FED. RD DIVISION	STATE	PROJECT	
2	OHIO	1-1102 (6)	

21
458

CUYAHOGA & LAKE COUNTIES
CUY-I-15.91
LAK-I-0.00

PAVEMENT, BASE & SUBBASE CALCULATIONS

See Sheet No.	Station Locations, Calculations, Etc.	E-1 Compacted Subgrade Sq. Yds.	B-219 3" Waterproofed Aggregate Base Course Sq. Yds.	B-35 Asph. Conc. Leveling Course (70-85) 1½"	B-35 Asphaltic Conc. Base Course (70-85) 2¾" Sq. Yds.	B-19 Aggregate Base Course Sq. Yds. 5"	6"	8"	T-30 Bituminous Prime Coat Sq. Yds.	T-31 Bituminous Surf. Treat. Bit. Mat'l. Sq. Yds.	T-31 Bituminous Surf. Treat. No. 6 Aggr. Sq. Yds.	T-32 Road Mix Bituminous Material Sq. Yds.	T-32 Seal Coat Bituminous Material Sq. Yds.	T-32 No. 46 Aggr. for Road Mix Sq. Yds.	T-32 No. 6 or 9 Aggregate for Choke Sq. Yds.	T-32 No. 6 Aggr. for Seal Coat Sq. Yds.	T-35 Asph. Conc. Surface Course (70-85) 1½" Sq. Yds.	T-71 9" Reinf. Portland Cem. Conc. Pav't. Sq. Yds.	T-71 10" Reinf. Portland Cem. Conc. Pav't. Sq. Yds.	I-7 Reinf. Conc. Approach Slabs (T-13) Sq. Yds.	I-7 Reinf. Conc. Appr. Slabs as per Plan Sq. Yds.	I-18 5" Slab Cr. Appr. Shldrs. & Approaches Sq. Yds.	I-22 Subbase & Grading & Ditches as per Plan Cu. Yds.
5	Typical Section "A" = 16,477.67 L.F. (N.B. & S.B. Lanes) = 16,477.67 X 72'W X 1/9	131,821.36																	131,821.36			
	2@10' & 2@5' Paved Shoulders = 16,477.67' X 30'W X 1/9	54,925.57	54,925.57							54,925.57	54,925.57											
	2@10.5' & 2@5.5' Stabilized Shoulders = 16,477.67' X 32'W X 1/9																				58,587.27	
	NOTE: Sta. 125+76 To Sta. 129+80 = 404.0 L.F. Subbase to be placed as per Typical Section "E" = 404.0 L.F. X 69.44 Sq. Ft. End Area X 1/27 = 1039.23 Cu. Yds. 16,477.67 Less 404.0 = 16,073.67 L.F. X 72'W = 32,836.27 Sq. Ft. End Area X 1/27 = 3139.724 Cu. Yds. Total = 32,836.27 Cu. Yds.																					32,436.27
7	Typical Section "E" = 2,000.00 L.F. (N.B. & S.B. Lanes) = 2,000.00 X 72'W X 1/9																		16,000.00			
	2@10' & 2@5' Paved Shoulders = 2,000.00' X 30'W X 1/9		6,666.67							6,666.67	6,666.67											
	2@10.5' & 2@5.5' Stabilized Shoulders = 2,000.00 X 32'W X 1/9																				7,111.11	
	2,000.00 X 69.44 Sq. Ft. End Area X 1/27																					5,143.70
	4 Bridge Approach Slabs = 4 X 25' Lgth. X 36'W X 1/9	400.00																		400.00		
	" " " " Adjacent Shoulders - 1@10' & 1@5' = 15'W X 25' Lgth X 4 X 1/9	166.67	166.67							166.67	166.67											
	" " " " Adjacent Shoulder Base - 1@10.5' & 1@5.5' = 16W X 25' Lgth X 4 X 1/9																				177.78	
	" " " " Subbase 4 X 25' Lgth X 28.78 Sq. Ft. End Area X 1/27																					106.63
	NOTE: 11 Carried Thru Wilson Mills Interchange - Extra Areas in Interchange as Follows:																					
