge(large spatula, trowel or metal straightedge)?			
2	Was sample placed on clean nonstick surface?			
3	Was material mixed thoroughly, by turning entire sample over a minimum of 4 times, and creating a conical pile?			
4	Was conical pile flattened to proper size? Diameter should be approximately four to eight times the thickness.			
5	Was sample divided into four equal quarters?			
6	Were the two diagonally opposite quarters "completely" removed?			
7	Was the remaining sample correctly remixed for further sampling?			

Remarks:

IA Checklist
OHD L 5 Sampling Bituminous Material

No.	Item	P	F	NA
1	Was the proper container used for the Liquid Asphalt sample? 1qt friction lid can.			
2	Was the proper container used for the Emulsion sample? 1qt plastic container.			
3	Take care that samples are not _____. (Ans:Contaminated)			
4	Container must be perfectly _____and ___. (Ans: Clean and Dry)			
5	Emulsion must be protected from _____. (Ans: Freezing)			
6	Mark for identification on ___ or ___. (Ans: Can or Tag)			
7	Clean outside of container with a _____. (Ans: Clean dry cloth)			
8	Truck or transport sample by means of a sampling valve located in the _____ or _____ from the _____ (Ans: Discharge or Unloading line from the middle 1/3 of load)			
9	Mixing Plant and Storage tank sample location. (Ans: Sampling valve in the bituminous feed lines connecting the storage tanks to the bituminous control unit.)			
10	When sampling a non-circulating storage tank, sample it using a _____ from near the _____ withdrawn at a rate that it is not _____. Sampling device shall be _____ before taking sample.(Ans: Sample Thief, bottom, completely filled, cleaned and dipped 2 or 3 times)			
11	Waste the first _ or _ gallons from the sample valve. (Ans: 1 or 2)			
12	Container is filled to at least ____ full. (Ans: 2/3)			
13	Was the container sealed and properly cleaned?			

Remarks:

IA Checklist
T 209 Theoretical Maximum Specific Gravity and Density of Asphalt Mixtures

No.	Item	P	F	NA
1	Obtain the sample in accordance with OHD L-65.			
2	Reduce samples in accordance with AASHTO R47. Two samples are required to check for single operator precision.			
3	Determine sample size from Table 1 in AASHTO T 209, Section 6.3.			
4	Dry the sample to a constant mass at a temperature of 221+/- 9ºF (105 +/- 5ºC) until further drying does not alter the mass by more than 0.1 percent. Drying shall be combined with any warming described in Section 7.3.			
5	Separate the particles of the asphalt mixture sample by hand, so that the particles of the fine aggregate portion are not larger than ¼". If an asphalt mixture sample is not sufficiently soft to be separated manually, place it in a pan and warm it in an oven until it can be separated.as described.			
6	Determine and record the mass of the empty vacuum container.			
7	Was flask/container calibrated properly? Fill with water at approximately 77ºF. Use a glass capillary stopper, capillary lid or glass plate to ensure all entrapped air is removed. Stabilize the flask or pycnometer at 77º F +/- 2º for 10 +/- 1 min. Dry outside of flask/container. Determine and record the mass of the flask or pycnometer, water and lid. Repeat this process three times. If the three masses are within 0.3 g, use the average of the three masses as D. If the variation of the masses is greater than 0.3 g, take corrective action and perform the standardization procedure again.			
8	Cool the sample to room temperature.			
9	Place the sample in the vacuum container. Determine and record the mass of the sample and container. Subtract the mass of the container from the mass of the sample and the container. Record the net mass of the sample as A.			
10	Add sufficient water at a temperature of approximately 77ºF to cover the sample completely.			
11	Apply vacuum at 27.5, +/- 2.5mm Hg for 15 +/- 2 minutes, 730mm HG for mechanical vacuum gauge. Agitate sample during this period either by hand (about every 2 minutes) or mechanical device.			
12	Release vacuum by increasing pressure at a rate not to exceed 8kPa/second (60mm HG).			
13	*Mass Determination in Water*—Suspend the container and contents in a water bath at 25 ± 1°C (77 ± 2°F). Determine and record the mass after a 10 ± 1 min immersion. Designate the mass of the sample and container in water as *C*.			
14	*Mass Determination in Air*—Fill the flask or any one of the pycnometers with water and adjust the contents to a temperature of 25 ± 1°C (77 ± 2°F). When the water has reached the proper temperature, cap off and dry flask /container and lid. Determine and record the mass of the container and contents, completely filled, in accordance with Section A1.2.1 within 10 ± 1 min after the vacuum has been released. Designate this mass as *E*.			

15	Insure calculations are performed correctly to determine Theoretical Maximum Specific Gravity.			
16	Check for tolerances between the 2 tests. Hand agitated +/- 0.018. Mechanically agitated +/- 0.014.			
17	Insure that all equipment used meets the requirements shown in AASHTO T 209.			

Remarks: