



Civil & Mining Engineering
Tunnel Engineering & Construction Management
Rapid Excavation/Support Systems
Active/Abandoned Mine Subsidence
Geotechnical Instrumentation
Structural Monitoring
Blast Optimization / Vibration Monitoring
Mine & Quarry Permitting
Material Science / Laboratory Testing

Sunday, February 02, 2025

Mr. Kris Jeremiah
President
Aggregate Resource Industries, Inc.
Sent to (kris.jeremiah@ariinc.com) via email

Re: Blast Vibration Data Summary Report: College Hill 7.5 MG Storage Tanks – Demolition and Earthwork Project, Eugene, OR

Dear Mr. Jeremiah

This transmittal summarizes the Blast vibration Monitoring program at the College Hill site in Eugene, OR where 30 separate controlled blasts were used to fracture rock that was subsequently excavated to expose the bedrock foundation for EWEB’s new potable water storage tanks. This is an extremely important project that significantly advances EWEB’s ability to serve the area with potable water.

Project Summary

Drill and Blast excavation was selected over the use of impact hammers to reduce noise impacts to the surrounding community and allow the project to be completed in a reasonable schedule and at a reasonable cost. EWEB’s Prime Contractor selected Aggregate Resource Industries, Inc as the Blasting Subcontractor and SubTerra, Inc. as the Blast Monitoring Consultant. Aggregate Resource Industries, Inc and SubTerra, Inc. had successfully completed a similar project in Eugene in 2021.

Aggregate Resource Industries, Inc completed a pre-blast survey of properties surrounding the project site and, along with EWEB personnel, met with the Owners to discuss the project, work required, methods that would be used and expected project outcomes. Dr. Chris Breeds of SubTerra, Inc visited the site on November 7th, 2024 and delivered an open air presentation on the planned controlled blasting program, and expected outcomes, to a cross section of interested neighbors. Input was also provided by Eric Jennings (ARI VP), Laura Farthing (EWEB PM) and senior members of EWEB.

EWEB provided the meeting participants with a recap of the presentation made by Dr. Breeds including “key take aways” from what was discussed and two publications:

- A Guide to the Differences Between Blasting and Earthquakes.
- A white paper on blast vibration criteria.

SubTerra, Inc. subsequently developed a Blast Vibration Monitoring Plan which discussed the regulatory basis for blast planning in Oregon including the Alternative Blasting Level Criteria

contained in NFPA-495 (2023) and estimated the magnitude of vibrations from the first blast that was designated as a “Test Blast”.

The first Test Blast was carried out with Jerry Wallace, ARI’s Blasting Consultant in attendance on November 19, 2024 followed by 29 additional blasts completed between November 20 and January 14, 2025 as shown in Table 1.

Planning the Blast Vibration Evaluation and Monitoring Program

The planning process described above paralleled guidance for Construction Vibration Assessments provided in Section 12.2 of the Federal Transit Authority (FTA) Manual and guidance contained in a more detailed Manual¹, published by the California Department of Transportation. This Guidance Manual contains an eight-step approach recommended to mitigate potential problems and public concerns over construction vibrations. These steps include:

1. Identify problem areas surrounding the Project Site
2. Determine conditions that exist before construction begins.
3. Inform the public about the project and potential vibration related consequences.
4. Schedule work to reduce adverse effects.
5. Design construction activities to reduce adverse effects.
6. Notify nearby residents and property owners that vibration-generating activity is imminent.
7. Monitor and record vibration from the activity.
8. Respond to and investigate complaints.

EWEB and their Contractors completed each step of this process.

Regulatory Basis for Blast Vibrations

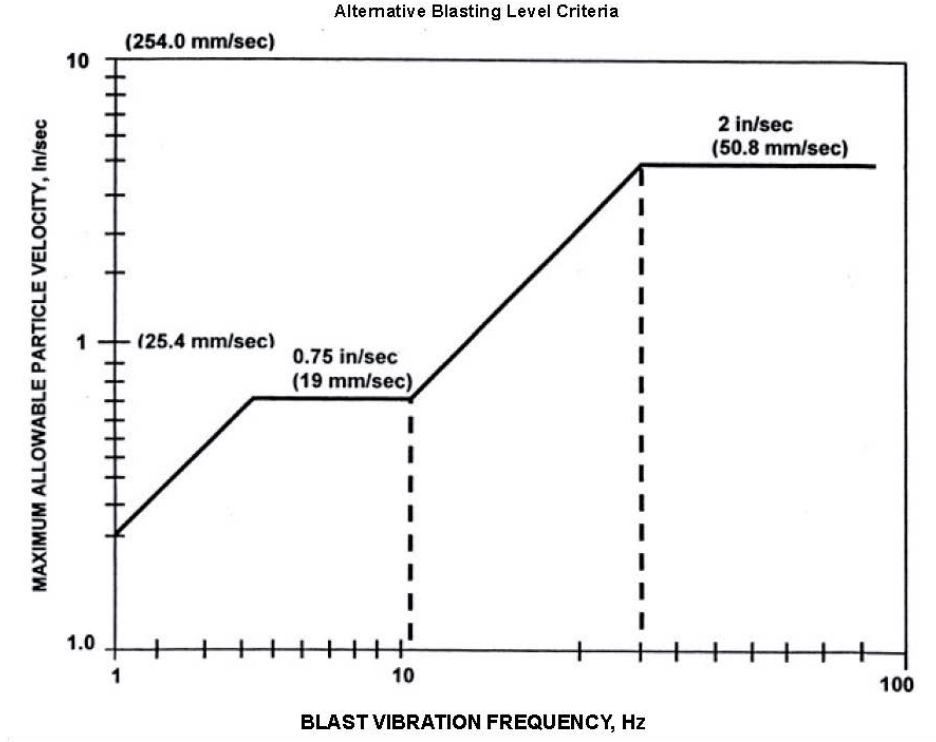
NFPA-495, updated in 2023, contains the “Alternative Blasting Level Criteria” adopted for use in the State of Oregon. These criteria take the form of a graph as shown on the following page.

The frequency based NFPA-495 criteria are based on a 1982 United States Bureau of Mines (USBM) report that evaluated damage to drywall materials from blasts where the USBM monitored vibration magnitude and the vibration frequency on the ground adjacent to structures as the blasting work moved closer to each structure. The thick black line on the individual residential property Peak Particle Velocity vs Frequency graphs therefore represents a limit where no damage to drywall was recorded for any data that plotted below the line, with a suitable safety factor.

¹ California Department of Transportation, 2013. Transportation and Construction Induced Vibration Guidance Manual. California Department of Transportation, Noise, Vibration, and Hazardous Waste Management Office, Sacramento, CA.

Table 1: College Hill Project Blast Dates

Blast Number	Blast Date	Blast Number	Blast Date
Blast No 1	Tuesday, November 19, 2024	Blast No 16	Tuesday, December 17, 2024
Blast No 2	Wednesday, November 20, 2024	Blast No 17	Wednesday, December 18, 2024
Blast No 3	Thursday, November 21, 2024	Blast No 18	Thursday, December 19, 2024
Blast No 4	Tuesday, November 26, 2024	Blast No 19	Friday, December 20, 2024
Blast No 5	Wednesday, November 27, 2024	Blast No 20	Monday, December 23, 2024
Blast No 6	Monday, December 2, 2024	Blast No 21	Thursday, December 26, 2024
Blast No 7	Tuesday, December 3, 2024	Blast No 22	Friday, December 27, 2024
Blast No 8	Wednesday, December 4, 2024	Blast No 23	Monday, December 30, 2024
Blast No 9	Friday, December 6, 2024	Blast No 24	Thursday, January 2, 2025
Blast No 10	Monday, December 9, 2024	Blast No 25	Friday, January 3, 2025
Blast No 11	Tuesday, December 10, 2024	Blast No 26	Monday, January 6, 2025
Blast No 12	Wednesday, December 11, 2024	Blast No 27	Tuesday, January 7, 2025
Blast No 13	Thursday, December 12, 2024	Blast No 28	Thursday, January 9, 2025
Blast No 14	Friday, December 13, 2024	Blast No 29	Friday, January 10, 2025
Blast No 15	Monday, December 16, 2024	Blast No 30	Tuesday, January 14, 2025



Further comment on these frequency based criteria has been made by a nationally renowned Educator and Engineer, Dr. Charles Dowding in his 1985 text book , “Blast Vibration Monitoring and Control”:

“Regulations by their nature are conservative limits selected in a process that is not isolated from political concerns. The political concerns generally are focused on the determination of the socially acceptable probability of the occurrence of cracking. Recently, human annoyance has become an important issue in repeated blasting. Annoyance is distinct from cracking although it may affect the choice of regulatory limits.”

My own 35 plus years of experience mirrors Dr. Dowding’s statement and the knowledge gained from hundreds of controlled blasts that the limits shown on the above graph are conservative with regard to residential structure damage.

Controlled Blast Monitoring Results

We have included plots of Peak Particle Velocity (PPV) vs Frequency against the NFPA-495 Frequency Based Vibration Criteria for Blasting at each of the residences surrounding the College Hill site for which pre-blast condition surveys were performed. These data were developed from the Daily Blast Monitoring reports for five Blast Monitors that were installed around the project site using the following process:

1. A plot of PPV vs Distance was developed for each blast using the data from the five monitoring locations.

2. The PPV at each structure was then determined using the distance of each structure from each blast (see Table 2).
3. Figures 1 to 31 show the vibration levels for houses immediately adjacent to the site.
4. Figures 32 to 62 show the vibration levels for houses located beyond the houses that immediately surround the site where pre-blast condition surveys were also carried out.
5. Blast vibration levels at all houses behind houses immediately adjacent to the site will be lower than at the houses in front of them as vibration levels always decay with distance from each blast.

It is my opinion, based on more than 35-years of controlled blast design and blast monitoring experience, that Aggregate Resource Industries, Inc conducted their controlled blasting work in conformance with current NFPA-495 requirements and I would not expect any of the blasts to cause damage to the adjacent structures based on the vibration data recorded at the site.

All of SubTerra Inc's work involved in preparation of this deliverable was conducted in accordance with our Subcontract with Aggregate Resource Drilling, Inc. for this project.

Sincerely,

A handwritten signature in black ink, appearing to read 'C. Breeds', with a horizontal line extending to the right from the end of the signature.

Chris D. Breeds, PE, PhD
President, SubTerra, Inc.

Table 2: Table of Distances from each Blast to Each House Surrounding the Site

House	Blast 1	Blast 2	Blast 3	Blast 4	Blast 5	Blast 6	Blast 7	Blast 8	Blast 9	Blast 10	Blast 11	Blast 12	Blast 13	Blast 14	Blast 15
390 W 23rd	288	640	273	481	348	600	471	345	612	481	353	290	596	512	381
360 W 23rd	275	620	563	469	331	539	462	332	608	476	346	280	595	511	380
330 W 23rd	288	630	566	470	326	601	469	337	619	487	355	290	609	525	395
2300 Lincoln St	303	630	567	471	327	604	471	340	624	492	361	300	616	533	404
282 W 23rd	375	640	585	491	366	628	501	379	655	531	412	360	656	579	462
2359 Lincoln St	280	504	444	352	246	488	368	259	519	402	297	246	524	450	348
2385 Lincoln St	260	452	384	296	209	430	315	222	462	352	262	213	470	500	312
2395 Lincoln St	245	375	321	237	169	367	260	187	401	298	227	183	412	350	274
2401 Lincoln St	230	293	243	167	139	290	195	163	326	236	199	166	340	286	237
2409 Lincoln St	235	242	193	133	125	240	166	159	277	206	195	183	296	252	231
2427 Lincoln St	252	185	155	136	142	197	172	177	238	208	209	244	265	245	244
2445 Lincoln St	285	135	135	135	186	166	166	212	203	202	232	312	238	238	251
2463 Lincoln St	350	130	130	156	226	162	172	248	198	202	361	359	234	241	270
2477 Lincoln St	390	140	150	191	269	165	196	288	201	219	297	404	237	240	299
2485 Lincoln St	424	150	205	235	318	166	239	334	198	243	330	450	235	233	334
2489 Lincoln St	474	175	245	260	344	180	250	359	208	264	362	477	246	242	356
2493 Lincoln St	513	200	204	301	391	200	288	404	219	296	404	523	257	248	393
2490 Lincoln St	449	125	200	265	362	85	230	360	80	210	341	475	100	80	307
2495 Lawrence St	453	175	240	300	386	120	251	375	90	220	348	479	100	75	307
2490 Lawrence St	480	320	355	400	463	279	345	440	241	306	403	519	215	207	353
2480 Lawrence St	385	300	320	350	398	271	297	370	235	256	332	438	199	200	281
2470 Lawrence St	355	305	310	328	370	271	281	341	235	241	301	401	199	208	250
2452 Lawrence St	290	305	308	311	336	272	272	303	238	236	263	346	200	200	215
2430 Lawrence St	222	325	314	305	307	290	269	271	265	233	233	279	228	200	197
2420 Lawrence St	236	385	365	338	336	350	304	300	330	272	263	278	295	250	227
2410 Lawrence St	209	387	360	321	309	352	287	273	337	260	237	245	305	247	201
2390 Lawrence St	200	473	427	366	312	430	337	279	423	321	256	241	395	324	234
2370 Lawrence St	210	515	473	404	328	481	378	300	477	367	283	254	450	376	272
2360 Lawrence St	245	580	525	450	360	535	427	337	534	420	324	285	510	432	321
2336 Lawrence St	285	625	571	493	391	585	472	372	586	468	363	317	561	483	367
408 W 23rd	340	700	633	550	439	649	532	424	652	531	420	368	630	549	429
424 W 23RD AVE	477	795	742	668	572	750	645	552	746	636	541	498	717	645	539
2355 WASHINGTON ST	476	750	705	645	577	703	616	549	692	599	530	502	659	597	513
2373 WASHINGTON ST	449	704	662	607	549	658	577	519	644	558	497	475	610	552	476
2383 WASHINGTON ST	434	656	619	574	534	610	542	501	592	518	475	464	537	506	445
2421 WASHINGTON ST	428	562	540	521	519	517	486	483	491	453	447	458	453	425	411
2406 LAWRENCE ALY	370	503	480	461	461	458	426	424	433	392	388	401	395	364	352
2431 WASHINGTON ST	445	546	531	524	525	503	489	489	473	453	443	478	435	419	417
2437 WASHINGTON ST	459	533	525	524	528	493	488	493	460	452	455	493	423	416	416

Table 2: Table of Distances from each Blast to Each House Surrounding the Site

House	Blast 16	Blast 17	Blast 18	Blast 19	Blast 20	Blast 21	Blast 22	Blast 23	Blast 24	Blast 25	Blast 26	Blast 27	Blast 28	Blast 29	Blast 30
390 W 23rd	345	540	472	480	282	450	281	342	468	343	565	338	311	476	563
360 W 23rd	343	541	473	409	280	453	277	346	473	349	571	347	284	460	549
330 W 23rd	361	559	491	429	303	478	298	374	500	381	597	382	267	454	545
2300 Lincoln St	373	569	502	442	320	493	313	392	516	400	612	404	262	452	544
282 W 23rd	442	621	560	506	404	561	394	475	486	487	677	495	287	467	557
2359 Lincoln St	338	496	440	395	318	450	306	381	475	396	559	409	166	328	414
2385 Lincoln St	305	448	398	359	303	413	290	358	438	374	515	389	139	270	354
2395 Lincoln St	269	396	350	319	287	371	275	31	395	349	466	365	126	211	290
2401 Lincoln St	236	332	296	278	271	324	260	307	347	325	405	343	110	141	211
2409 Lincoln St	234	298	273	267	267	306	266	303	327	321	373	339	107	109	160
2427 Lincoln St	271	284	278	281	294	316	309	319	334	335	359	355	136	118	125
2445 Lincoln St	285	274	277	297	328	310	360	328	328	349	346	373	193	129	114
2463 Lincoln St	271	270	282	319	359	306	397	324	330	369	342	393	239	160	106
2477 Lincoln St	273	276	275	350	394	309	437	327	345	397	345	422	284	200	106
2485 Lincoln St	270	285	269	384	434	306	481	326	364	429	347	453	335	247	122
2489 Lincoln St	280	301	278	407	458	316	506	336	381	449	359	475	360	272	143
2493 Lincoln St	288	320	283	443	497	322	548	345	405	483	370	508	409	318	178
2490 Lincoln St	115	176	103	348	413	139	477	165	265	369	194	392	390	299	159
2495 Lawrence St	90	162	80	341	407	90	474	111	235	349	139	368	420	339	228
2490 Lawrence St	179	220	179	366	426	169	476	165	254	357	169	372	500	439	368
2480 Lawrence St	163	172	164	285	341	145	385	128	179	271	120	285	435	388	346
2470 Lawrence St	163	163	175	249	602	145	643	127	150	232	108	244	408	368	341
2452 Lawrence St	182	164	174	200	244	146	275	128	129	176	111	185	372	349	343
2430 Lawrence St	224	172	163	162	179	143	186	147	125	126	146	122	339	341	344
2420 Lawrence St	230	233	204	191	191	179	166	173	167	155	217	137	359	372	391
2410 Lawrence St	200	239	197	170	165	169	127	147	164	129	233	111	333	352	382
2390 Lawrence St	217	329	273	224	167	244	145	169	249	154	333	143	339	387	441
2370 Lawrence St	249	386	325	271	191	297	183	209	305	197	393	187	344	420	483
2360 Lawrence St	294	444	382	325	235	354	231	260	364	250	453	241	364	463	531
2336 Lawrence St	337	498	434	376	276	407	247	308	418	300	509	292	384	501	575
408 W 23rd	397	566	501	441	335	474	335	373	487	366	579	359	422	556	633
424 W 23RD AVE	512	652	594	540	452	565	448	477	572	466	655	456	565	680	749
2355 WASHINGTON ST	493	594	546	502	438	516	423	448	517	433	587	422	588	665	720
2373 WASHINGTON ST	459	547	501	461	407	472	387	411	470	395	537	384	567	630	679
2383 WASHINGTON ST	435	490	456	424	389	428	359	383	423	366	480	355	562	600	640
2421 WASHINGTON ST	412	399	383	365	375	360	340	355	345	339	369	321	542	556	569
2406 LAWRENCE ALY	354	340	322	316	316	300	285	298	285	280	312	262	483	496	508
2431 WASHINGTON ST	427	388	383	381	387	363	364	363	345	345	350	331	553	560	563
2437 WASHINGTON ST	405	380	382	383	397	362	384	350	344	348	334	342	561	559	558

Table 2: Table of Distances from each Blast to Each House Surrounding the Site

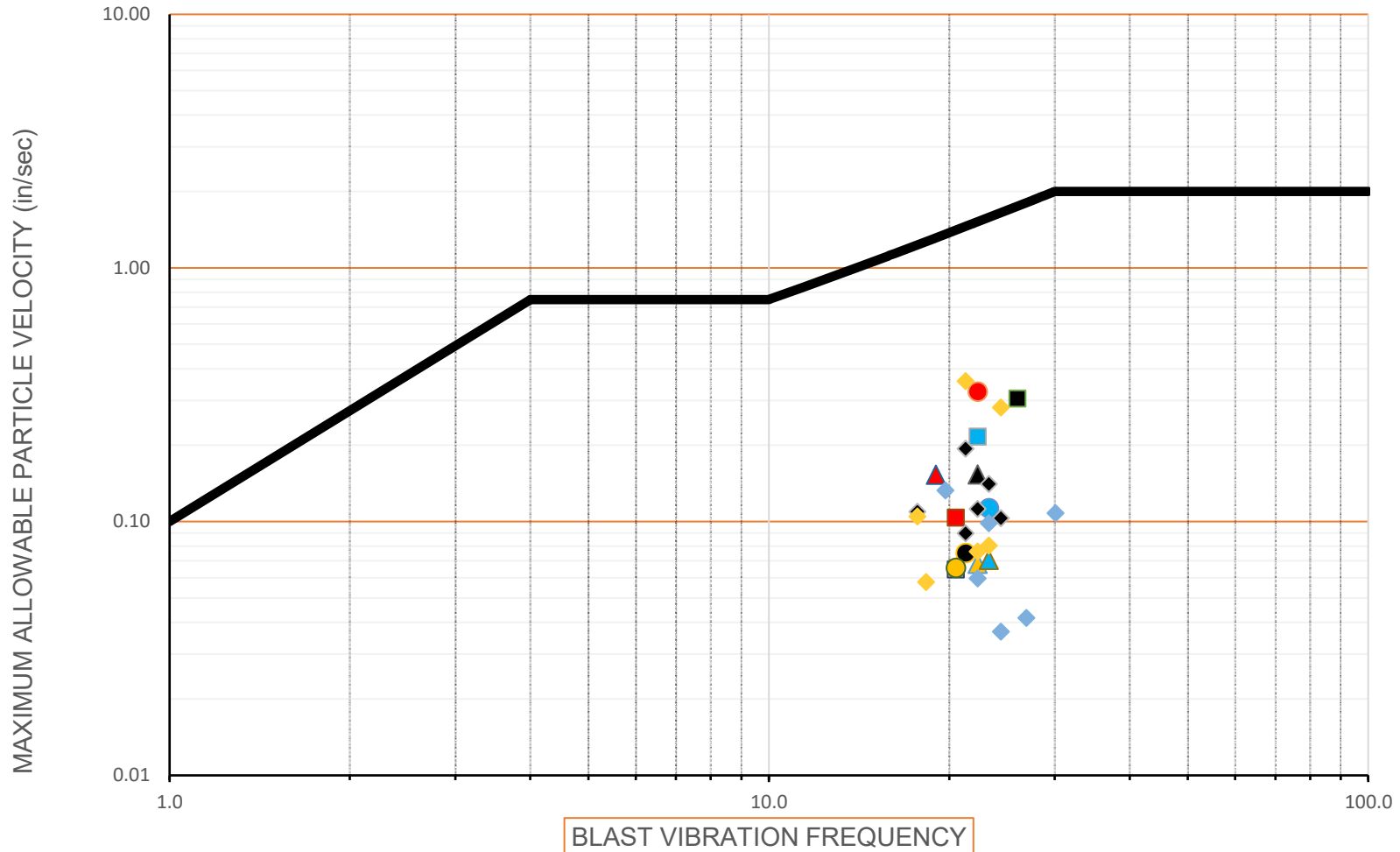
House	Blast 1	Blast 2	Blast 3	Blast 4	Blast 5	Blast 6	Blast 7	Blast 8	Blast 9	Blast 10	Blast 11	Blast 12	Blast 13	Blast 14	Blast 15
2445 WASHINGTON ST	500	536	535	538	554	499	499	520	464	463	480	535	427	427	437
2455 WASHINGTON ST	535	539	541	552	578	503	509	515	467	470	504	572	431	436	457
2475 WASHINGTON ST	562	531	540	558	593	494	511	561	458	472	520	599	422	422	471
2485 WASHINGTON ST	590	528	544	569	610	488	520	580	451	479	539	626	417	415	490
2495 WASHINGTON ST	605	505	529	561	611	460	509	583	422	469	544	641	393	387	493
495 W 25TH AVE	605	505	529	561	611	460	509	583	422	469	544	641	393	387	493
460 W 25TH AVE	692	526	566	612	676	474	558	653	438	519	616	727	419	407	565
2500 LAWRENCE ST	612	400	448	502	575	346	446	556	310	410	522	644	299	284	474
2510 LAWRENCE ST	679	445	499	558	635	390	503	618	357	469	586	711	353	335	539
2520 LINCOLN ST	637	308	380	446	542	270	411	543	267	396	527	658	292	269	496
2510 LINCOLN ST	583	254	326	392	488	217	357	489	215	342	473	604	241	219	443
2515 LINCOLN ST	625	297	354	416	508	287	396	519	295	397	515	638	329	3313	498
260 W 25TH AVE	661	351	395	451	536	350	441	552	366	450	555	670	402	390	546
245 W 25TH AVE	634	378	395	434	500	390	442	525	419	446	539	625	457	452	545
2470 CHARNELTON ST	599	366	376	407	465	386	422	493	419	448	510	585	456	454	521
2460 CHARNELTON ST	540	356	357	371	409	391	397	440	427	430	465	515	463	468	486
2450 CHARNELTON ST	515	357	356	360	384	392	392	418	428	428	447	481	464	464	473
2440 CHARNELTON ST	483	361	354	351	360	391	387	395	429	423	428	442	463	459	460
2434 CHARNELTON ST	463	371	363	350	350	401	385	386	441	421	421	417	472	458	457
CHARNELTON ST UTIL M	467	415	393	367	364	434	402	400	475	440	436	413	504	481	472
2400 CHARNELTON ST	382	410	409	313	295	415	346	318	455	386	355	319	476	434	395
2394 CHARNELTON ST	442	495	454	395	363	500	426	383	540	466	422	381	560	515	465
2380 CHARNELTON ST	475	571	526	459	409	573	487	426	611	528	447	421	630	578	514
260 W 23RD AVE	419	663	602	511	399	647	526	413	677	559	449	397	682	608	500

Table 2: Table of Distances from each Blast to Each House Surrounding the Site

House	Blast 16	Blast 17	Blast 18	Blast 19	Blast 20	Blast 21	Blast 22	Blast 23	Blast 24	Blast 25	Blast 26	Blast 27	Blast 28	Blast 29	Blast 30
2445 WASHINGTON ST	397	391	398	411	436	373	434	355	356	379	334	379	589	575	570
2455 WASHINGTON ST	395	395	400	438	470	377	478	359	368	409	335	412	614	590	573
2475 WASHINGTON ST	386	392	386	458	497	368	512	351	376	432	340	438	629	598	568
2485 WASHINGTON ST	381	396	381	481	524	365	545	350	391	457	338	465	647	609	568
2495 WASHINGTON ST	357	383	355	491	540	343	570	333	392	471	344	481	649	602	546
495 W 25TH AVE	357	383	355	491	540	343	570	333	392	471	331	481	649	602	546
460 W 25TH AVE	386	433	386	574	631	380	671	378	464	561	331	574	714	652	568
2500 LAWRENCE ST	271	330	270	493	555	267	608	272	379	488	382	503	611	539	440
2510 LAWRENCE ST	329	393	327	561	624	326	680	334	447	557	283	574	670	594	483
2520 LINCOLN ST	300	366	286	539	603	316	669	341	453	560	349	583	567	473	316
2510 LINCOLN ST	252	316	239	486	550	271	612	297	404	509	371	532	513	418	262
2515 LINCOLN ST	352	401	343	547	605	381	660	406	491	581	327	606	528	436	286
260 W 25TH AVE	430	470	422	597	650	461	699	486	557	637	435	662	551	465	331
245 W 25TH AVE	490	510	487	596	637	526	674	547	587	643	513	668	508	438	345
2470 CHARNELTON ST	491	502	490	571	607	527	639	547	574	621	570	645	470	407	333
2460 CHARNELTON ST	499	499	503	532	558	535	581	553	558	585	568	608	407	363	331
2450 CHARNELTON ST	504	500	502	516	537	536	553	554	554	570	571	592	380	347	340
2440 CHARNELTON ST	486	495	493	599	511	531	521	538	549	553	572	573	350	334	334
2434 CHARNELTON ST	468	497	491	493	499	529	501	530	547	547	568	566	336	332	337
CHARNELTON ST UTIL M	474	522	509	508	508	545	503	544	564	562	572	580	348	347	364
2400 CHARNELTON ST	393	479	450	435	427	480	415	463	502	481	598	499	266	289	337
2394 CHARNELTON ST	463	561	528	508	487	556	475	529	579	546	636	563	325	369	422
2380 CHARNELTON ST	509	624	586	559	519	609	507	569	633	587	697	602	354	433	493
260 W 23RD AVE	484	653	595	546	454	601	443	522	626	536	713	546	319	486	572

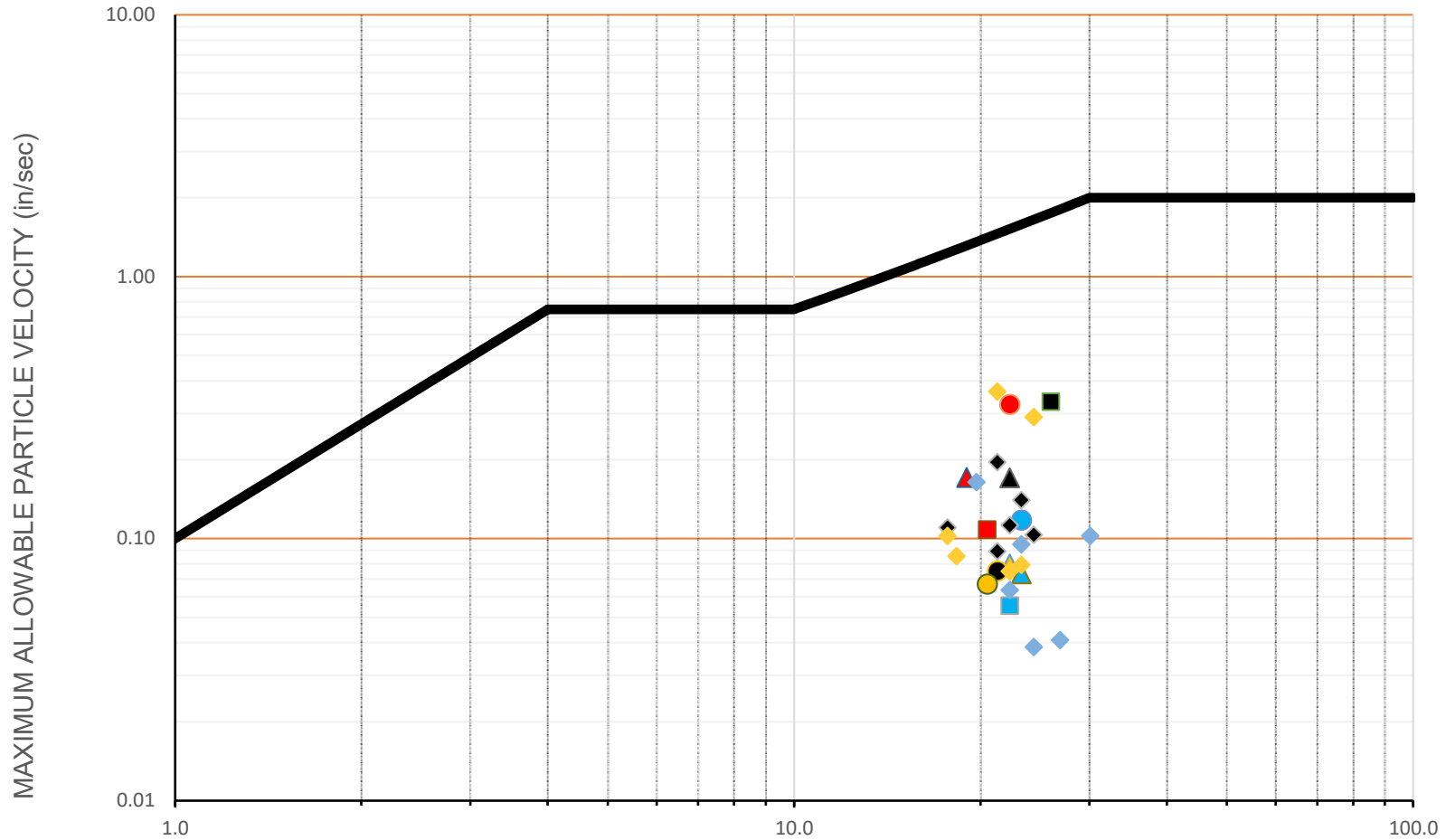
ATTACHMENT A
INDIVIDUAL PPV vs FREQUENCY PLOTS
FOR RESIDENTIAL STRUCTURES SURROUNDING the COLLEGE HILL SITE

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 1 - DATA PLOT FOR 390 W23rd STREET



- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

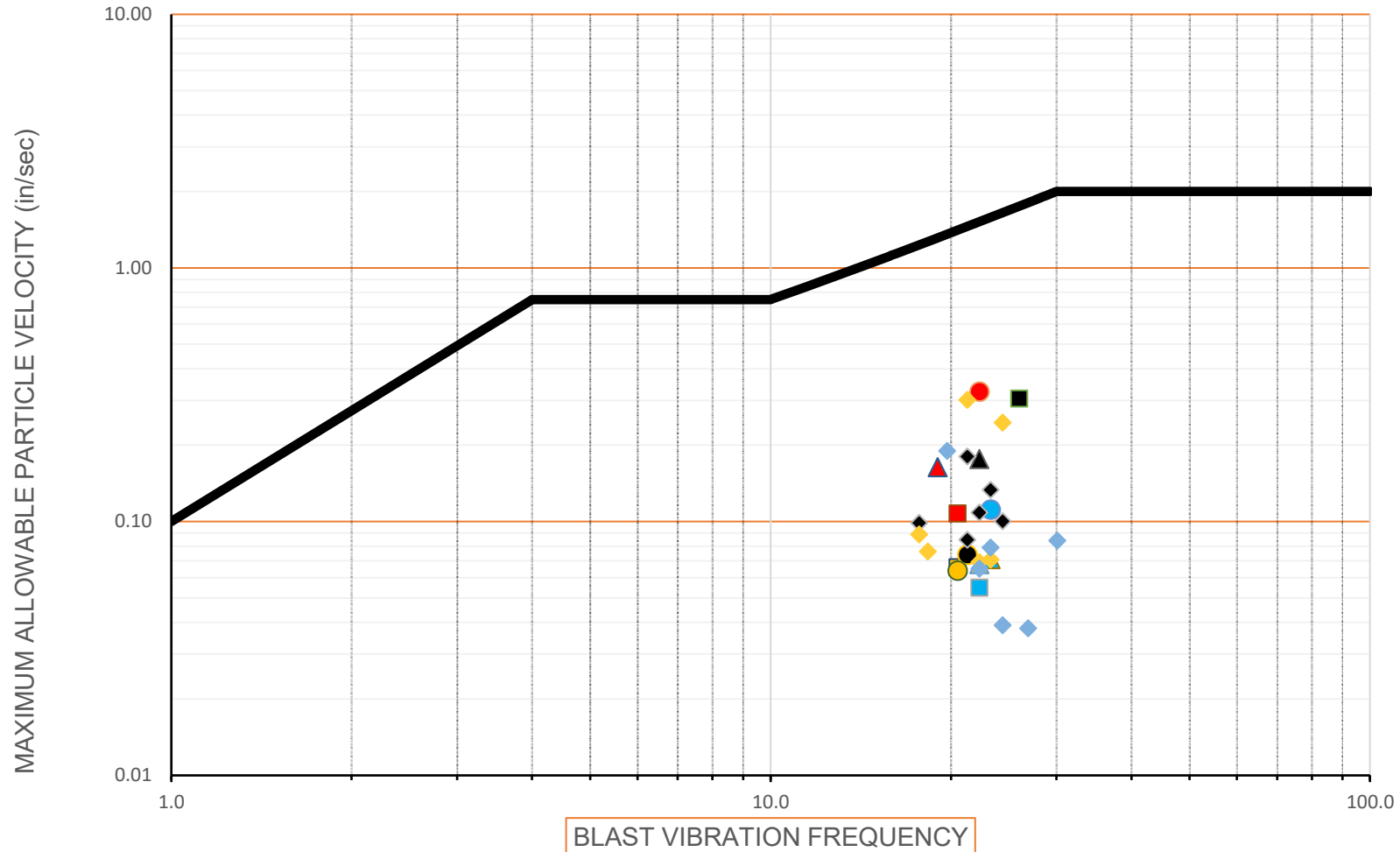
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 2 - DATA PLOT FOR 360 W23rd STREET



BLAST VIBRATION FREQUENCY

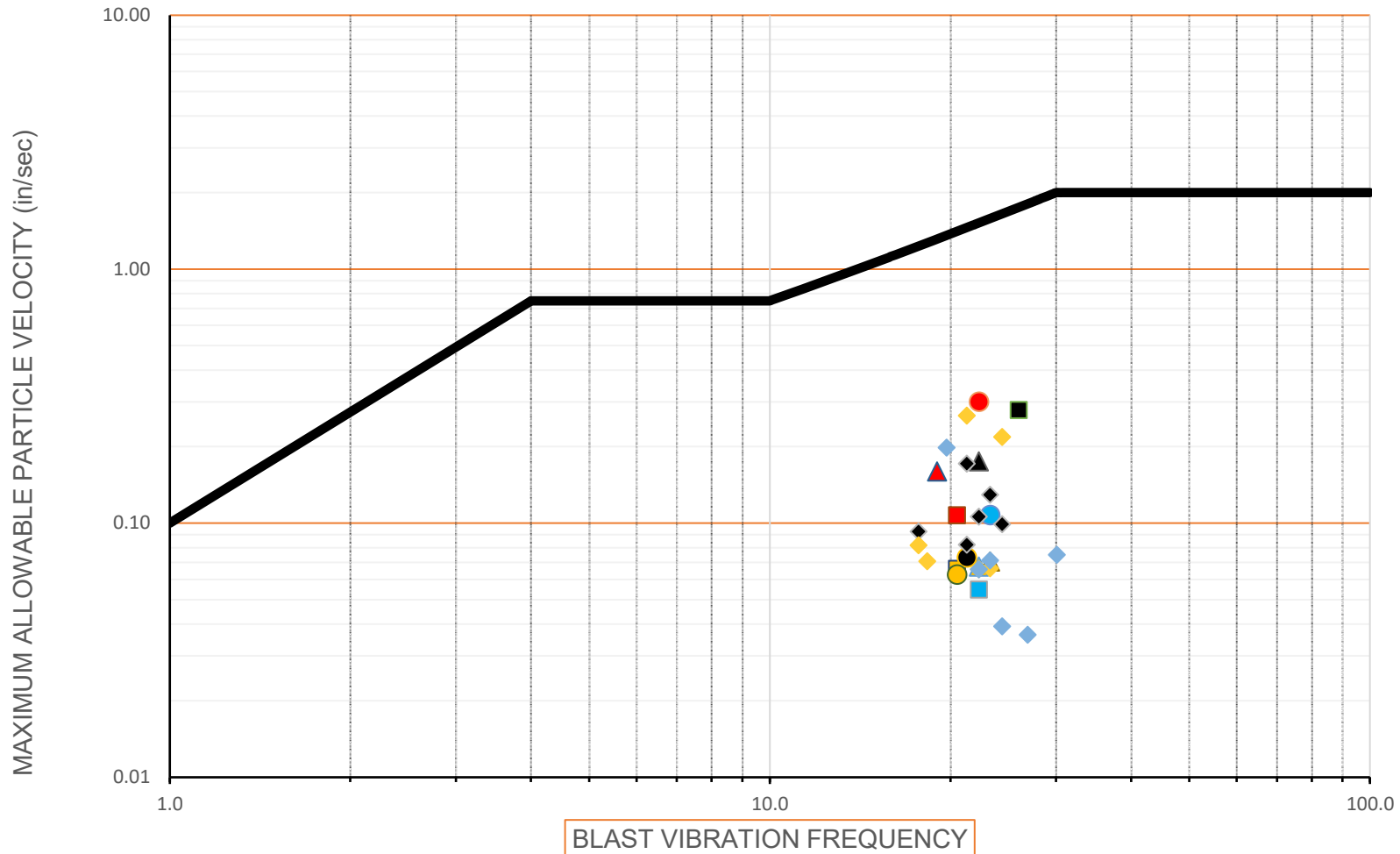
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|----------------------------|------------|-------------------|-------------------|
| — Vibration Level Criteria | — | ■ Blast 1 | ■ Blast 2 |
| ■ Blast 3 | ■ Blast 4 | ▲ Blast 5 | ▲ Blast 6 |
| ▲ Blast 7 | ▲ Blast 8 | ● Blast 9 | ● Blast 10 |
| ● Blast 11 | ● Blast 12 | ◆ Blasts 13 to 18 | ◆ Blasts 19 to 24 |
| ◆ Blasts 25 to 30 | | | |

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1)
 FIGURE 3 - DATA PLOT FOR 330 W23rd STREET



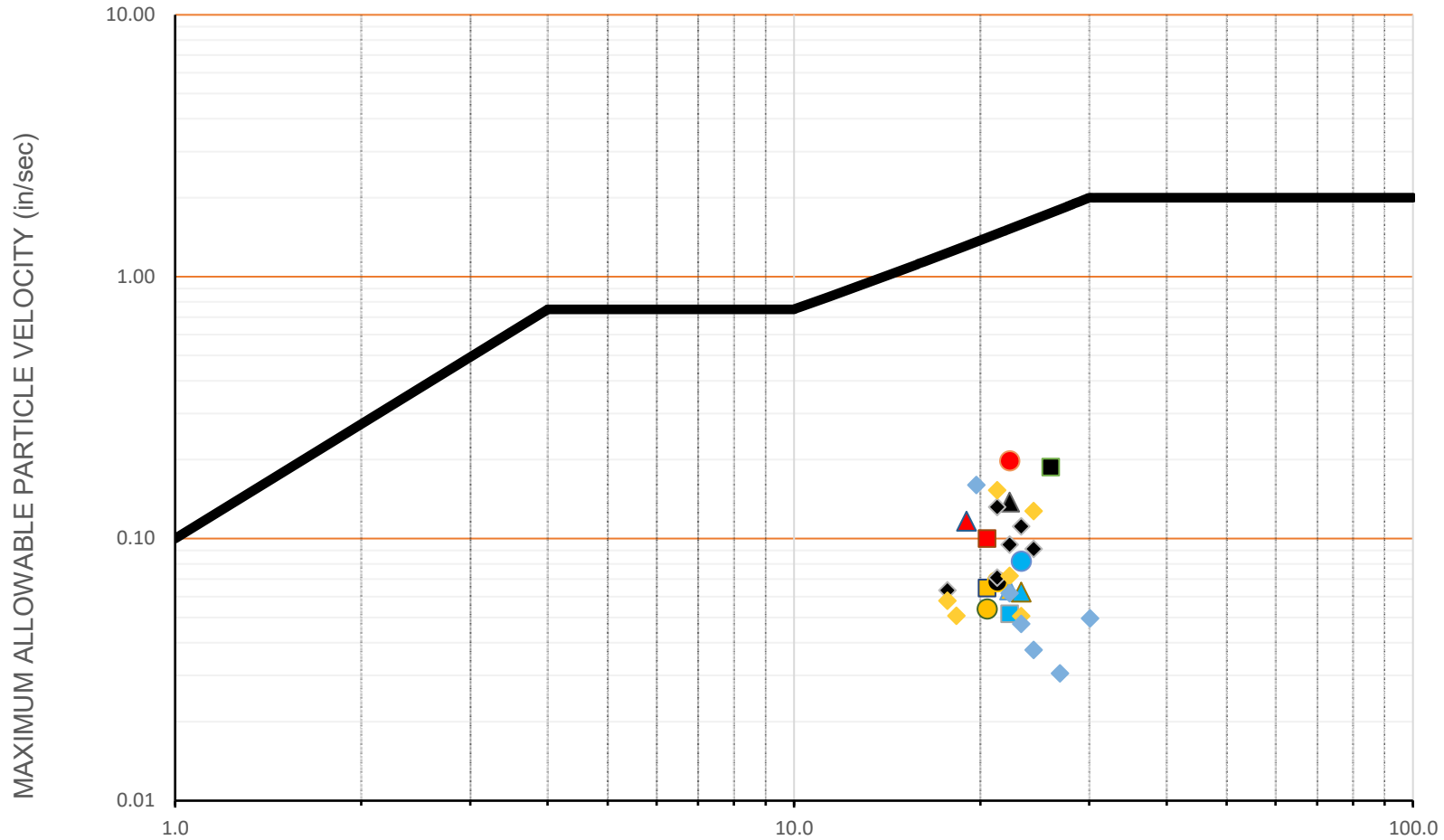
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|----------------------------|------------|-------------------|-------------------|
| — Vibration Level Criteria | — | ■ Blast 1 | ■ Blast 2 |
| ■ Blast 3 | ■ Blast 4 | ▲ Blast 5 | ▲ Blast 6 |
| ▲ Blast 7 | ▲ Blast 8 | ● Blast 9 | ● Blast 10 |
| ● Blast 11 | ● Blast 12 | ◆ Blasts 13 to 18 | ◆ Blasts 19 to 24 |
| ◆ Blasts 25 to 30 | | | |

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 4 - DATA PLOT FOR 2300 LINCOLN STREET



- | | | | |
|----------------------------|------------|-------------------|-------------------|
| — Vibration Level Criteria | — | ■ Blast 1 | ■ Blast 2 |
| ■ Blast 3 | ■ Blast 4 | ▲ Blast 5 | ▲ Blast 6 |
| ▲ Blast 7 | ▲ Blast 8 | ● Blast 9 | ● Blast 10 |
| ● Blast 11 | ● Blast 12 | ◆ Blasts 13 to 18 | ◆ Blasts 19 to 24 |
| ◆ Blasts 25 to 30 | | | |

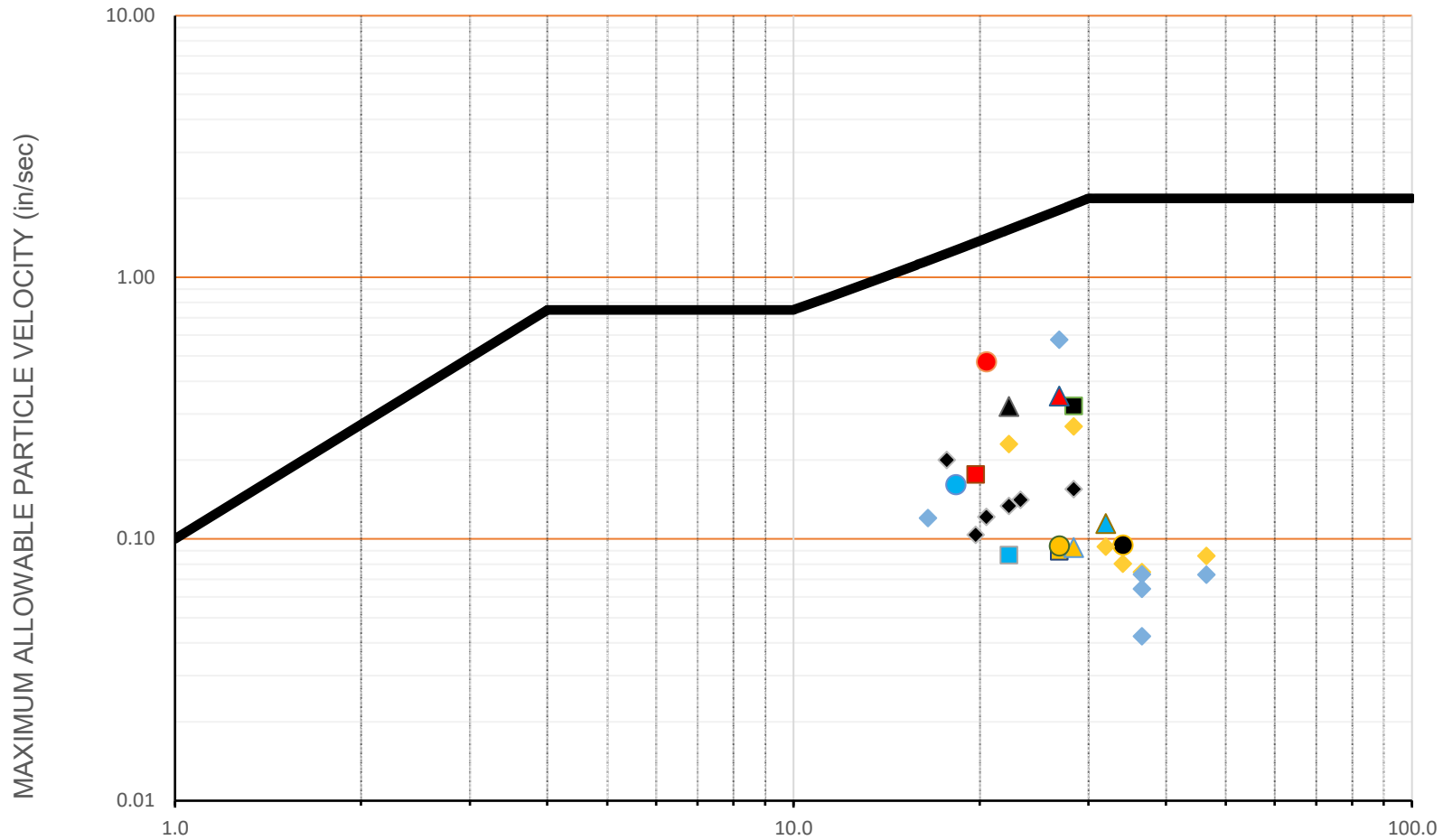
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 5 - DATA PLOT FOR 282 West 23rd STREET



BLAST VIBRATION FREQUENCY

- | | | | |
|----------------------------|------------|-------------------|-------------------|
| — Vibration Level Criteria | — | ■ Blast 1 | ■ Blast 2 |
| ■ Blast 3 | ■ Blast 4 | ▲ Blast 5 | ▲ Blast 6 |
| ▲ Blast 7 | ▲ Blast 8 | ● Blast 9 | ● Blast 10 |
| ● Blast 11 | ● Blast 12 | ◆ Blasts 13 to 18 | ◆ Blasts 19 to 24 |
| ◆ Blasts 25 to 30 | | | |

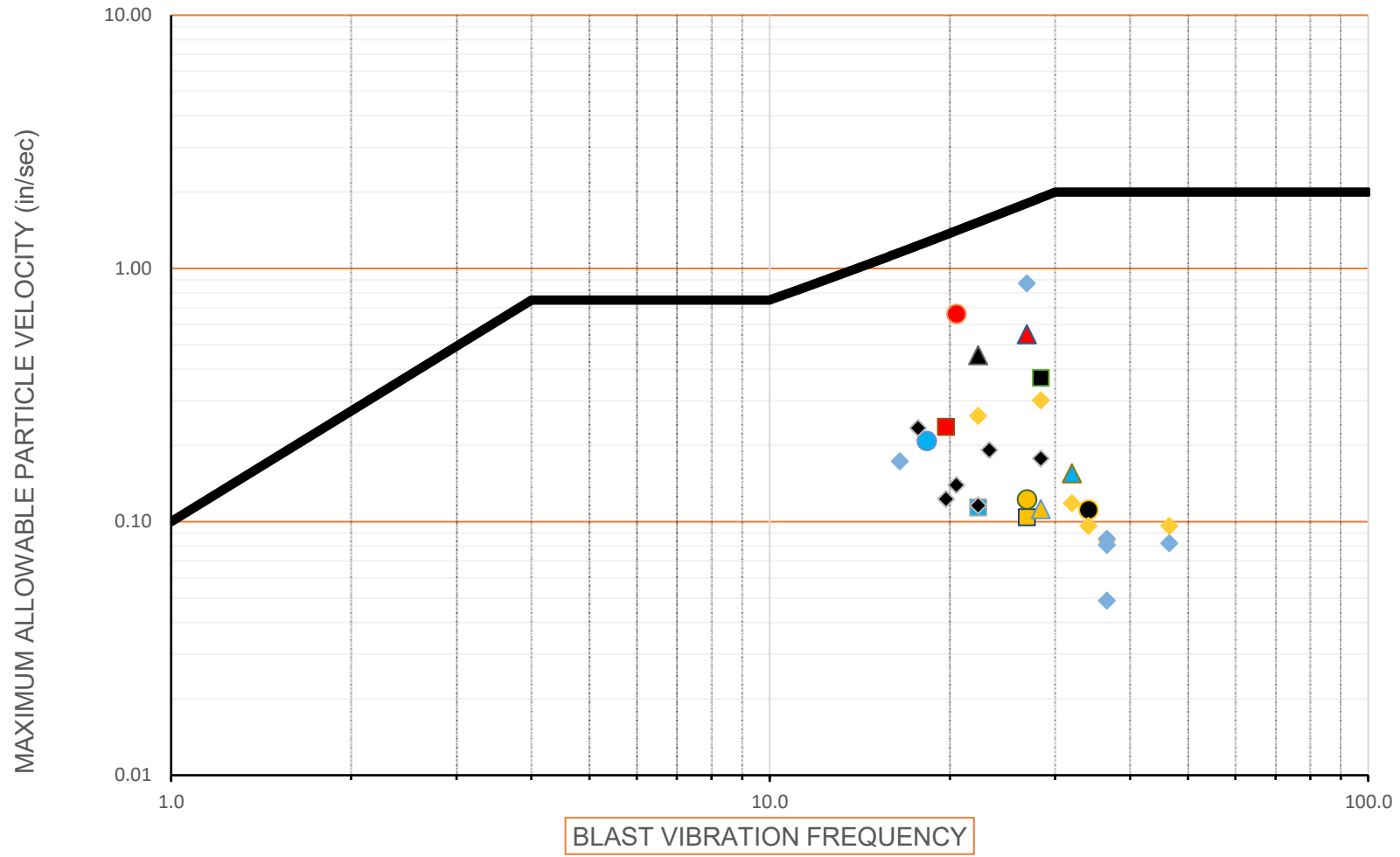
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 6 - DATA PLOT FOR 2359 LINCOLN STREET



BLAST VIBRATION FREQUENCY

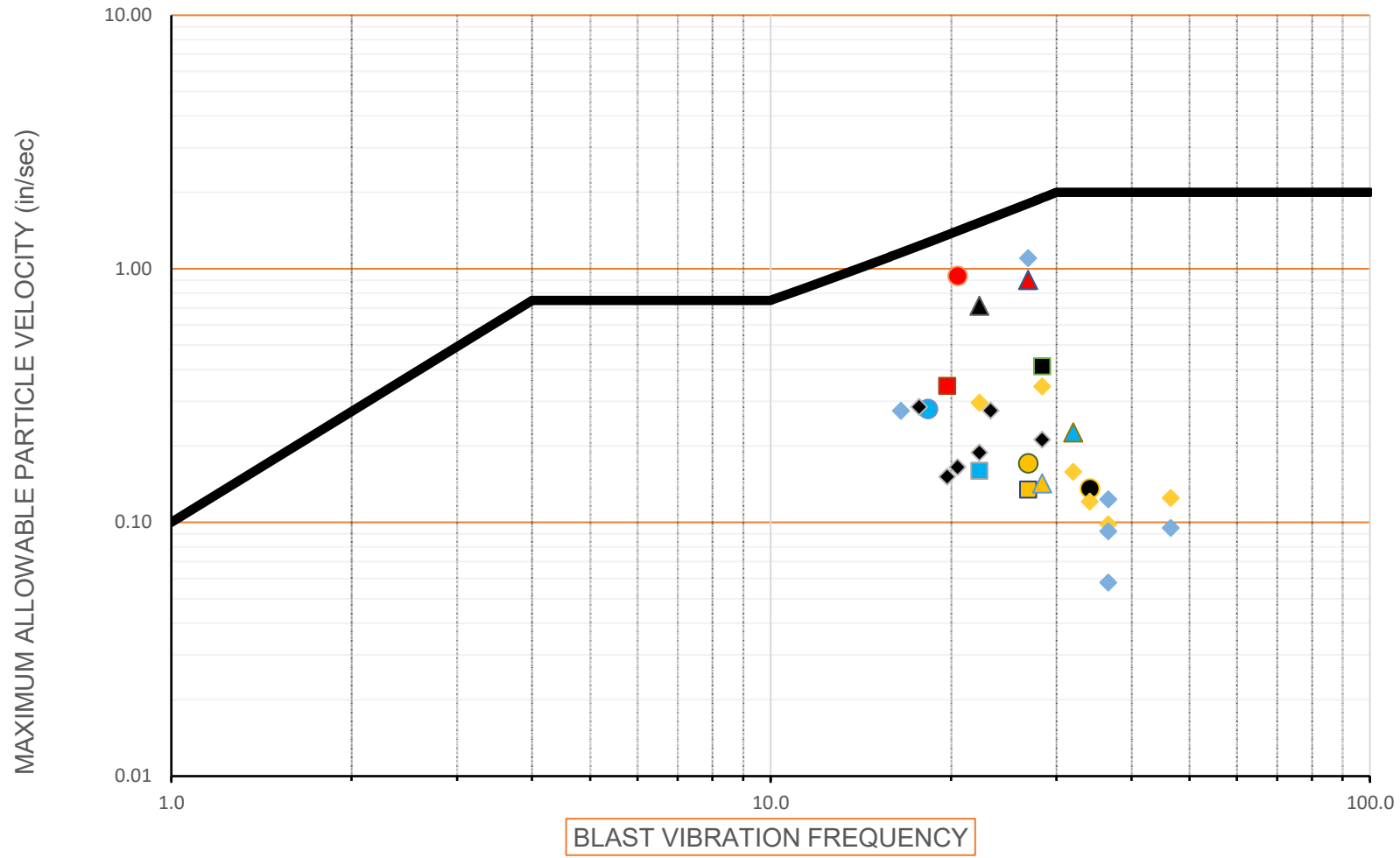
- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 7 - DATA PLOT FOR 2385 LINCOLN STREET



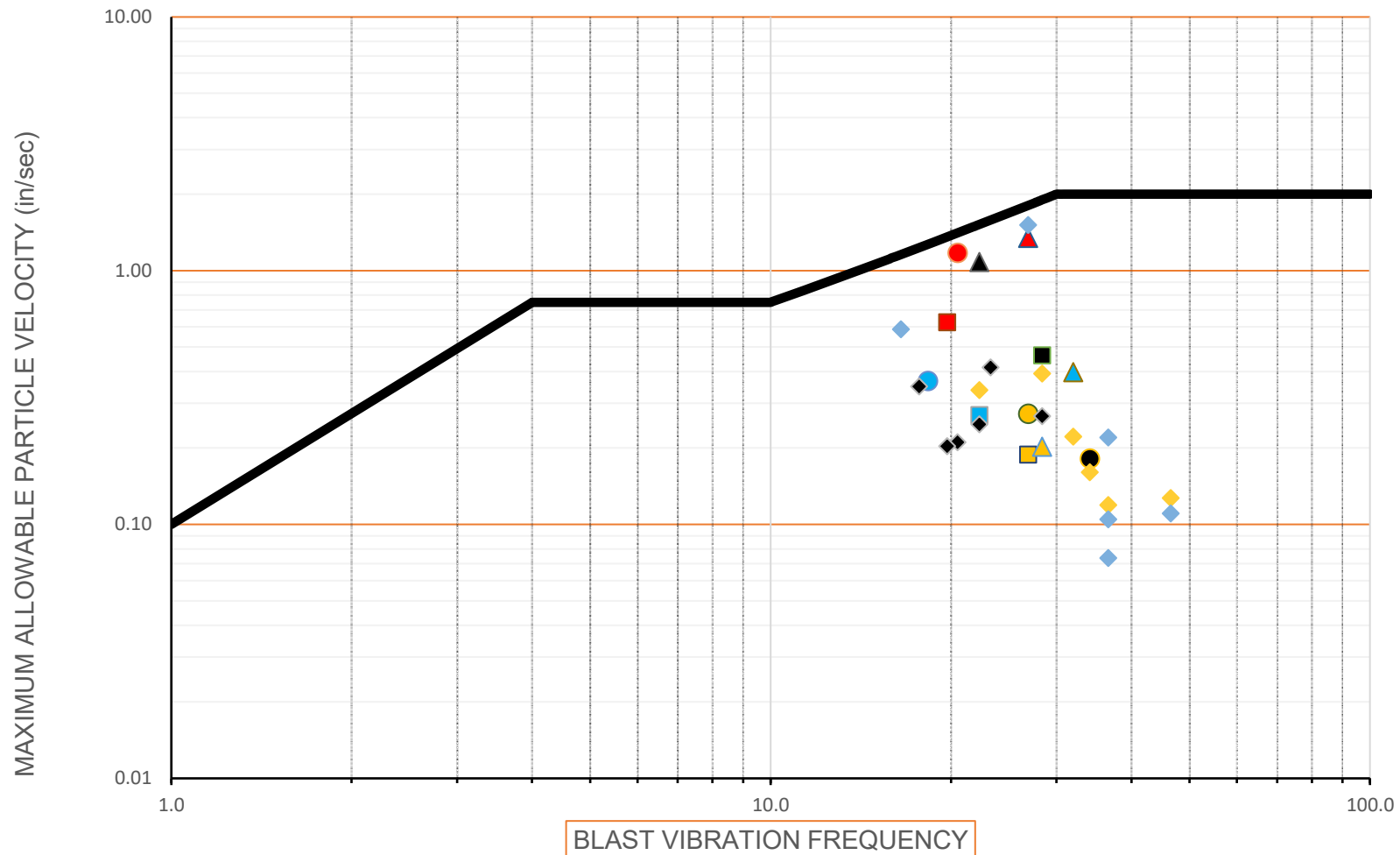
- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 8 - DATA PLOT FOR 2395 LINCOLN STREET



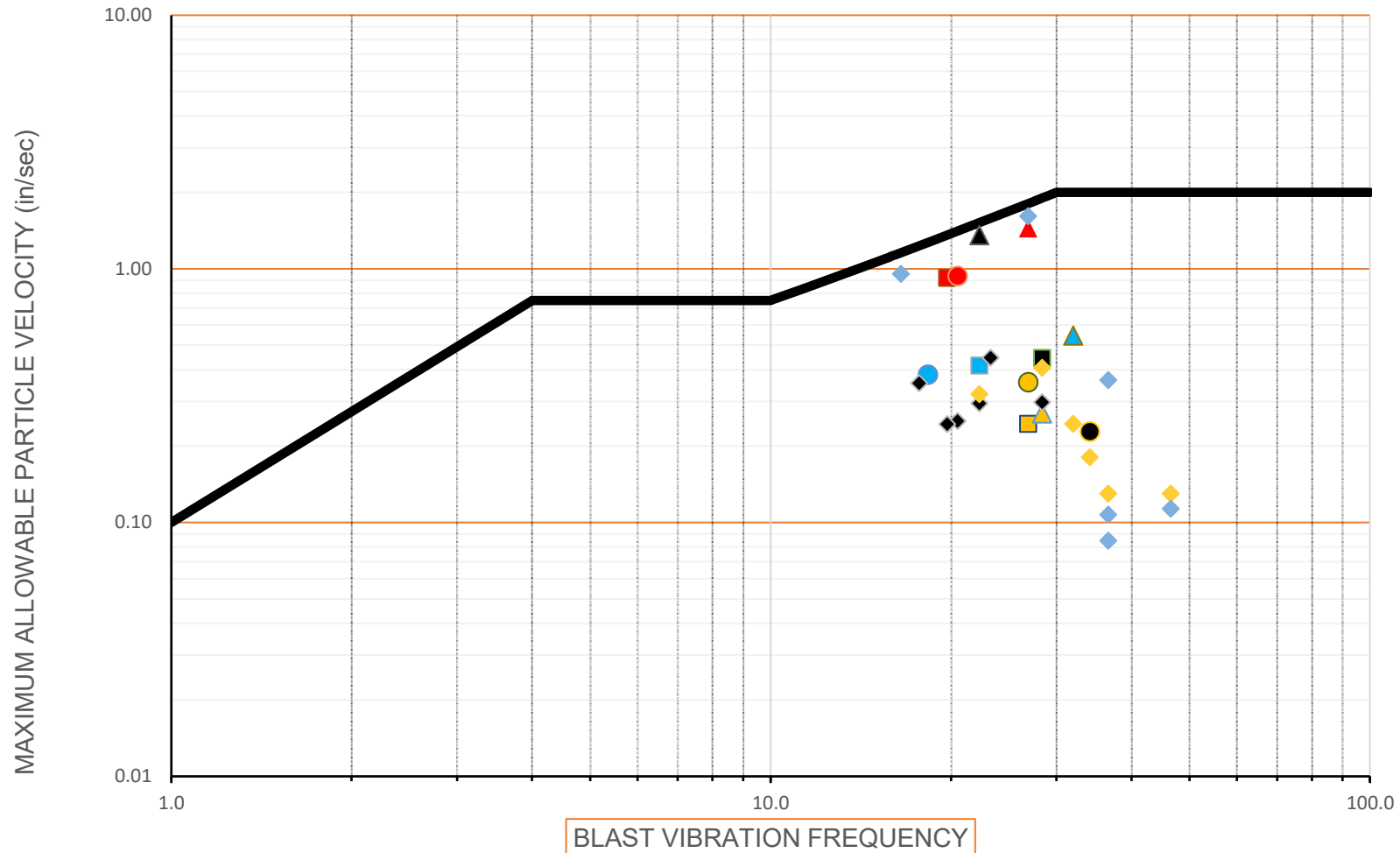
- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 9 - DATA PLOT FOR 2401 LINCOLN STREET