30	Ramp "A" Sta. 0+28.82 To Sta. 7+50.02 = 729.15' X 17.50' Avg. W. X 1/9	1417.70																	1,417.70			
	729.15 X 17.50' Avg. W X 0.5' D X 1/27																					236.30
30, 213B	Sta. 7+50.02 To Sta. 10+50.02 = 300' X 15' Avg. W. X 1/9	500.00																500.00				
	300 X 16' Avg. W. X 0.5' Avg. D X 1/27																					88.89
213	Sta. 10+50.02 To Sta. 12+00 = 150.31' Avg. L. X 17' Avg. W. X 1/9 (NOTE: Subgrade in Shale from	94.63																283.92				
	Sta. 11+00 To Sta. 12+00 - 150.21' Less 100.21' = 50.10' X 17'1 1/9 = Y 150.31' Avg. L X 18' Avg. W X 0.5' D X 1/27																					50.10
213	Sta. 12+00 To Sta. 21+42.2 = 943.05 Avg. L X 16' X 1/9 (NOTE: Subgrade in Shale from	586.15																1,676.53				
	Sta. 12+00 To Sta. 17+00 - 943.05 Less 500.85 - 442.20 (16' W 1/9) = 893.05 Avg. L X 16' X 0.5' D X 1/27																					229.12
213	Sta. 21+42.2 To Sta. 21+92.57 Intersection (P) 167.30 S.Y. Pav't.	167.30																167.30				
	" " " " " " 34.27 S.Y. Shldr.	34.27	34.27							34.27	34.27											
	" " " " " " 35.31 S.Y. Shldr. Base																				35.31	
	" " " (P) = 2250.0 S.Y. @ 0.5' Avg. D) = 2250.0 X 1/9																					37.50
213	Extra Rt. Ramp "A" Curb Sta. 7+50.02 To Sta. 11+35 (P) = 186.21 S.Y. Shldr. & Base	186.21	186.21							186.21	186.21										186.21	
	(186.21 S.Y. @ 0.5' Avg. D) = 186.21 X 1/9																					31.04
213	Rt. Ramp "A" Sta. 12+00 To Sta. 12+50 = 50.23' Avg. L. X 2.5' Avg. W X 1/9		13.95							13.95	13.95										13.95	
	50.23' Avg. L X 3.5' Avg. W X 0.54' Avg. D X 1/27																					3.52
213	" " " " 12+50 To Sta. 13+20 = 100.46 Avg. L X 3'W X 1/9		33.49							33.49	33.49										33.49	
	100.46' Avg. L X 4'W X 0.54' Avg. D X 1/27																					8.04
213	" " " " 13+50 To Sta. 21+42.2 = 793.39' Avg. L X 3'W X 1/9 (NOTE: Subgrade in Shale from	147.40	264.46							264.46	264.46											
	Sta. 13+50 To Sta. 17+00 - 793.39' Less 351.10' = 442.20 X 3 W X 1/9 = Y 793.39' Avg. L X 3.5' W X 1/9																				308.54	
	793.39' Avg. L X 3.5' W X 0.57' Avg. D X 1/27																					58.62
213	Lt. Ramp "A" Sta. 7+50.02 To Sta. 10+50.02 = 300' X 10' W X 1/9	333.33	333.33							333.33	333.33											
	300' X 10.5' W X 1/9																				350.00	
	300' X 10.5' W X 0.52' Avg. D X 1/27																					60.67
213	" " " Sta. 10+50.02 To Sta. 12+50 = 199.75' X 9' Avg. W X 1/9 (NOTE: Subgrade in Shale from	49.92	199.75							199.75	199.75											
	Sta. 11+00 To Sta. 12+50 - 199.75' Less 149.83' = 49.92' 19' W 1/9) 199.75' X 9.5' Avg. W. X 1/9																				210.85	
