

社会開発協力部

ザイール共和国
マタディ橋梁建設計画調査報告書

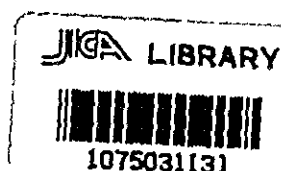
橋梁上部工影響線値

昭和53年5月

国際協力事業団

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19268

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景影響線値

(1) (i) 補剛トラス曲げモーメント影響線値 P=1.0t No. 1

		着目 実 (t・m)									
		204	209	212	214	216	218	220	222	224	
202		-7.260	2.307	1.795	1.365	1.012	0.720	0.480	0.280	0.118	
204		-22.108	6.045	4.702	3.578	2.649	1.882	1.249	0.730	0.308	
206		-11.949	7.137	5.551	4.223	3.127	2.221	1.474	0.861	0.352	
208		-3.441	3.325	2.974	2.261	1.672	1.185	0.784	0.455	0.186	
212		4.981	13.293	-10.007	-7.642	-5.584	-4.066	2.733	1.539	-0.747	
214		7.919	21.119	1.124	-19.219	-14.400	-10.415	-7.128	-4.427	-2.224	
216		9.278	24.742	8.292	-8.563	-26.216	-19.221	-13.444	-8.691	-4.805	
218		9.470	25.263	12.400	-0.708	-15.127	-30.702	-21.758	-14.752	-8.849	
220		8.832	23.552	14.199	4.235	-6.715	-18.999	-32.736	-29.949	-14.705	
222		7.641	20.376	14.312	7.450	-0.506	-9.816	-20.750	-33.647	-22.739	
224		6.125	16.335	13.251	9.182	3.903	-2.761	-11.015	-21.108	-33.331	
226		4.470	11.919	11.438	9.801	6.345	2.471	-3.462	-11.130	-20.761	
228		2.823	7.523	9.216	9.611	8.506	6.150	2.194	-3.415	-10.832	
230		1.301	3.463	6.860	3.867	9.426	8.547	6.178	2.305	-3.248	

載荷 実

補剛トラサ曲げモーメント影響値

P=1.0t

N02

着		目 莫 (t/m)									
	206	228	230	232	234	236	238	240	242		
	-0.011	-0.113	-0.189	-0.242	-0.274	-0.285	0.277	-0.248	-0.198		
	204	-0.031	-0.295	-0.496	-0.719	0.749	0.726	-0.650	-0.519		
	205	-0.037	-0.351	-0.587	-0.759	0.885	0.857	-0.769	-0.663		
	203	-0.027	-0.175	-0.321	-0.409	-0.461	0.479	0.463	-0.412		
	212	-0.031	-0.532	0.259	1.251	1.447	1.487	1.344	1.087		
	214	-0.449	-0.952	2.02	2.786	3.271	3.439	3.142	2.568		
	216	-1.566	-0.325	1.851	2.742	4.139	5.056	5.519	5.641		
	218	-4.060	-0.233	2.732	4.936	6.438	7.277	7.481	7.056		
	220	-7.991	-2.579	1.635	4.833	7.085	8.463	9.001	8.719		
	222	-13.819	-6.609	-0.390	3.507	5.708	8.805	9.862	9.911		
	224	-21.906	-12.612	-5.166	0.654	5.016	8.097	9.837	10.440		
	225	-32.633	-20.980	-11.518	-4.024	1.742	5.946	8.712	10.124		
	223	-20.275	-32.018	-20.274	-10.851	-3.382	2.252	5.274	8.774		
	230	-10.627	-20.046	-31.780	-20.046	-10.626	3.248	2.305	6.198		

載荷莫

N

補剛トス曲付毛-Xシ影響値 P=1.00

No.3

		着 目 桌 (t.M)					
	244	246	248	250	256		
202	-0.126	-0.029	0.085	0.248	0.092		
204	-0.330	-0.076	0.250	0.653	0.295		
206	-0.389	-0.088	0.299	0.776	0.291		
208	-0.205	-0.040	0.170	0.429	0.161		
212	0.709	1.987	0.440	1.276	0.478		
214	1.709	0.538	0.981	2.867	1.075		
216	2.923	1.073	1.351	4.373	1.540		
218	4.257	1.818	1.426	5.499	2.062		
220	5.650	2.774	1.205	6.033	2.259		
222	5.976	3.910	0.337	5.794	2.173		
224	8.142	5.176	0.898	4.725	1.772		
226	9.030	6.498	2.558	2.791	1.047		
228	9.509	7.773	4.585	0.028	0.014		
230	9.426	8.867	6.860	5.467	1.300		

載 荷 桌

(ii) 補剛力及地盤斷力影響線值 $P=1.0t$ No.1

項目	英尺 (10 ⁻² t)									
	201	209	210	214	218	222	226	230		
202	- 85.277	14.718	- 2.044	- 1.573	- 1.072	- 0.725	- 0.415	0.270		
204	- 56.685	44.310	- 5.360	- 4.118	- 2.809	- 1.895	- 1.223	0.703		
206	- 30.636	69.359	- 6.333	- 4.864	- 3.317	- 2.239	- 1.449	0.836		
208	- 8.822	91.174	- 3.499	- 2.611	- 1.780	- 1.202	- 0.779	4.466		
212	12.786	12.786	- 89.514	8.577	5.923	3.993	2.597	1.516		
214	20.350	20.306	- 76.857	- 78.837	14.594	9.870	6.442	3.325		
216	23.789	23.789	- 63.190	- 65.236	25.632	17.377	11.409	6.850		
218	24.280	24.280	- 49.240	- 51.846	61.420	26.358	17.424	10.652		
220	22.645	22.645	- 35.615	- 39.106	48.693	36.737	24.459	15.253		
222	19.592	19.592	- 22.780	- 27.326	37.216	51.649	32.539	20.653		
224	15.705	15.705	- 11.131	- 16.737	27.054	40.713	41.736	25.979		
226	11.406	11.406	- 0.952	- 7.523	18.250	31.264	47.970	34.320		
228	7.238	7.238	7.530	0.185	10.822	23.221	38.389	42.811		
230	3.334	3.334	14.179	6.311	4.770	16.505	30.229	47.505		

補剛トラスセン断カ影響線値 $P = 1.0t$ No 2

		道 目 英. ($10^{-2} t$)									
		234	235	242	246	250	251	259			
202		- 0.102	0.054	0.212	0.397	0.616	- 0.238	- 0.238			
204		- 0.270	0.139	0.557	1.044	1.617	- 0.628	- 0.628			
206		- 0.317	0.166	0.661	1.235	1.917	- 0.746	- 0.746			
208		- 0.166	0.094	0.363	0.673	1.045	- 0.413	- 0.413			
212		0.506	0.235	- 1.101	- 2.095	- 3.273	1.227	1.227			
214		1.604	0.414	- 2.472	- 4.820	- 7.563	2.756	2.756			
216		3.080	0.334	- 3.765	- 7.639	- 12.140	4.204	4.204			
218		5.119	0.182	- 4.706	- 10.142	- 16.379	5.287	5.287			
220		7.800	1.275	- 5.060	- 11.977	- 19.502	6.791	6.791			
222		11.211	3.084	- 4.636	- 12.875	- 22.020	5.571	5.571			
224		15.445	5.723	- 3.276	- 12.623	- 22.743	4.544	4.544			
226		20.601	9.305	- 0.849	- 11.049	- 21.760	2.634	2.634			
228		26.793	13.927	2.746	- 3.042	- 18.925	0.027	0.027			
230		34.146	19.633	7.592	- 3.531	- 14.151	- 3.334	- 3.334			

載 荷 英

補剛トラス撓量影響線値

$P=1.0t$

	着目										点	
	205	220	230	240	255			222	238			
202	0.579	-0.423	-0.060	0.110	-0.014			-0.365	0.106			
204	1.426	-1.103	-0.152	0.291	-0.037			-0.952	0.282			
206	1.371	-1.295	-0.173	0.347	-0.044			-1.117	0.337			
208	0.509	-0.670	-0.072	0.197	-0.024			-0.575	0.194			
212	-0.715	2.366	0.435	-0.542	0.072			2.074	-0.508			
214	-1.146	5.465	1.202	-1.168	0.152			4.887	-1.062			
216	-1.344	8.783	2.451	-1.645	0.247			8.195	-1.408			
218	-1.372	11.741	4.214	-1.817	0.311			11.288	-1.373			
220	-1.277	13.629	6.441	-1.572	0.343			13.919	-0.849			
222	-1.102	13.919	9.002	-0.849	0.333			15.370	0.217			
224	-0.879	12.929	11.681	-0.367	0.276			15.226	1.854			
226	-0.635	11.117	14.170	2.047	0.171			13.793	3.911			
228	-0.394	8.856	16.060	4.114	0.021			11.586	5.364			
230	-0.171	6.444	16.328	5.444	-0.171			9.005	9.005			

載荷実

(iv) 補剛トラス撓丹影響線値 $P = 1.0t$

		着目					英		(10 ⁻⁵ Rad)	
201	209	210	250	251	259					
202	7.133	5.948	0.468	0.323	-0.201					
204	18.606	15.554	1.234	0.865	-0.529					
206	21.721	18.370	1.465	1.465	-0.629					
208	10.902	9.819	0.811	0.569	-0.347					
210	-17.955	-24.722	-2.427	-1.383	1.034					
214	-23.419	-40.011	-5.403	-3.791	2.306					
216	-33.263	-47.203	-8.227	-5.777	3.554					
218	-33.960	-48.384	-10.319	-7.253	4.480					
220	-31.695	-45.284	-11.295	-7.925	4.927					
222	-27.459	-39.322	-10.762	-7.594	4.771					
224	-22.062	-31.666	-8.662	-6.141	3.943					
226	-16.162	-23.265	-4.915	-3.536	2.421					
228	-10.290	-14.883	0.477	0.174	0.233					
230	-4.857	-7.115	7.114	4.856	-2.542					

載荷 英

(V) 補剛トラス支反力影響線値

P = 1.0 t

	着目 実 (10 ⁻² t)							
	201	209	210	209 + 210	250	251	250 + 251	259
202	-85.282	-14.718	-2.044	-16.762	-0.616	-0.238	-0.854	0.238
204	-56.688	-43.312	-5.361	-48.673	-1.617	-0.628	-2.245	0.628
206	-30.637	-69.368	-6.336	-75.704	-1.917	-0.746	-2.663	0.746
208	-8.822	-91.178	-3.400	-95.578	-1.043	-0.413	-1.456	0.413
212	12.787	-12.787	-89.519	-102.306	3.273	1.227	4.500	-1.227
214	20.306	-20.307	-76.860	-97.167	7.568	2.757	10.325	-2.757
216	23.790	-23.790	-63.196	-86.986	12.140	4.205	16.345	-4.205
218	24.282	-24.282	-49.243	-73.525	16.379	5.287	21.666	-5.287
220	22.646	-22.646	-35.516	-58.262	19.802	5.791	25.593	-5.791
222	19.593	-19.593	-22.781	-42.374	22.021	5.572	27.593	-5.572
224	15.706	-15.706	-11.313	-27.019	22.744	4.543	27.287	-4.543
226	11.461	-11.461	-0.953	-12.414	21.761	2.684	24.445	-2.684
228	7.238	-7.238	7.530	0.292	18.929	0.027	18.956	-0.027
230	3.335	-3.335	14.179	10.844	14.179	-3.334	10.845	3.334

載荷 実

(VI) 補剛トラス実上水平移動量影響線値 $P=1.0t$

		着		目		英		(10 ⁻⁵ m)	
		201	259		209		250		
	202	0.750	0.725		0.758		0.725		
	204	1.967	1.903		1.969		1.903		
	206	2.338	2.264		2.341		2.264		
	208	1.295	1.259		1.299		1.259		
	212	-3.807	-3.664		-3.801		-3.655		
	214	-8.547	-8.221		-8.540		-8.221		
	216	-13.030	-12.496		-13.022		-12.497		
	218	-16.436	-15.691		-16.423		-15.592		
	220	-18.215	-17.269		-18.206		-17.270		
	222	-18.074	-16.950		-18.055		-16.951		
	224	-15.960	-14.689		-15.953		-14.692		
	226	-12.059	-10.680		-12.053		-10.683		
	228	-6.781	-5.334		-6.775		-5.338		
	230	-0.736	0.783		-0.731		0.729		

載荷実

(2) (1) 塔 曲げモーメント及せん断力影響線値 $P=1.0$

	曲げモーメント着目点 (t.m)		せん断力着目点 ($10^{-2} t$)	
	401	408	401	408
202	-0.032	0.035	0.276	-0.309
204	-0.082	0.093	0.710	-0.804
208	-0.092	0.110	0.802	-0.753
208	-0.037	0.050	0.319	-0.517
212	0.216	-0.188	-1.876	1.632
214	0.475	-0.446	-4.122	3.867
215	0.768	-0.739	-6.665	6.414
218	1.059	-1.042	-9.274	9.040
220	1.356	-1.332	-11.765	11.555
222	1.612	-1.592	-13.399	13.311
224	1.824	-1.809	-15.325	15.655
226	1.982	-1.971	-17.191	17.098
228	2.078	-2.073	-18.025	17.973
230	2.109	-2.109	-18.293	18.293

載 荷 実

(ii) 塔 軸力 (支反力) 影響線值 $P = 100 t$

		着 目 實 驗 (t)					
		401	408		407	414	
202		14.0	- 1.2		- 2.6	- 2.1	
204		41.5	- 3.1		- 6.9	- 5.5	
205		67.2	- 3.7		- 8.2	- 6.5	
208		90.0	- 2.0		- 4.4	- 3.5	
212		116.6	6.7		12.7	11.3	
214		129.0	15.7		30.9	26.7	
216		137.6	27.6		49.6	44.4	
218		142.8	40.4		58.3	52.7	
220		144.9	54.1		85.8	82.4	
222		144.1	67.9		101.1	96.3	
224		140.8	81.5		113.6	109.7	
226		135.2	94.8		122.5	119.9	
228		127.5	107.0		127.9	126.5	
230		118.0	118.0		129.2	129.2	

載 荷 實

(iii) 塔頂變位影響線值 $P=100t$

		水平變位著目尺 (10^{-3} III)		垂直變位著目尺 (10^{-3} III)	
		4.07	4.14	4.07	4.14
20°		-0.168	0.185	-0.040	0.012
20.4		-0.434	0.488	-0.128	0.033
20.8		-0.470	0.578	-0.207	0.038
20.9		-0.197	0.312	-0.305	0.021
21.2		1.144	-1.002	-0.047	-0.057
21.4		2.520	-2.371	-0.582	-0.161
21.5		4.077	-3.732	-0.555	-0.270
21.8		5.580	-5.543	-0.776	-0.387
22.0		7.208	-7.085	-0.851	-0.505
22.2		8.557	-8.463	-0.923	-0.615
22.4		9.593	-9.691	-0.944	-0.717
22.5		10.523	-10.473	-0.959	-0.804
22.5		11.037	-11.007	-0.952	-0.873
23.0		11.200	-11.200	-0.923	-0.923

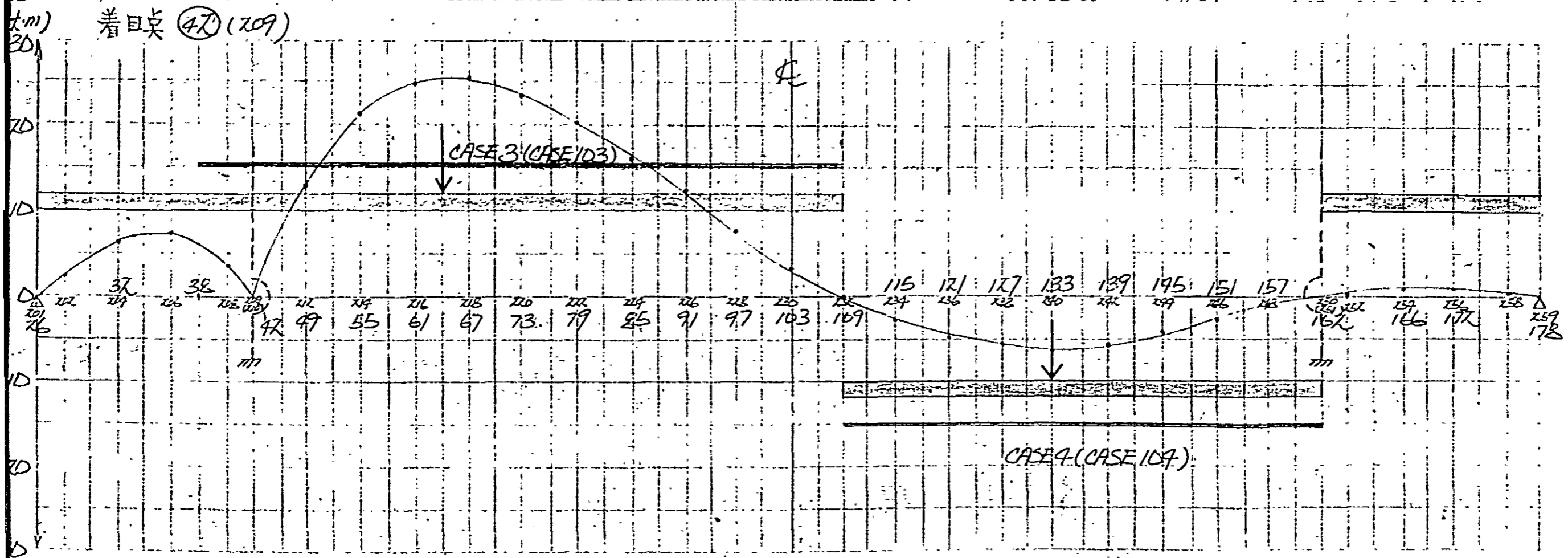
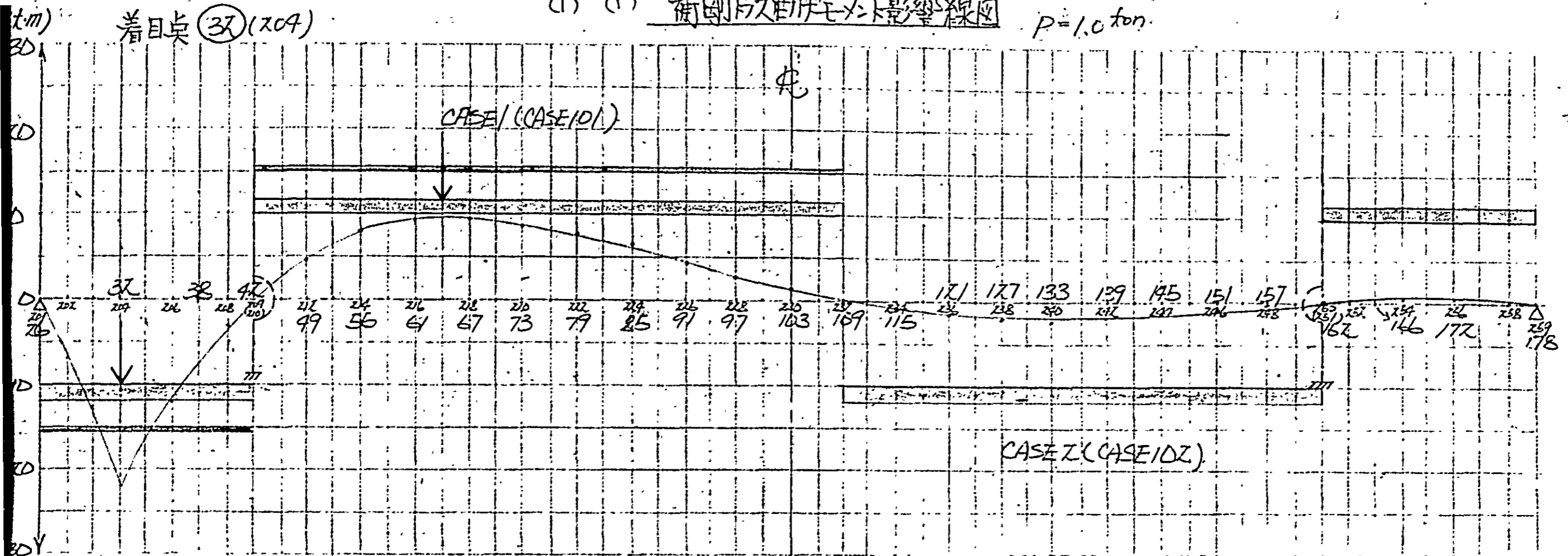
(3) (1) ケーブル張力，折れ角影響線値 $P=100t$

		軸力着目点 (t)	折れ角 (水平変位)	(垂直変位)	着目点	着目点 (mm)
	8.9		1.0	4.8	1.0	4.8
202	3.2		0.268	0.252	1.239	-0.132
204	8.4		0.709	0.661	3.228	-0.348
205	9.9		0.859	0.782	3.744	-0.413
208	5.9		0.523	0.425	1.806	-0.228
212	17.2		-0.718	-1.343	-5.967	0.578
214	40.7		-0.475	-3.154	-9.585	1.534
216	67.7		0.658	-5.169	-11.236	2.364
218	95.4		2.354	-7.175	-11.416	3.016
220	122.0		4.335	-9.005	-10.547	3.375
222	145.8		6.377	-10.529	-8.984	3.362
224	165.5		8.299	-11.650	-7.017	2.832
226	180.3		9.959	-12.304	-4.885	2.072
228	185.4		11.251	-12.465	-2.778	0.796
230	192.5		12.079	-12.079	-0.846	0.846

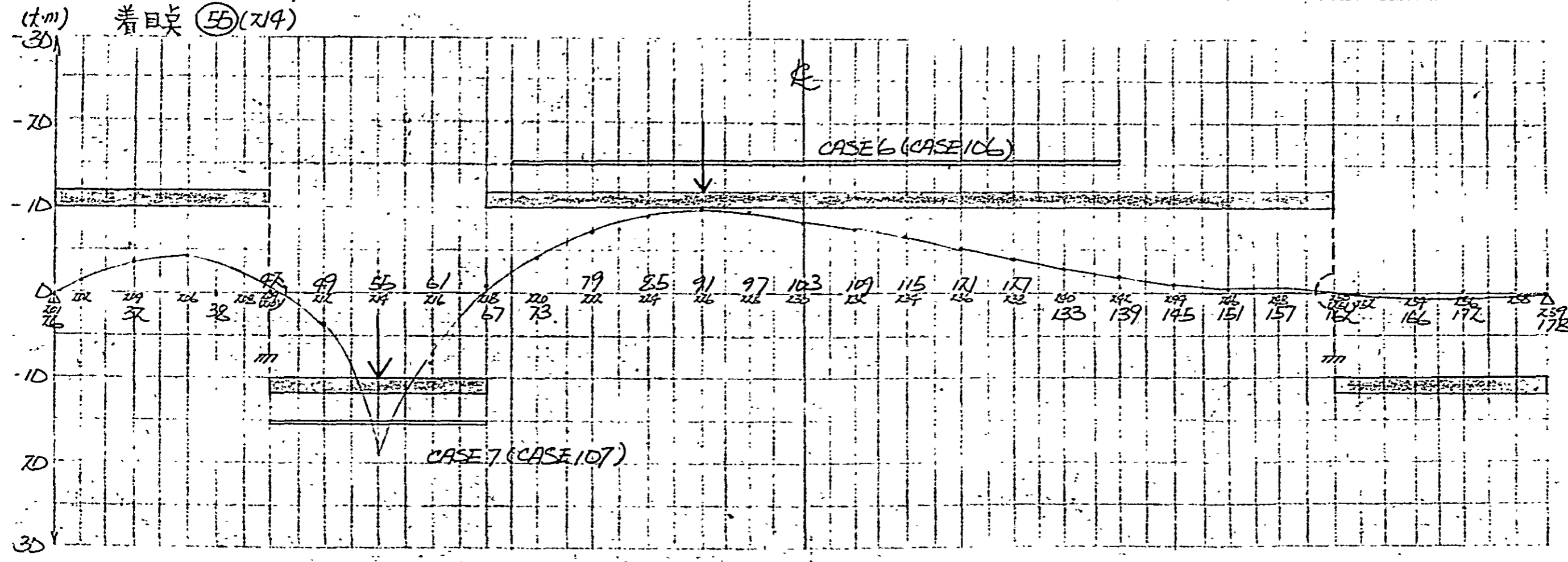
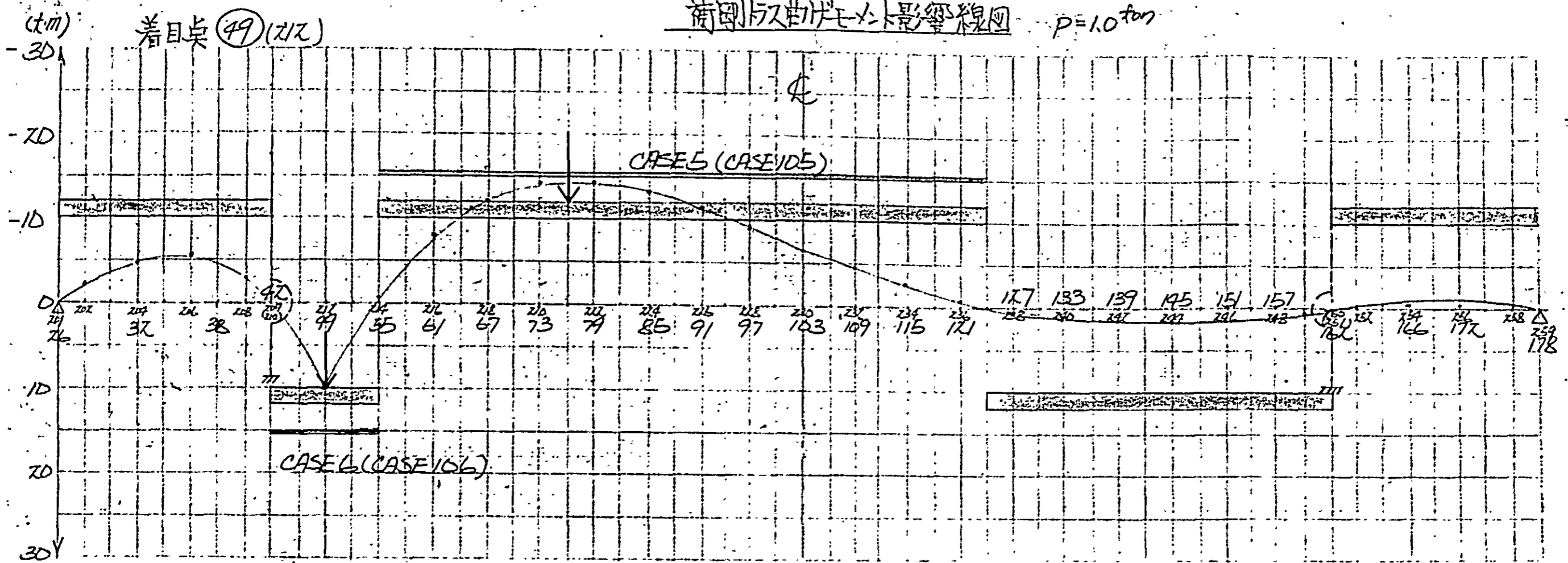
載荷実

2. 影響線圖

(1) (i) 荷剛版曲性外影響線圖 $P=1.0 \text{ ton}$

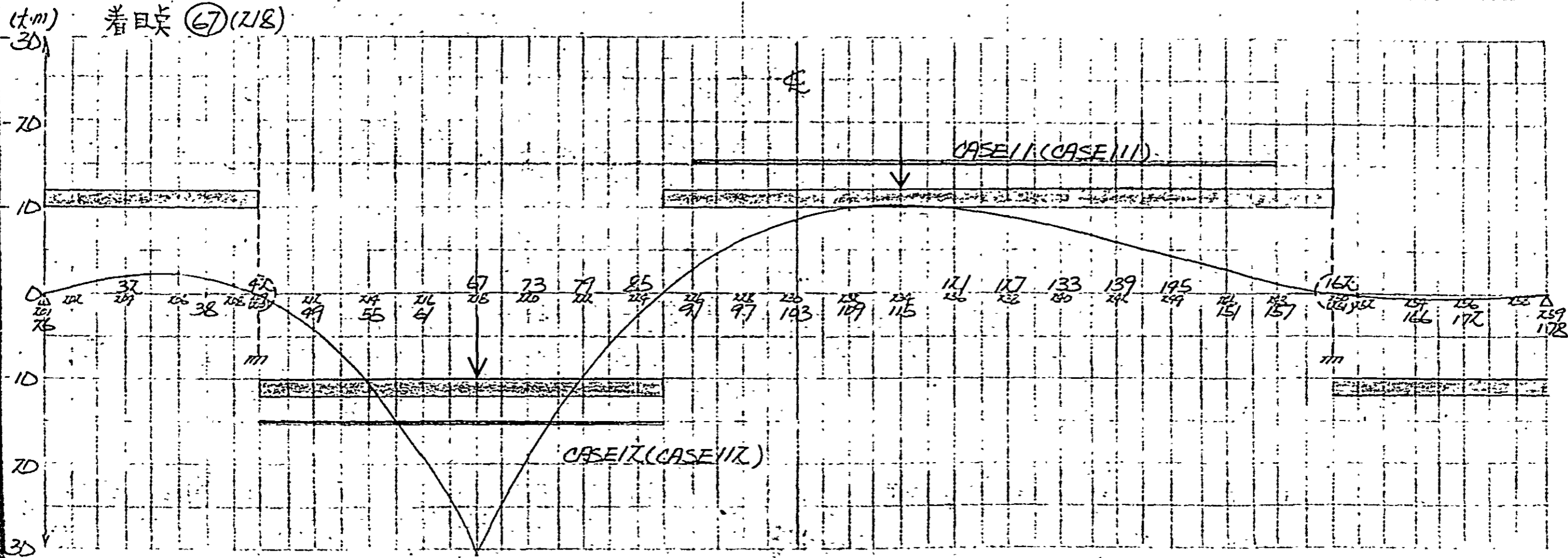
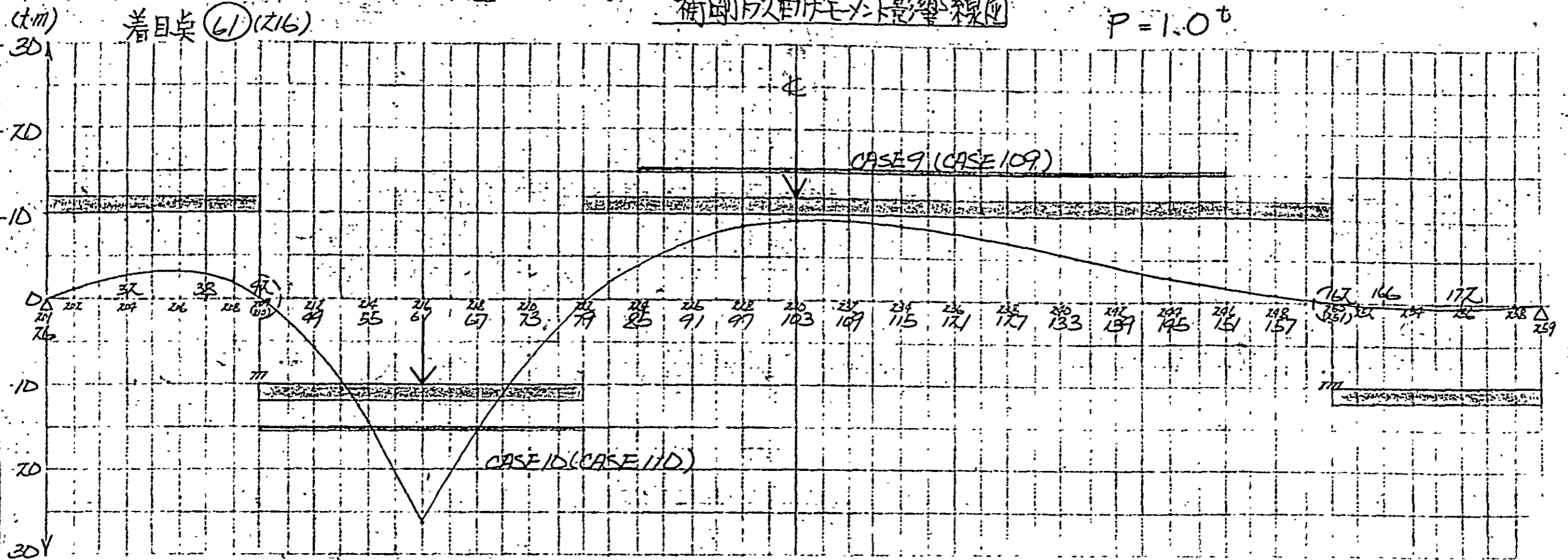


南側防風林への影響線図 P=1.0 for



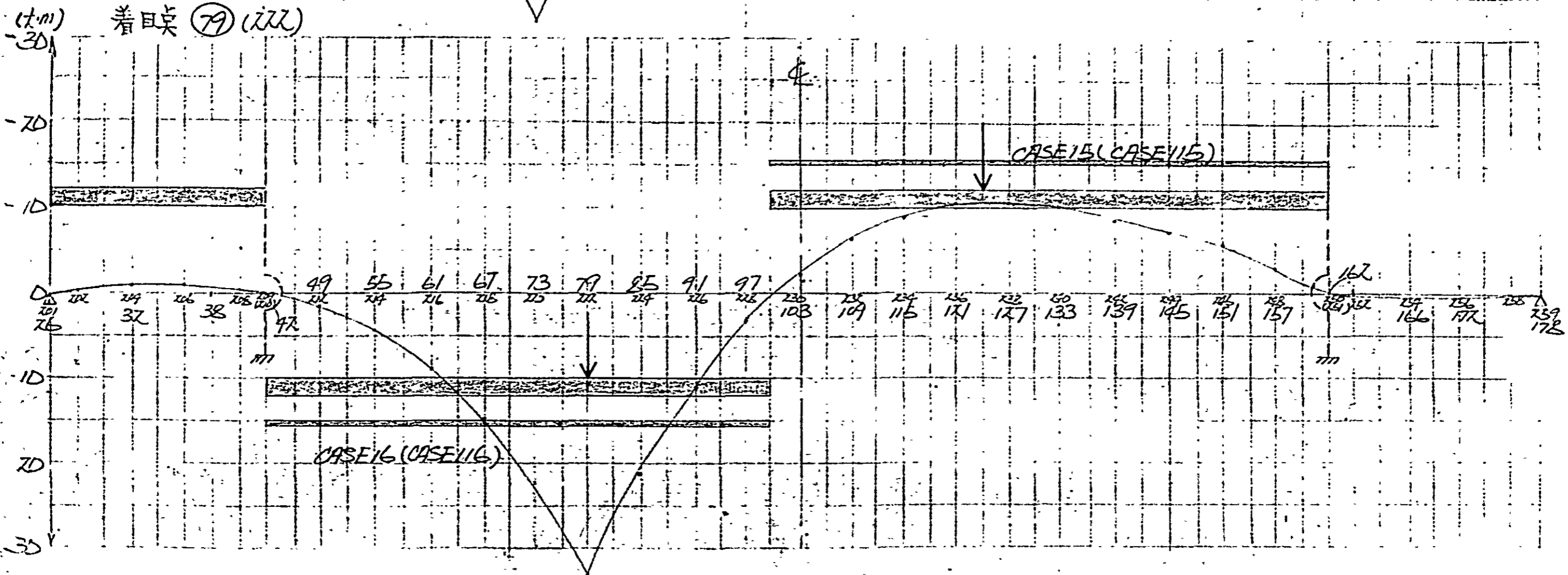
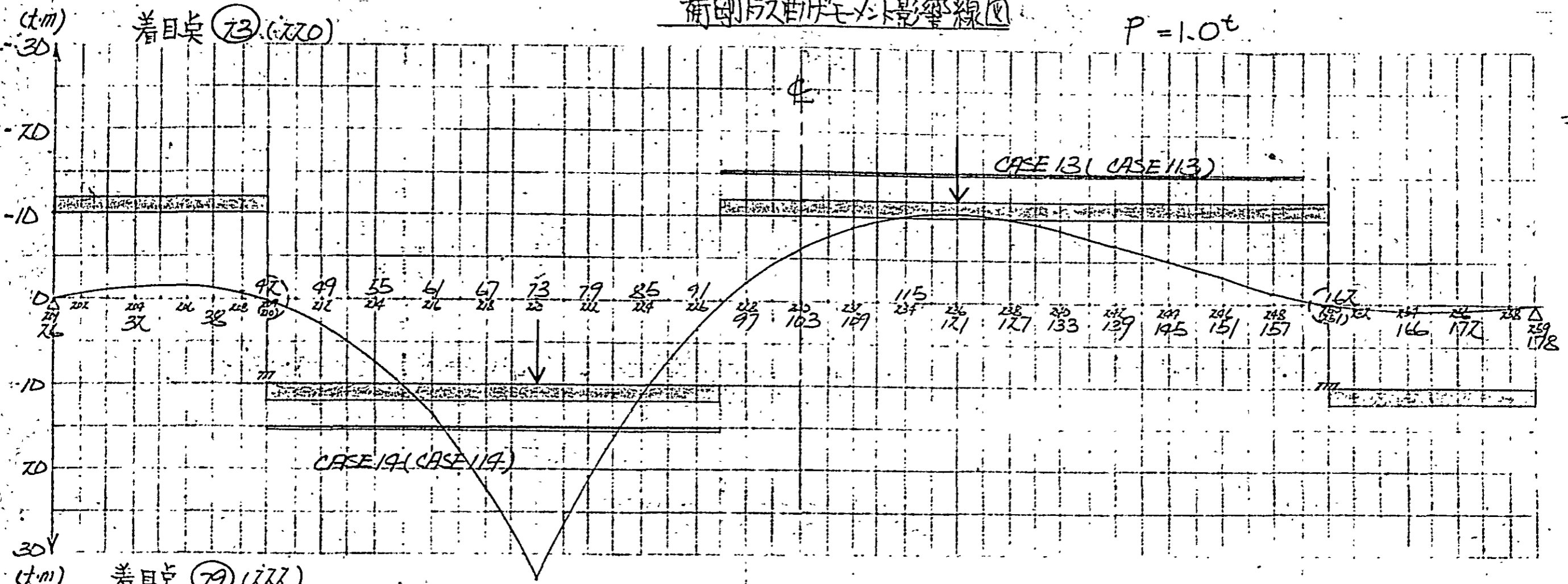
荷重分布による影響線図

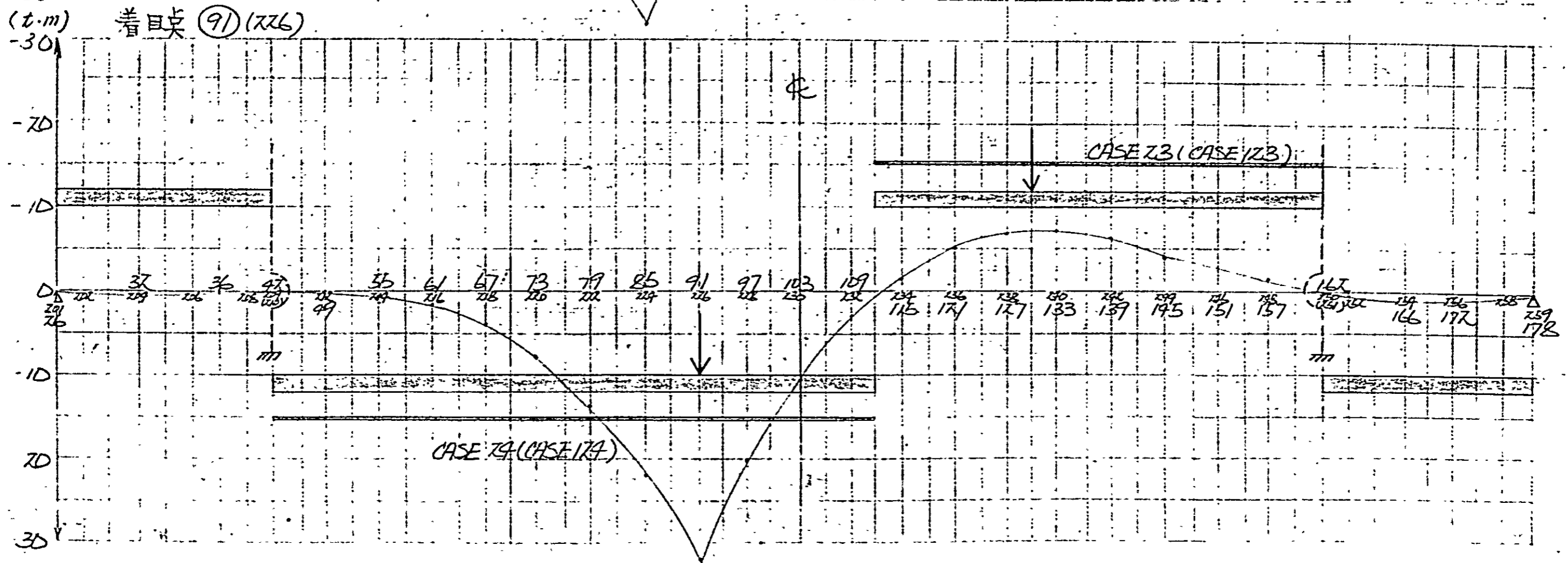
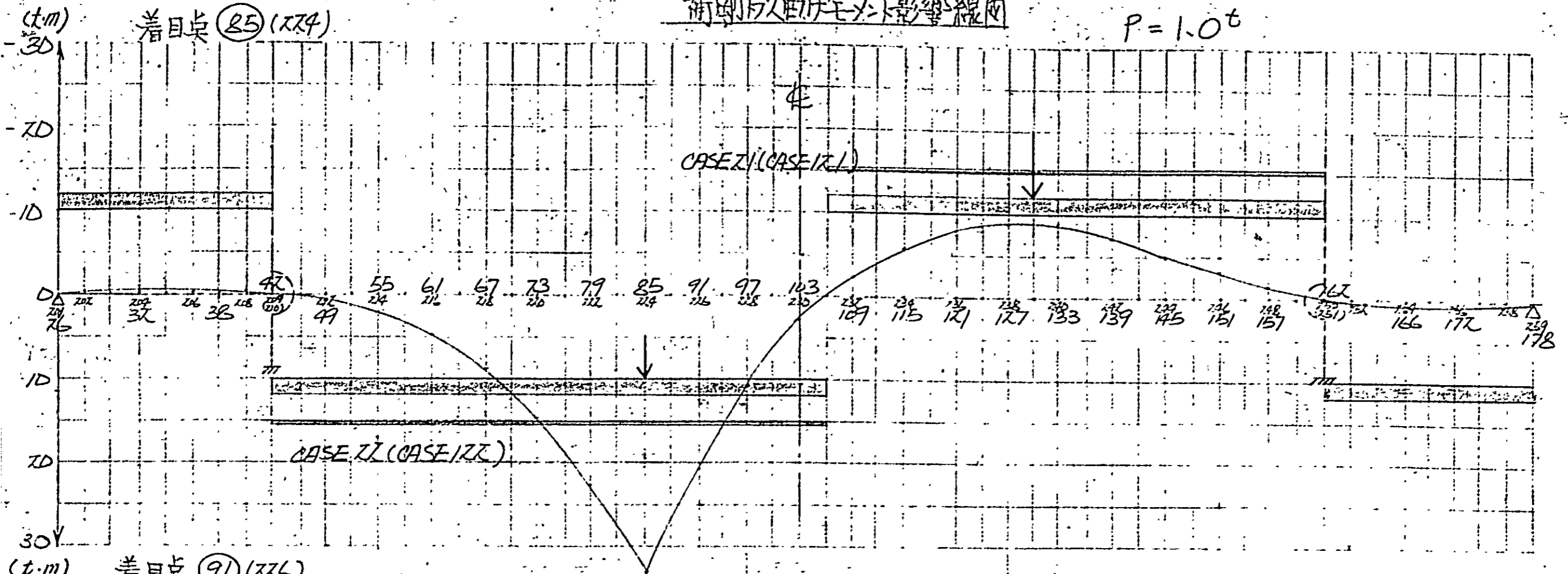
P = 1.0 t



南側片状基礎の影響線図

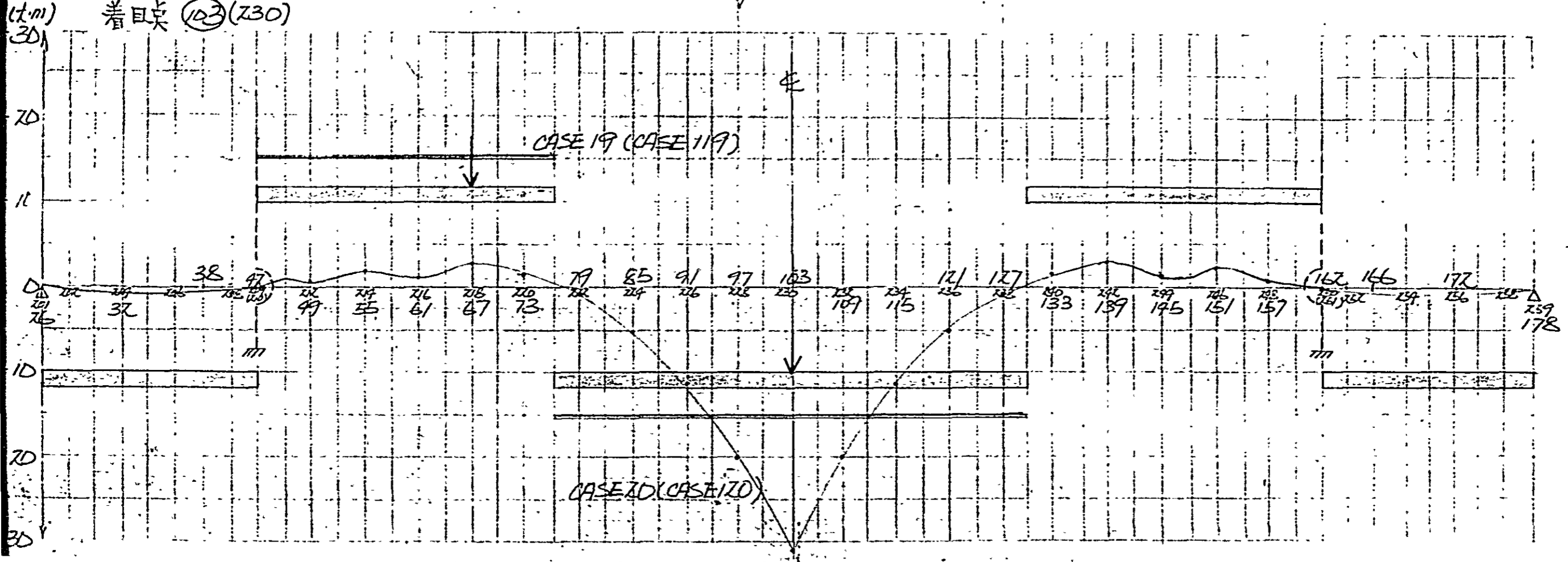
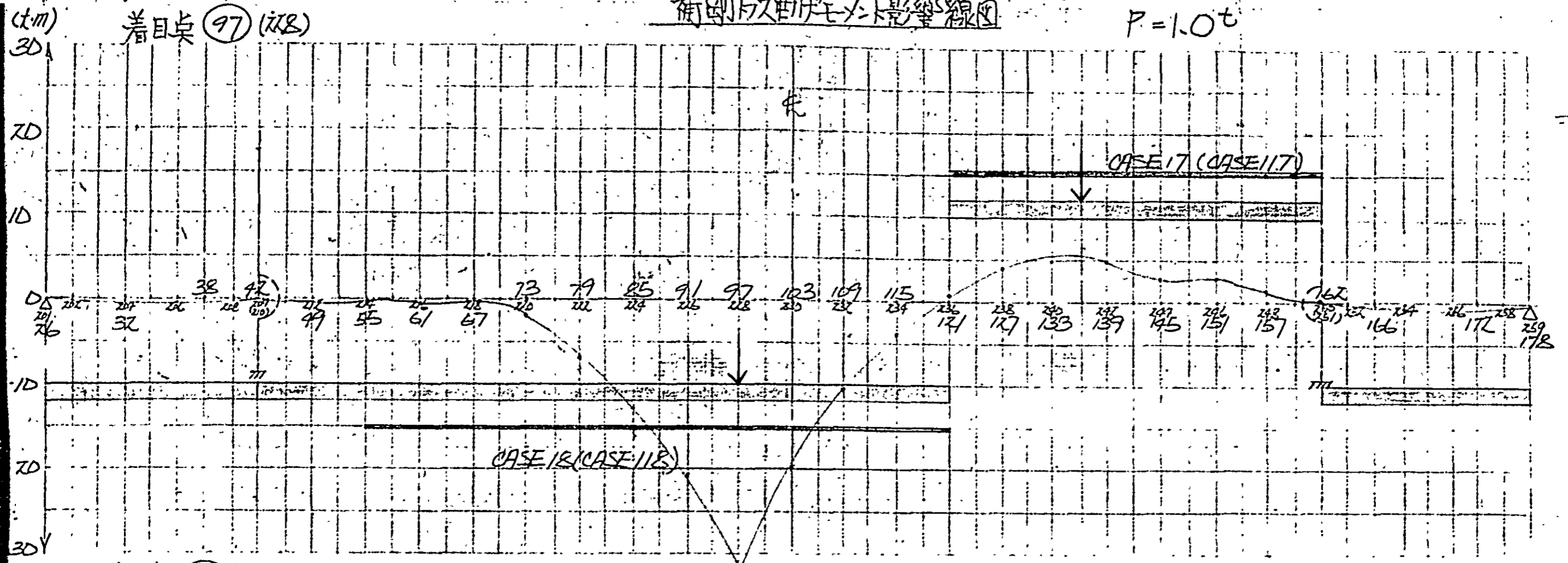
P = 1.0t





補剛片の作用による影響線図

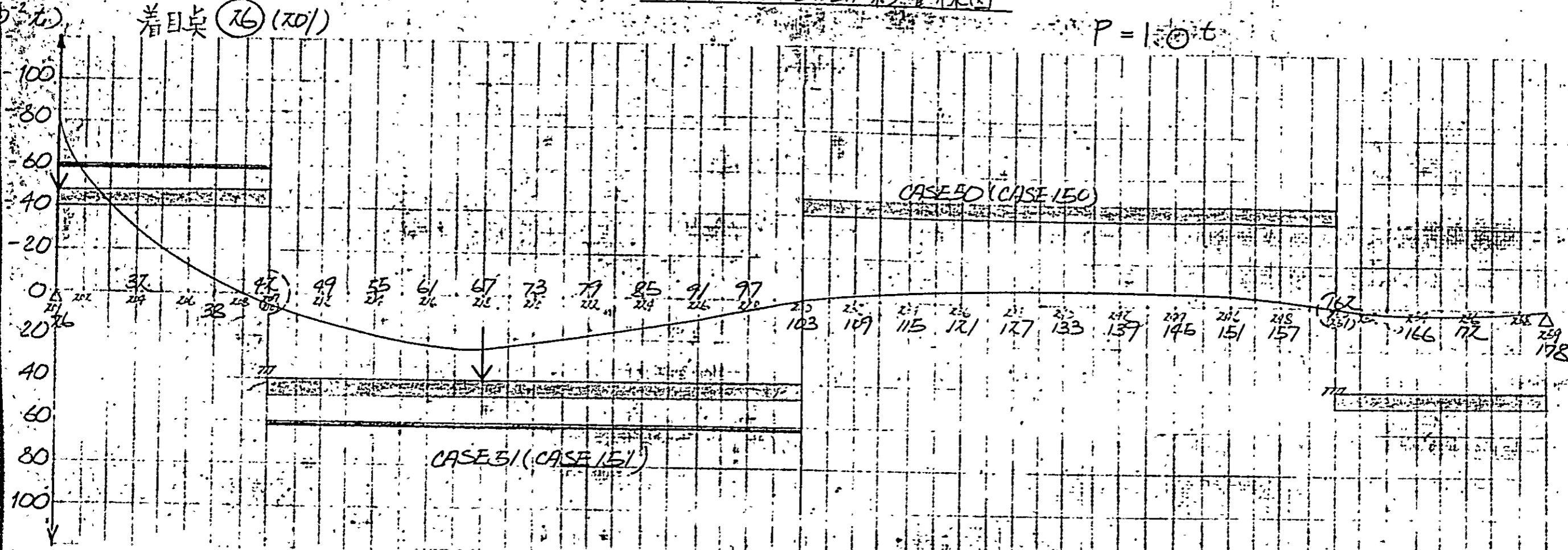
P=1.0t



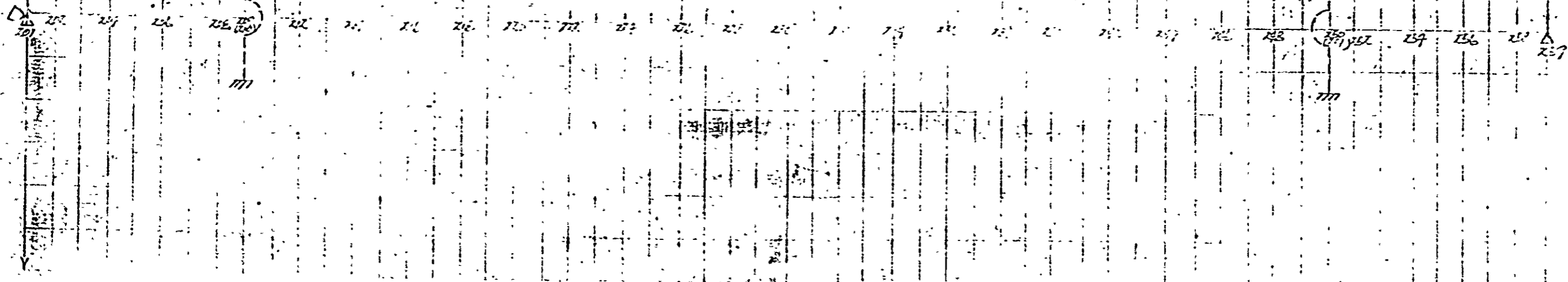
(ii) 補剛トラスの断面影響線

着目点 (76) (70)

$P = 1.0t$



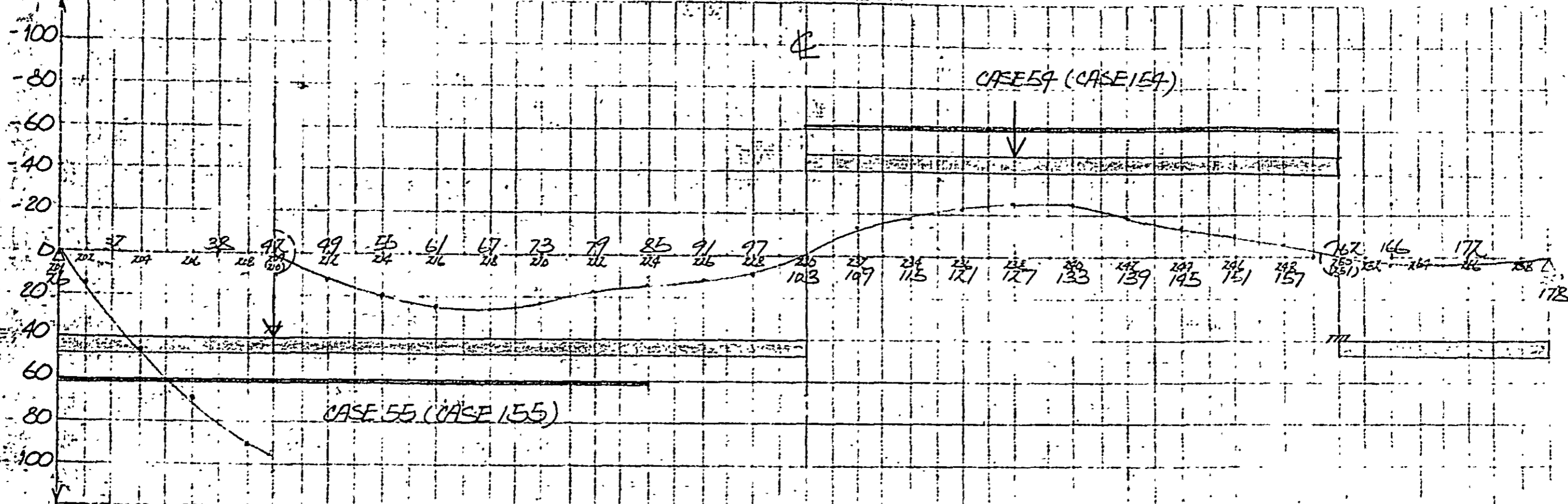
着目点 ○



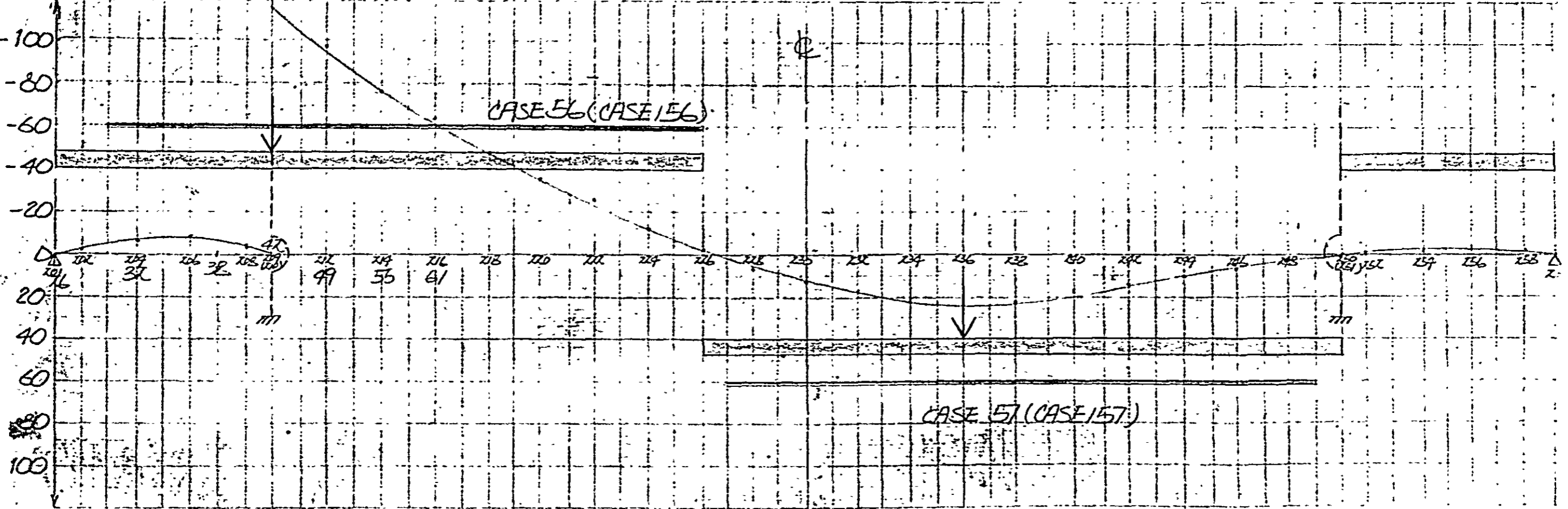
補剛トラス断面影響線図

($10^{-2}t$) 着目点 (47) (209)

$P=1.0t$



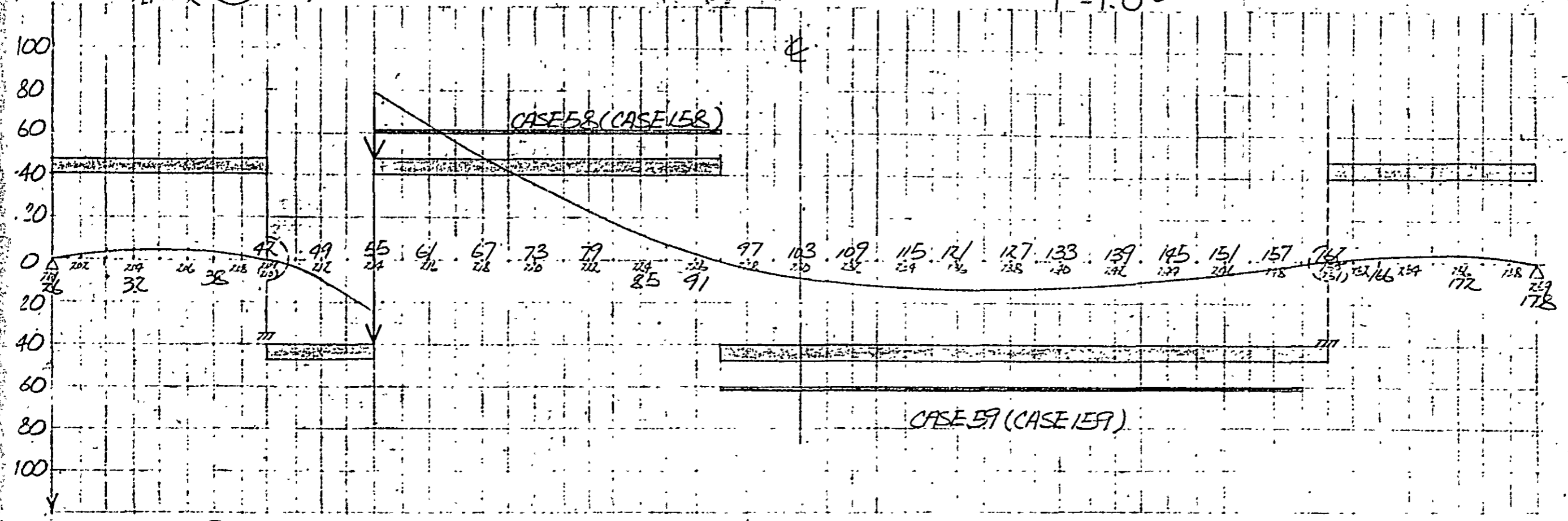
($10^{-2}t$) 着目点 (47) (210)



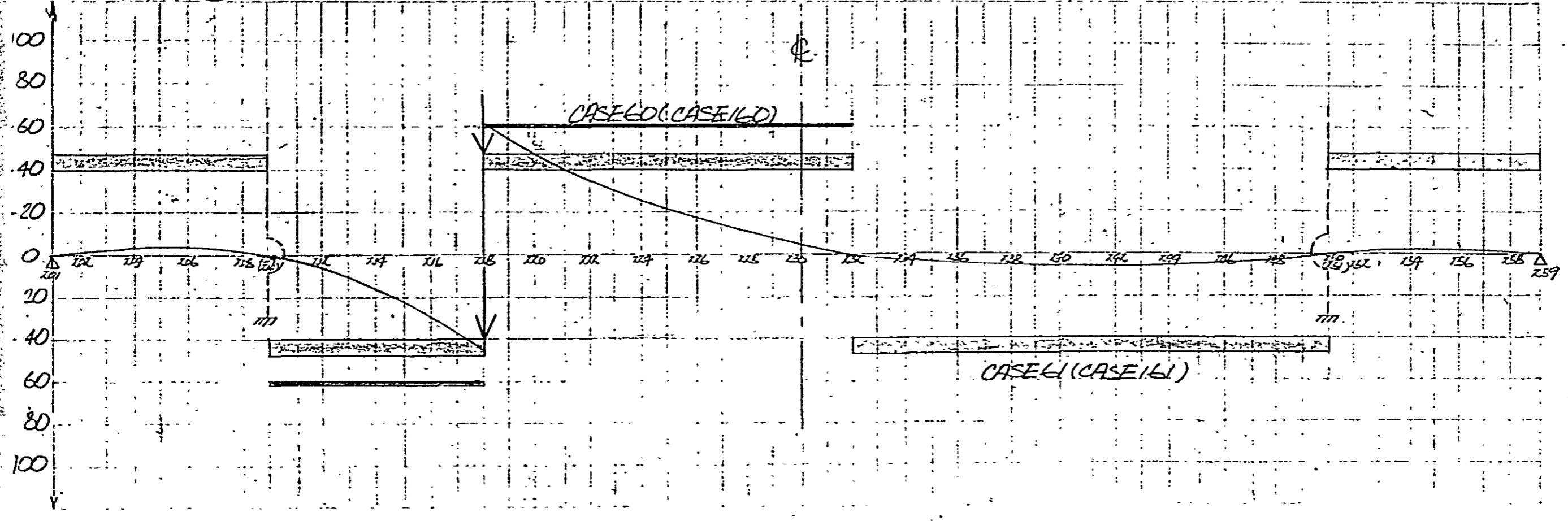
10⁻²t) 着目点 (55) (214)

補剛トラスの漸影響線

P=1.0t



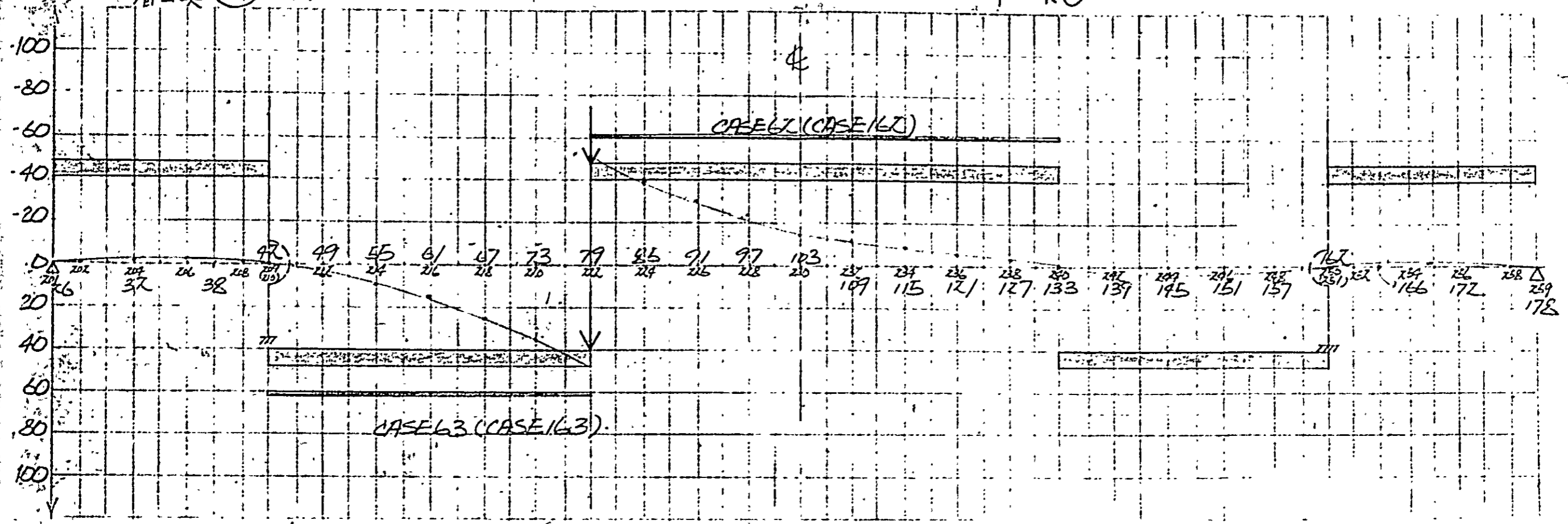
5⁻²t) 着目点 (67) (218)



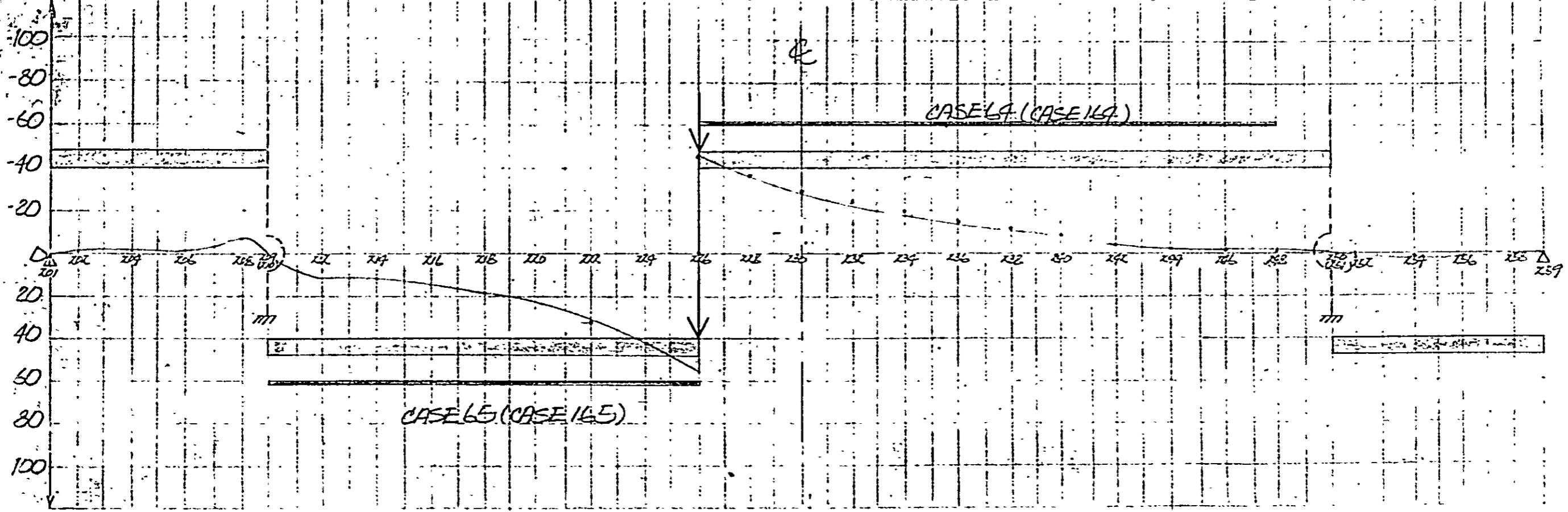
補剛トラス断面影響線図

10⁻²t) 着目点 79 (722)

P=1.0t



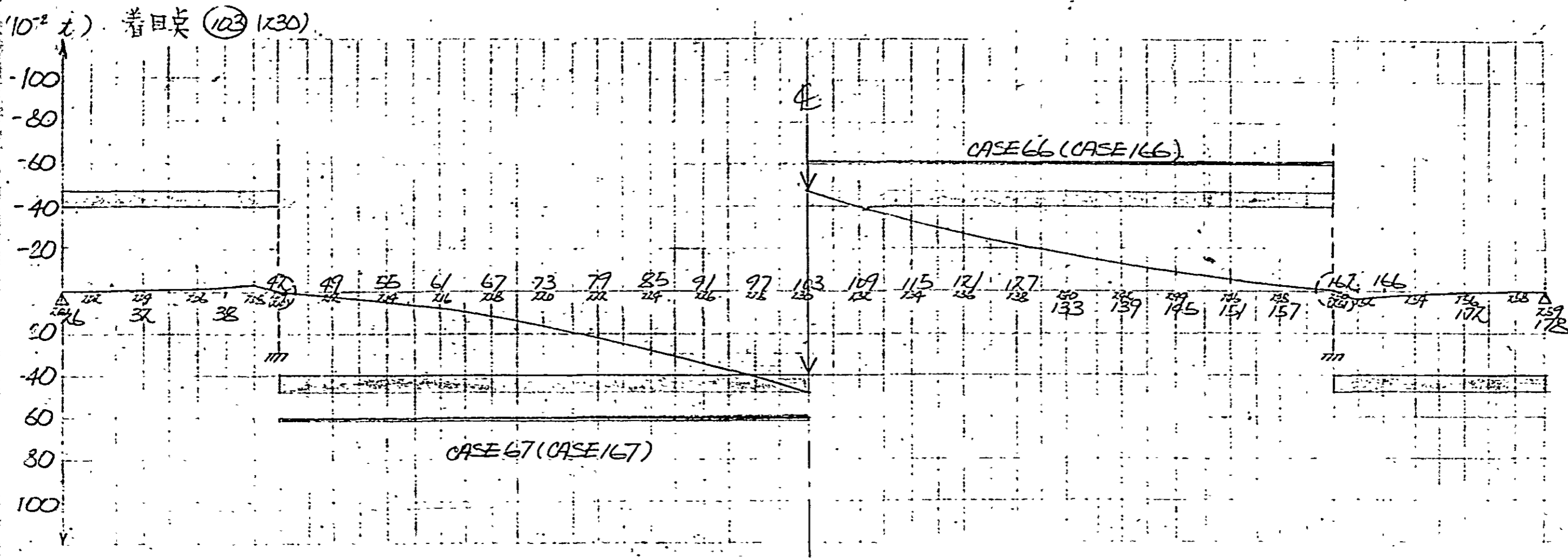
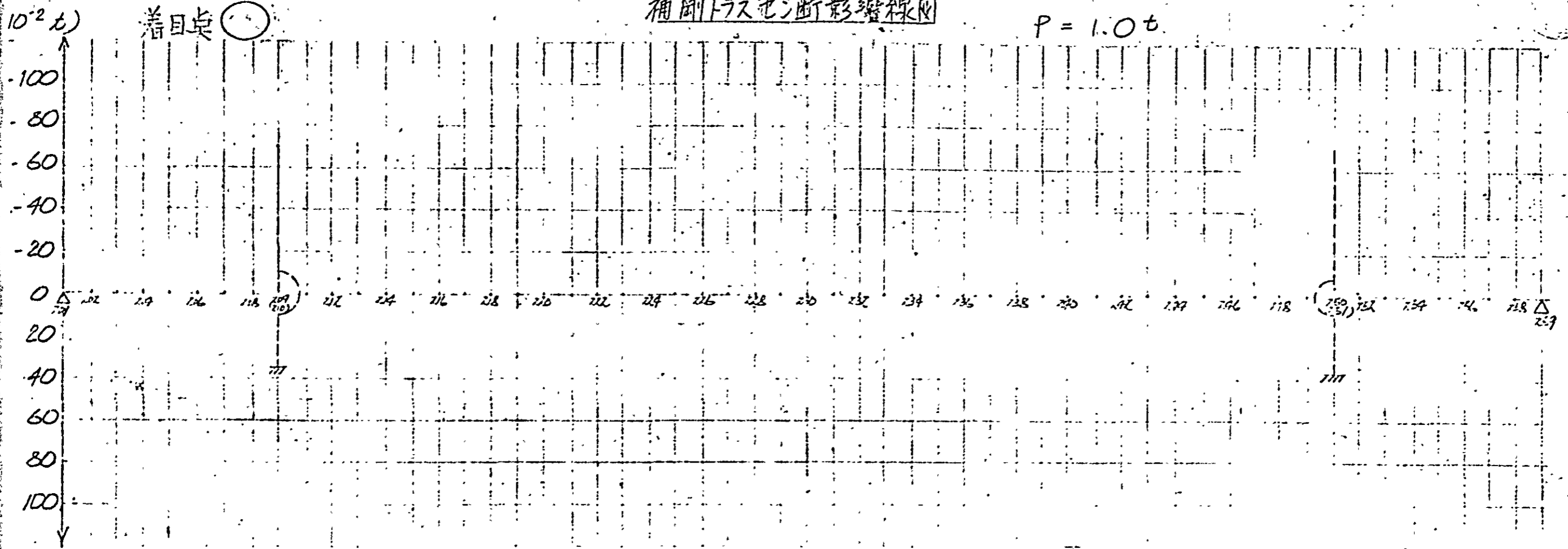
10⁻²t) 着目点 91 (726)



補剛トラスセシ断影響線図

P = 1.0 t

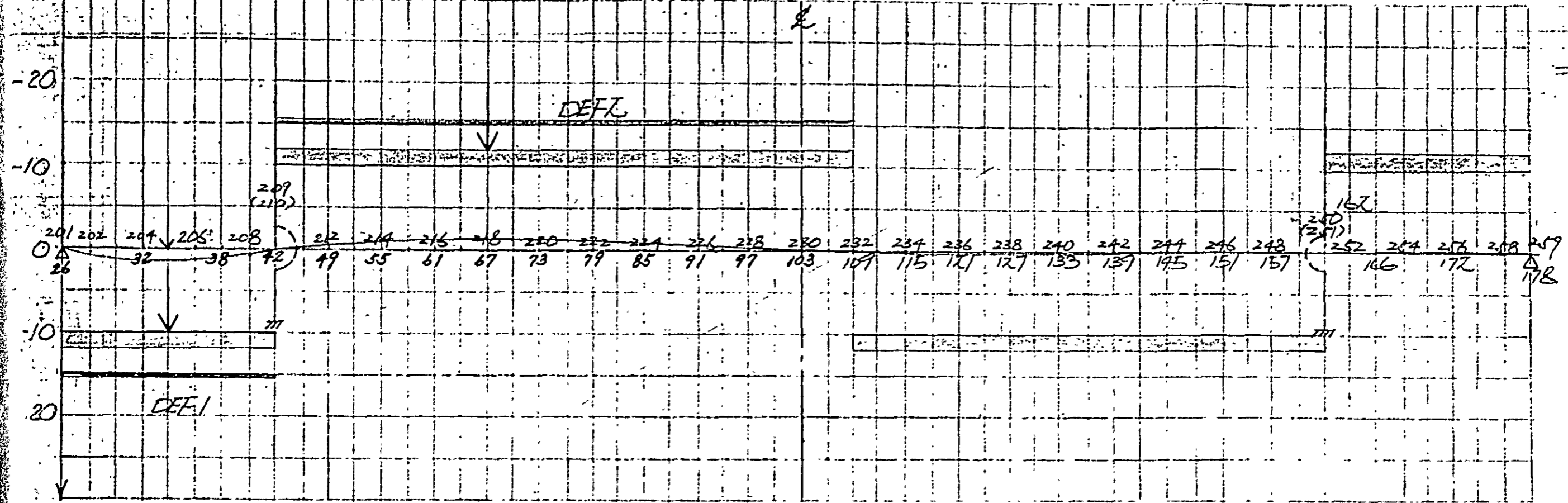
24



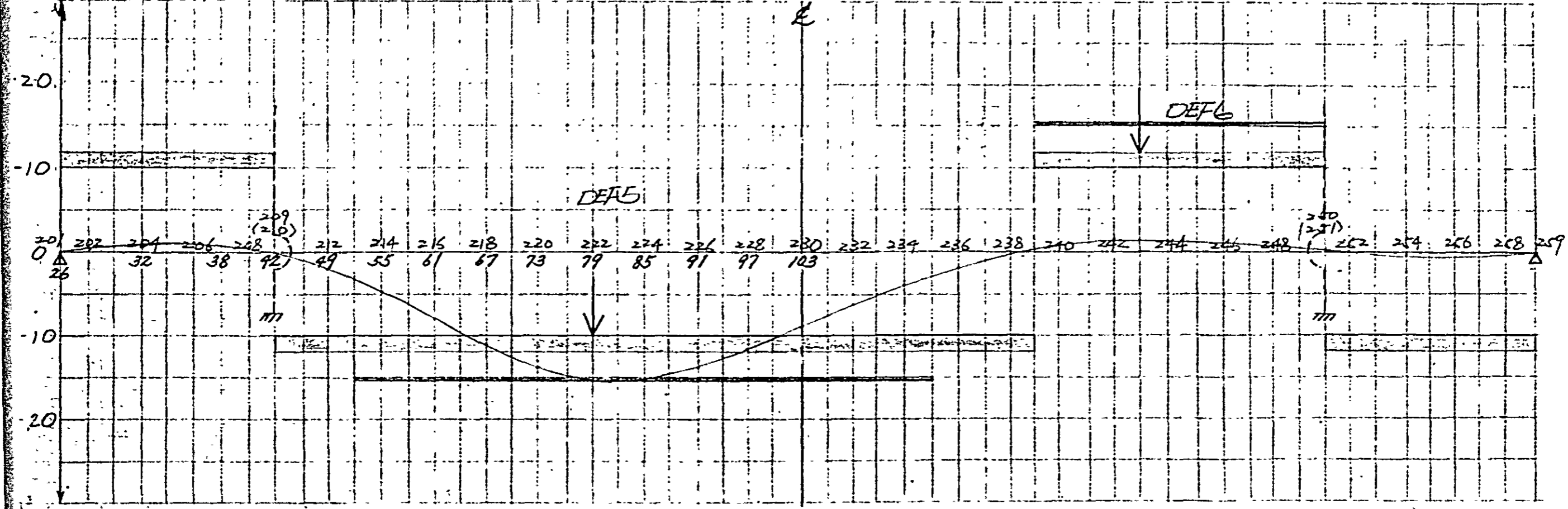
補剛抗滲影響線圖

10.4m) 着目点 (34) (205)

P = 1.0 t



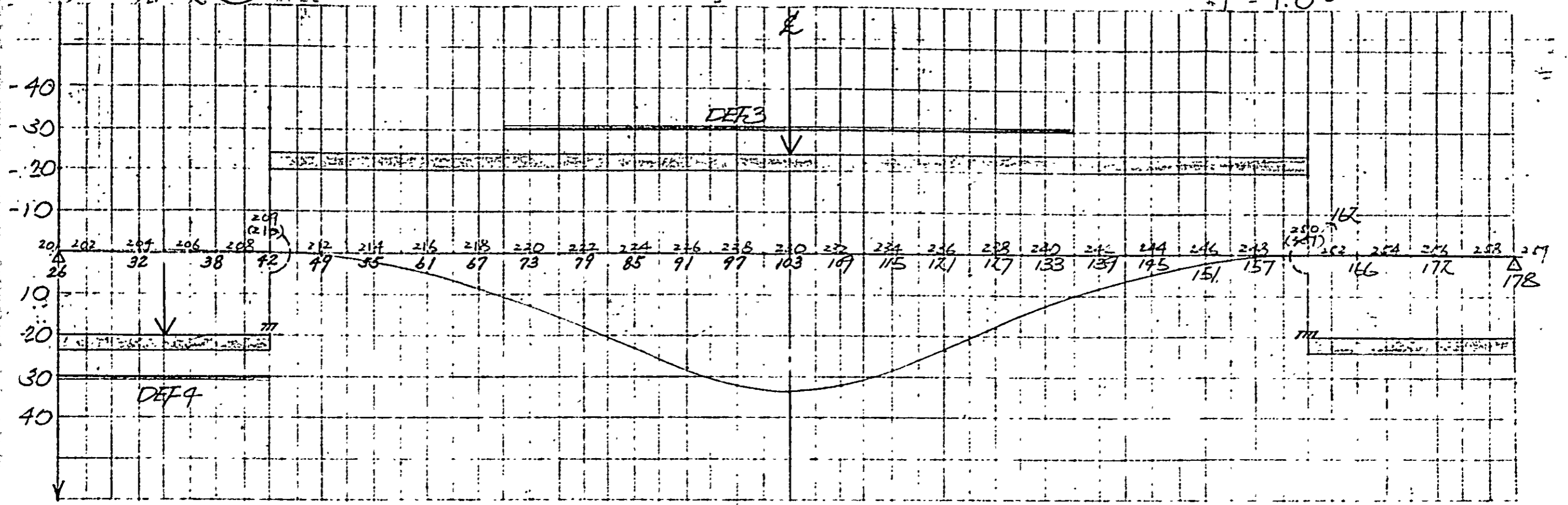
10.4m) 着目点 (79) (235)



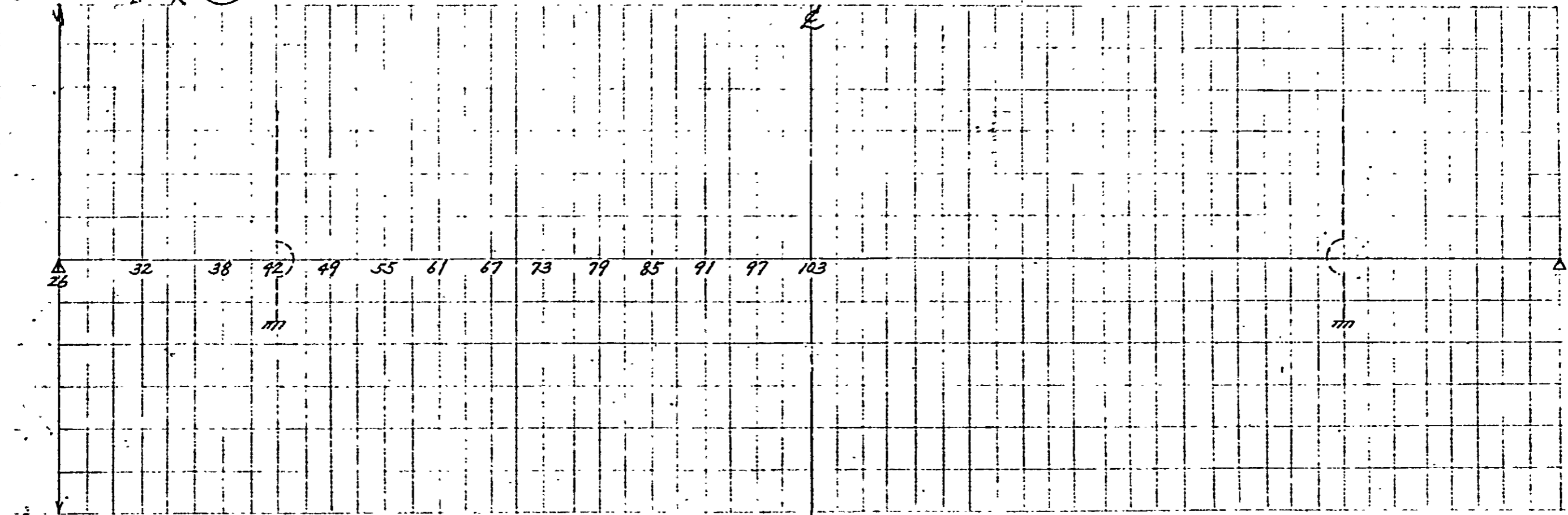
補剛作入撓量影響線図

0-4.111) 着目点 (103) (730)