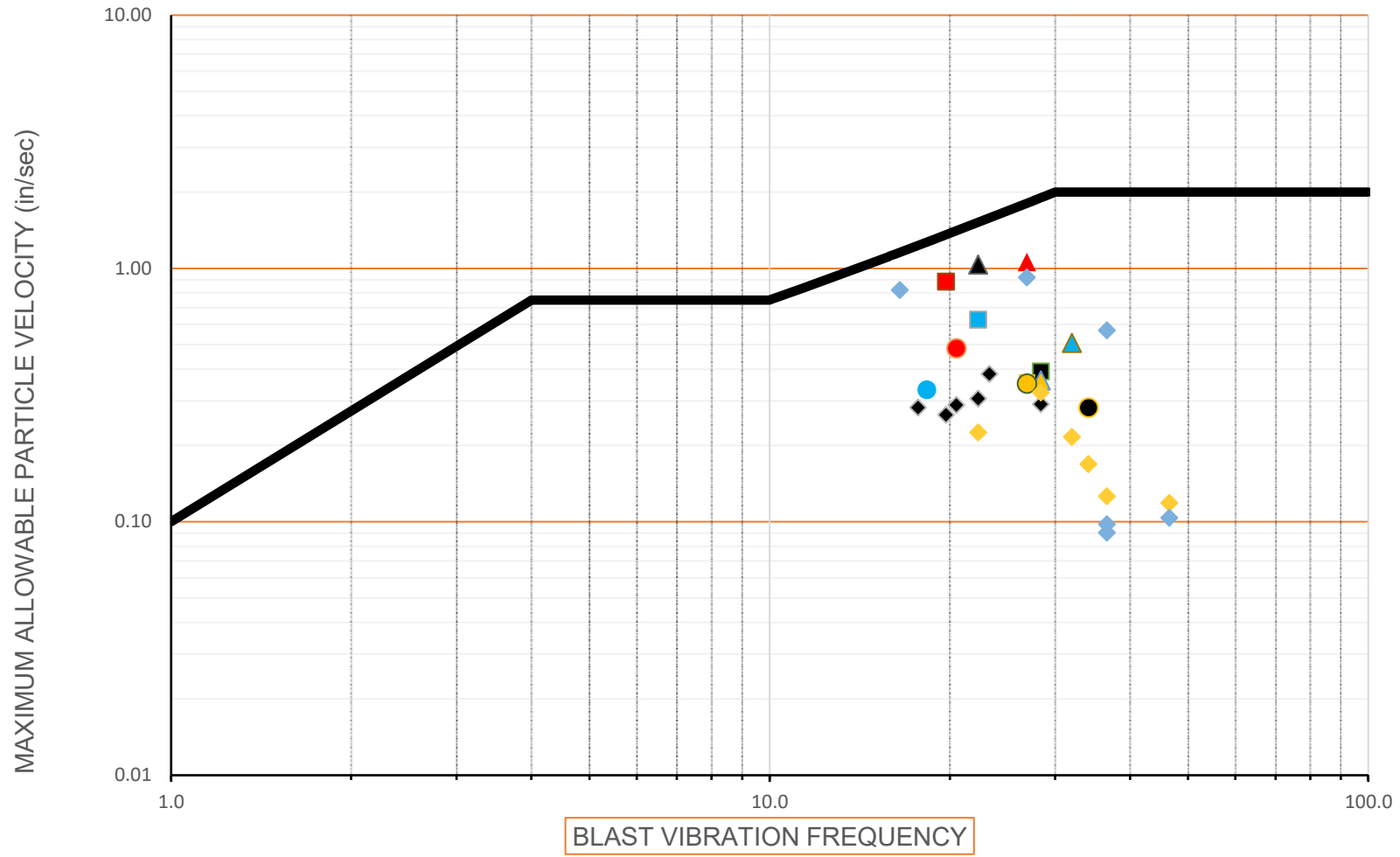
- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Shots 25 to 30 | | | |

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 10 - DATA PLOT FOR 2409 LINCOLN STREET



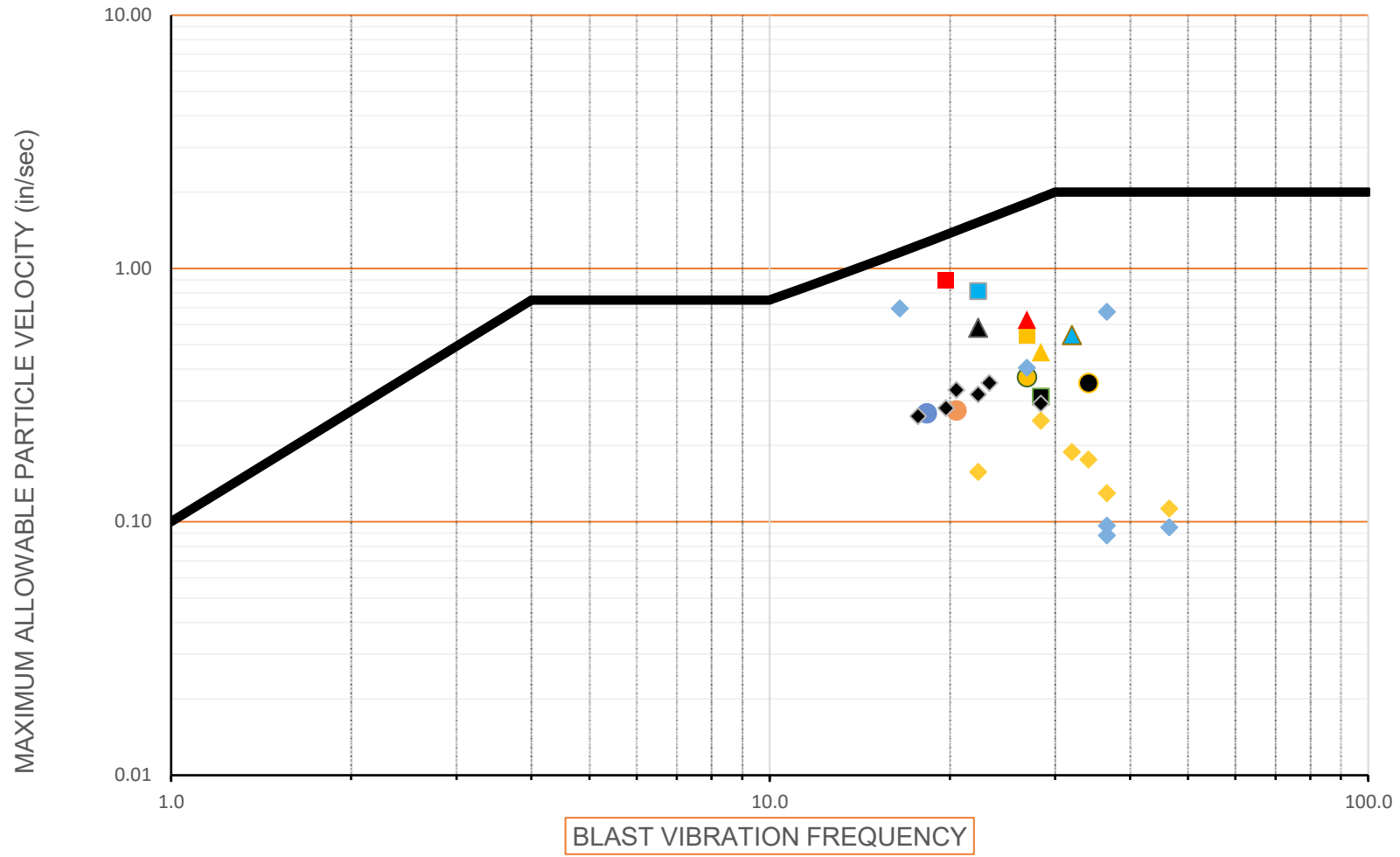
- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blast 25 to 30 | | | |

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 11 - DATA PLOT FOR 2427 LINCOLN STREET



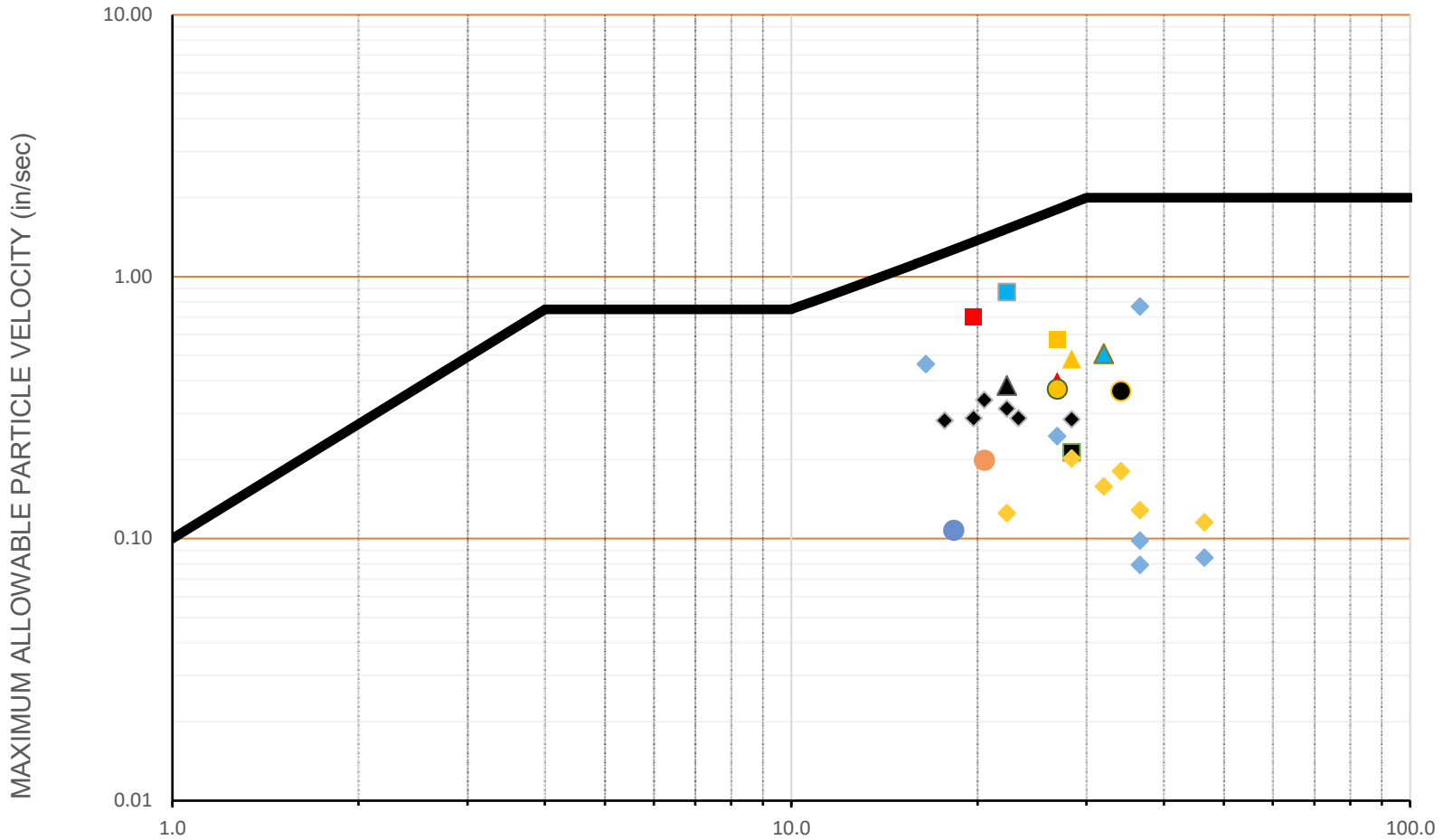
- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasta 25 to 30 | | | |

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 12 - DATA PLOT FOR 2445 LINCOLN STREET



- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

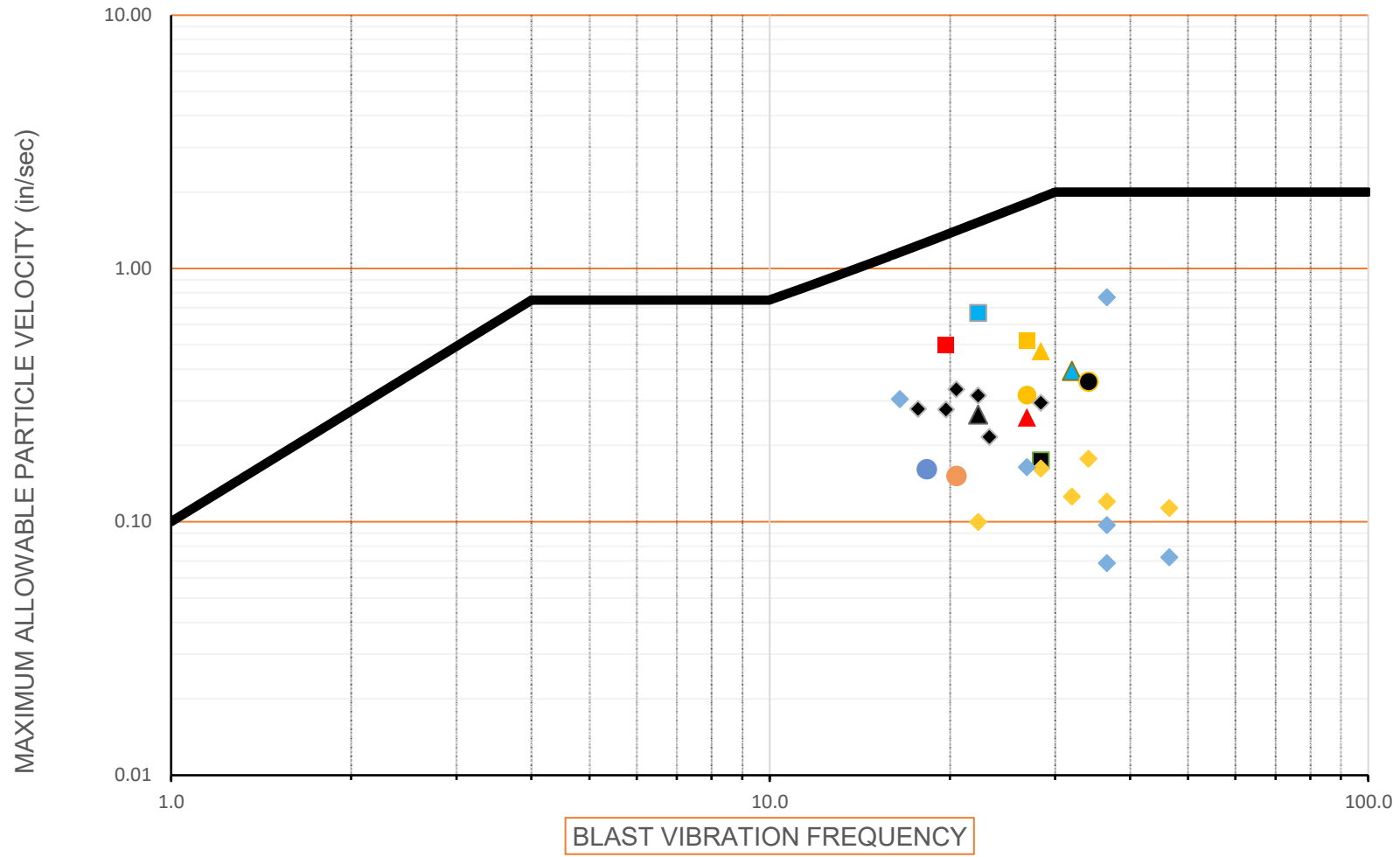
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 13 - DATA PLOT FOR 2463 LINCOLN STREET



BLAST VIBRATION FREQUENCY

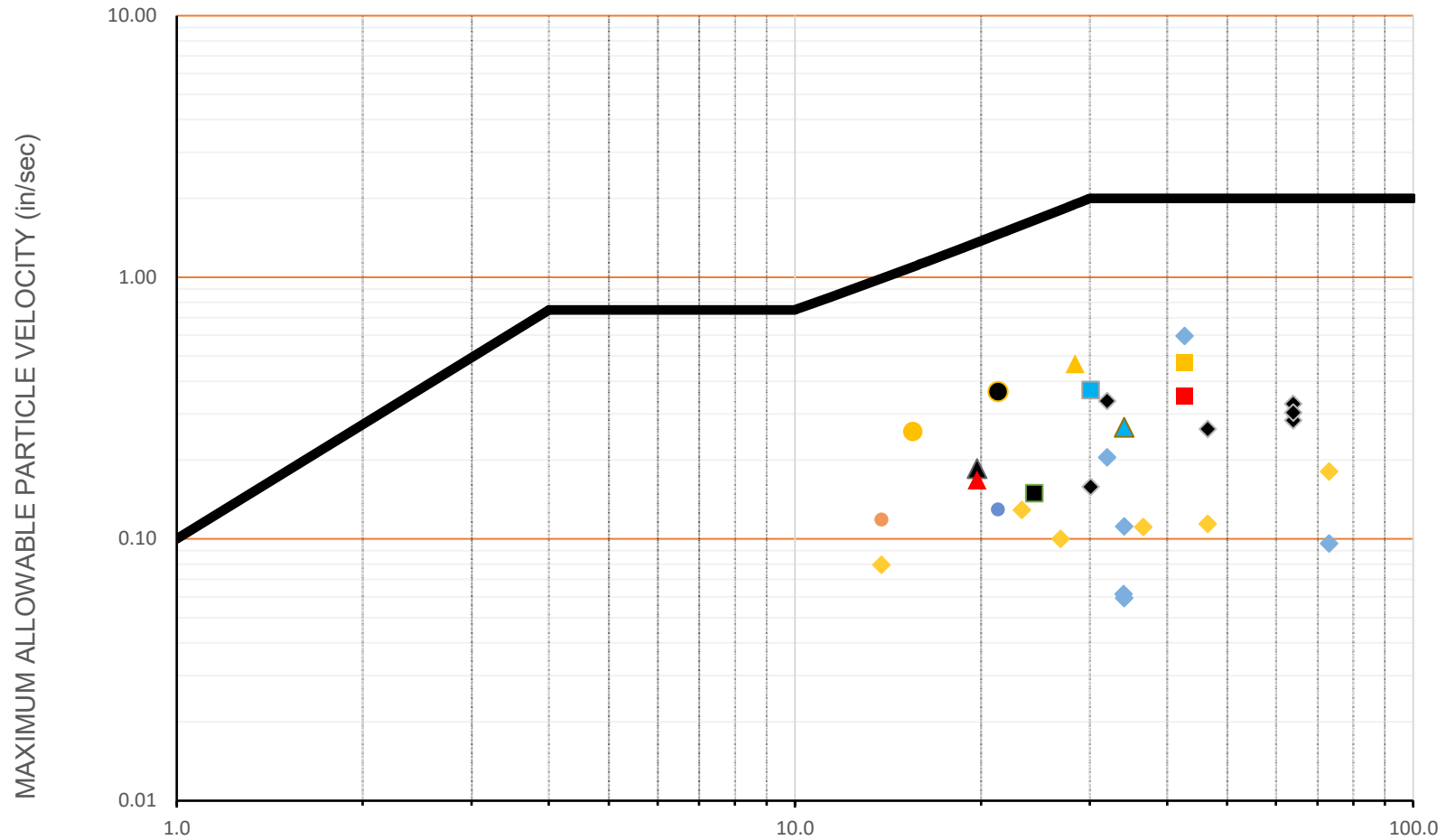
- | | | | |
|----------------------------|------------|-------------------|-------------------|
| — Vibration Level Criteria | — | ■ Blast 1 | ■ Blast 2 |
| ■ Blast 3 | ■ Blast 4 | ▲ Blast 5 | ▲ Blast 6 |
| ▲ Blast 7 | ▲ Blast 8 | ● Blast 9 | ● Blast 10 |
| ● Blast 11 | ● Blast 12 | ◆ Blasts 13 to 18 | ◆ Blasts 19 to 24 |
| ◆ Blasts 25 to 30 | | | |

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 14 - DATA PLOT FOR 2477 LINCOLN STREET



- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

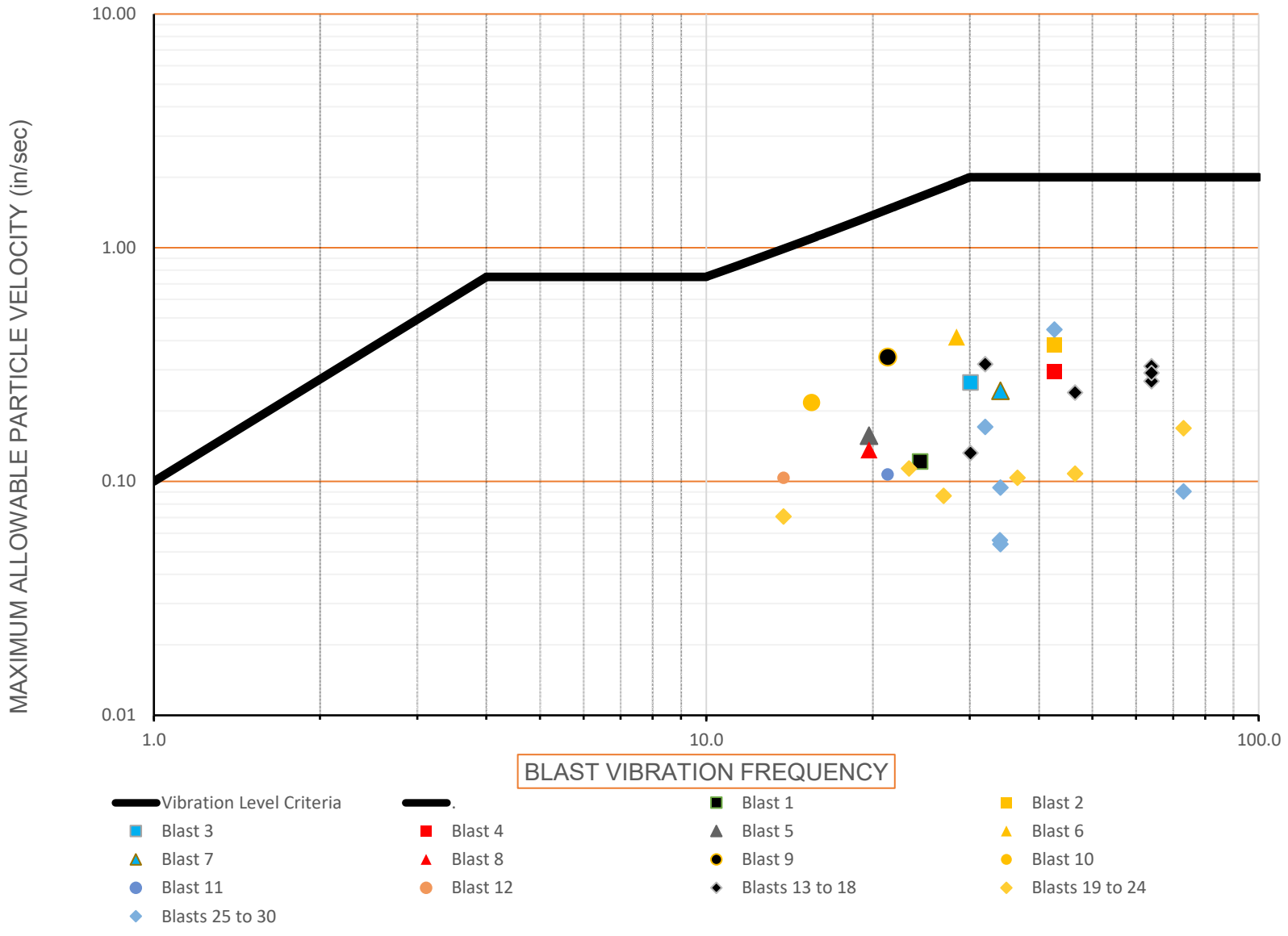
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 15 - DATA PLOT FOR 2485 LINCOLN STREET



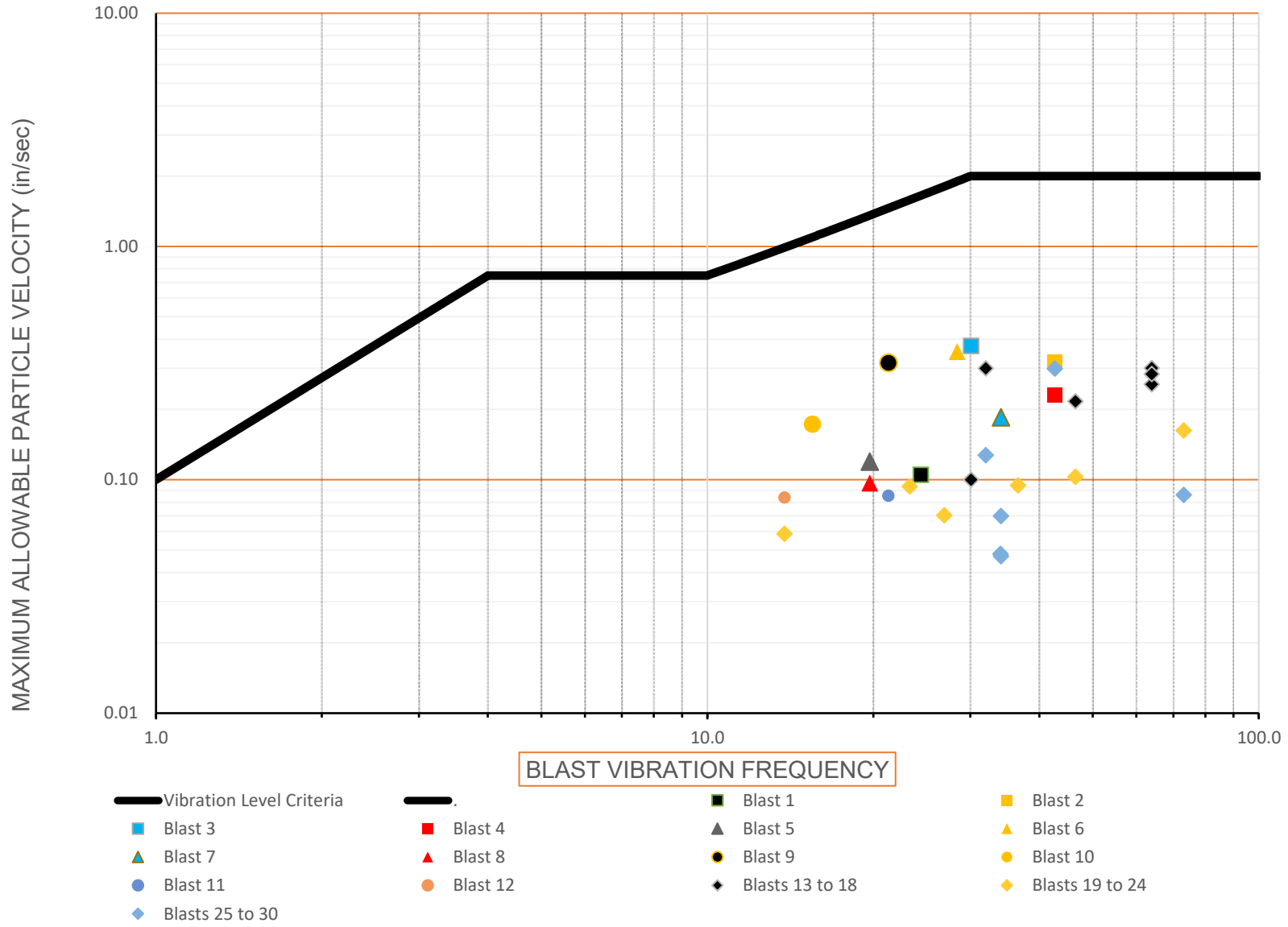
BLAST VIBRATION FREQUENCY

- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

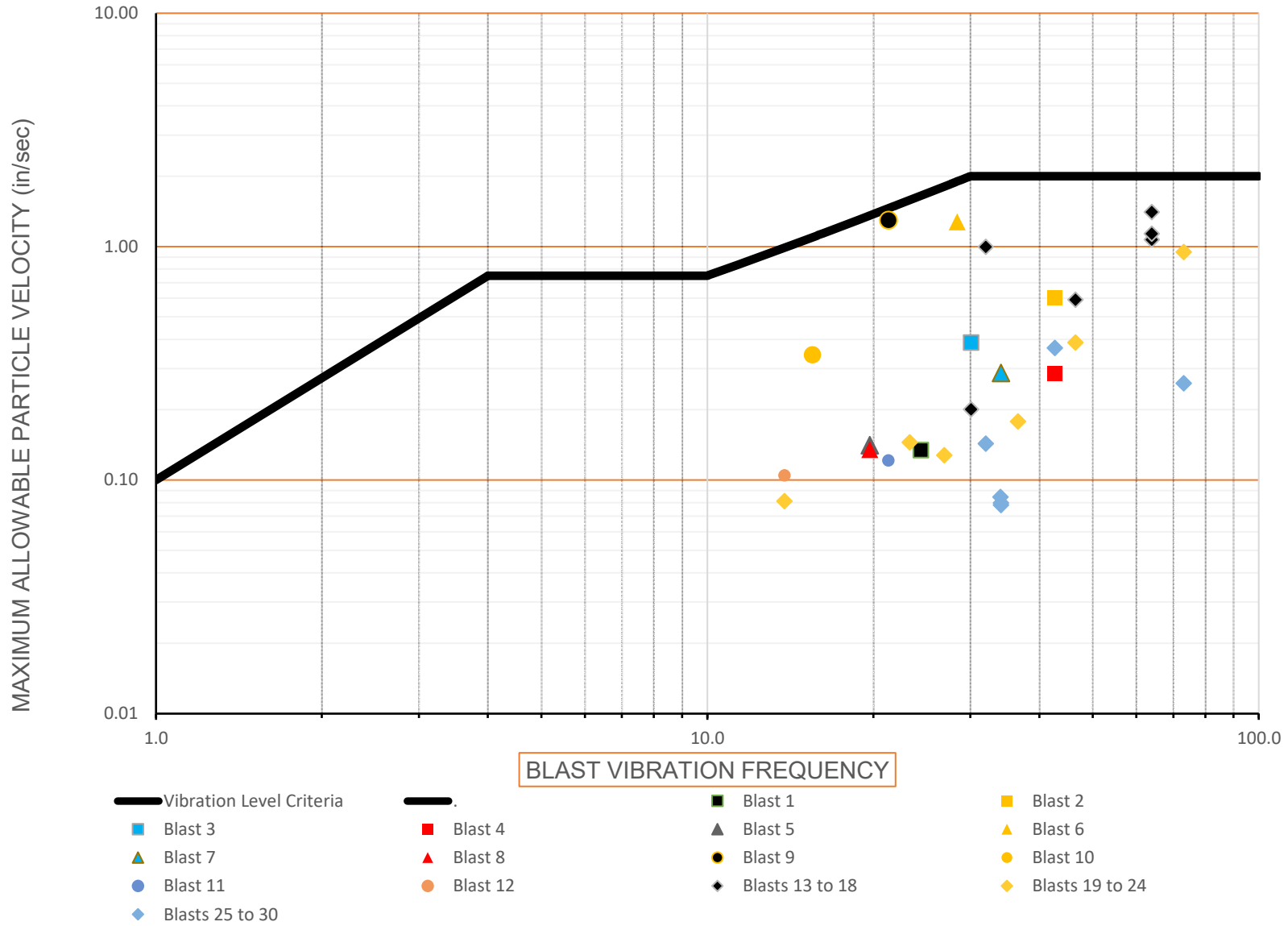
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 16 - DATA PLOT FOR 2489 LINCOLN STREET



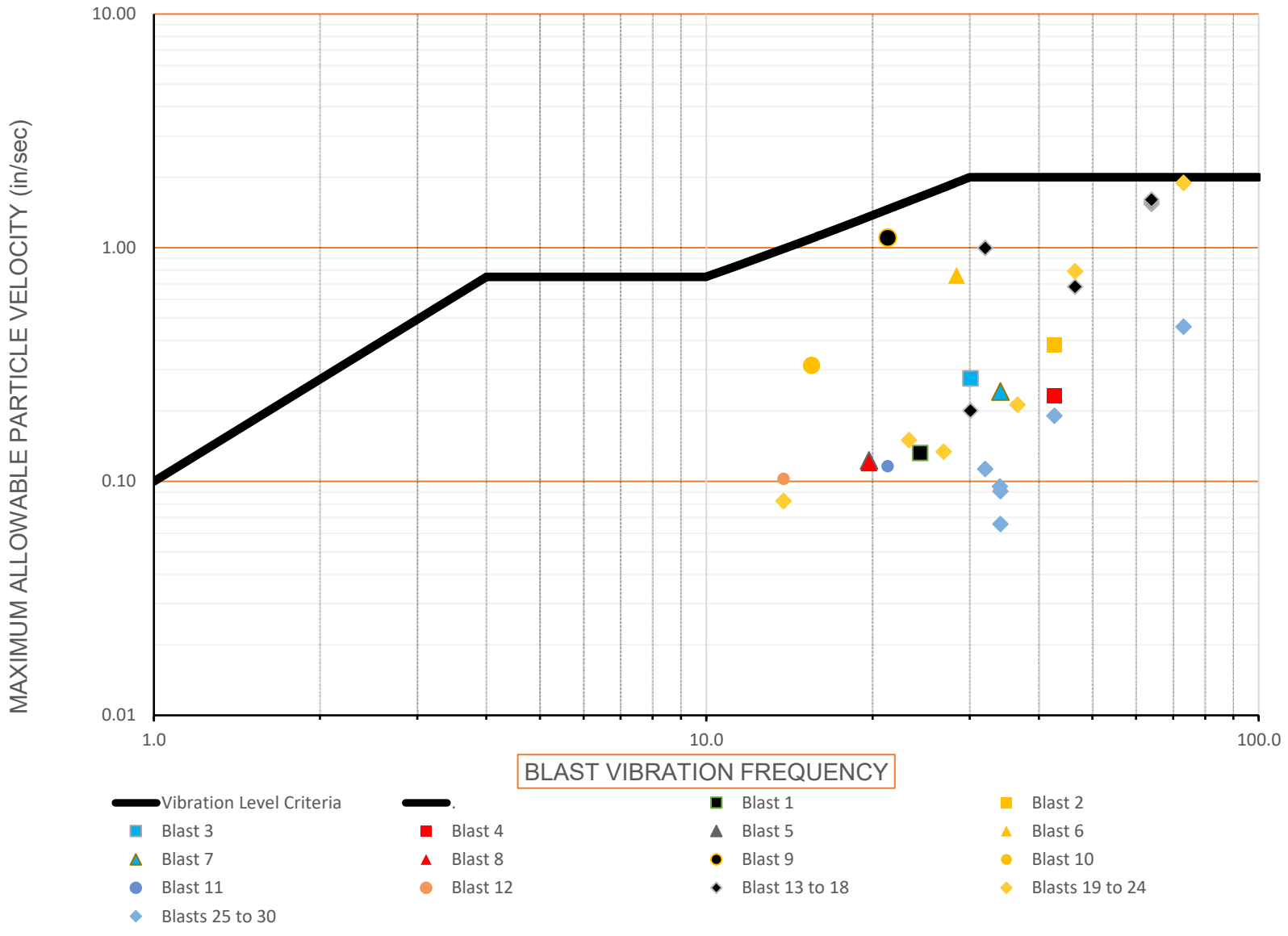
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 17 - DATA PLOT FOR 2493 LINCOLN STREET