	199.75' X 9.5 Avg. W. X 0.52' Avg. D X 1/27																					36.55
213	" " " Sta. 12+50 To Sta. 21+42.2 = 891.83' Avg. L X 8' W. X 1/9 (NOTE: Subgrade in Shale from	303.07	792.74							792.74	792.74											
	Sta. 12+50 To Sta. 17+00 - 891.83' Less 449.63' = 442.20' X 8' W 1/9) 891.83' Avg. L X 8.5' W. X 1/9																				841.28	
	891.83' Avg. L. X 8.5' W. X 0.52' Avg. D X 1/27																					146.00
8, 21G	Ramp "B" Intersection Sta. 1+50.59 To Sta. 1+90 (P) = 176.62 S.Y. Pav't.	176.62																176.62				
	" " " " " " 26.85 S.Y. Shldr.	26.85	26.85							26.85	26.85											
	" " " " " " 27.94 S.Y. Shldr. Base																				27.94	
	" " " " " " (P) = 221.26 S.Y. @ 0.5' Avg. D) = 221.26 X 1/9																					36.88
21G	" " " 1+90 3+64.14 = 168.66' Avg. L. X 24' W. X 1/9	449.76																449.76				
	168.66' Avg. L. X 24' W. X 0.5' D X 1/27																					74.96
21G	" " " 3+64.14 5+68.22 = 203.89' Avg. L. X 20' Avg. W. X 1/9	453.09																453.09				
	203.89' Avg. L. X 20' Avg. W. X 0.5' D. X 1/27																					75.52
21G	" " " 5+68.22 8+22 = 255.83' Avg. L. X 16' W. X 1/9	454.81																454.81				
	255.83' Avg. L. X 16' W. X 0.5' D. X 1/27																					75.80
21G, 32, 33	" " " 8+22 9+22.30 = 100 S.Y. / 9+22.30 21+25 = 2062.6 S.Y.	2,252.60																190.00	2062.60			
	2252.60 S.Y. @ 0.50 = 2252.60 X 1/9																					375.43
21G	Rt. Ramp "B" Sta. 1+90 To Sta. 8+22 = 624.61' Avg. L. X 3' W. X 1/9	208.20	208.20							208.20	208.20											
	624.61' Avg. L. X 3.5' W. X 1/9																				242.90	
	624.61' Avg. L. X 3.5' W. X 0.57' Avg. D. X 1/27																					46.15
21G	" " " 8+22 9+22.30 = 101.14' Avg. L. X 3' W. X 1/9	33.71	33.71							33.71	33.71										33.71	
	101.14' Avg. L. X 3' W. X 0.54' Avg. D X 1/27																					6.07
21G	Lt. Ramp "B" Sta. 1+90 To Sta. 6+68.30 = 479.60' Avg. L. X 8' W. X 1/9	426.31	426.31							426.31	426.31											
	479.60' Avg. L. X 8.5' W. X 1/9																				432.96	
	479.60' Avg. L. X 8.5' W. X 0.52' Avg. D. X 1/27																					78.51
21G	" " " 6+68.30 8+22 = 153.05' Avg. L. X 8.6' Avg. W. X 1/9	146.25	146.25							146.25	146.25											
	153.05' Avg. L. X 9.1' Avg. W. X 1/9																				154.75	
	Sub Totals:	196,051.85	64,158.43							64,158.43	64,158.43							4352.03	151,301.70	400.00	68,769.05	39,492.57

NOTE: (P) Denotes area obtained by Planimeter.

MICHAEL BAKER, JR., CONSULTING ENGINEERS
ROCHESTER, PENNSYLVANIA

STATE HIGHWAY NO. I
C-41
PAVEMENT, BASE & SUBBASE CALCULATIONS

Designed	Drawn	Traced	Checked	Reviewed Date	Revised
B.P.	E.P.C.	K.W.R. K.L.G.	R.E.F.		