

OFFICE OF STATE AID ROAD CONSTRUCTION			S.O.P. NO. SA II-3-31
STANDARD OPERATING PROCEDURES			Page 1 of 2
Subject: S.O.P. RANDOM SAMPLING			Distribution A, B, C, D, E
EFFECTIVE July 1, 2005	ISSUED July 1, 2005	SUPERSEDES Page 1 of 2 S.O.P. NO. SAD II-3-19 EFFECTIVE: January 1, 1986	APPROVED J. Brooks Miller, Sr. STATE AID ENGINEER

PURPOSE: To Establish Procedures For The Use of Random Numbers For Sampling.

Reference is made to Subsection S-700.04 of the Standard Specifications.

As stipulated in the referenced Subsection, samples in each lot to be evaluated for acceptance under the statistically based acceptance plan are to be taken by a pre-determined random sampling pattern.

Page 2 of 2 consists of two hundred eighty (280) pairs of random numbers which are to be used in determining location of samples. Each number is to be considered as a decimal fraction of 1,000. For any lot consisting of an area of work, the random numbers are to be taken from the table in pairs.

The two numbers of each pair are to be used to determine coordinates of the sample within the area, measured from a reference point located at one corner of the area. The first, left, number is to be used as the fraction of the length and the second number is to be used as the fraction of the width.

For example, a section of a course twenty-eight (28) feet wide and nine hundred seventy-five (975) feet long, extending from Station 450 + 00 to Station 459 + 75 is to be tested by the random sampling method. A pair of random decimal numbers are selected without bias from any block, such as the second pair in the block at the intersection of column 2 and brace 5. By multiplying by the decimal fractions as indicated above, the coordinates, in feet, of the sample location would be 325 for length, and 9 for width. Assuming the construction to be progressing from the beginning of project toward the end of project, the sampling location would then be Station 453 + 25, 9 feet from the left edge.

The sampling points should always be located from the left edge of construction regardless of the direction of construction with reference to station numbers. For the purpose of practicality, all computations involving relatively large areas should be rounded off to the nearest foot.

It is understood that the location of the test may be moved for good cause within the square yard, the center of which is the coordinate location, such as in the case of edges, boundary lines, joints and surface texture affecting testing equipment seating, etc. In the event it is necessary to move the location of the test site outside of the square yard indicated above, the reason for such location should be documented.

The set of random numbers may also be used for lineal random sampling such as in distance, time, number of trucks, etc., where width or depth is not involved. In such case, merely use the first decimal fraction of the pair and disregard the second decimal fraction. Likewise, the set of random numbers may be used for random sampling in three (3) dimensions merely by using the first decimal fraction for the first dimension, the second decimal fraction for the second dimension and the first decimal fraction of the next pair for the third dimension.

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RANDOM NUMBERS

	1		2		3		4		5		6		7	
1	815	722	048	964	248	826	665	147	767	147	133	870	796	957
	296	205	680	264	469	208	897	815	866	126	922	571	804	252
	007	573	390	664	846	400	328	613	989	960	647	645	960	982
	053	042	256	264	444	440	379	639	457	661	754	665	346	904
	919	264	641	943	267	259	399	222	715	645	914	424	078	696
2	005	047	879	773	422	351	740	995	818	426	438	766	620	766
	007	698	627	561	863	880	762	360	846	931	760	658	779	880
	690	657	958	552	189	273	265	086	408	599	298	801	127	485
	259	579	298	886	679	487	189	822	654	697	336	542	859	035
	097	834	735	129	308	183	282	357	059	416	349	378	389	880
3	915	425	279	301	040	863	298	997	555	848	290	092	796	732
	179	563	909	491	200	599	061	205	180	020	737	835	361	427
	465	185	188	496	023	510	206	587	281	154	569	533	205	873
	921	896	948	781	846	828	099	254	441	484	255	212	355	204
	145	627	356	812	396	473	568	563	616	495	896	201	774	180
4	984	075	333	642	016	924	669	984	048	455	465	041	468	457
	349	639	887	827	344	170	875	408	324	700	706	888	777	693
	700	282	394	464	232	534	949	258	699	948	196	728	001	667
	539	549	069	672	683	829	113	428	802	882	473	466	065	978
	760	295	409	073	587	257	229	800	399	961	411	142	606	595
5	907	522	839	299	658	388	504	837	556	143	317	573	562	415
	643	674	333	319	148	244	597	923	974	892	359	041	237	519
	089	003	316	253	616	340	812	356	568	693	483	455	785	817
	950	683	935	707	105	045	764	543	023	172	288	147	627	922
	156	104	204	383	911	219	595	816	271	482	467	229	322	856
6	164	818	041	533	794	214	830	923	366	312	596	917	727	023
	186	819	055	919	047	130	976	248	947	064	350	048	867	982
	731	351	474	876	990	710	888	710	187	202	231	729	351	430
	574	167	231	493	450	331	125	410	807	453	448	125	989	912
	304	839	237	144	150	457	227	197	099	743	686	304	707	254
7	166	350	859	982	323	523	168	692	827	384	738	325	419	444
	967	202	425	789	053	221	243	542	350	196	110	914	603	197
	389	642	143	826	665	441	006	355	359	191	633	296	033	598
	316	763	174	533	441	644	647	753	765	316	126	330	603	923
	789	194	236	278	479	025	376	208	721	393	348	089	850	878
8	039	333	570	742	634	173	628	399	056	912	688	255	388	469
	744	332	439	101	899	156	528	738	731	886	889	744	518	993
	090	009	207	954	926	454	095	888	165	511	793	975	162	660
	422	124	870	142	209	045	645	313	865	294	476	059	524	168
	161	080	265	417	819	656	742	563	000	671	775	706	287	341