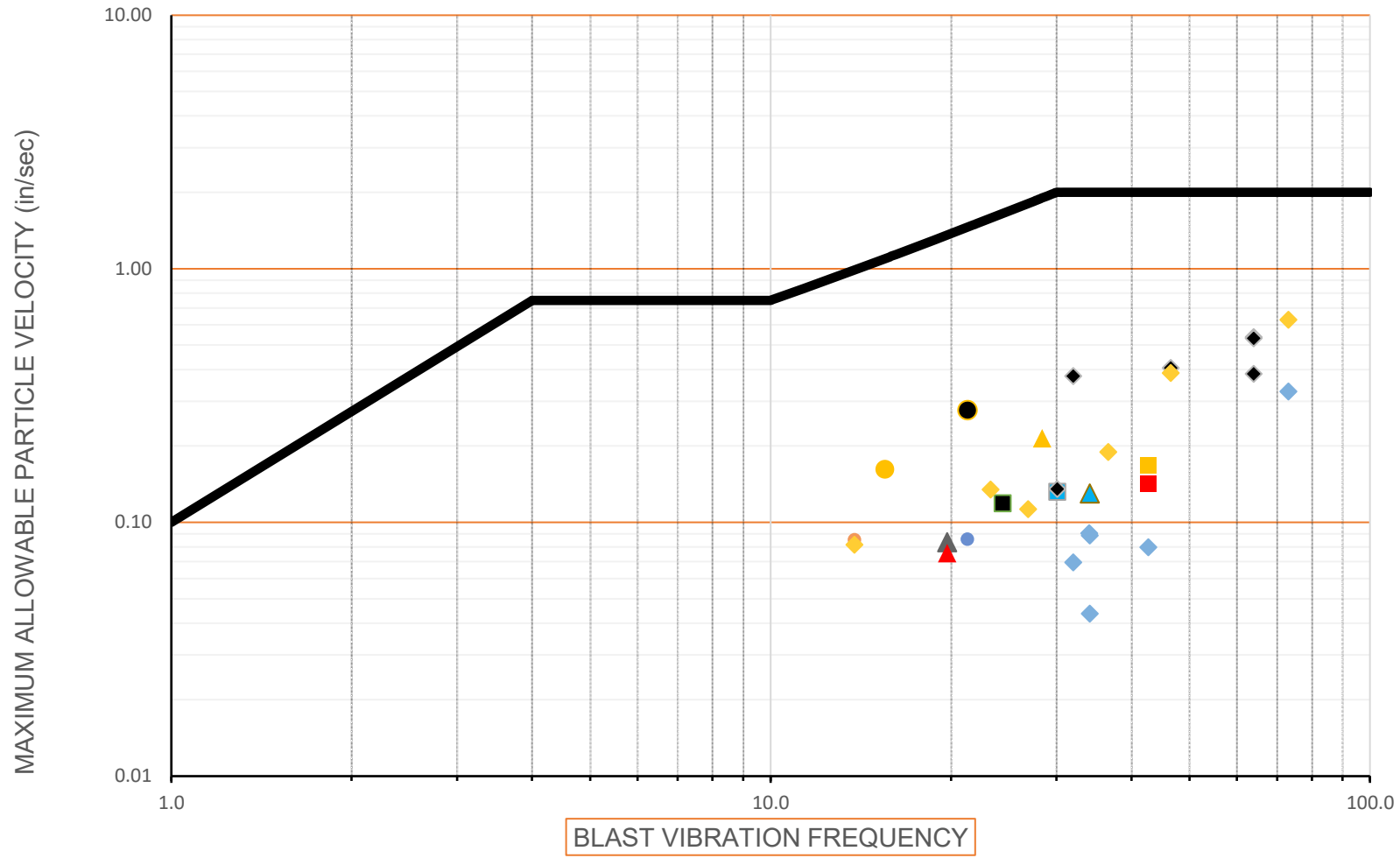
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 18 - DATA PLOT FOR 2490 LINCOLN STREET



FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 19 - DATA PLOT FOR 2495 LAWRENCE STREET

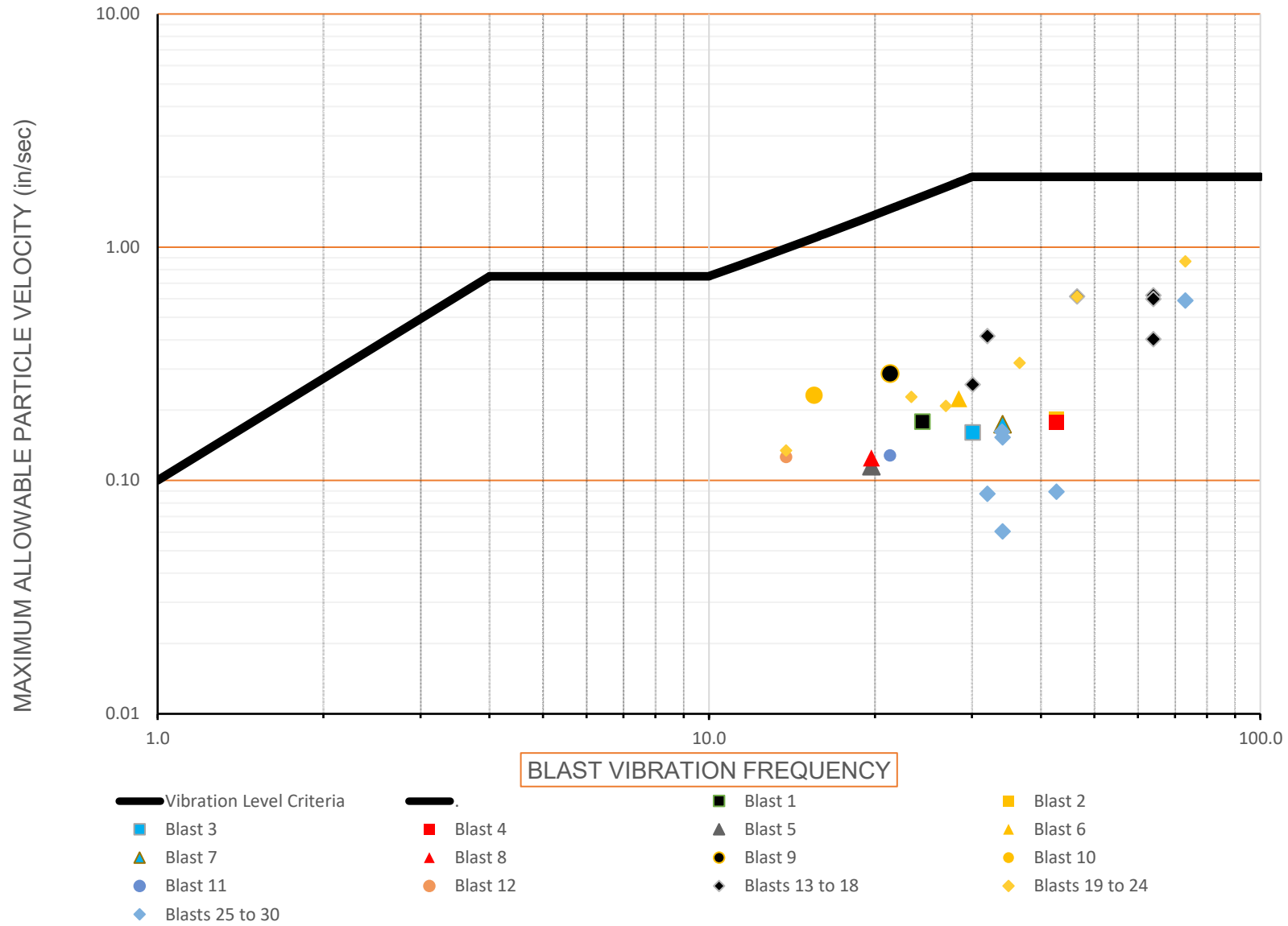


FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 20 - DATA PLOT FOR 2490 LAWRENCE STREET

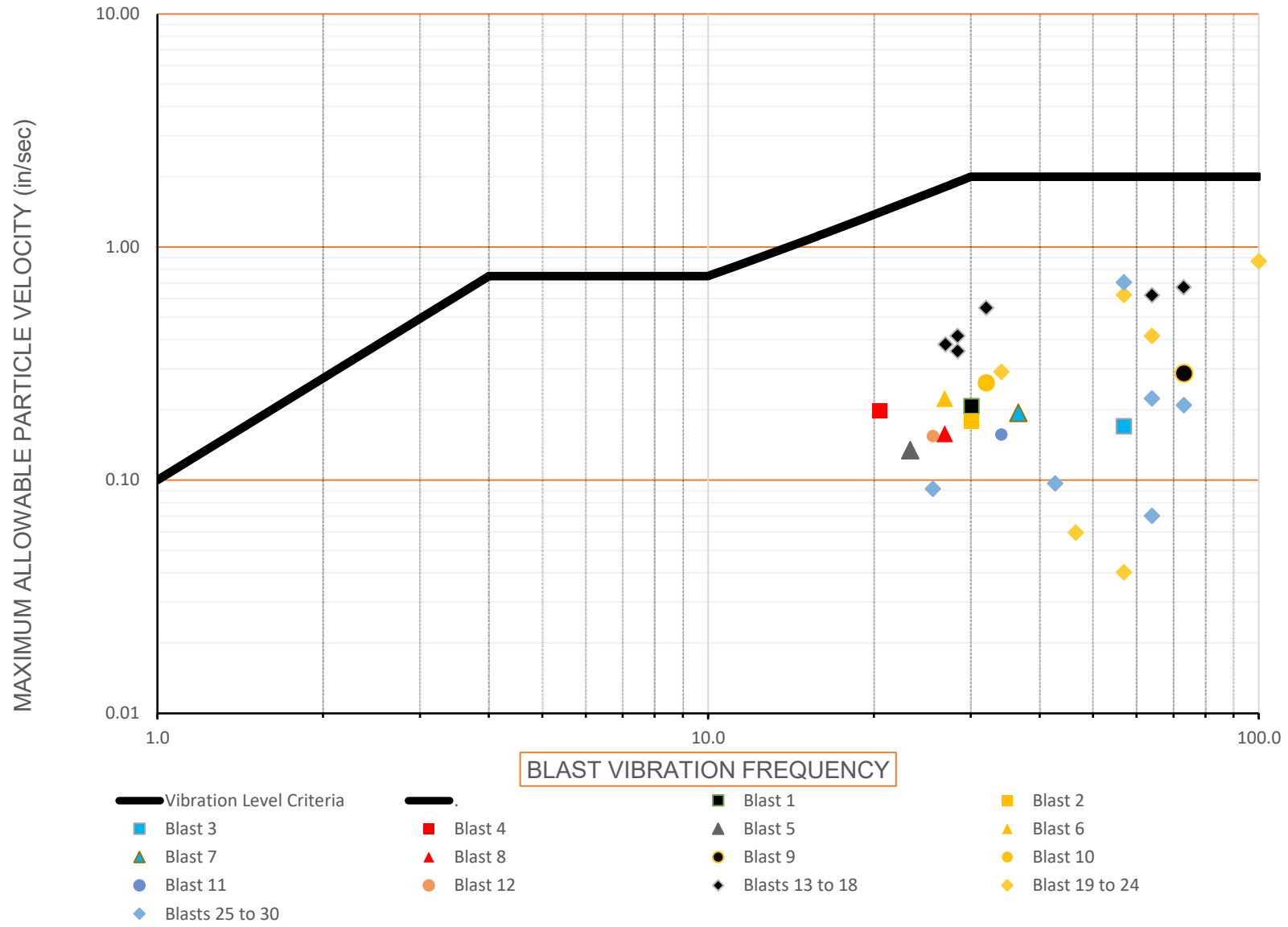


- | | | | |
|----------------------------|------------|-------------------|-------------------|
| — Vibration Level Criteria | — | ■ Blast 1 | ■ Blast 2 |
| ■ Blast 3 | ■ Blast 4 | ▲ Blast 5 | ▲ Blast 6 |
| ▲ Blast 7 | ▲ Blast 8 | ● Blast 9 | ● Blast 10 |
| ● Blast 11 | ● Blast 12 | ◆ Blasts 13 to 18 | ◆ Blasts 19 to 24 |
| ◆ Blasts 25 to 30 | | | |

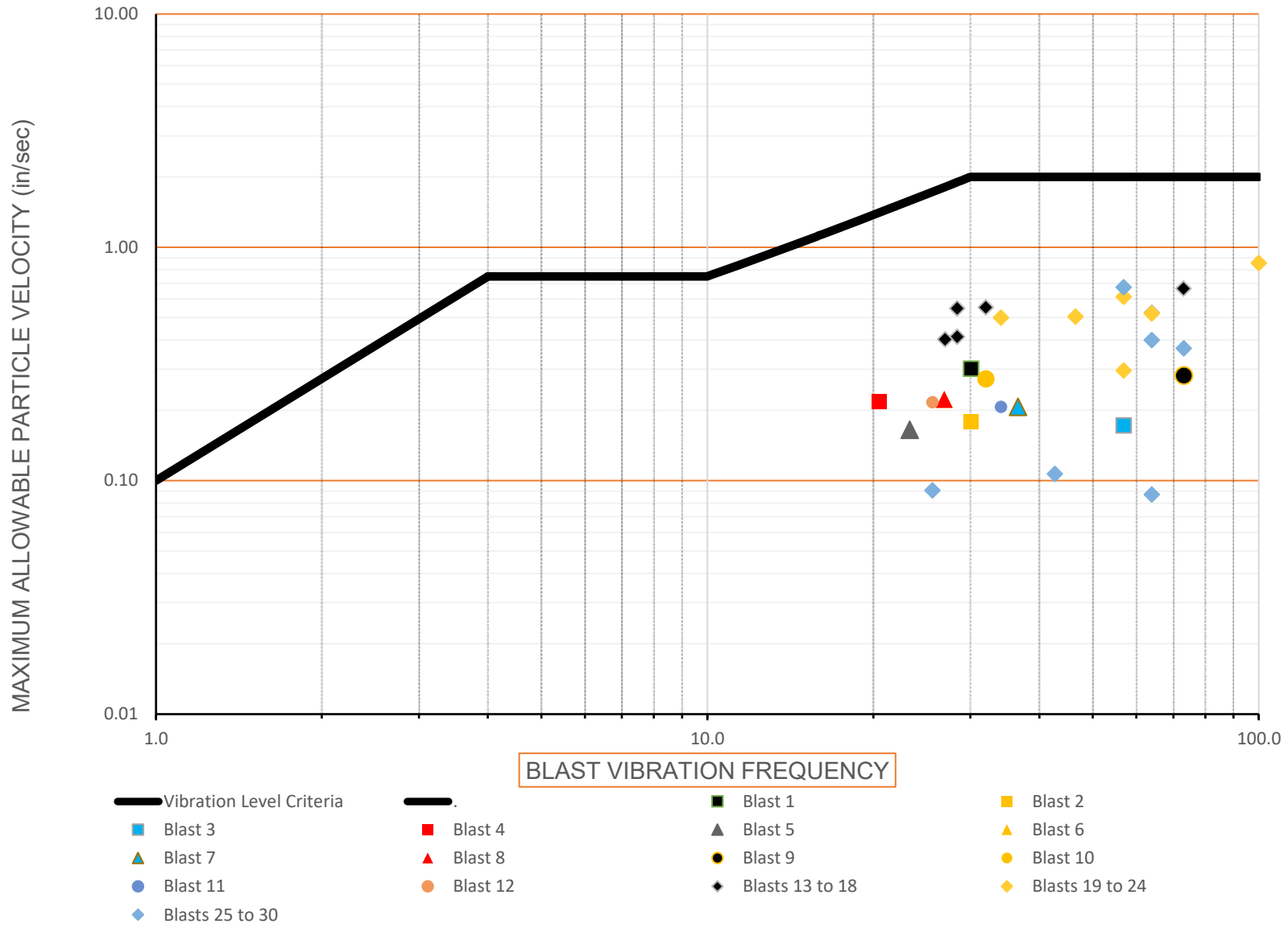
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 21 - DATA PLOT FOR 2480 LAWRENCE STREET



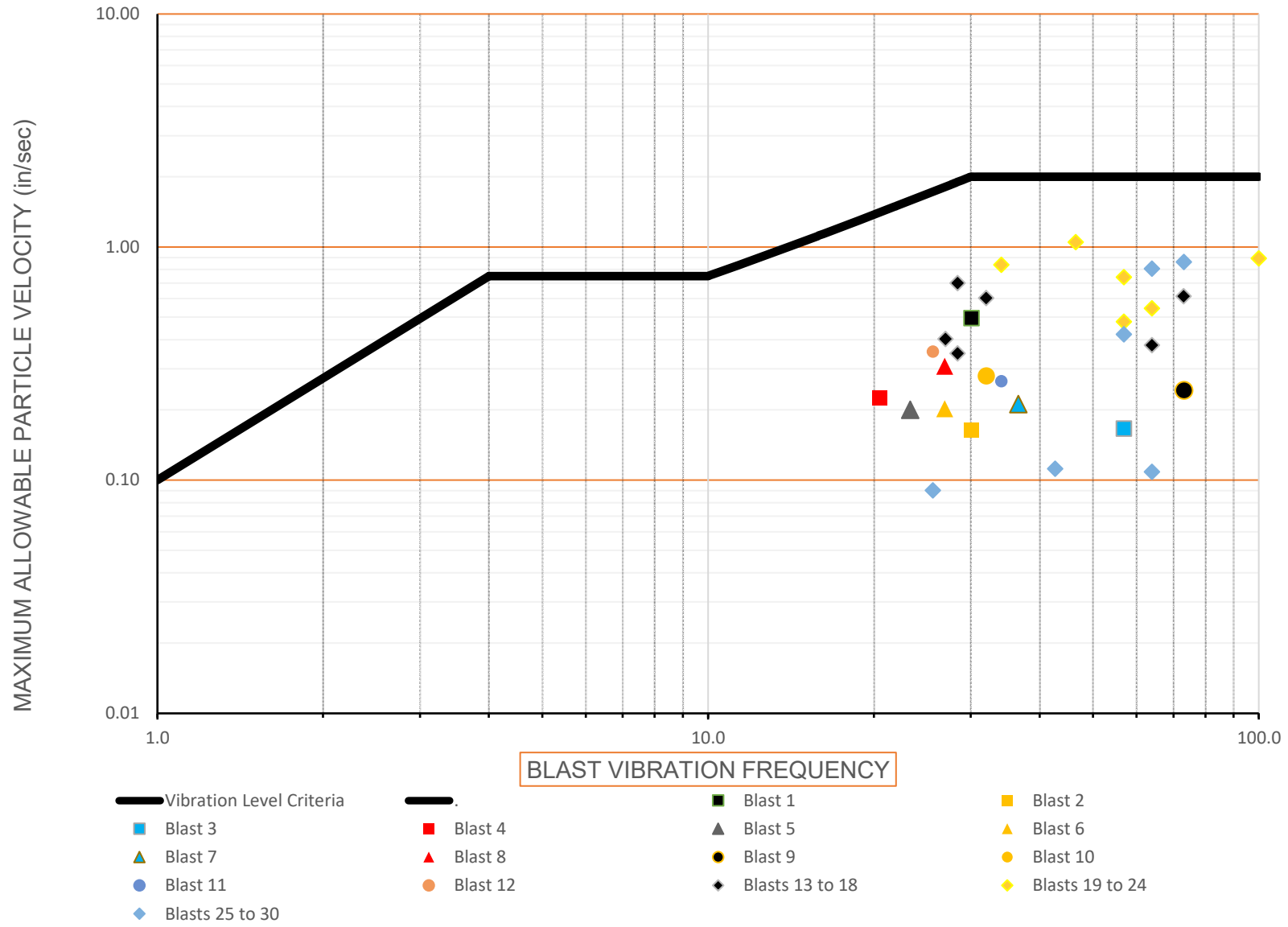
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 22 - DATA PLOT FOR 2470 LAWRENCE STREET



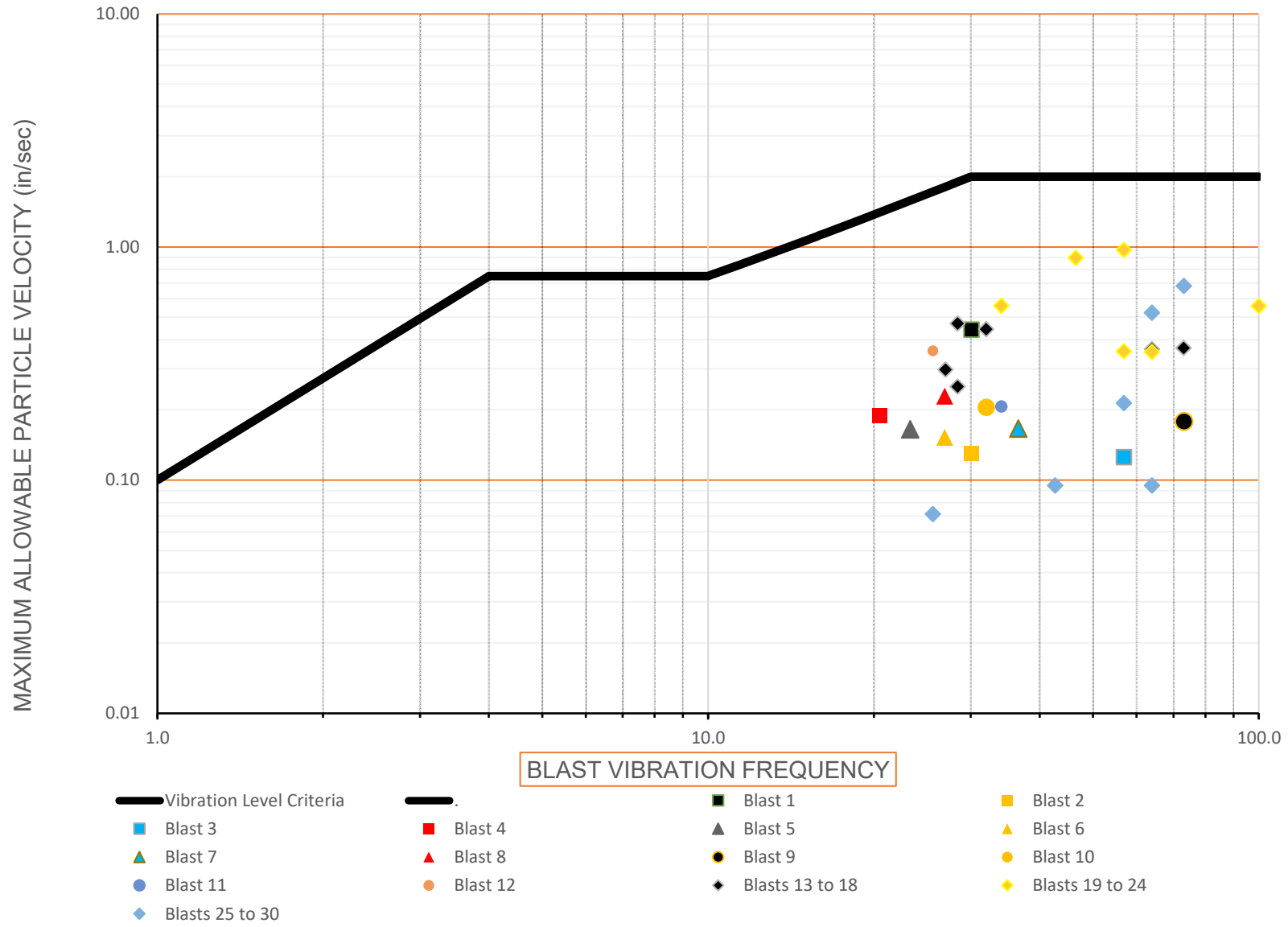
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 23 - DATA PLOT FOR 2452 LAWRENCE STREET



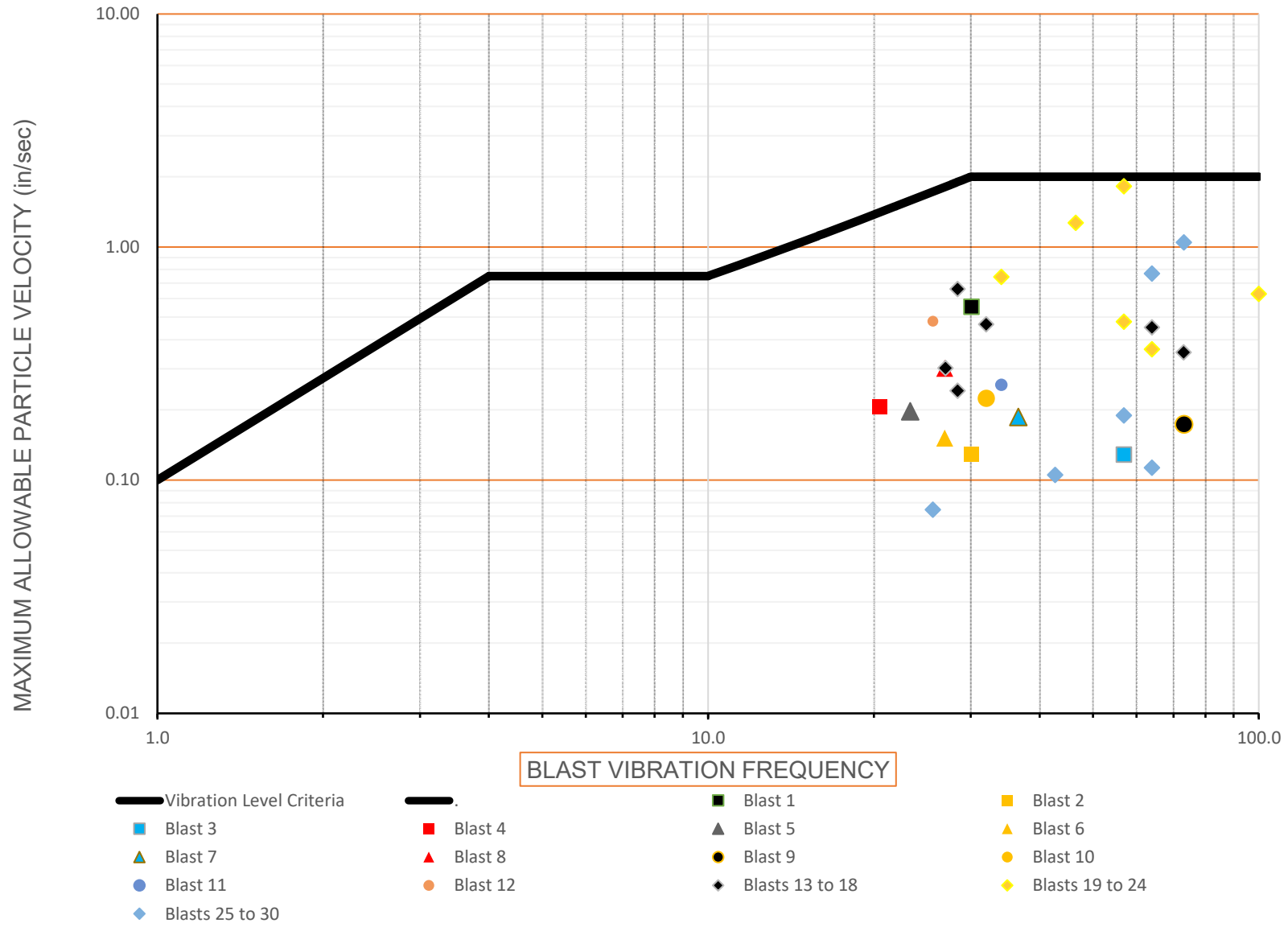
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 24 - DATA PLOT FOR 2430 LAWRENCE STREET



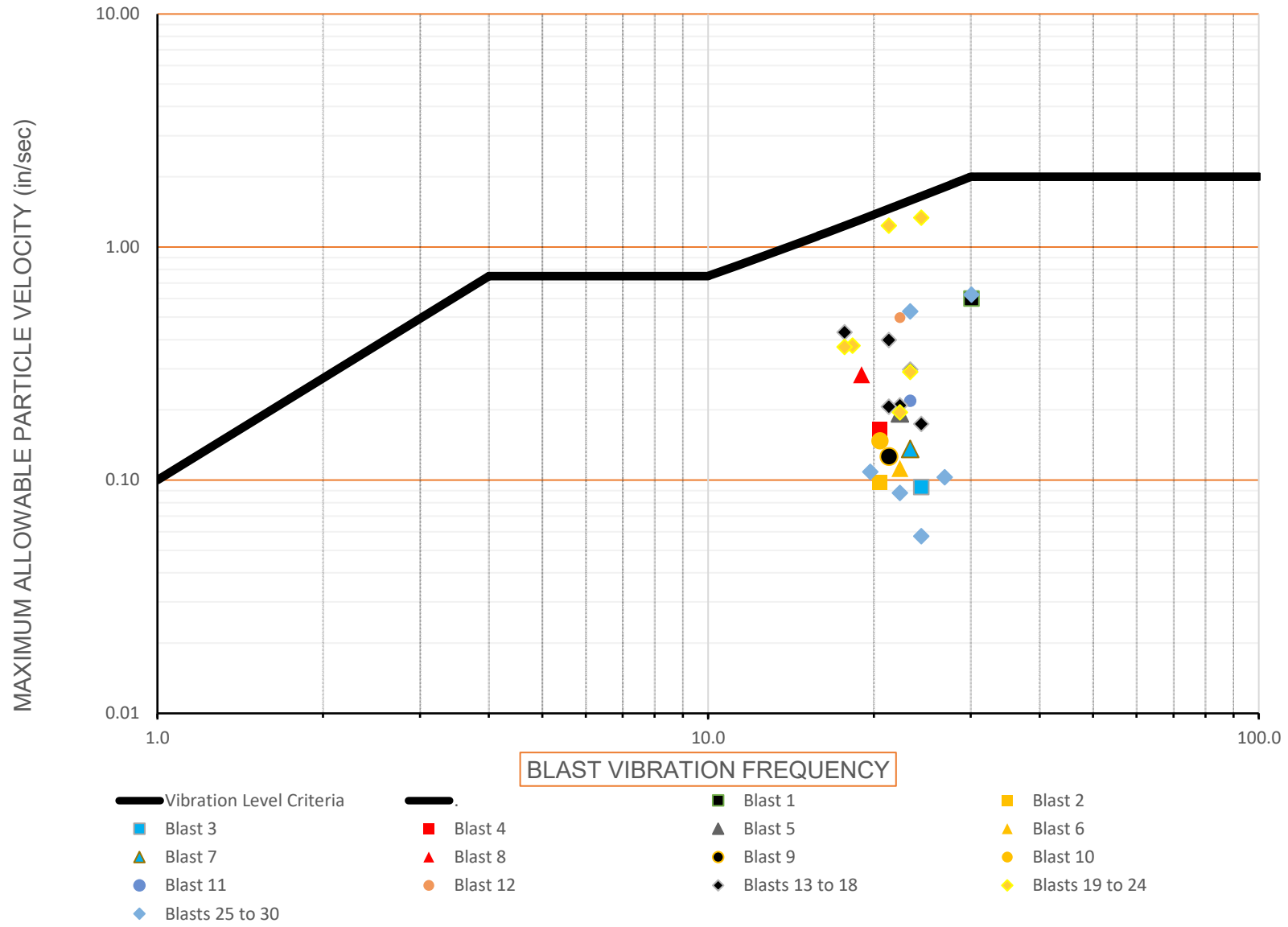
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 25 - DATA PLOT FOR 2420 LAWRENCE STREET



