OHD L-56
RECOMMENDED PRACTICE FOR
RANDOM SELECTION OF
BITUMINOUS MIXTURE SAMPLES

1.   SCOPE

1.1   Use this test method to select points randomly from which to sample loose bituminous mixtures and to determine roadway locations for obtaining hot-mix asphalt cores.

1.1.1   Use Part I to select sampling points of hot-mix asphalt mixtures and other materials randomly.

1.1.2   Use Part II to select pavement locations randomly for the coring of hot-mix asphalt pavements.

1.2   Use the automated random number worksheet to generate and report all results.

Note 1—A copy of the random number worksheet may be downloaded from the Materials Division website. Print a copy of the random numbers generated and retain in the project files. Do not provide copies of the random numbers or sample locations to the contractor prior to the placement of the lot.

1.3   The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.

PART I—RANDOM SELECTION OF PRODUCTION SAMPLES

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2.   SCOPE

2.1   Use this method to select sampling points randomly for hot-mix asphalt mixtures during plant production.

3.   PROCEDURE

3.1   Select the lot or sublot size as defined in the specifications.

3.2   Use the automated program to determine the random numbers for production sampling for the entire project.

Note 2—Random numbers must be a decimal unit between 0.001 through 0.999. The random number is 'A' in Table 1.

3.3   Multiply the total mass of the lot or sublot as determined in Section 3.1 by the random number (A), determined in Section 3.2.

3.4   Add the result from Section 3.3 to the mass at the beginning of the lot or sublot and round to the nearest 1 ton (1 Mg) to obtain the mass for the sampling location.

Note 3—This is the Production Location as shown in Table 1.

4.   PRODUCTION SAMPLES EXAMPLE

4.1   Lot or Sublot size = 1,000 tons (907 Mg)

Table 1—Production Samples Example			
Sample	Lot or Sublot Mass	Random Number (A)	Production Location
1	1,000 tons (907 Mg)	0.515	515 tons (467 Mg)
2	1,000 tons (907 Mg)	0 .969	1969 tons (1786 Mg)
3	1,000 tons (907 Mg)	0.532	2532 tons (2297 Mg)
4	842 tons (764 Mg)	0.709	3597 tons (3263 Mg)

PART II—RANDOM SELECTION OF PAVEMENT LOCATIONS
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5.   SCOPE

5.1   Use this method to randomly select pavement locations for the coring of hot-mix asphalt pavements.

Note 4—Approved alternate methods for density determination may be used at these locations as detailed in OHD L-14.

6.   PROCEDURE

6.1   Determine the length and width of the completed lot or sublot.

6.2   Use the random numbers determined in Section 3.2 for the lot or sublot length and width offset for the entire project.

Note 5—Random numbers must be a decimal unit between 0.001 through 0.999. The random numbers are 'A' and 'B' in Table 2.

6.3   Multiply the total length of the lot or sublot by the random length number (A) as shown in Table 2.

6.4   Add the result from Section 6.3 to the station number at the beginning of the lot or sublot and round to the nearest 1 ft (0.5 m) to obtain the station of the coring location. If the station is within 15 ft (5 m) of a transverse joint, typically at the start or end of a days' run, adjust the lot or sublot station to 15 ft (5 m) from the transverse joint.

6.5   Multiply the width of the lot or sublot by the random width number (B) and round to the nearest 0.5 ft (0.1 m) as shown in Table 2.

6.6   Measure the width offset from the right side of the completed lot or sublot facing in the direction of travel. If the width offset is within 1.5 ft (0.5 m) of a longitudinal joint or pavement edge, **a**djust the lot or sublot width location to 1.5 ft (0.5 m) from the longitudinal joint or pavement edge.

6.7   Repeat Sections 6.3 through 6.6 to determine a new core location. Sampling (roadway cores) by the contractor for the Engineer should be performed in the presence of Department personnel with possession taken by the Department at that time.

7.   PAVEMENT CORE LOCATION EXAMPLE

7.1   Beginning Station = 32 + 81 ft (1 + 000 m)

7.2   Lot or Sublot Length = 6,890 ft (2100 m)

7.3   Lot or Sublot Width = 12 ft (3.7 m)

Table 2—Pavement Coring Location Example							
Sample	Lot or Sublot Length	Random Length Number (A)	Lot or Sublot Location	Station Number	Lot or Sublot Width	Random Width Number (B)	Width Offset
1	6,890 ft (2100 m)	0.970	6683 ft (2037.0 m)	99 + 64 ft (3 + 037.0 m)	12 ft (3.7 m)	0.175	2.0 ft (0.6 m)
2	6,890 ft (2100 m)	0.035	241 ft (73.5 m)	35 + 22 ft (1 + 073.5 m)	12 ft (3.7 m)	0.694	8.5 ft (2.5 m)
3	6,890 ft (2100 m)	0.392	2701 ft (823.0 m)	59 + 82 ft (1 + 823.0 m)	12 ft (3.7 m)	0.686	8.0 ft (2.5 m)

APPENDIX

The principles of random sampling apply to all construction materials, not just asphalt mixtures. This practice and spreadsheet may be used to establish random numbers for sampling other construction materials. Document the manner in which the random numbers are being used and place in the file with a copy of the random numbers generated for the project. The Materials Division is developing a recommended practice that includes several construction materials to replace this one.

This practice may be used for stratified random sampling, if desired. For bituminous mixture pavement locations, divide the lot or sublot into three equal units. Using the same pavement coring location example as in the practice, the new locations are calculated below.

Beginning Station = 32 + 81 ft (1 + 000 m)

Lot or Sublot Length = 6890 ft (2100 m)

Unit length for Stratified random sampling = 6890/3 ft = 2297 ft (700 m)

Lot or Sublot Width = 12 ft (3.7 m)

Table 2—Pavement Coring Location Example							
Sample	Unit Length	Random Length Number (A)	Lot or Sublot Location	Station Number	Lot or Sublot Width	Random Width Number (B)	Width Offset
1	2297 ft (700 m)	0.970	2228 ft (679 m)	55 + 09 ft (1 + 679 m)	12 ft (3.7 m)	0.175	2.0 ft (0.6 m)
2	2297 ft (700 m)	0.035	80 ft (24.5 m)	56 + 58 ft (1 + 724.5 m)	12 ft (3.7 m)	0.694	8.5 ft (2.5 m)
3	2297 ft (700 m)	0.392	900 ft (274 m)	87 + 75 ft (2 + 674 m)	12 ft (3.7 m)	0.686	8.0 ft (2.5 m)