ASPHALT BINDER

Section 10 – Random Sampling Density

Random Sampling Density

➢ **Determine total production – weigh tickets**

➢ **Determine length and width – engineer**

➢ **Determine number of lots**
  ‣ **One lot ≤ 1500 t**
  ‣ **One lot = 7 tests**
  ‣ **Production < 1500 t; Use 1 lot, 7 tests**
  ‣ **Production > 1500 t; Use 2 or more lots, 7 tests each**
  ‣ **Lot can extend beyond 1 day**

Random Sampling Density
(continued)

➢ **Select Random Numbers (0 to 1)**
  ‣ **Table**
  ‣ **Computer**
  ‣ **Any other acceptable method**

➢ **Procedure with Table**
  ‣ **Enter Table at any point to get entry number**
  ‣ **Select row or column containing entry number; yield – 7 random number set**
  ‣ **Use for longitudinal locations**
  ‣ **Select other row or column containing entry number; yield; 7 random number set**
  ‣ **Use for transverse locations**

Random Sampling Density
(continued)

➢ **Determine lot size and sublot size**
  ▸ **Divide total length by number of lots – log length**
  ▸ **Divide length of lot by 7 – sublot length**

Random Sampling Density
(continued)

➢ **Determine lot and sublot locations**
  ▸ **Find begin paving station**
  ▸ **Add sublot length to beginning station**
    ♦ **Results – End station sublot 1, Begin station sublot 2**
  ▸ **Add sublot length to beginning station of sublot 2**
    ♦ **Results – End station sublot 2, Begin station sublot 3**
  ▸ **Repeat for 7 sublots**
  ▸ **Check by adding lot length to beginning station and compare to end station of sublot 7**

Random Sampling Density
(continued)

➢ **Determine horizontal test locations**
  ▸ **Multiply first random number of set 1 by sublot length**
  ▸ **Subtract distance from end of sublot 1**
  ▸ **Repeat for each sublot**

➢ **Determine transverse test locations**
  ▸ **Subtract 0.6 meters from width**
  ▸ **Multiply first random number of set 2 by result of step 1**
  ▸ **Add 0.3 to result of step 2**
  ▸ **Repeat for each sublot**

A Total Production To be tested	B Beginning Station		C Ending Station		D Total feet Paved (C – B = D) Lot Length	Width Paved (feet)	E Width Paved Minus 2 (feet)
1350	240+80.00		344+80.00		10,400'	14	12'

F Number of Lots Represented (A/1500)	G Tons Per lot (A/F)	H Feet per lot (D/F)	I Feet represented Per test (H/7)	
1350/1500 = 0.9 Must be whole number → 1	1350'	10,400'	1485.7'	

Number	J Random Number	Section Represented Beginning st. Ending st K	L	Test Station L-(J * I)	M Random Number	Dist. From Edge Horizontal Distance feet (ExM)-1 ft	Lane 1.Right 2.Center 3.Left	Lift 1.Upper 2.Lower 3.Total
1	0.389	240+80	255+66	249+88	0.527	7.3		
2	0.620	255+66	270+52	261+31	0.025	1.3		
3	0.379	270+52	285+38	279+74	0.528	7.3		
4	0.869	285+38	300+24	287+33	0.263	4.2		
5	0.105	300+24	315+10	313+54	0.932	12.2		
6	0.667	315+10	329+96	320+05	0.745	9.9		
7	0.643	329+96	344+80	335+25	0.339	5.1		

Section 10 - 7

Problem 10-7

14'
12'
1'

Ending Station for Lot 344+80
Sublot #7
329+96
Sublot #6
315+10
Sublot #5
300+24
Sublot #4
285+38
Sublot #3
270+52
Sublot #2
255+66
Sublot #1
Beginning Station for Lot 240+80

■ Core Locations (Randomly Located)

1350' Lot length
7@1485.7'

No cores 1 ft from edges

3