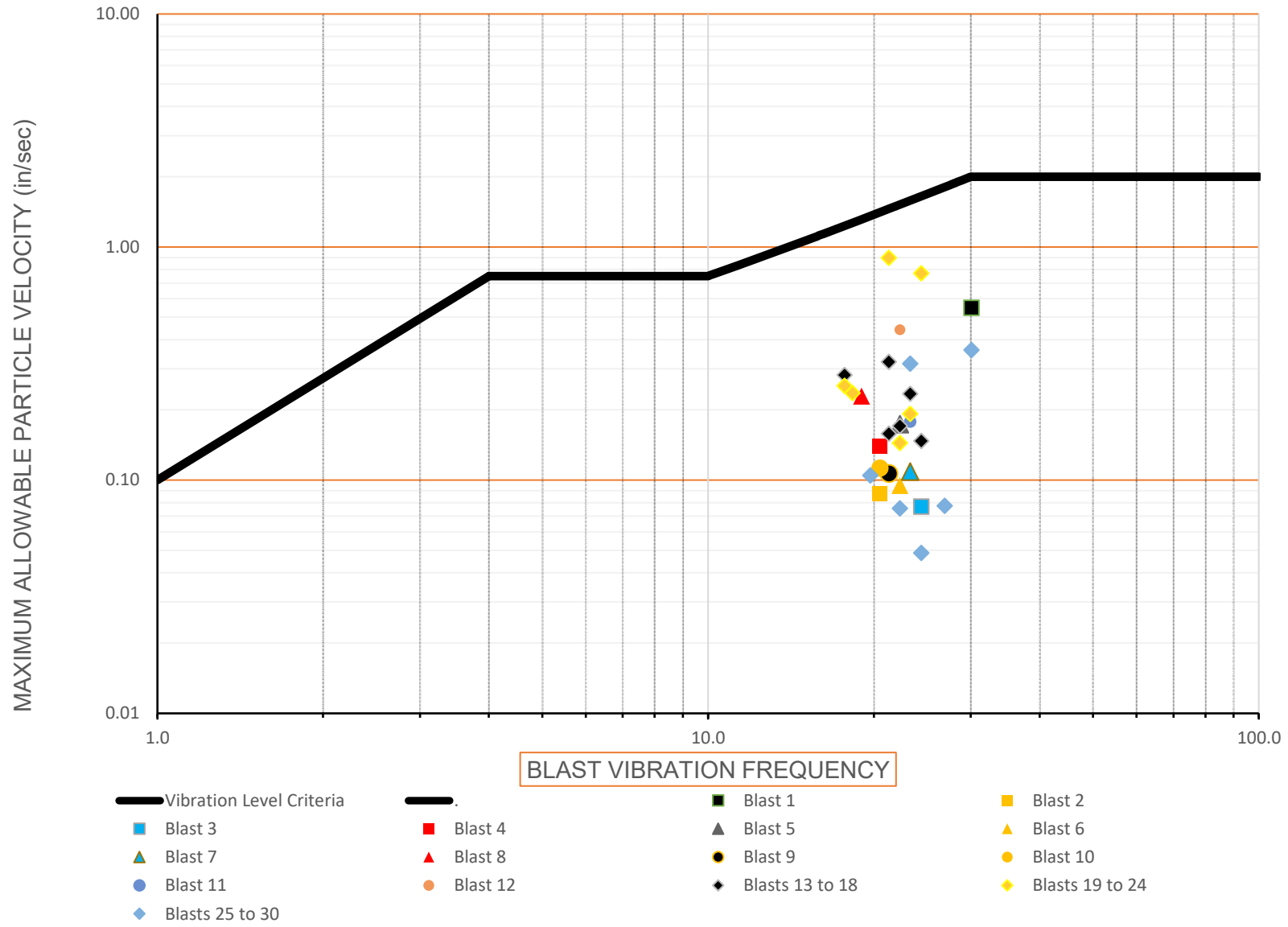
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 26 - DATA PLOT FOR 2410 LAWRENCE STREET



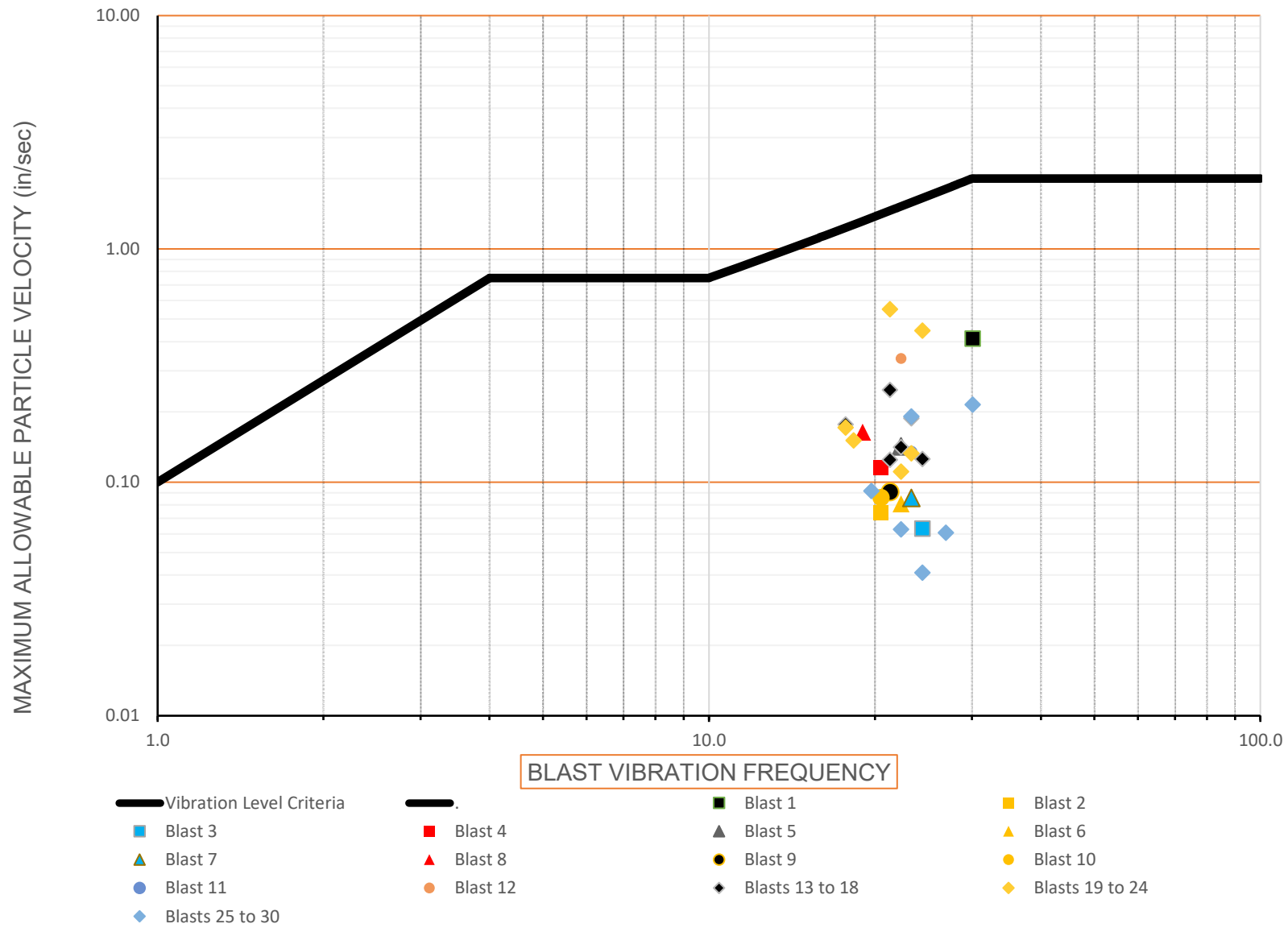
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 27 - DATA PLOT FOR 2390 LAWRENCE STREET



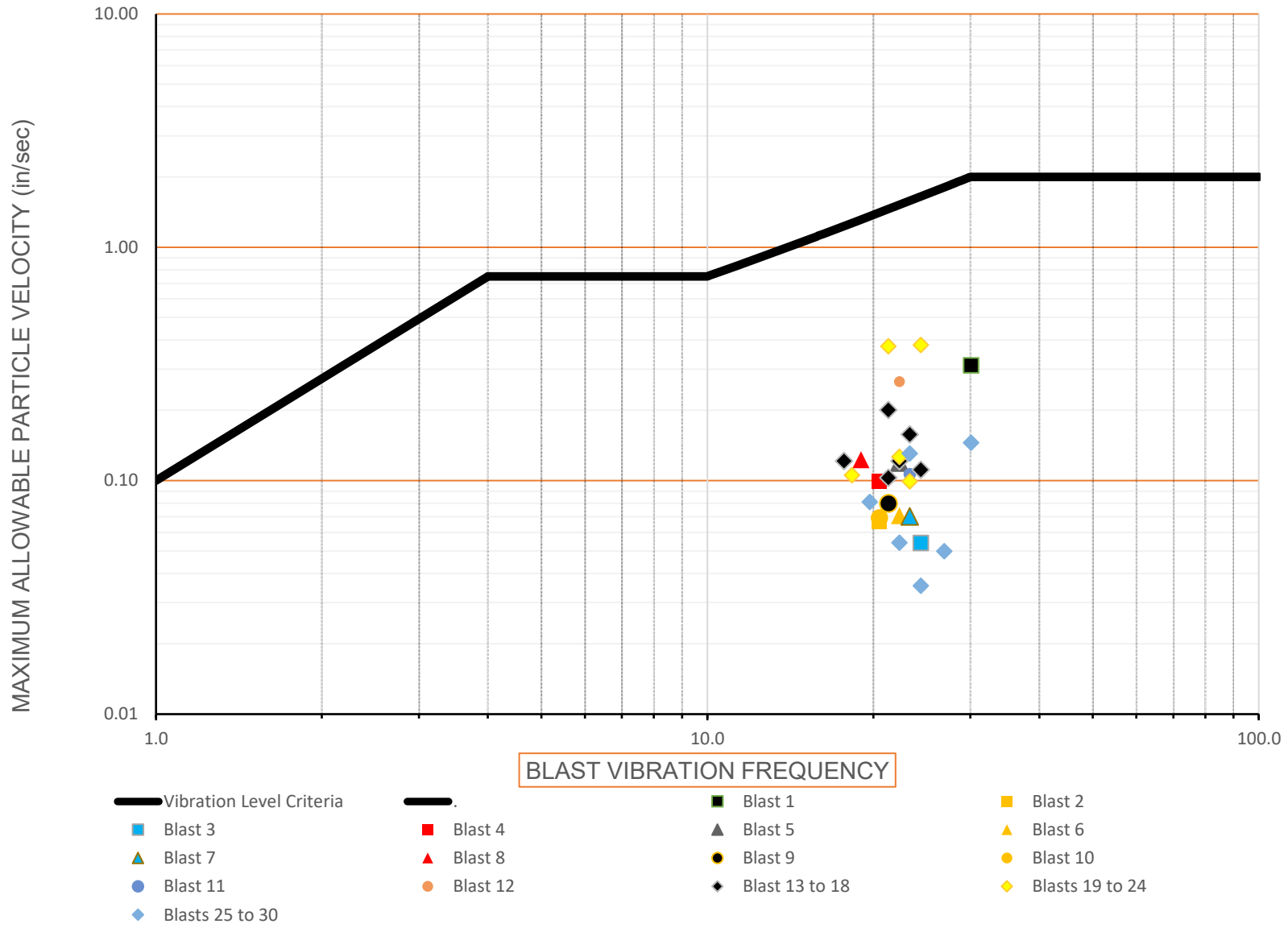
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 28 - DATA PLOT FOR 2370 LAWRENCE STREET



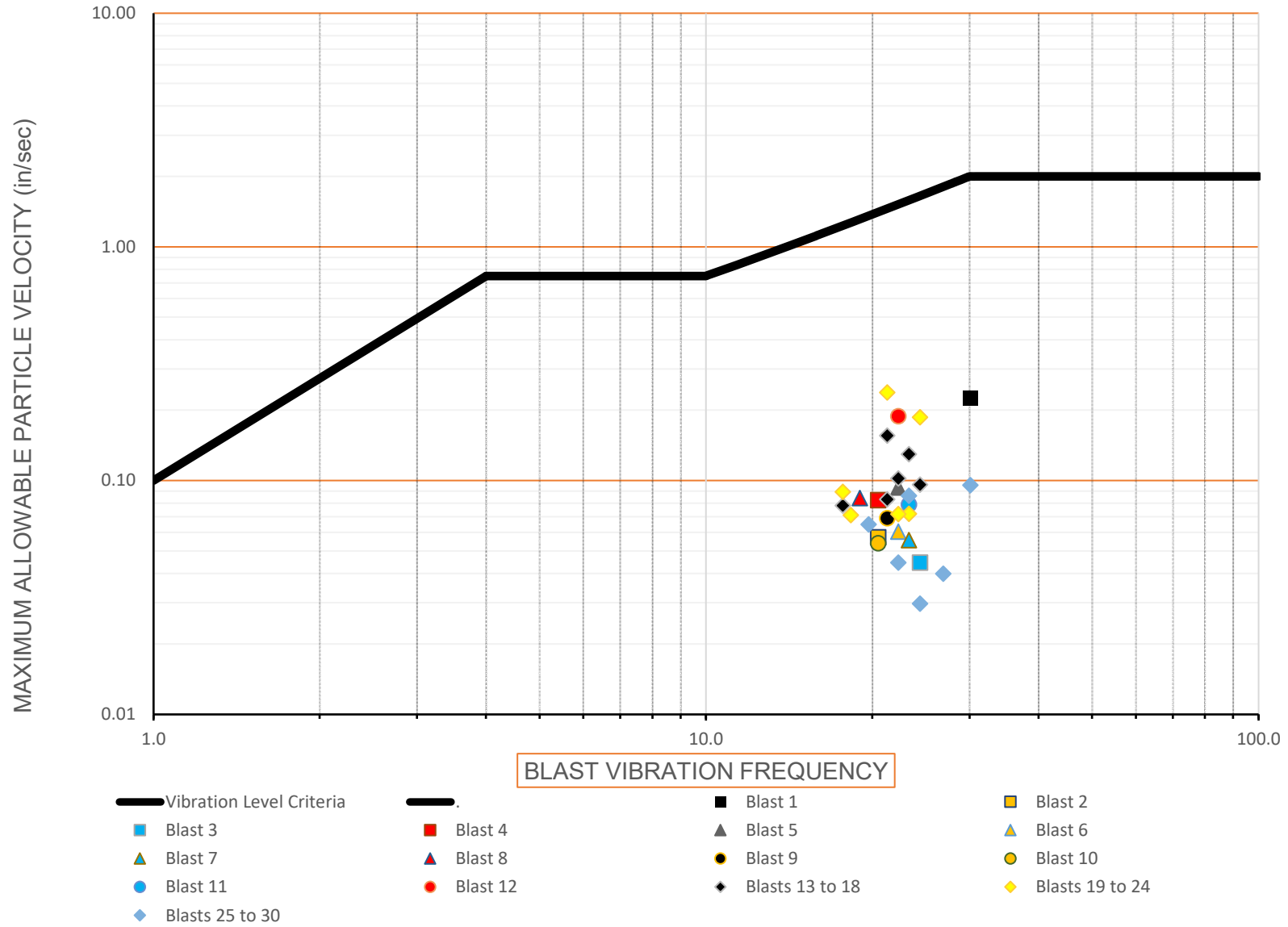
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1)
 FIGURE 29 - DATA PLOT FOR 2360 LAWRENCE STREET



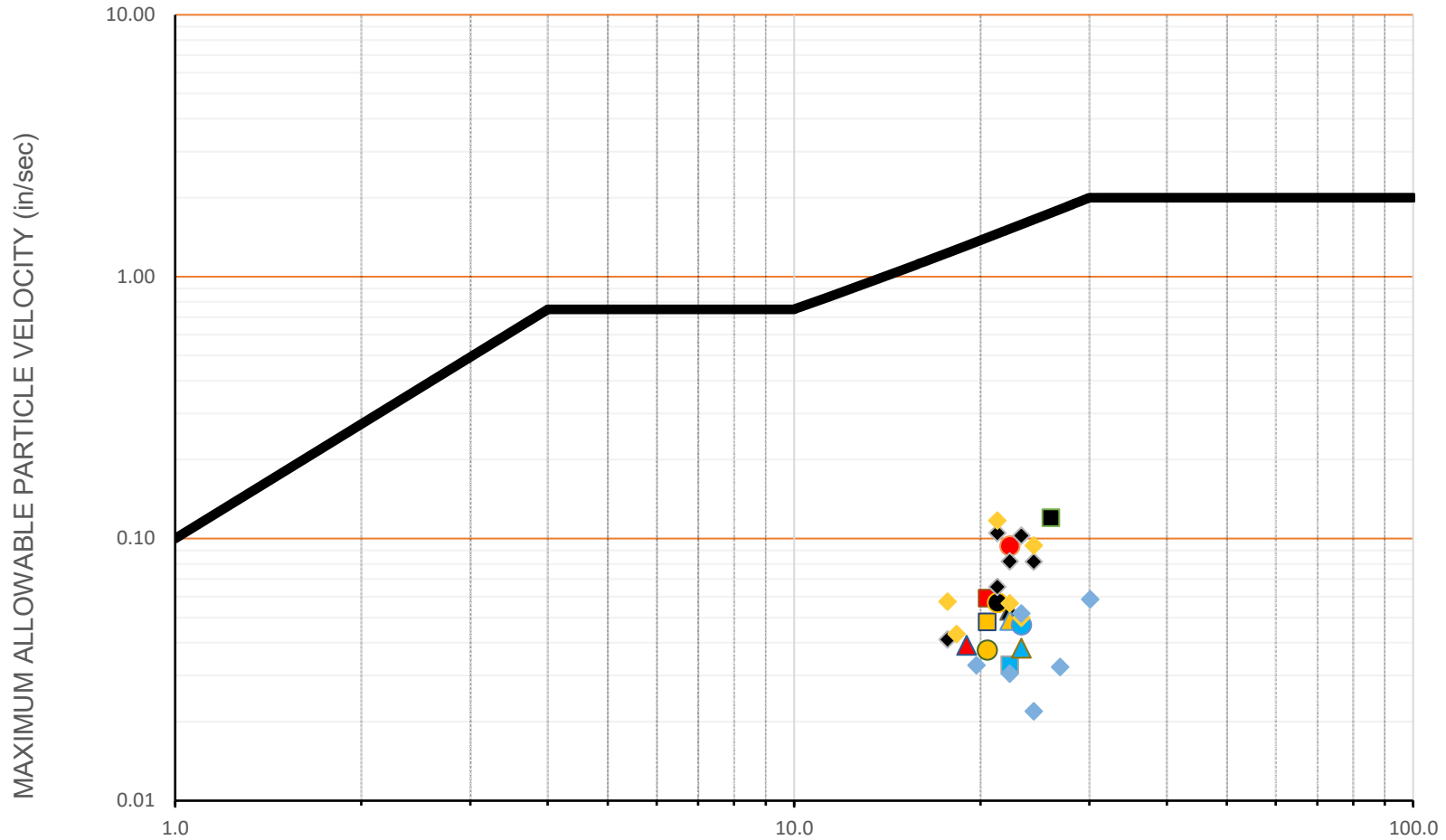
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1)
 FIGURE 30 - DATA PLOT FOR 2366 LAWRENCE STREET



FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1)
 FIGURE 31 - DATA PLOT FOR 408 West 23rd STREET



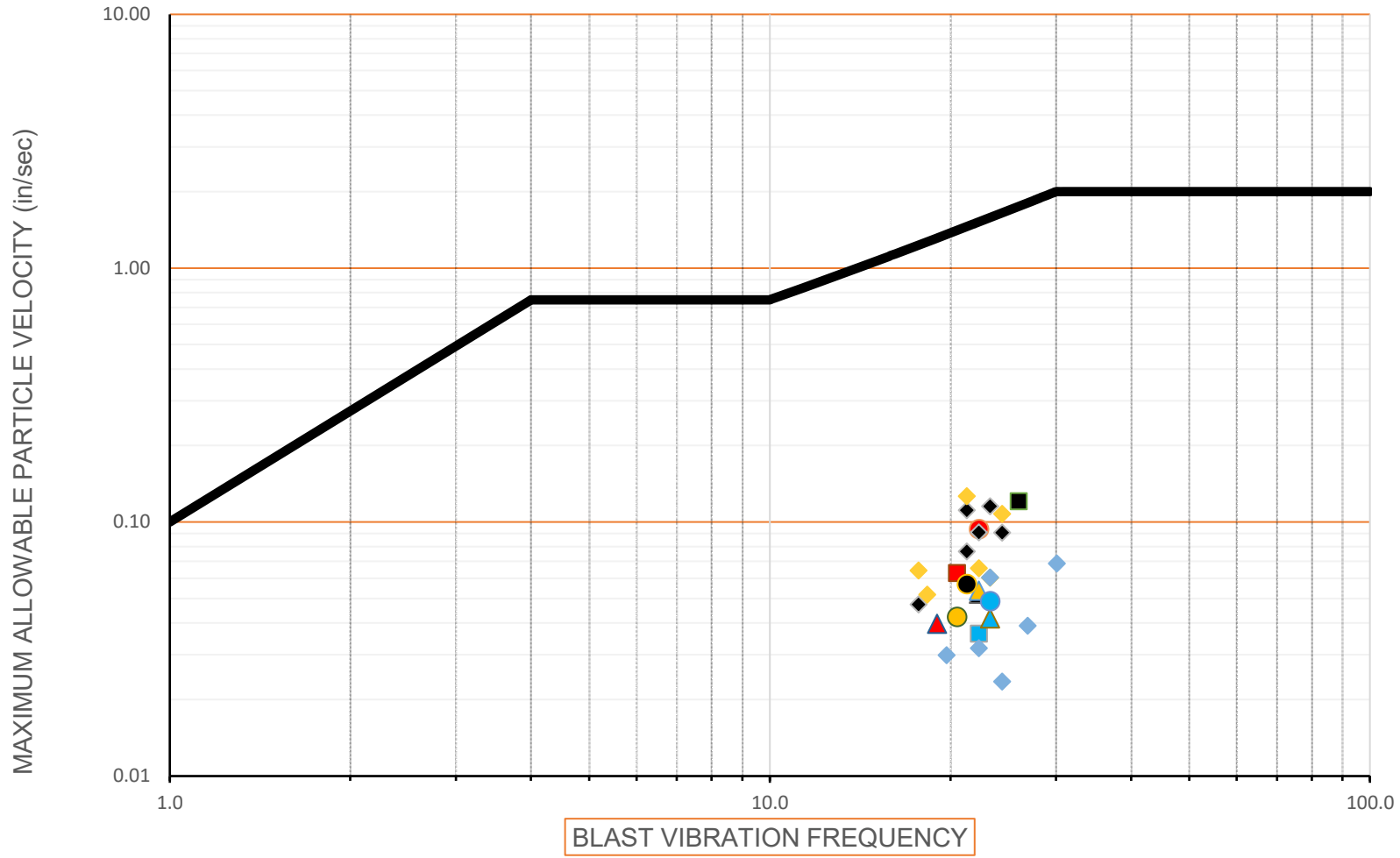
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 32 - DATA PLOT FOR 424 W23rd STREET



BLAST VIBRATION FREQUENCY

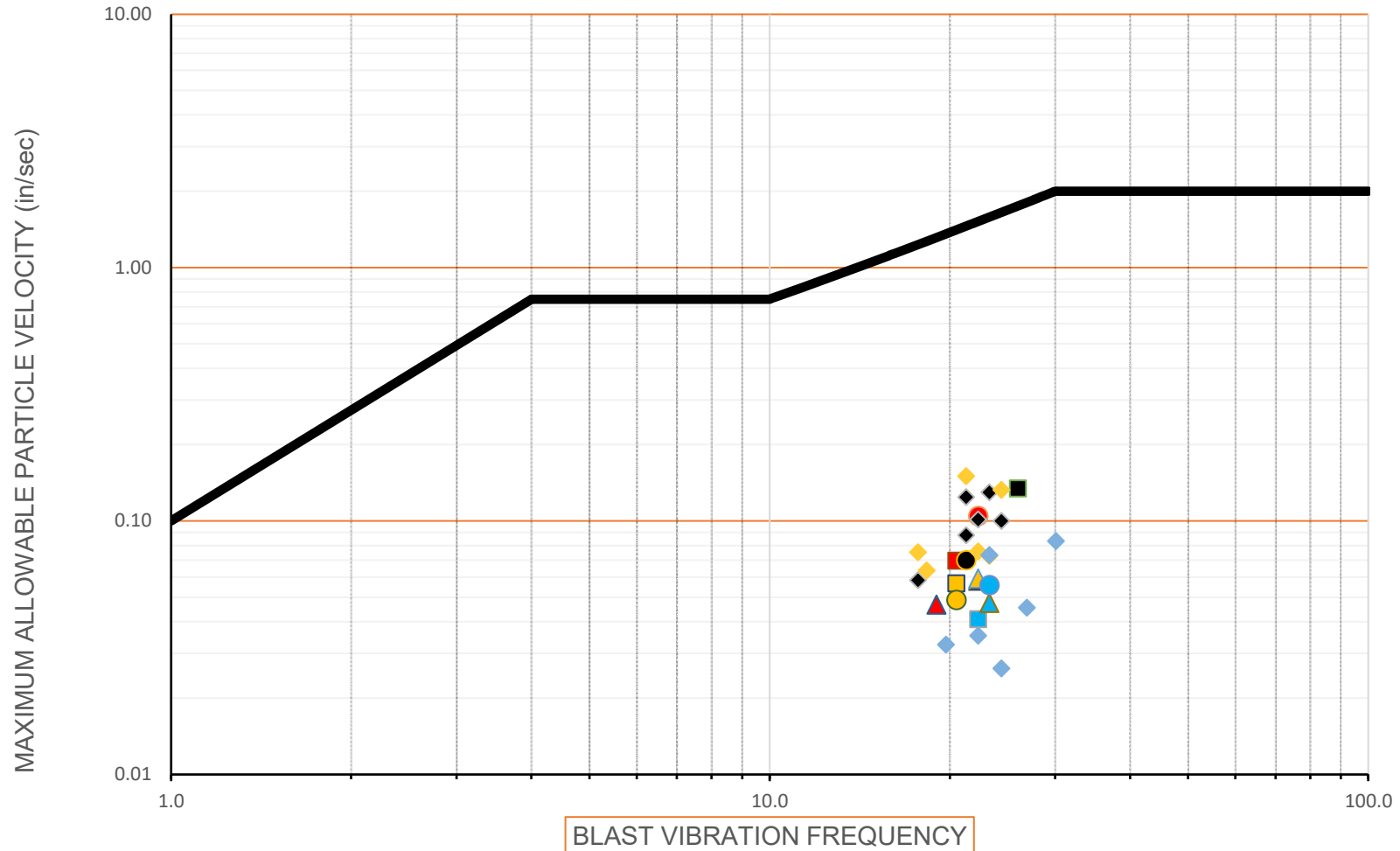
- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 33 - DATA PLOT FOR 2355 WASHINGTON STREET



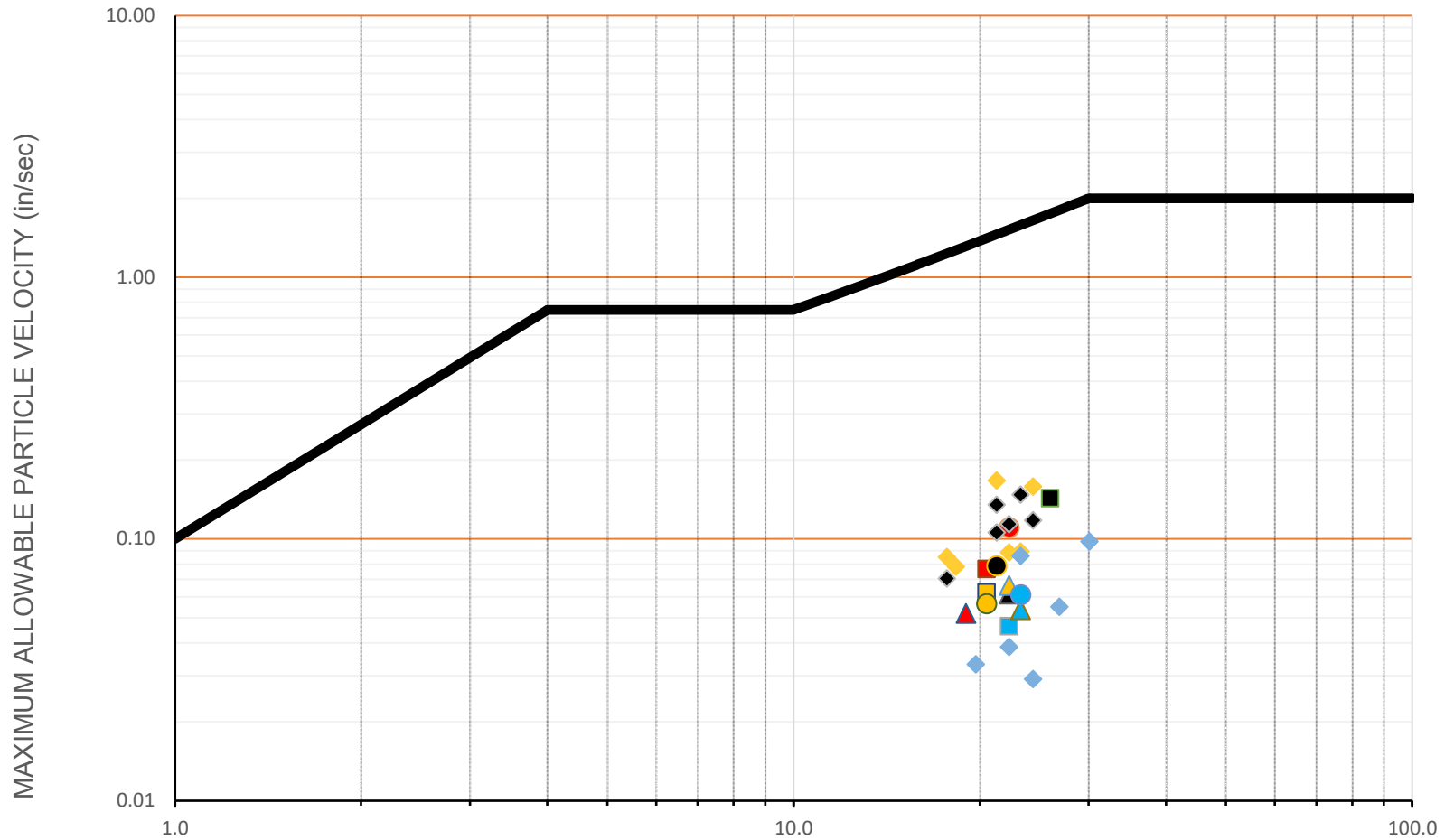
- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 34 - DATA PLOT FOR 2373 WASHINGTON STREET



- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

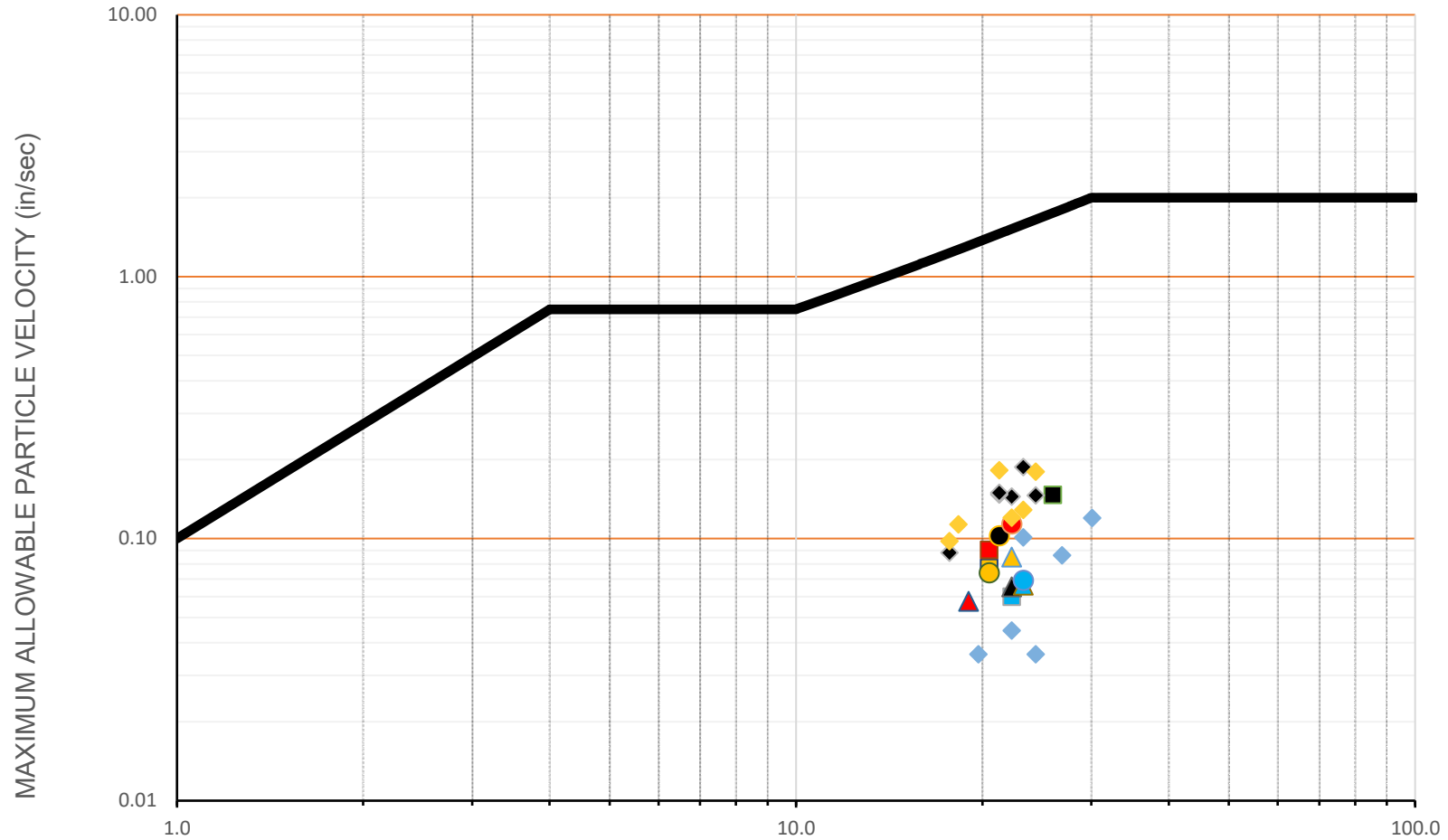
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 35 - DATA PLOT FOR 2383 WASHINGTON STREET



BLAST VIBRATION FREQUENCY

- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

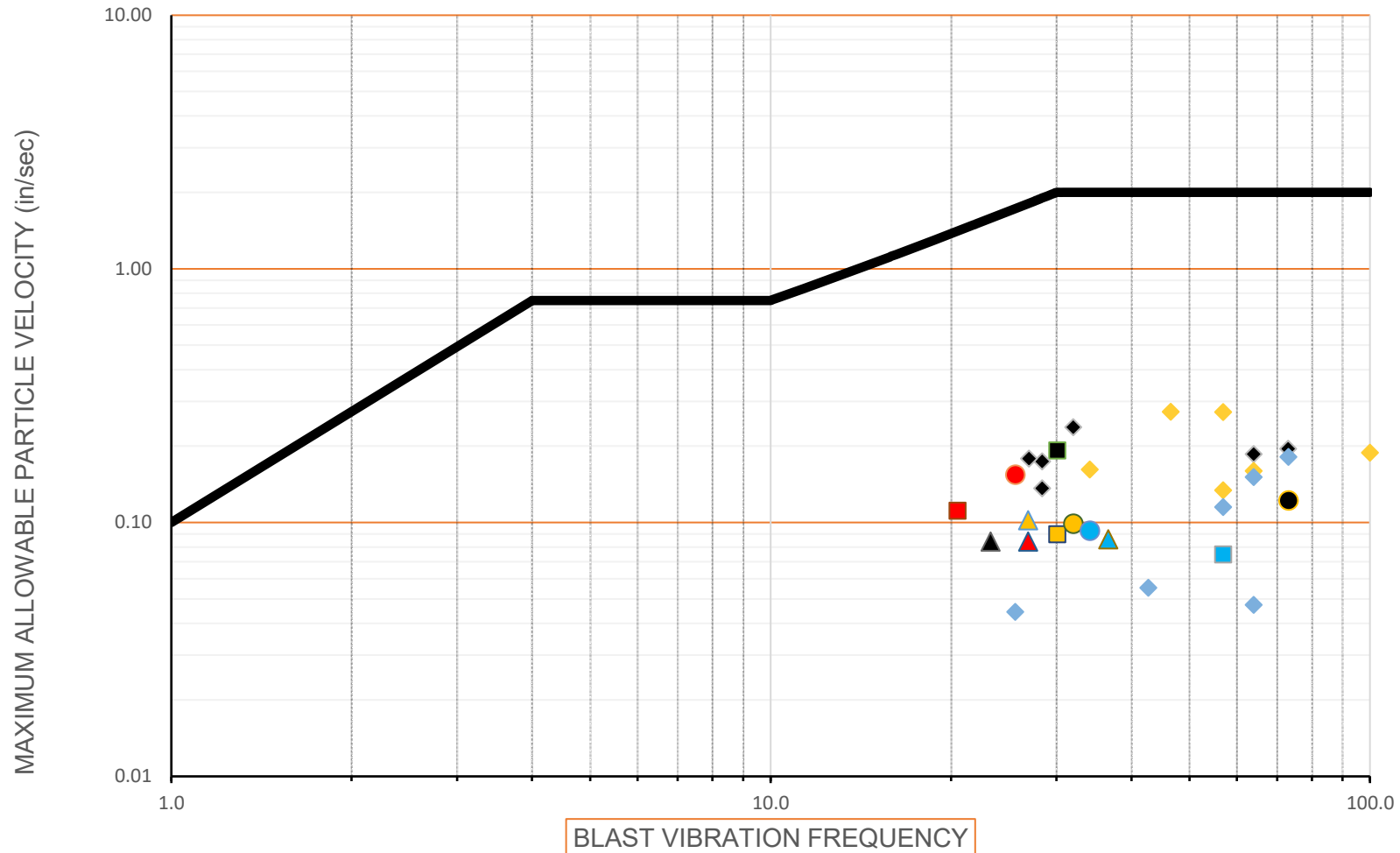
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 36 - DATA PLOT FOR 2421 WASHINGTON STREET



BLAST VIBRATION FREQUENCY

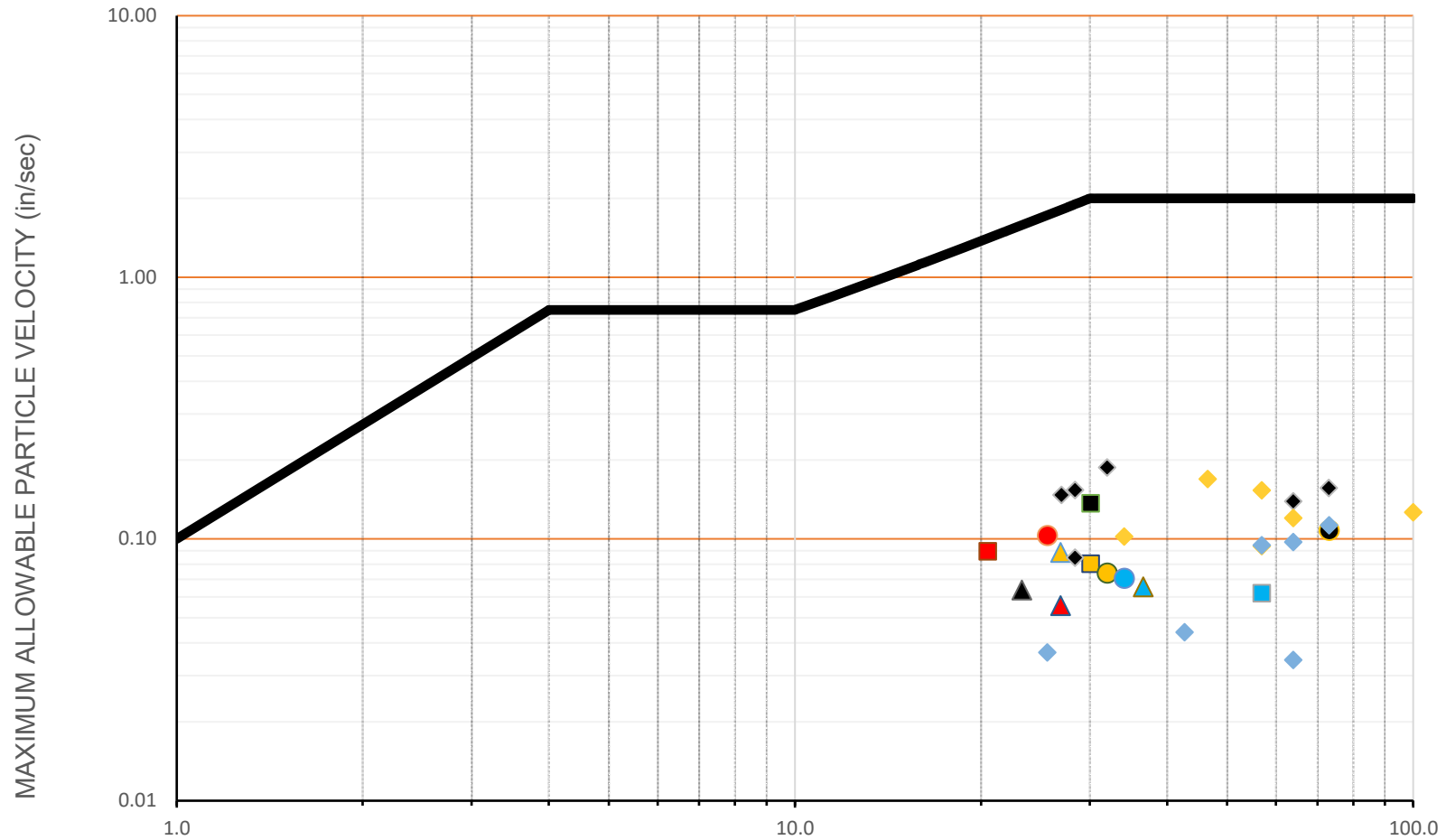
- | | | | |
|----------------------------|------------|-------------------|-------------------|
| — Vibration Level Criteria | — | ■ Blast 1 | ■ Blast 2 |
| ■ Blast 3 | ■ Blast 4 | ▲ Blast 5 | ▲ Blast 6 |
| ▲ Blast 7 | ▲ Blast 8 | ● Blast 9 | ● Blast 10 |
| ● Blast 11 | ● Blast 12 | ◆ Blasts 13 to 18 | ◆ Blasts 19 to 24 |
| ◆ Blasts 25 to 30 | | | |

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 37 - DATA PLOT FOR 2406 LAWRENCE STREET



- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | Blast 4 | Blast 1 | Blast 2 |
| Blast 3 | Blast 8 | Blast 5 | Blast 6 |
| Blast 7 | Blast 12 | Blast 9 | Blast 10 |
| Blast 11 | | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

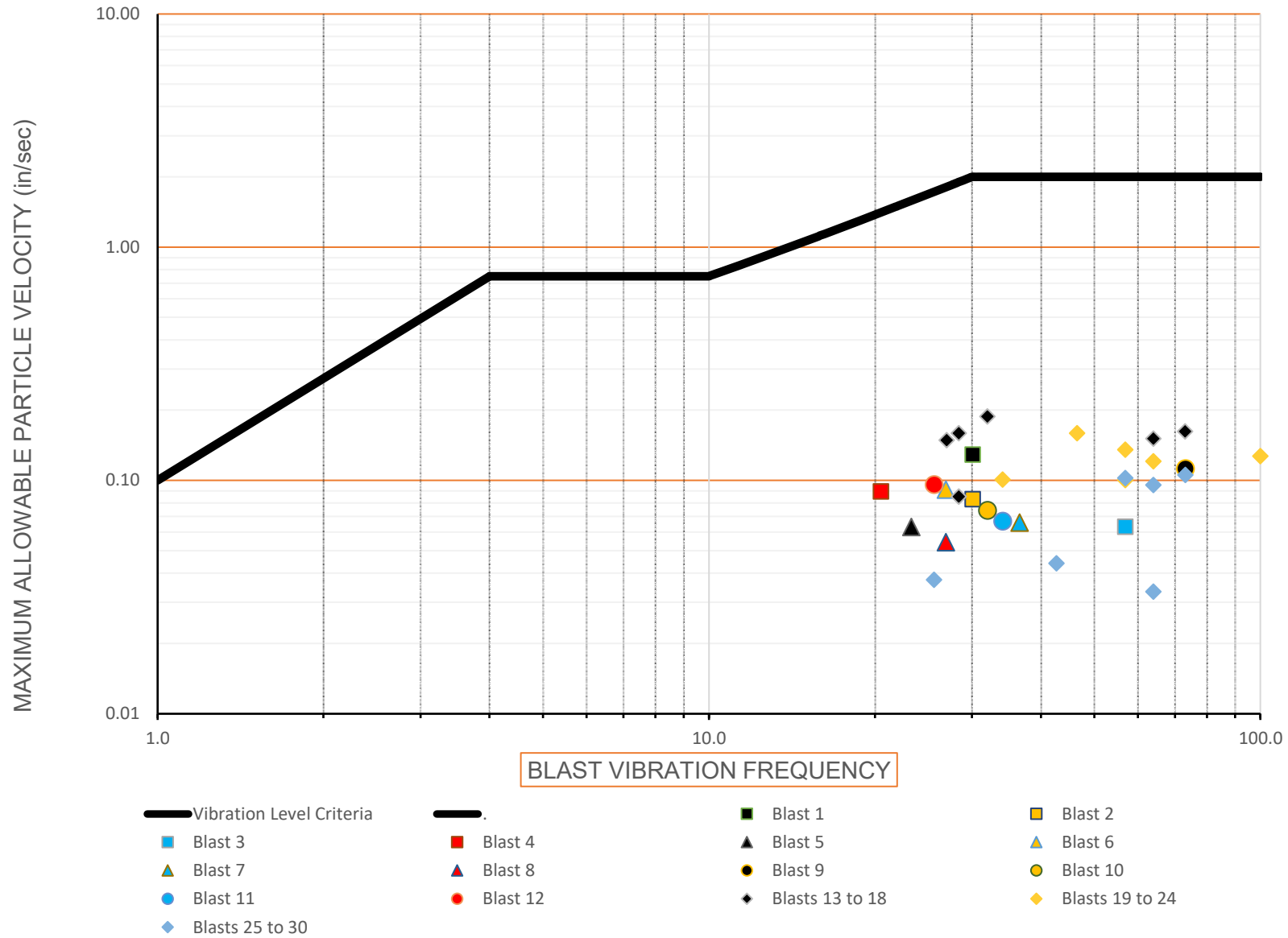
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 38 - DATA PLOT FOR 2431 WASHINGTON STREET



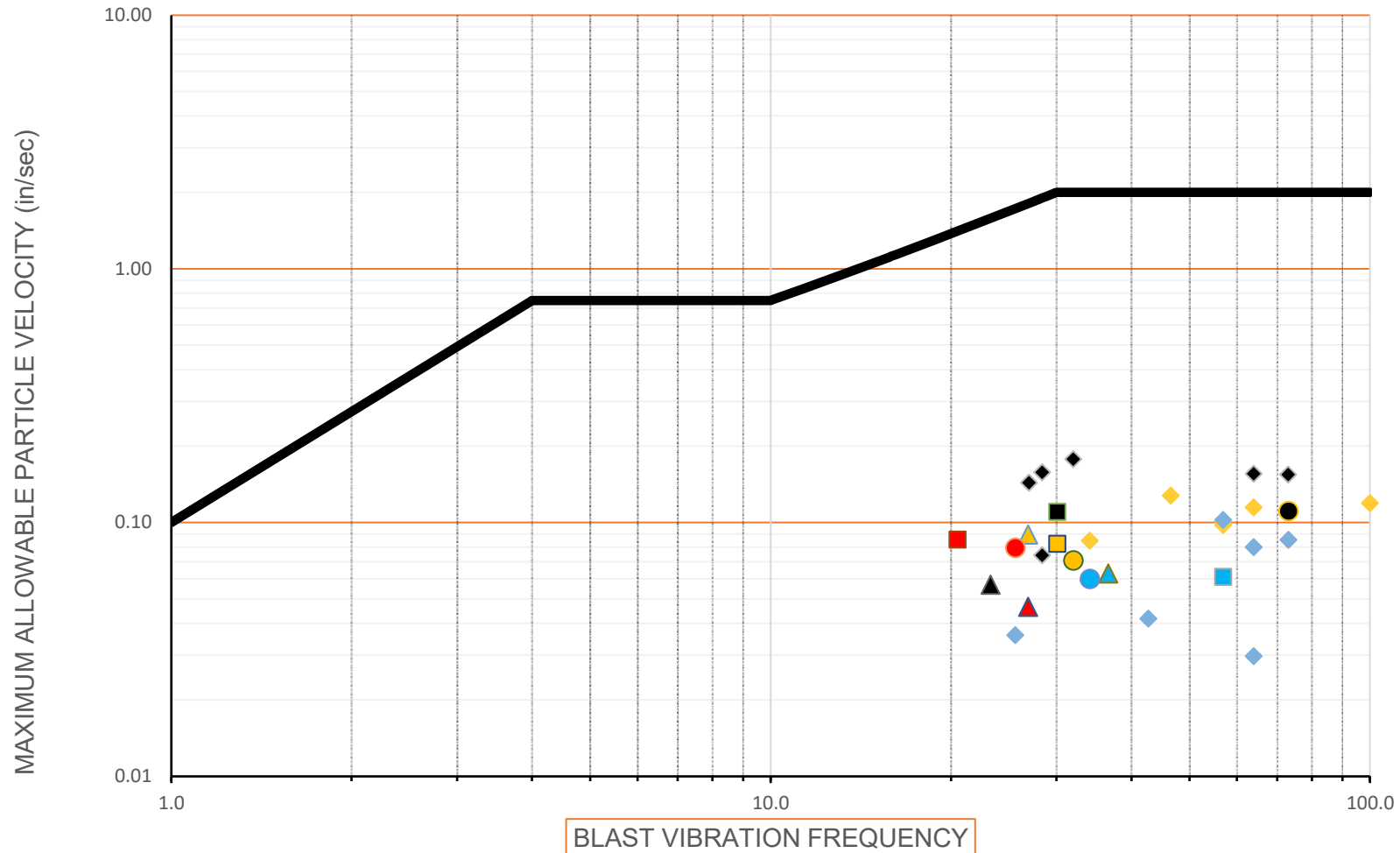
BLAST VIBRATION FREQUENCY

- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 39 - DATA PLOT FOR 2437 WASHINGTON STREET

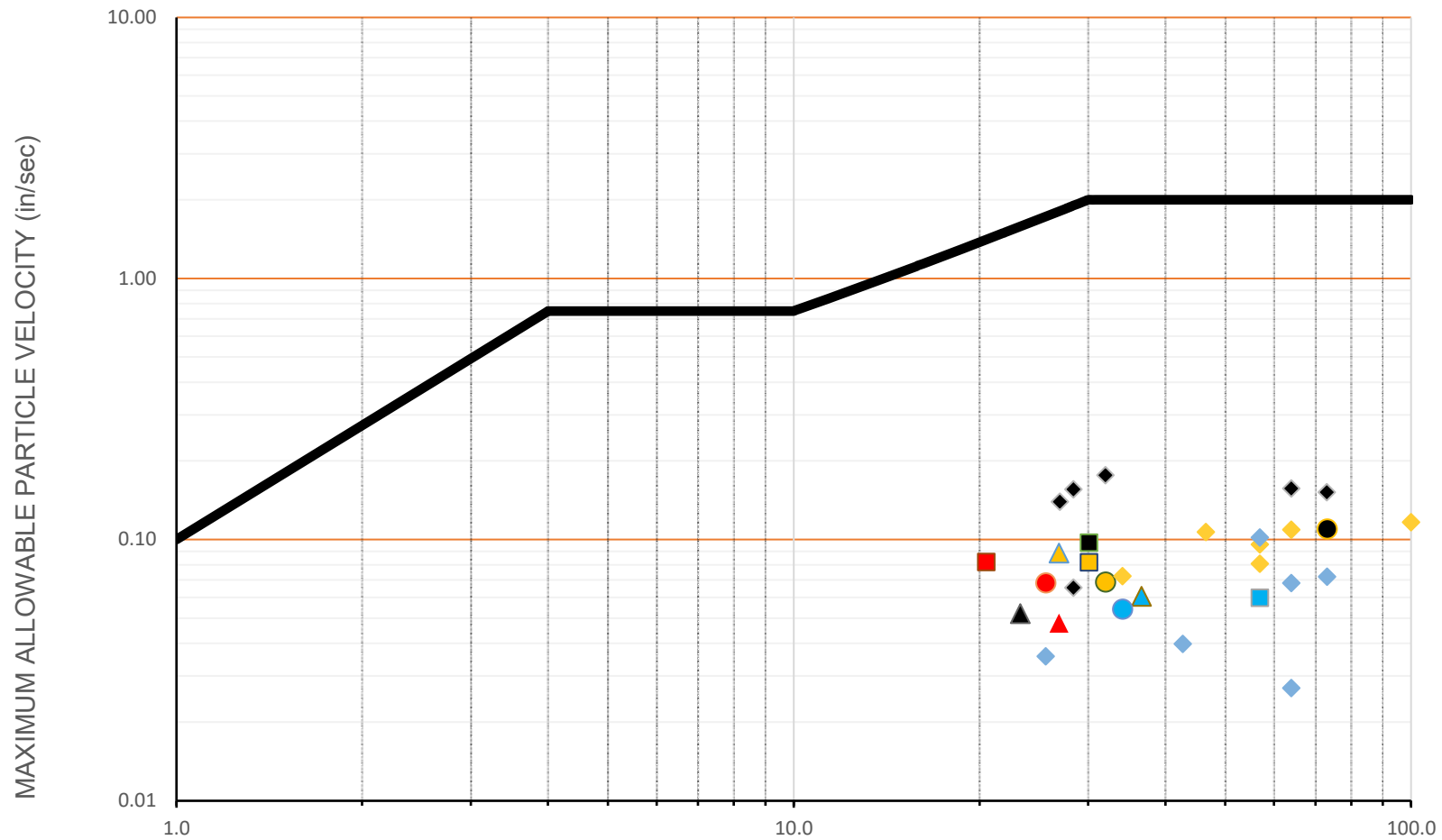


FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 40 - DATA PLOT FOR 2445 WASHINGTON STREET



- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Shots 25 to 30 | | | |

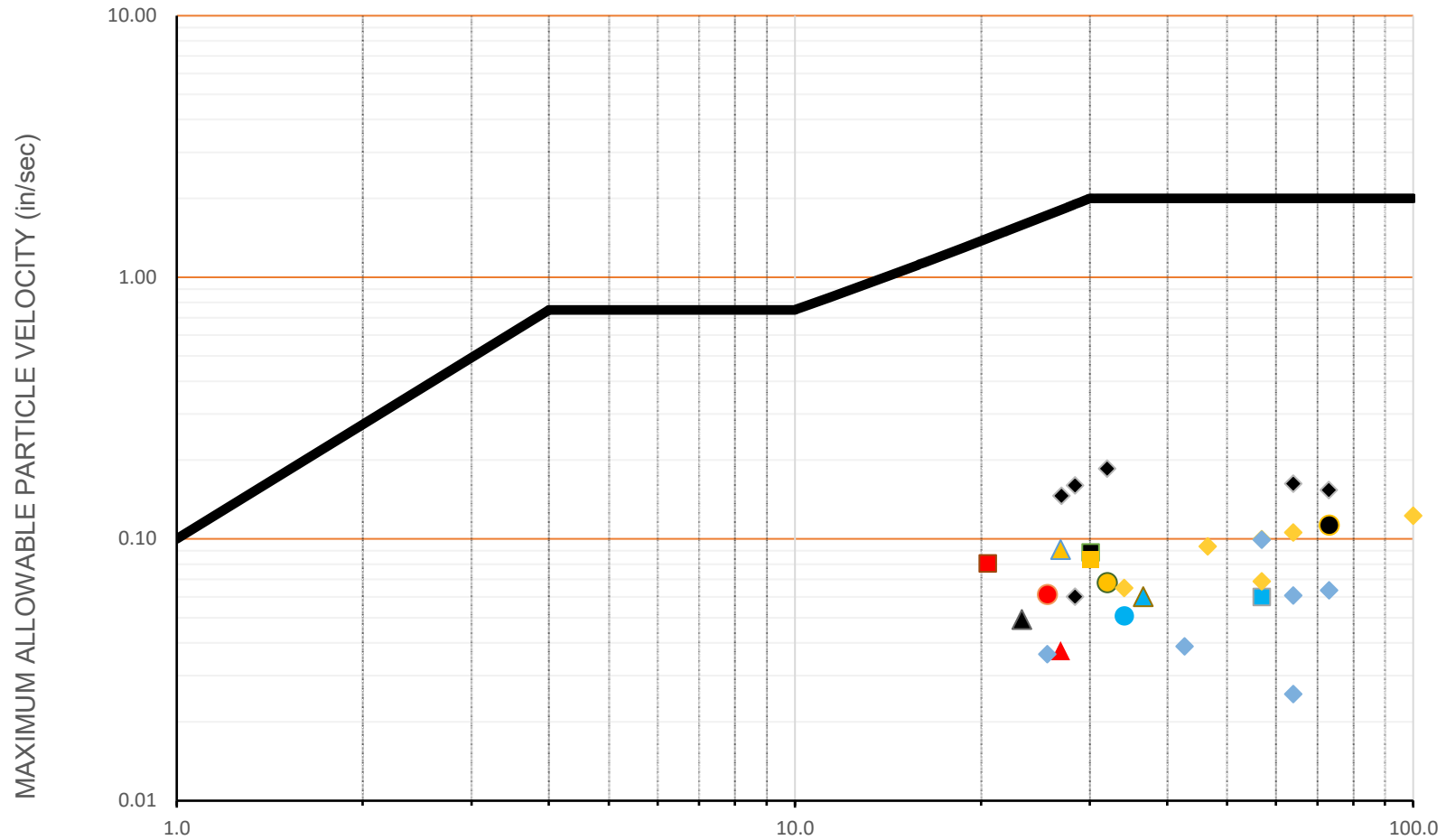
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 41 - DATA PLOT FOR 2455 WASHINGTON STREET



BLAST VIBRATION FREQUENCY

- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blast 25 to 30 | | | |

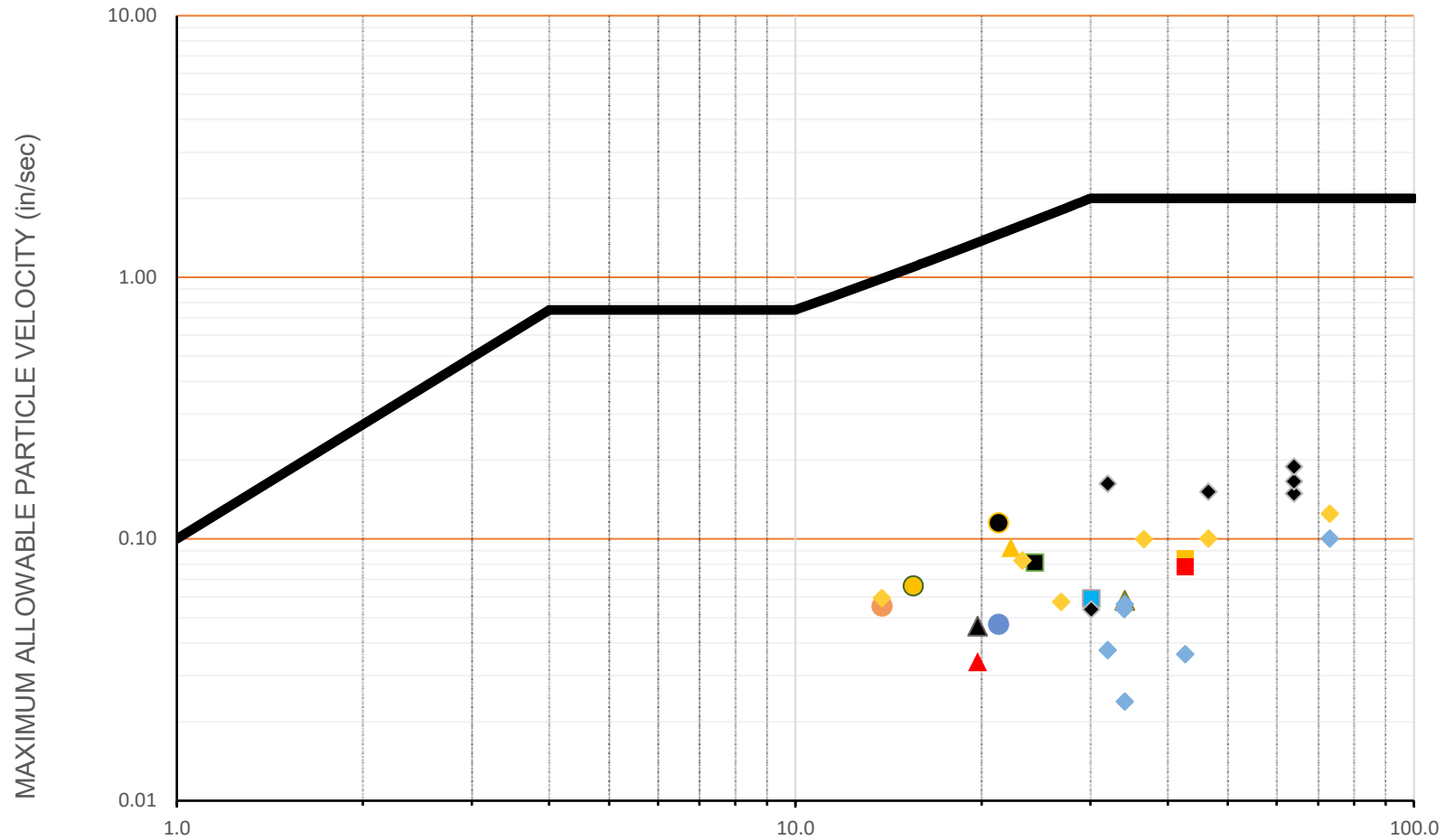
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 42 - DATA PLOT FOR 2475 WASHINGTON STREET



BLAST VIBRATION FREQUENCY

- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasta 25 to 30 | | | |

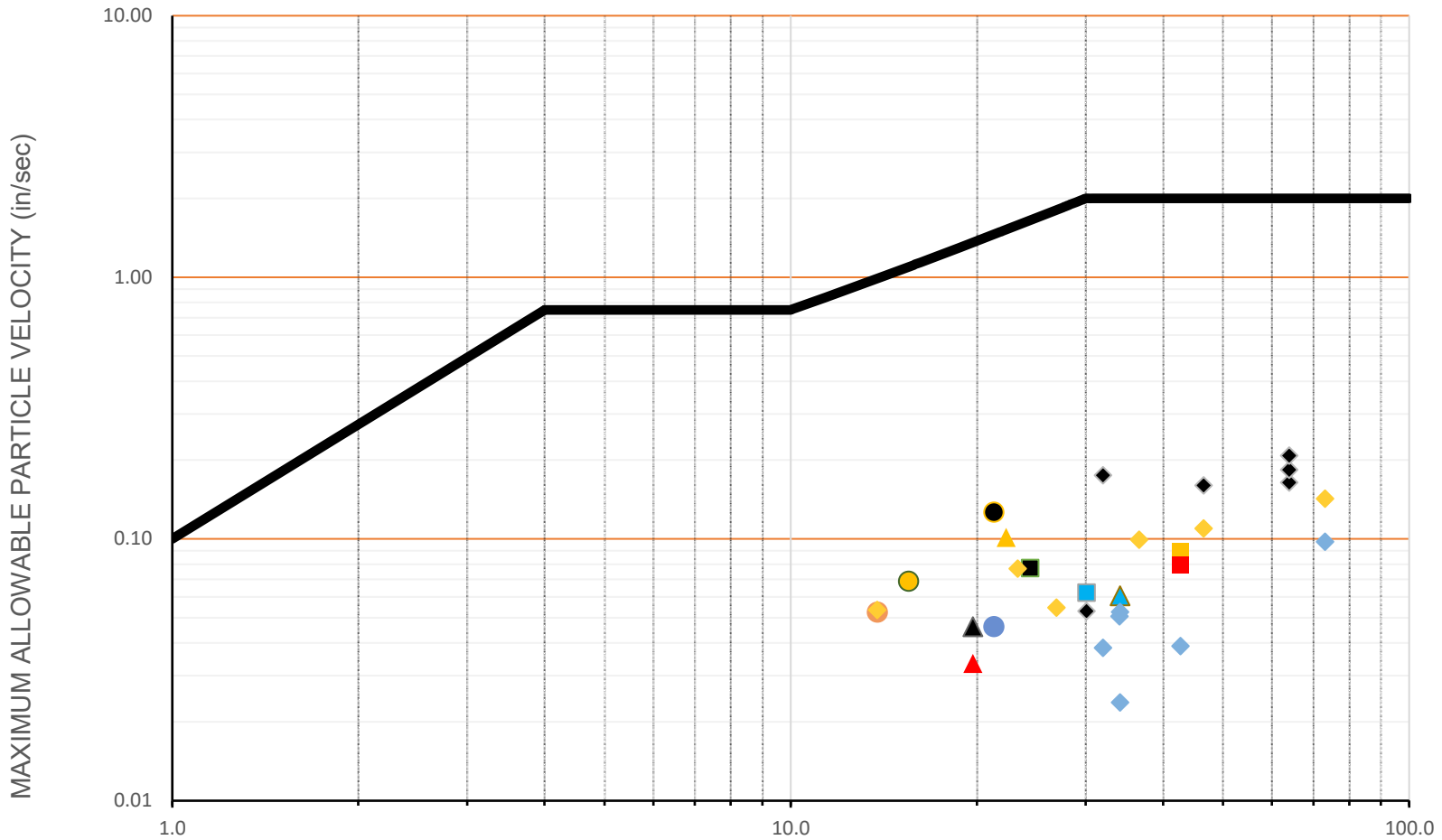
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 43 - DATA PLOT FOR 2485 WASHINGTON STREET