$P = 1.00$



10-2t 着目点 ○

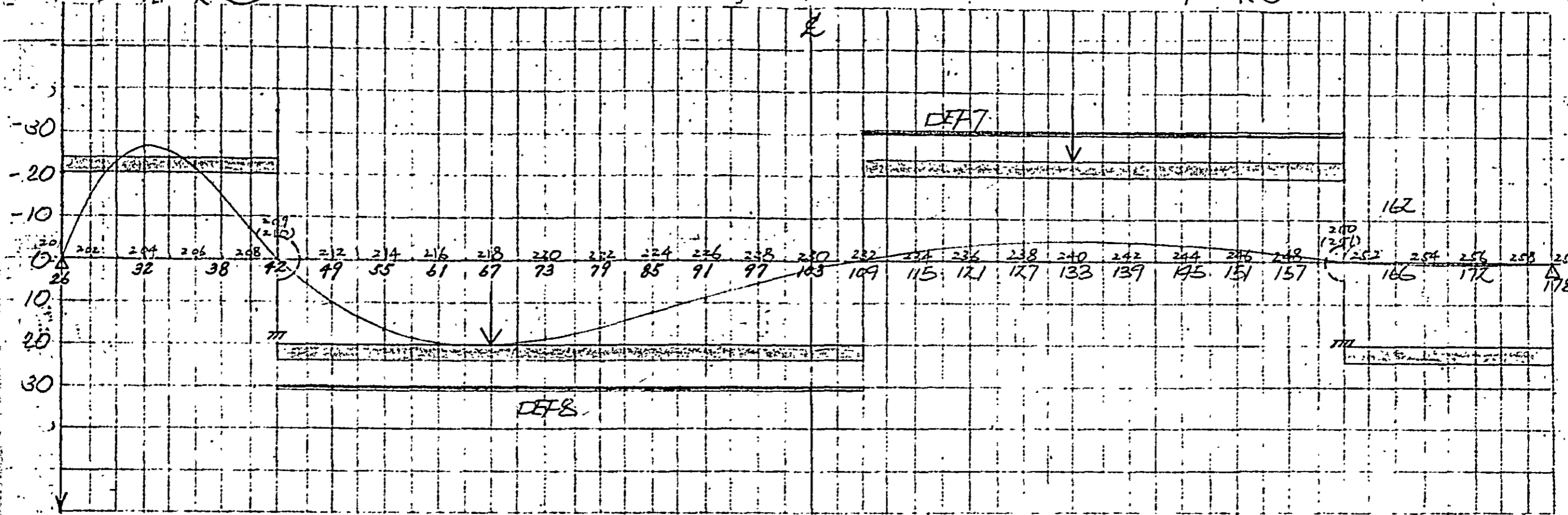


(10⁻⁵Rad) 着目(76)(201)

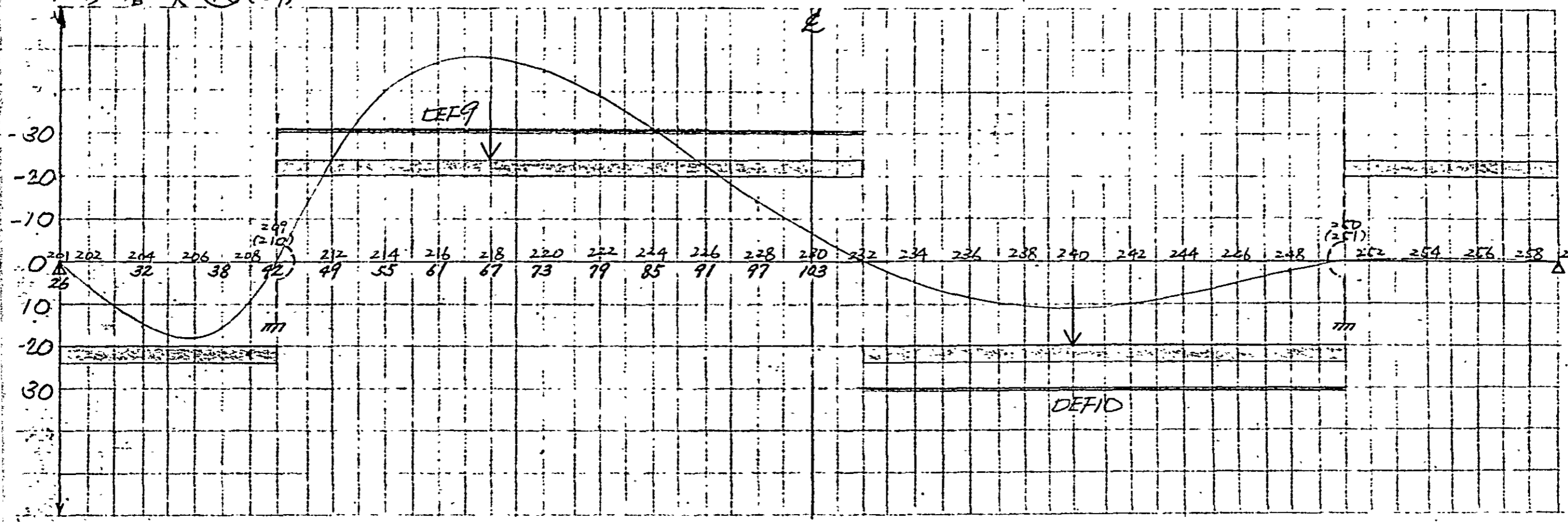
補剛トラス接角影響線図

P = 1.0t

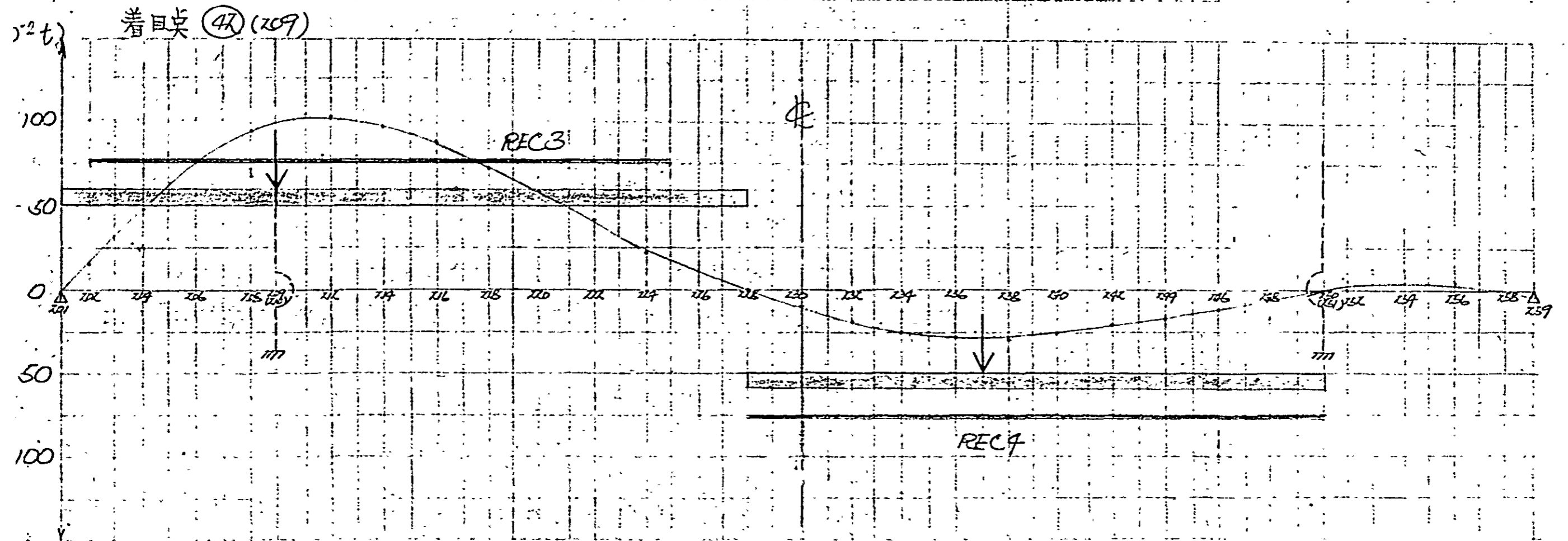
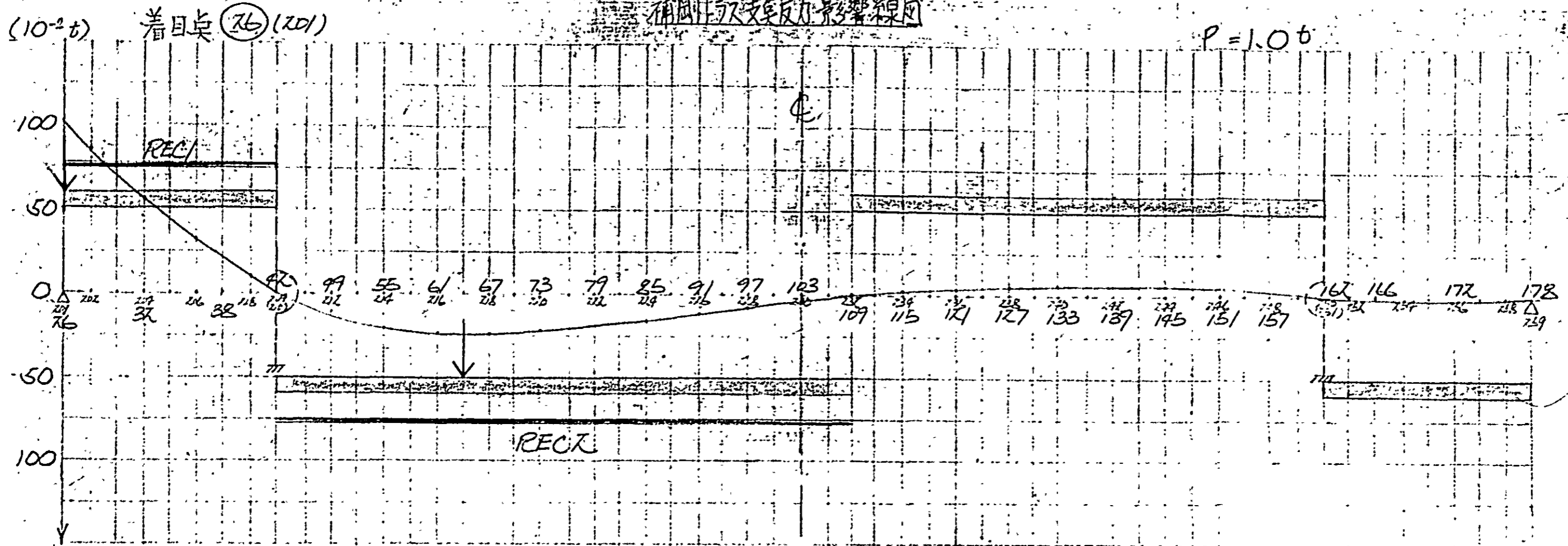
27



(10⁻⁵Rad) 着目(47)(209)