BLAST VIBRATION FREQUENCY

- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

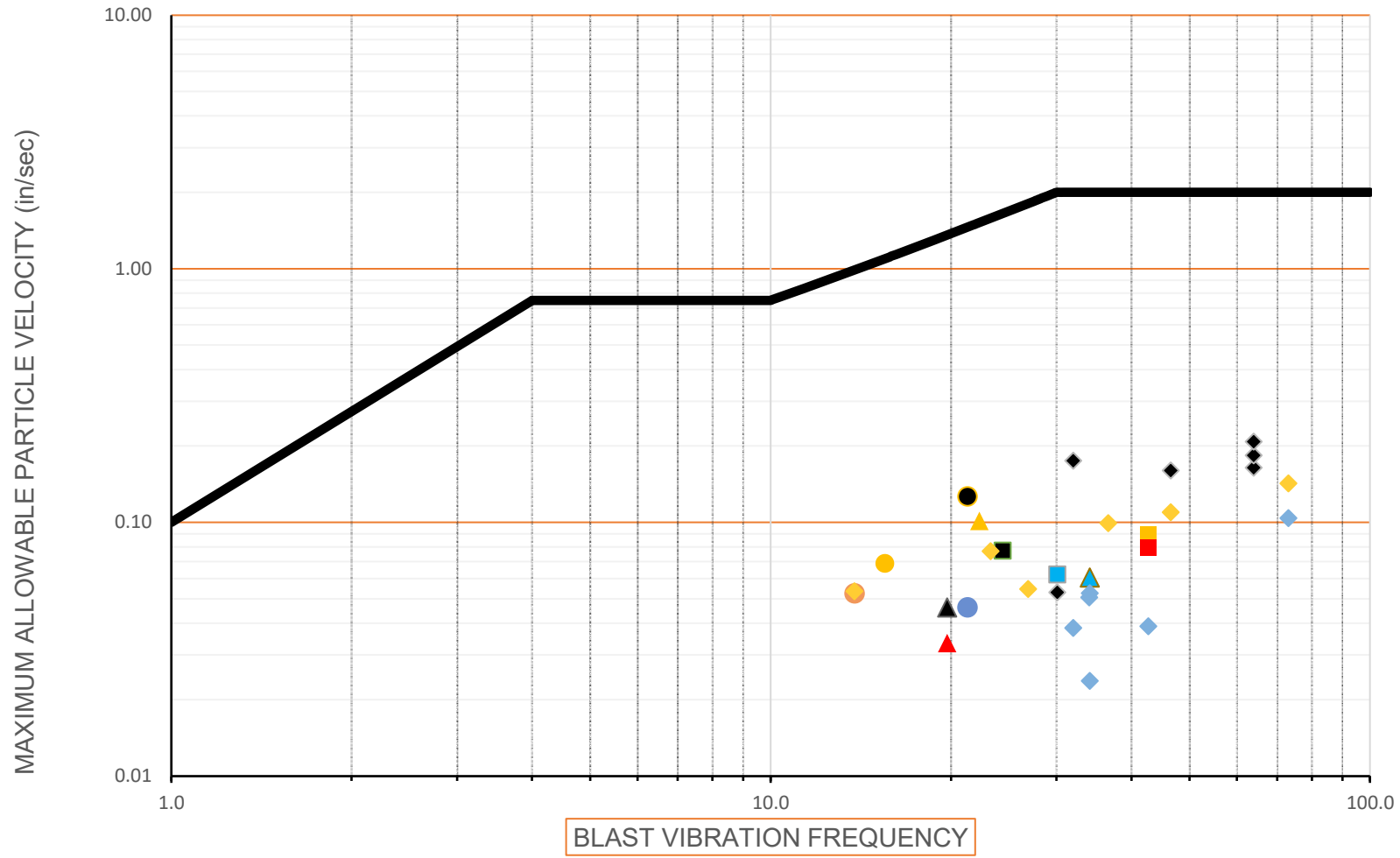
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 44 - DATA PLOT FOR 2495 WASHINGTON STREET



BLAST VIBRATION FREQUENCY

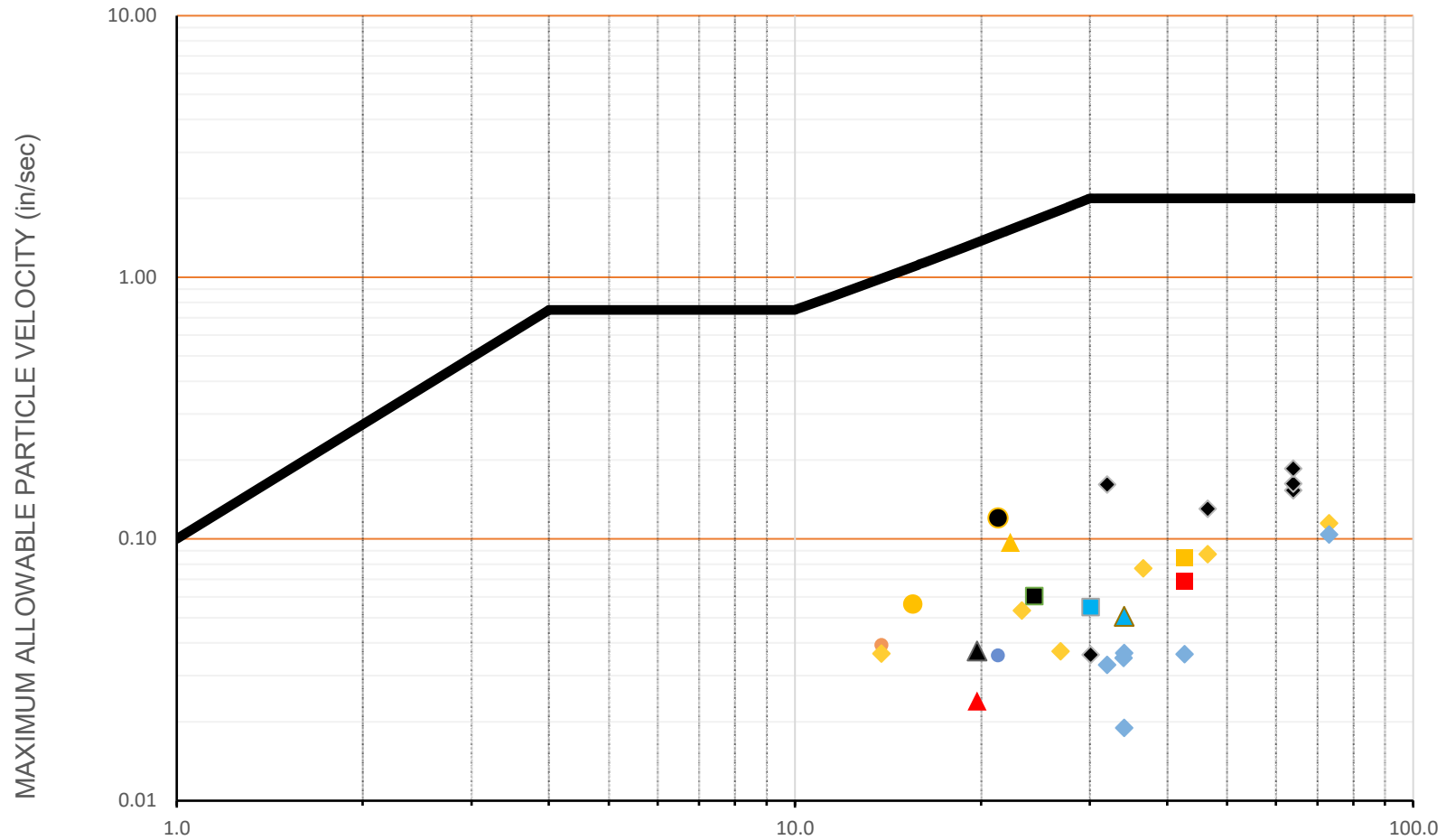
- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 45 - DATA PLOT FOR 495 W 25th AVENUE



- | | | | |
|--------------------------|----------|-----------------|-----------------|
| Vibration Level Criteria | . | Blast 1 | Blast 2 |
| Blast 3 | Blast 4 | Blast 5 | Blast 6 |
| Blast 7 | Blast 8 | Blast 9 | Blast 10 |
| Blast 11 | Blast 12 | Blasts 13 to 18 | Blasts 19 to 24 |
| Blasts 25 to 30 | | | |

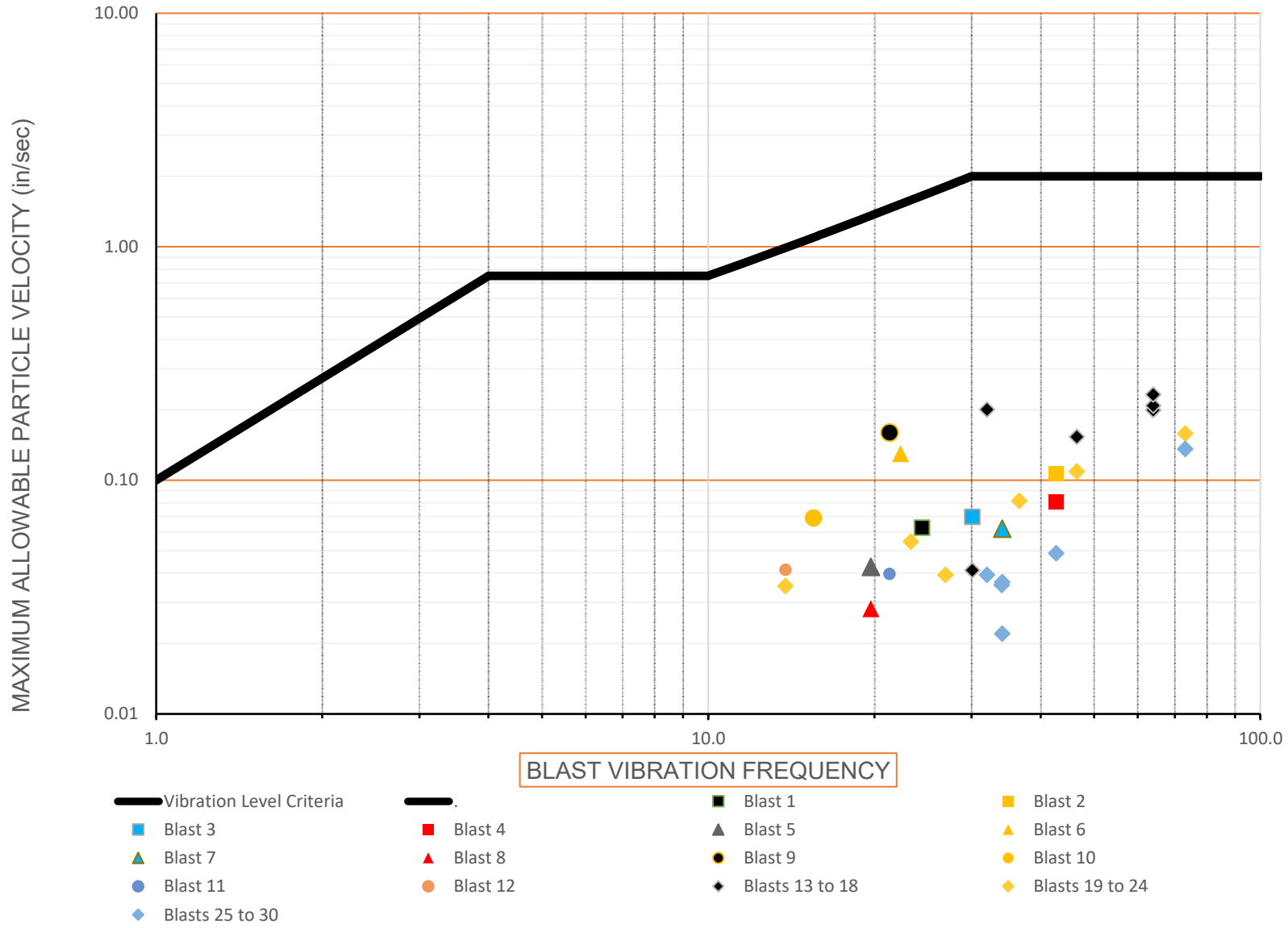
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 46 - DATA PLOT FOR 2510 LAWRENCE STREET



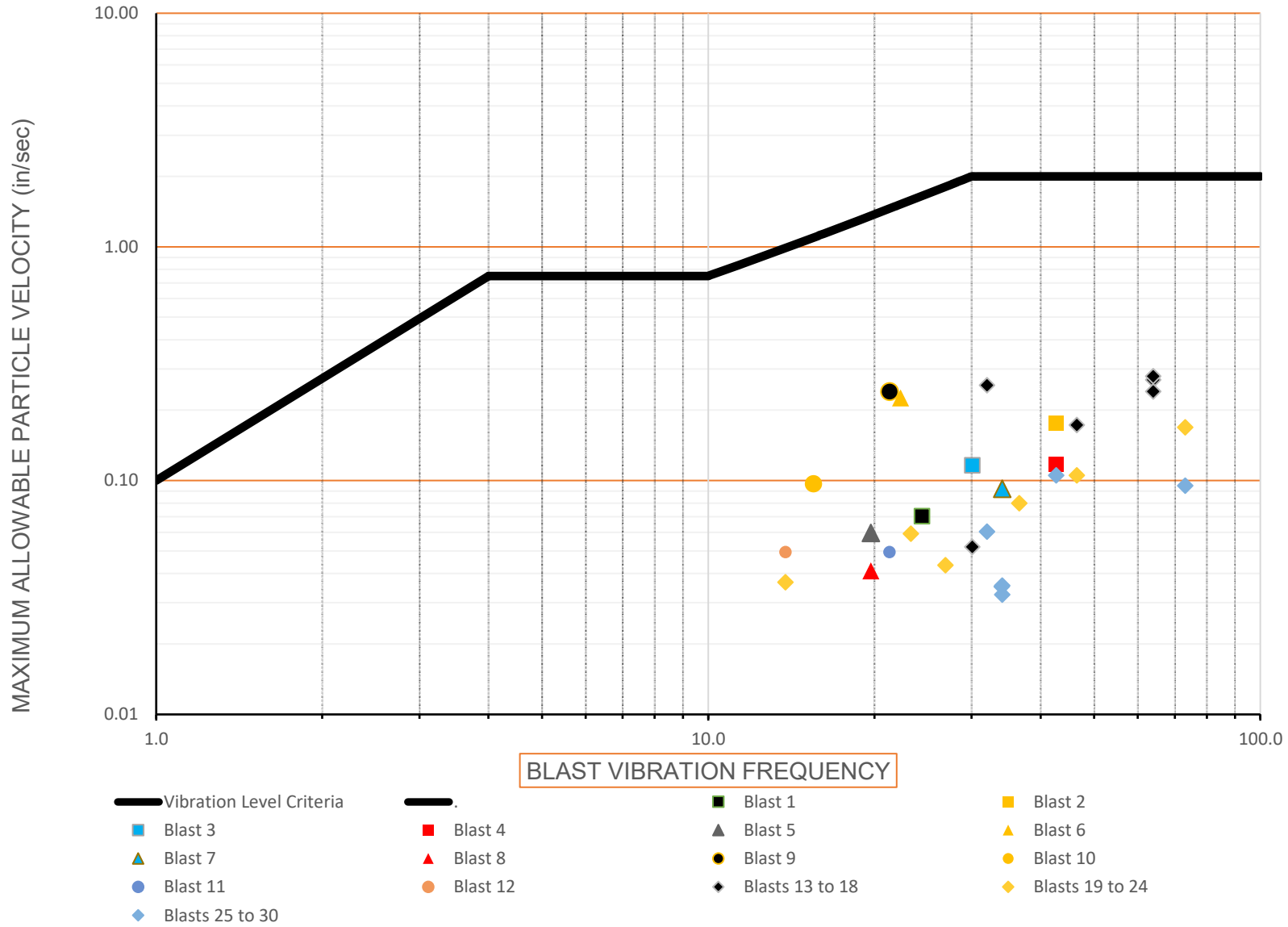
BLAST VIBRATION FREQUENCY

- | | | | |
|----------------------------|------------|-------------------|-------------------|
| — Vibration Level Criteria | — | ■ Blast 1 | ■ Blast 2 |
| ■ Blast 3 | ■ Blast 4 | ▲ Blast 5 | ▲ Blast 6 |
| ▲ Blast 7 | ▲ Blast 8 | ● Blast 9 | ● Blast 10 |
| ● Blast 11 | ● Blast 12 | ◆ Blasts 13 to 18 | ◆ Blasts 19 to 24 |
| ◆ Blasts 25 to 30 | | | |

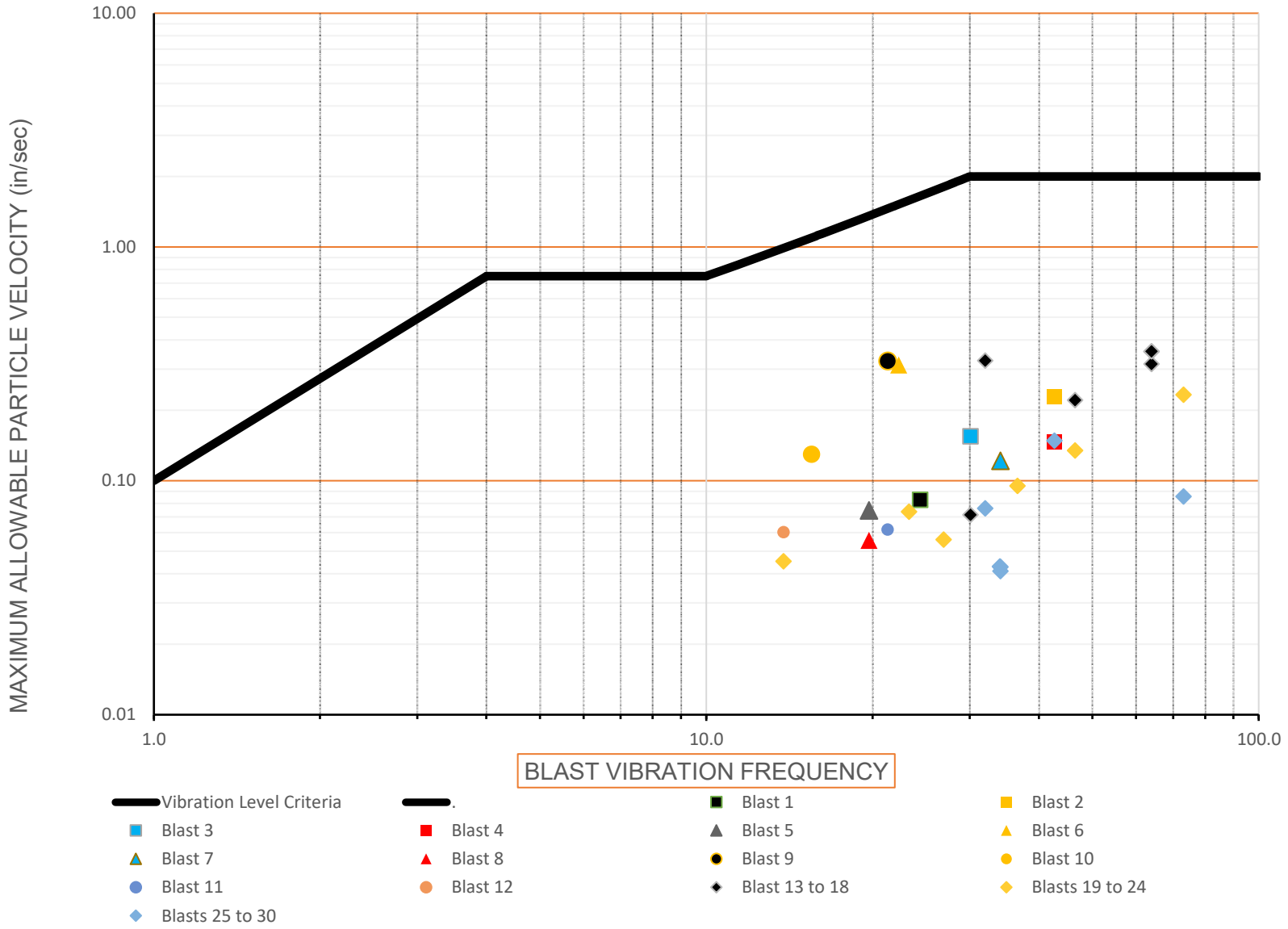
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 48 - DATA PLOT FOR 2510 LAWRENCE STREET



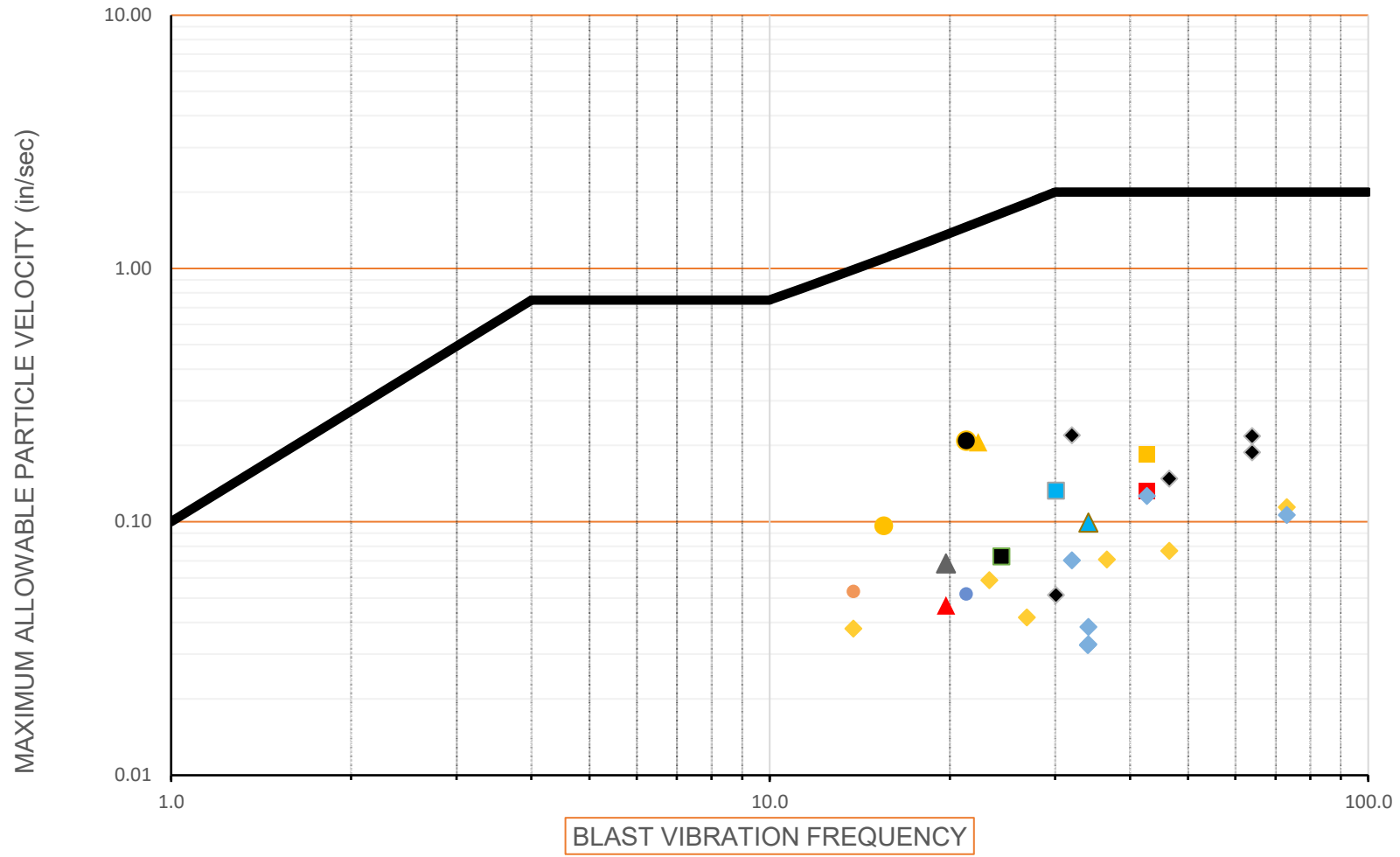
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 49 - DATA PLOT FOR 2520 LINCOLN STREET



FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 50 - DATA PLOT FOR 2510 LINCOLN STREET

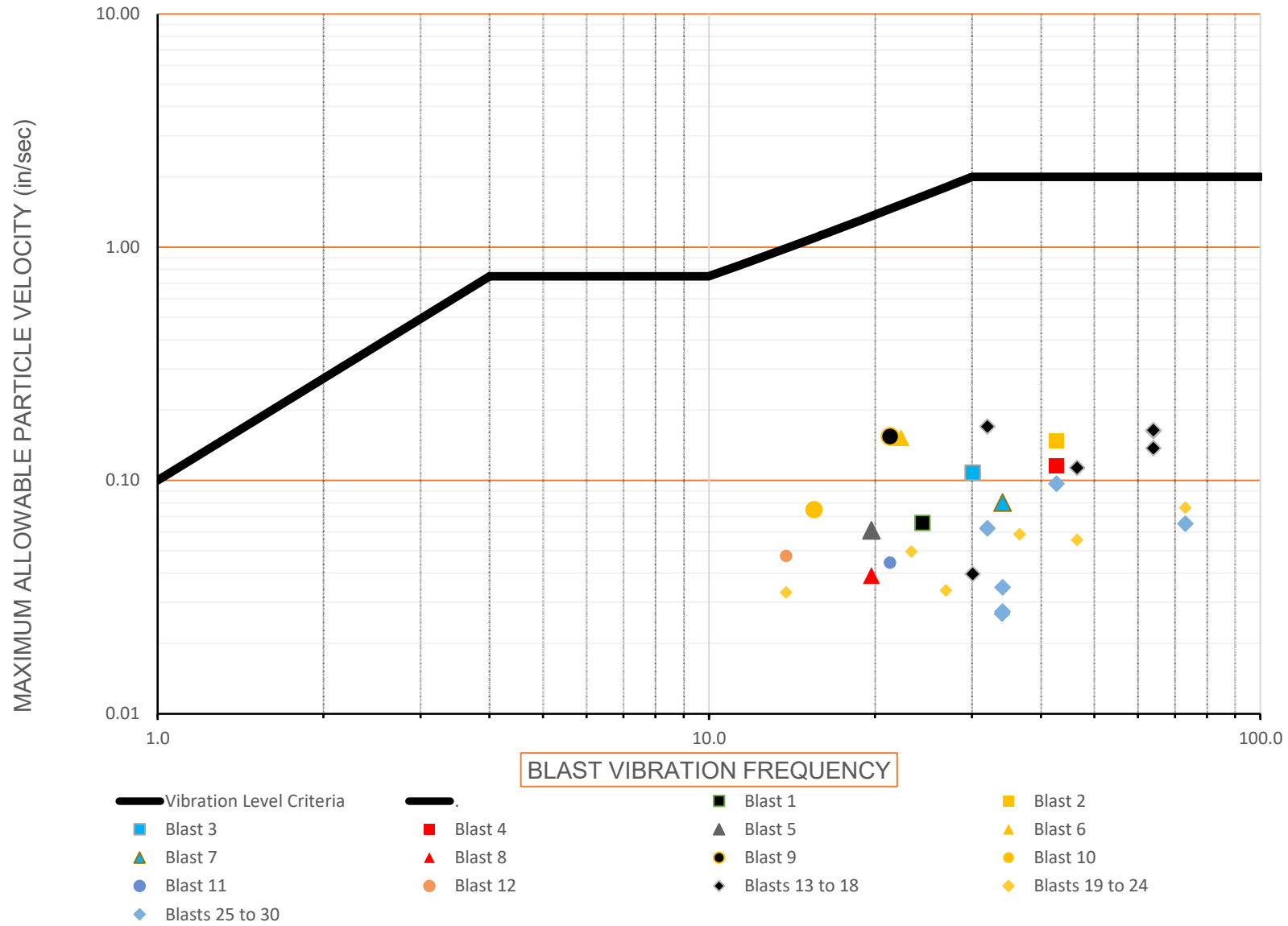


FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 51 - DATA PLOT FOR 2515 LINCOLN STREET

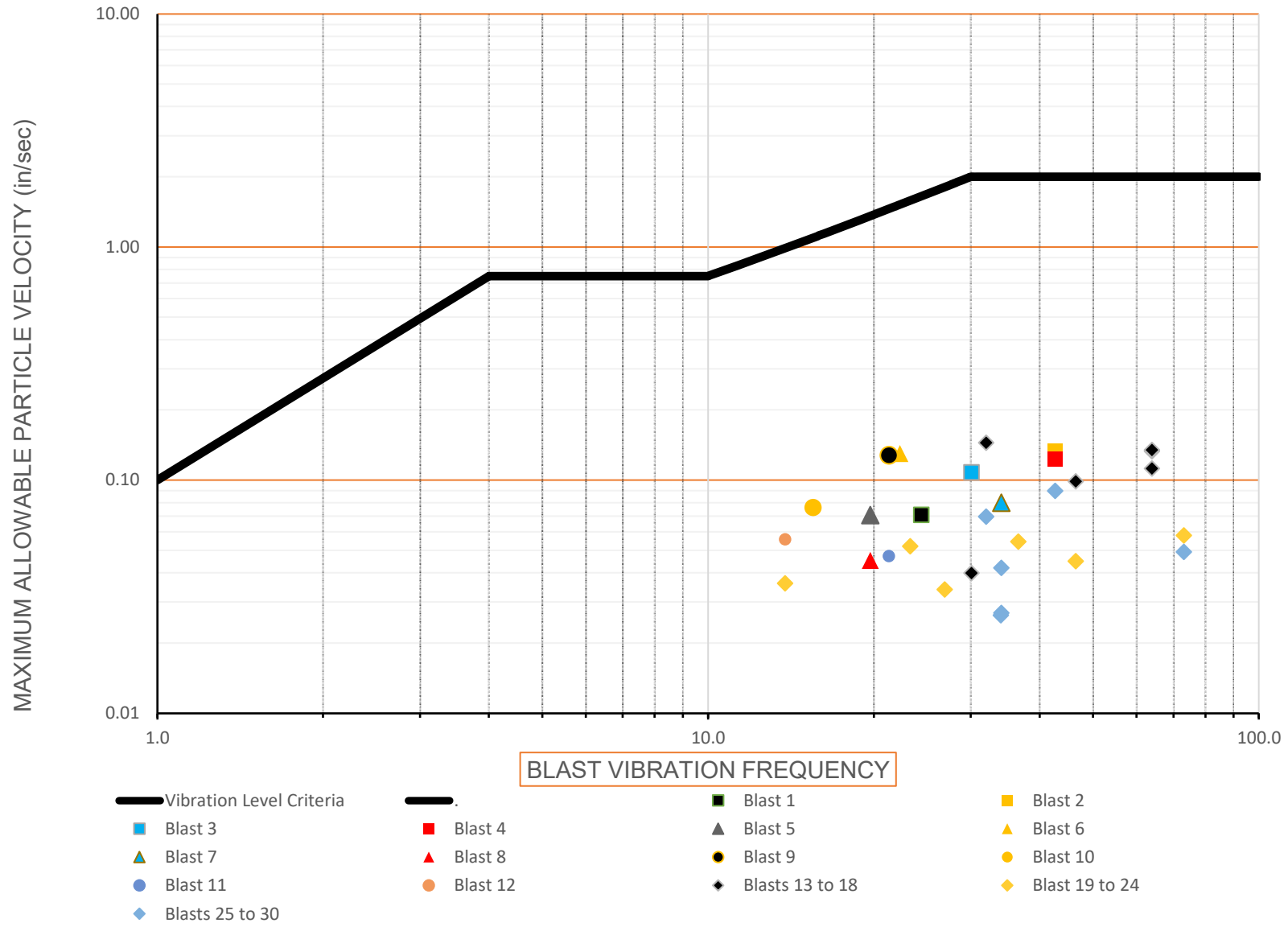


- | | | | |
|----------------------------|------------|-------------------|-------------------|
| — Vibration Level Criteria | — | ■ Blast 1 | ■ Blast 2 |
| ■ Blast 3 | ■ Blast 4 | ▲ Blast 5 | ▲ Blast 6 |
| ▲ Blast 7 | ▲ Blast 8 | ● Blast 9 | ● Blast 10 |
| ● Blast 11 | ● Blast 12 | ◆ Blasts 13 to 18 | ◆ Blasts 19 to 24 |
| ◆ Blasts 25 to 30 | | | |

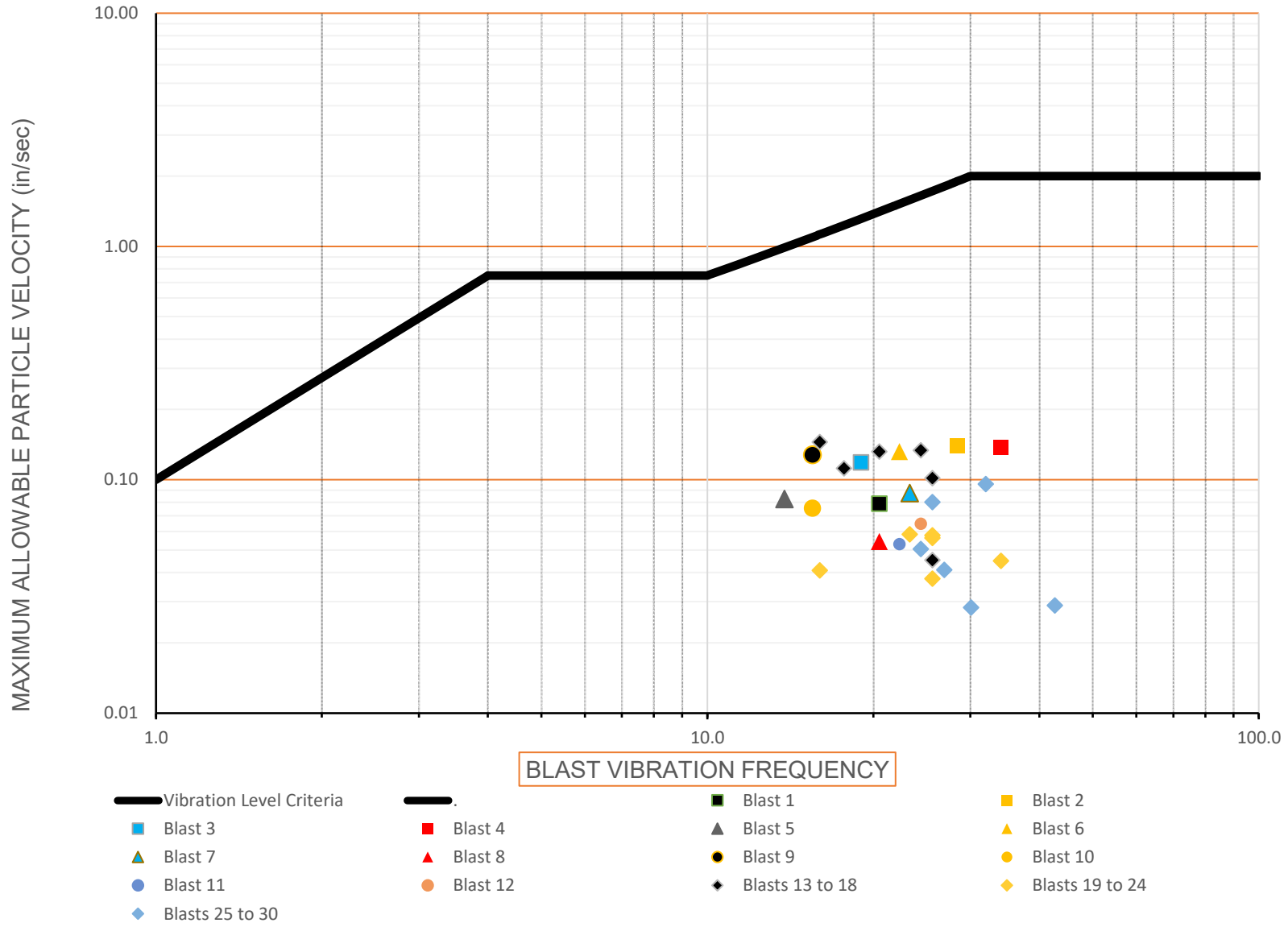
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 52 - DATA PLOT FOR 260 W 25th AVE



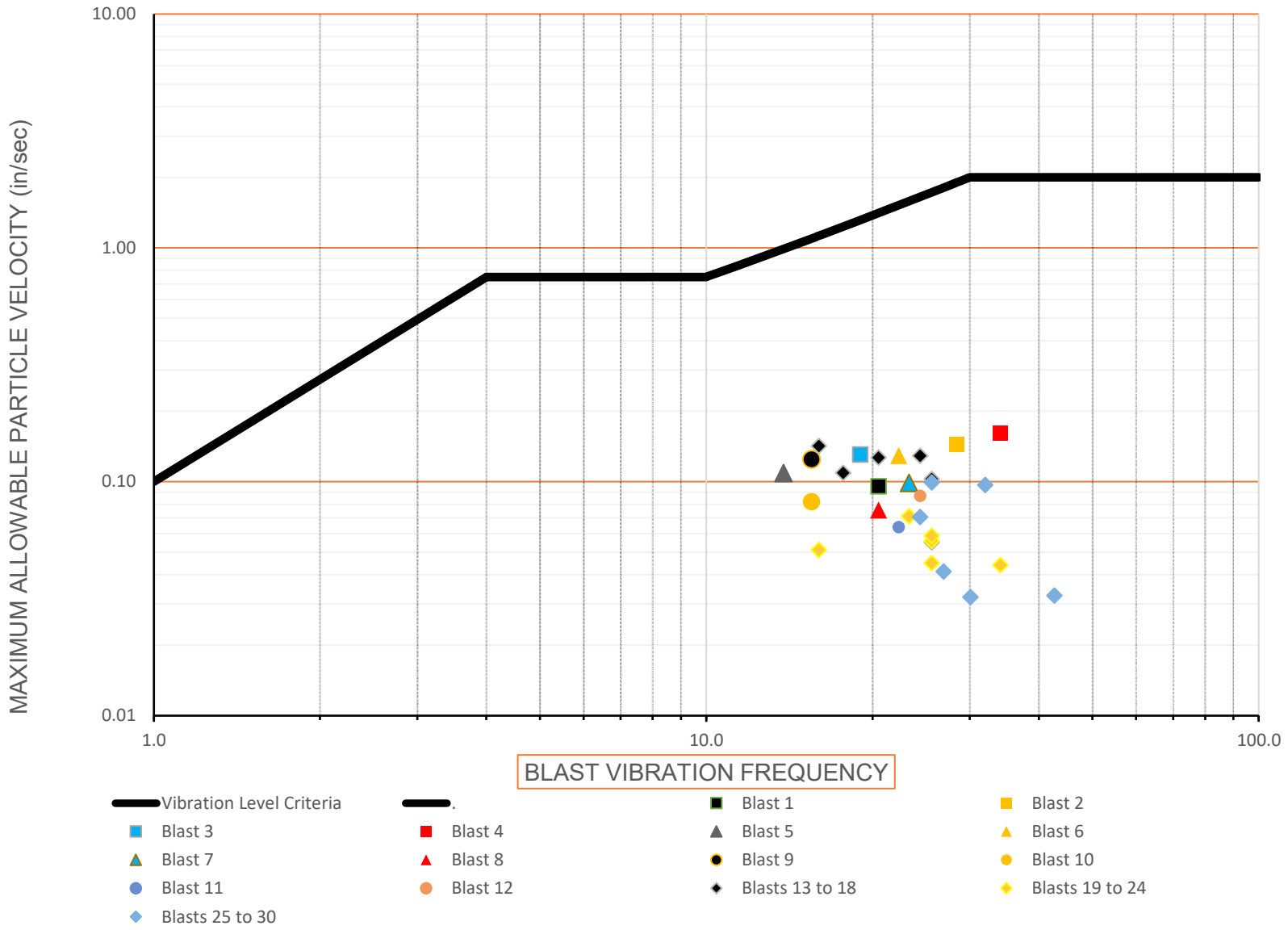
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 53 - DATA PLOT FOR 245 W 25th AVE



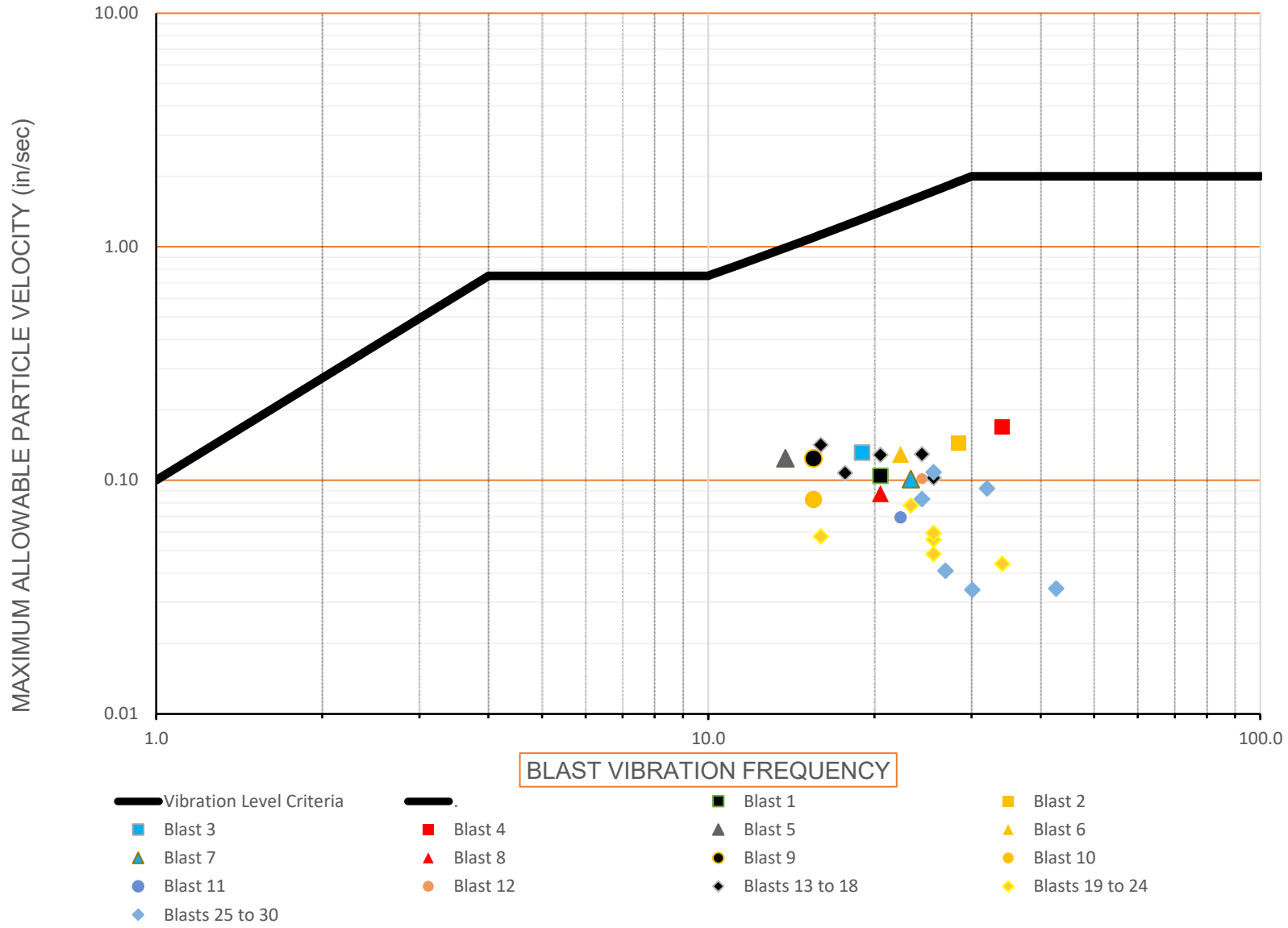
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 54 - DATA PLOT FOR 2470 CHARNELTON STREET



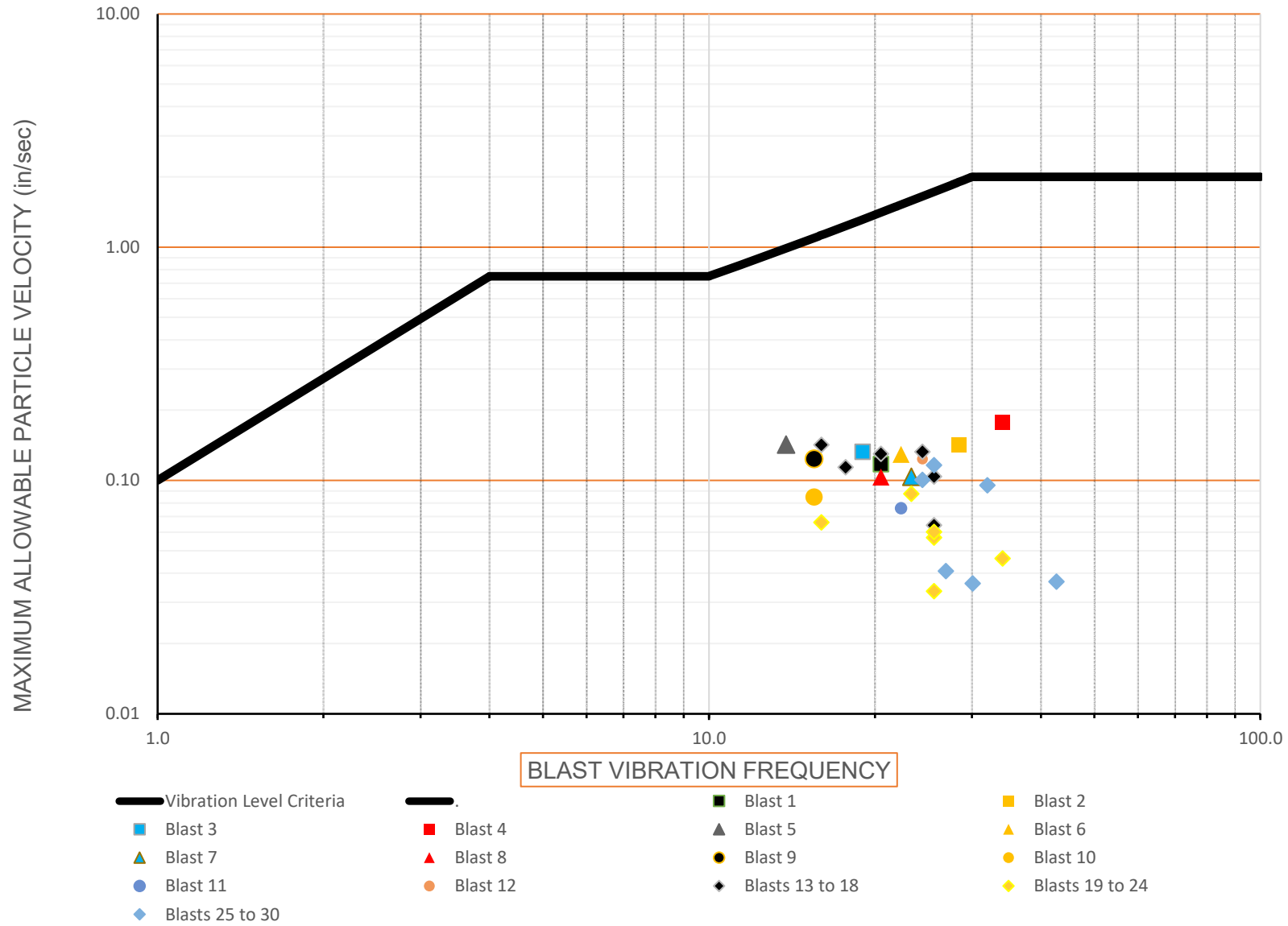
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 55 - DATA PLOT FOR 2460 CHARLENTON STREET



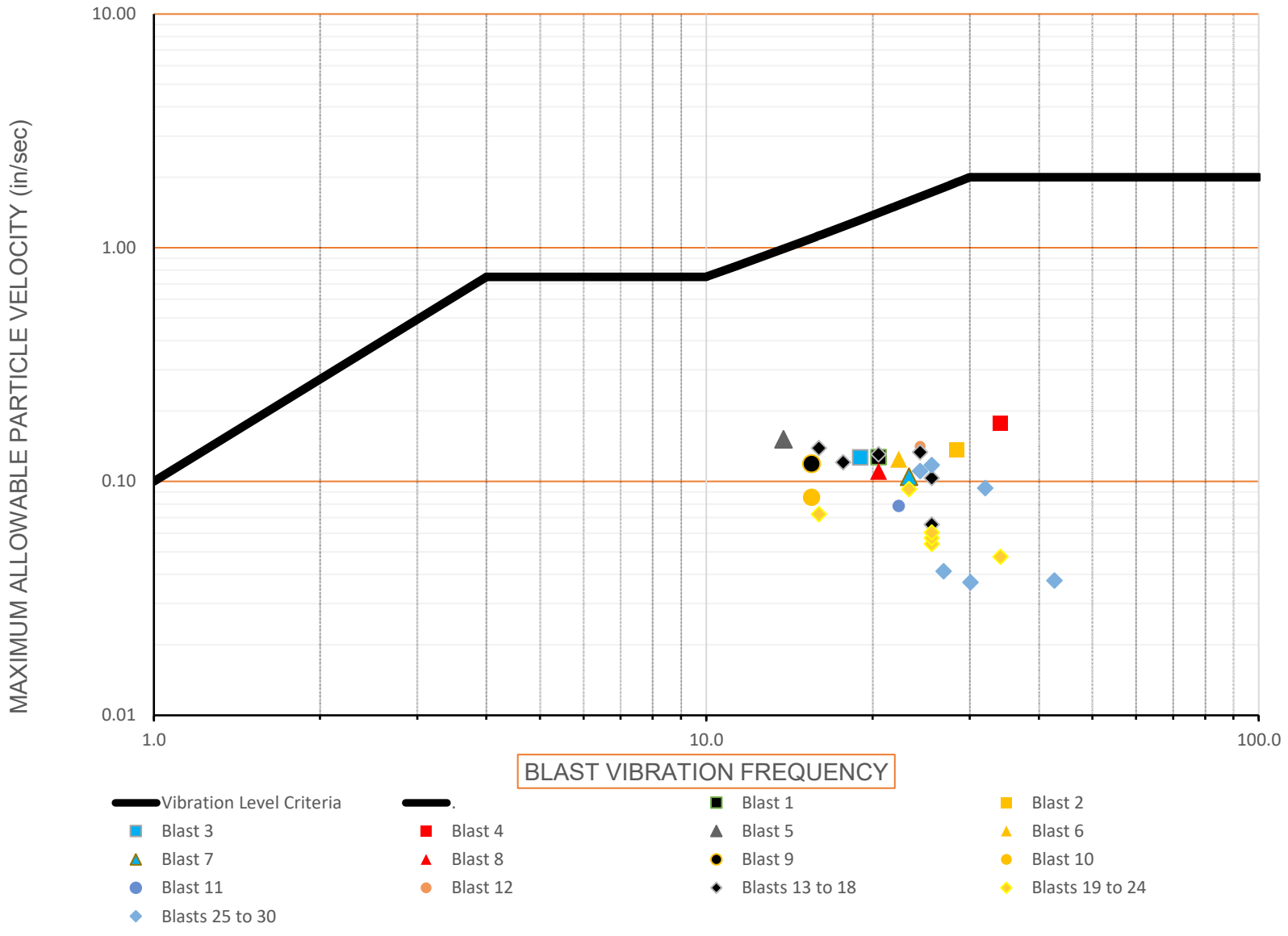
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 56 - DATA PLOT FOR 2450 CHARNELTON STREET



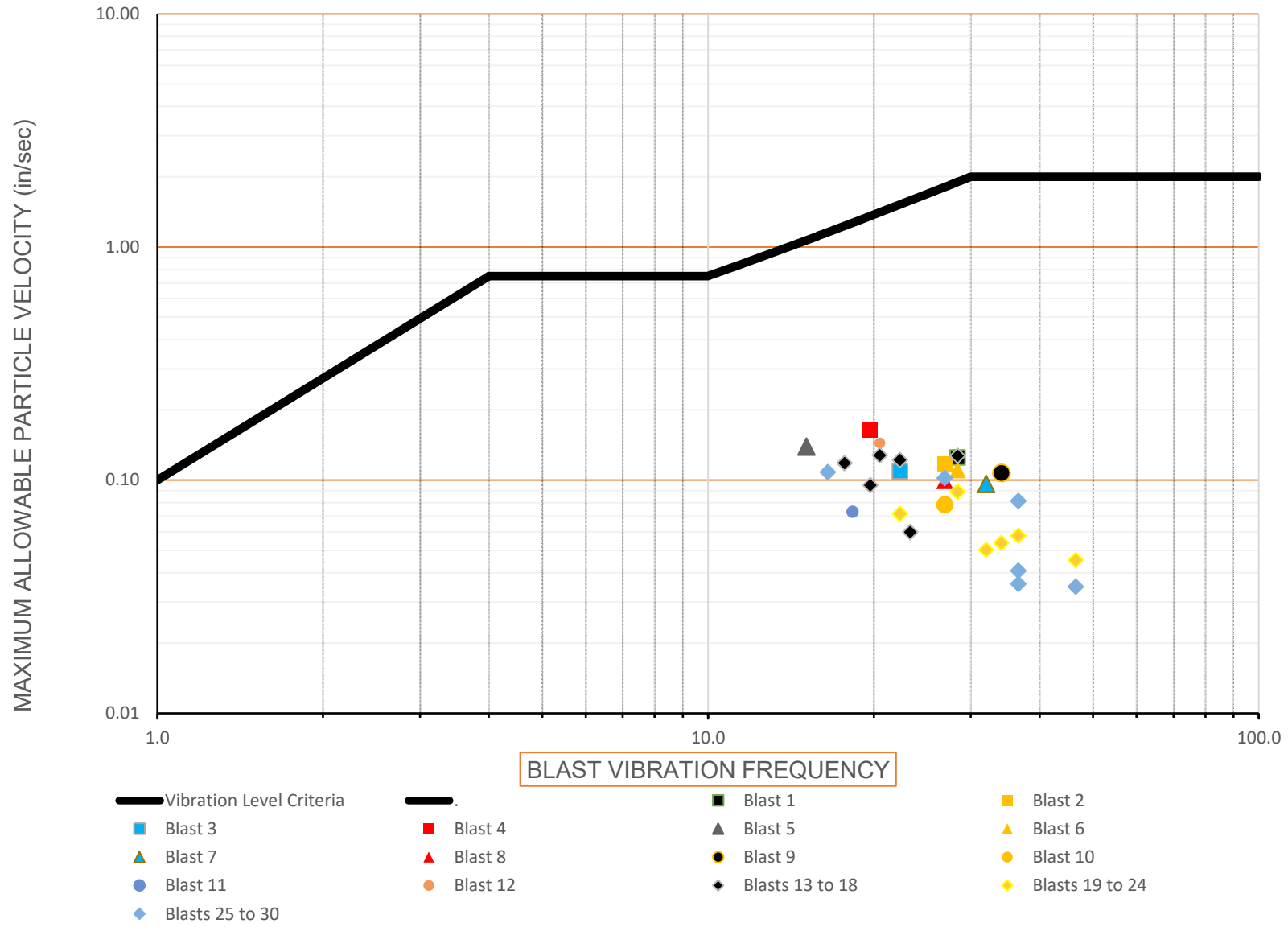
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 57 - DATA PLOT FOR 2440 CHARLENTON STREET



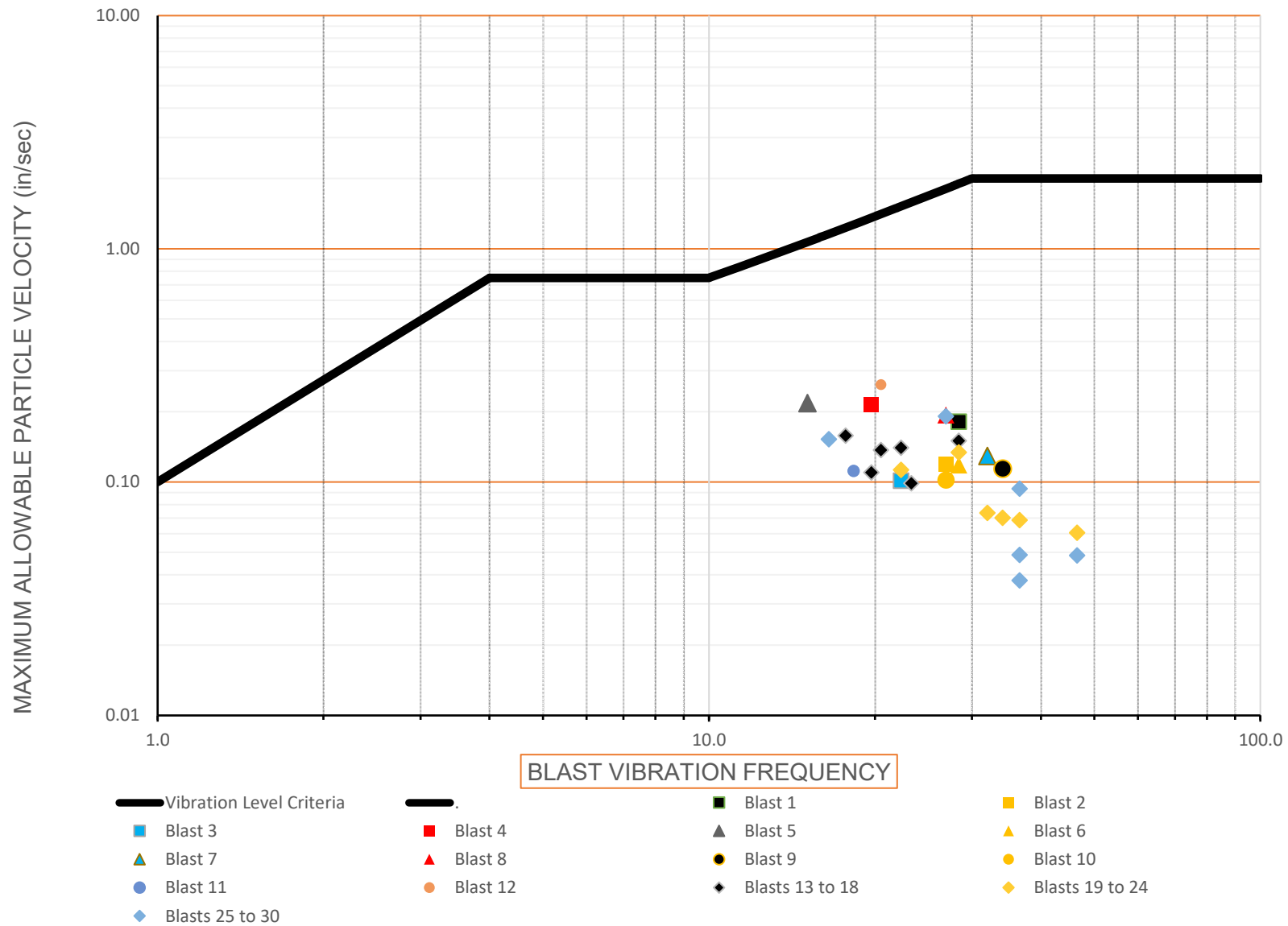
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 58 - DATA PLOT FOR 2434 CHARLENTON STREET



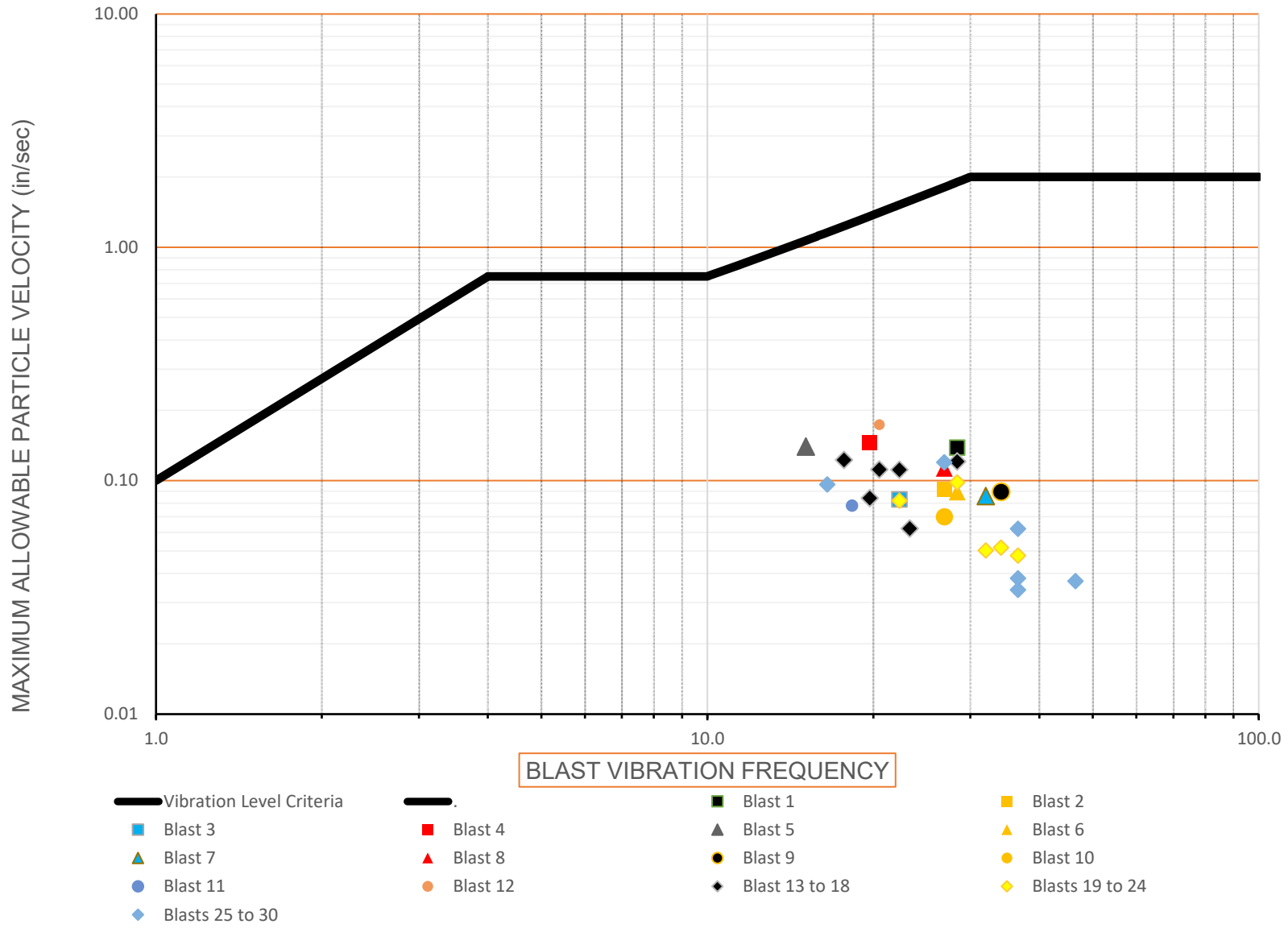
FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1
 FIGURE 59 - DATA PLOT FOR 2400 CHARLENTON STREET



FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1)
 FIGURE 60 - DATA PLOT FOR 2394 CHARLENTON STREET



FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1)
 FIGURE 61 - DATA PLOT FOR 2380 CHARNELTON STREET



FREQUENCY BASED ALTERNATIVE BLASTING LEVEL CRITERIA (NFPA-495 Fig 11.2.1)
 FIGURE 62 - DATA PLOT FOR 260 West 23rd AVENUE