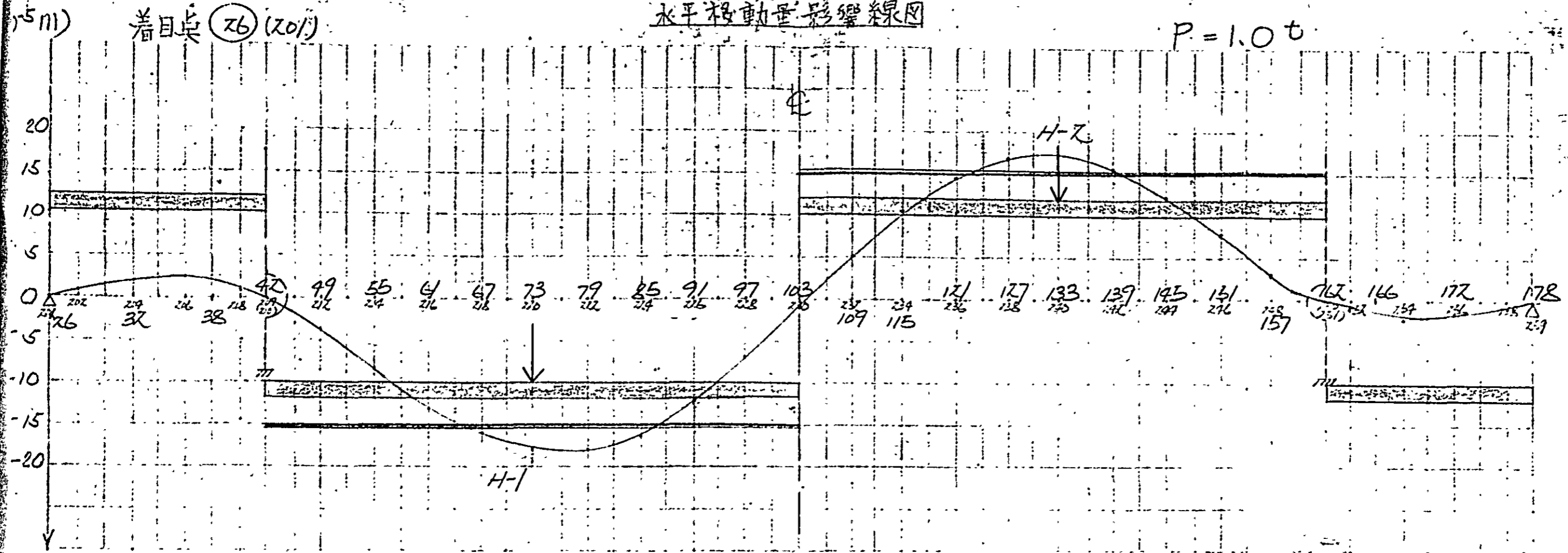


補剛反力影響線圖

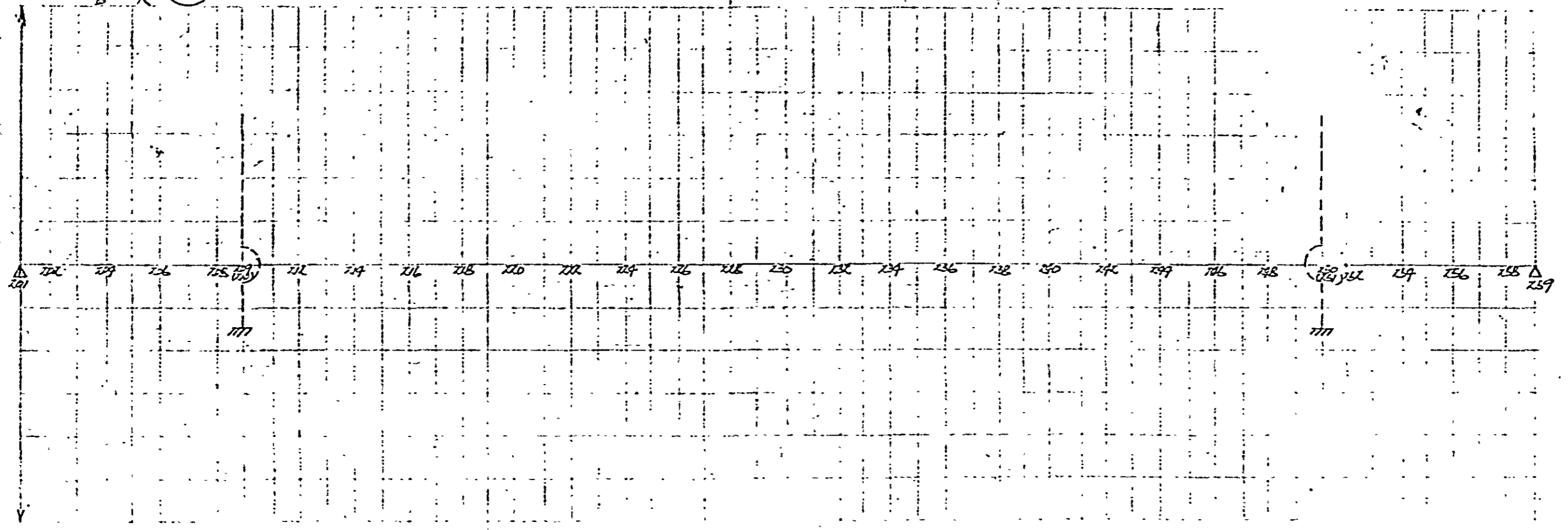


水平振動量影響線圖

P = 1.0 t



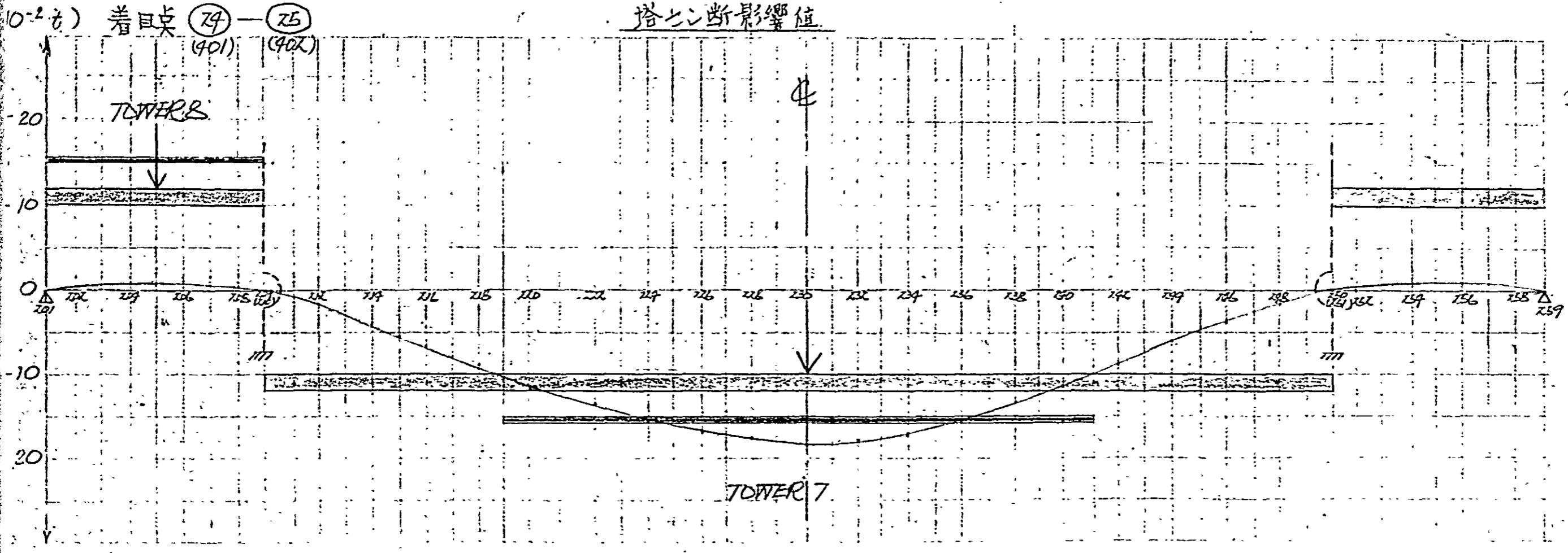
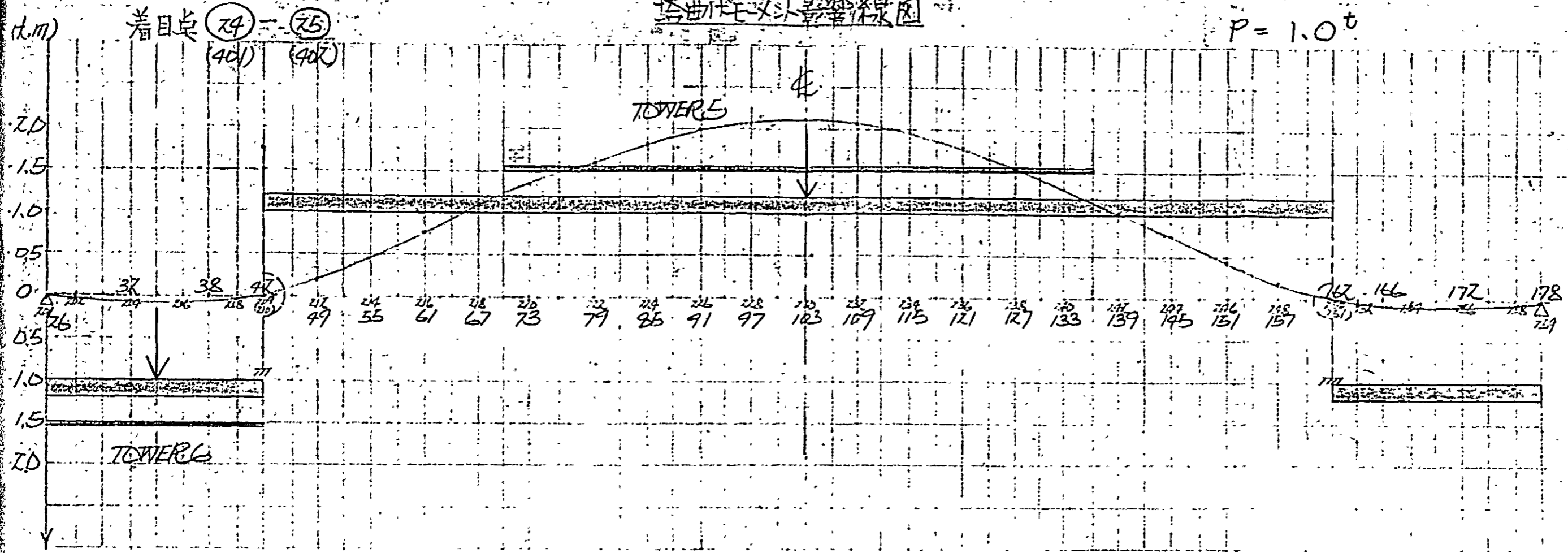
着目点 (201)



塔断影响线图

P = 1.0 t

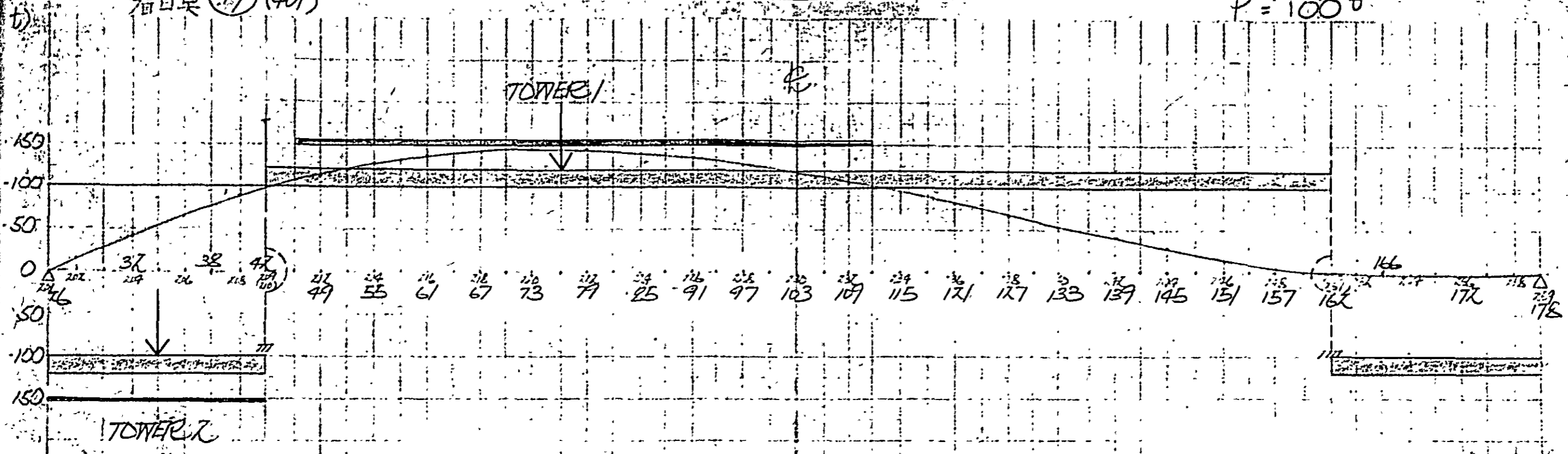
3°



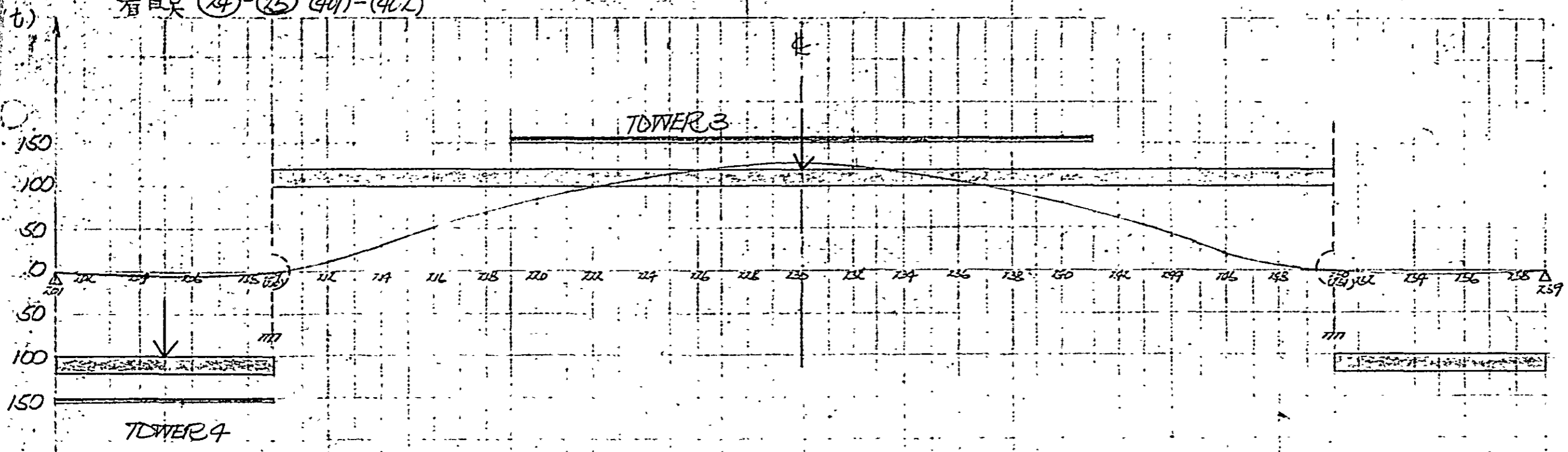
塔軸力影響線圖

P = 100 t

着目点 (17) (401)



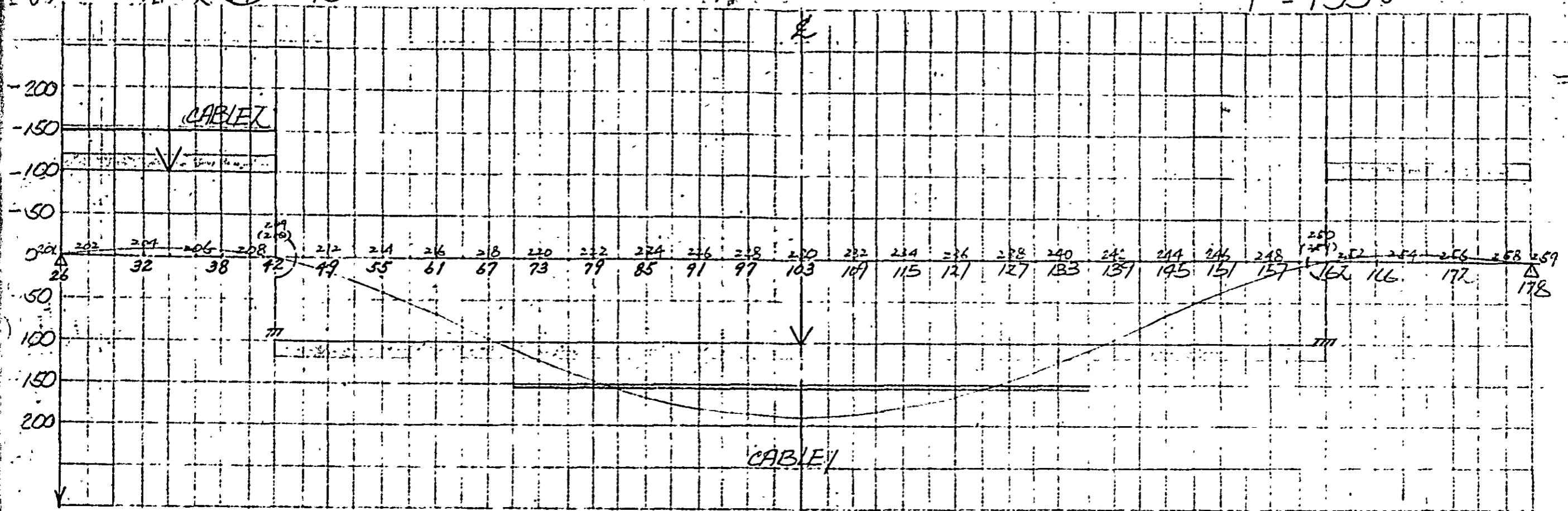
着目点 (24)-(25) (401)-(402)



ケーブル張力影響線図

(七) 着目 ①7 ~ 18

P = 100t



着目 ○

