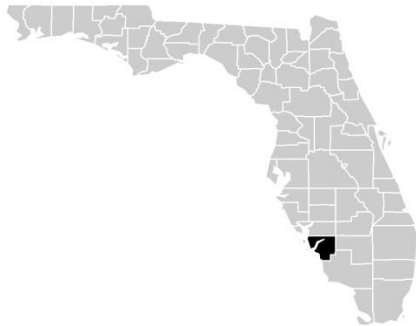


FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 13 OF 15



LEE COUNTY, FLORIDA AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
BONITA SPRINGS, CITY OF	120680
CAPE CORAL, CITY OF	125095
ESTERO, VILLAGE OF	120260
FORT MYERS, CITY OF	125106
FORT MYERS BEACH, TOWN OF	120673
LEE COUNTY, UNINCORPORATED AREAS	125124
SANIBEL, CITY OF	120402



FEMA

**REVISED
PRELIMINARY
12/04/2025**

REVISED:

TBD

FLOOD INSURANCE STUDY NUMBER
12071CV013D

Version Number 2.8.5.0

TABLE OF CONTENTS

Volume 1

	<u>Page</u>
SECTION 1.0 – INTRODUCTION	1
1.1 The National Flood Insurance Program	1
1.2 Purpose of this Flood Insurance Study Report	2
1.3 Jurisdictions Included in the Flood Insurance Study Project	2
1.4 Considerations for using this Flood Insurance Study Report	9
 SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS	 20
2.1 Floodplain Boundaries	20
2.2 Floodways	30
2.3 Base Flood Elevations	31
2.4 Non-Encroachment Zones	31
2.5 Coastal Flood Hazard Areas	31
2.5.1 Water Elevations and the Effects of Waves	32
2.5.2 Floodplain Boundaries and BFEs for Coastal Areas	33
2.5.3 Coastal High Hazard Areas	34
2.5.4 Limit of Moderate Wave Action	35
 SECTION 3.0 – INSURANCE APPLICATIONS	 36
3.1 National Flood Insurance Program Insurance Zones	36
 SECTION 4.0 – AREA STUDIED	 36
4.1 Basin Description	36
4.2 Principal Flood Problems	37
4.3 Dams and Other Flood Hazard Reduction Measures	38
4.4 Levees Systems	38
 SECTION 5.0 – ENGINEERING METHODS	 39
5.1 Hydrologic Analyses	39
5.2 Hydraulic Analyses	47
5.3 Coastal Analyses	59
5.3.1 Total Stillwater Elevations	63
5.3.2 Waves	65
5.3.3 Coastal Erosion	66
5.3.4 Wave Hazard Analyses	66

TABLE OF CONTENTS

Volume 1 (continued)

Figures

	<u>Page</u>
Figure 1: FIRM Index	11
Figure 2: FIRM Notes to Users	13
Figure 3: Map Legend for FIRM	16
Figure 4: Floodway Schematic	30
Figure 5: Wave Runup Transect Schematic	33
Figure 6: Coastal Transect Schematic	35
Figure 7: Frequency Discharge-Drainage Area Curves	47
Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas	64

Tables

Table 1: Listing of NFIP Jurisdictions	2
Table 2: Flooding Sources Included in this FIS Report	21
Table 3: Flood Zone Designations by Community	36
Table 4: Basin Characteristics	37
Table 5: Principal Flood Problems	37
Table 6: Historic Flooding Elevations	38
Table 7: Dams and Other Flood Hazard Reduction Measures	38
Table 8: Levees Systems	38
Table 9: Summary of Discharges	40
Table 10: Summary of Non-Coastal Stillwater Elevations	47
Table 11: Stream Gage Information used to Determine Discharges	47
Table 12: Summary of Hydrologic and Hydraulic Analyses	48
Table 13: Roughness Coefficients	58
Table 14: Summary of Coastal Analyses	60
Table 15: Tide Gage Analysis Specifics	65

TABLE OF CONTENTS

Volume 2

	<u>Page</u>
5.4 Alluvial Fan Analyses	127
SECTION 6.0 – MAPPING METHODS	127
6.1 Vertical and Horizontal Control	127
6.2 Base Map	128
6.3 Floodplain and Floodway Delineation	129
<u>Figures</u>	
Figure 9: Transect Location Map	117
<u>Tables</u>	
Table 16: Coastal Transect Parameters	68
Table 17: Summary of Alluvial Fan Analyses	127
Table 18: Results of Alluvial Fan Analyses	127
Table 19: Countywide Vertical Datum Conversion	127
Table 20: Stream-Based Vertical Datum Conversion	127
Table 21: Base Map Sources	128
Table 22: Summary of Topographic Elevation Data used in Mapping	130

TABLE OF CONTENTS

Volume 3

	<u>Page</u>
6.4 Coastal Flood Hazard Mapping	181
6.5 FIRM Revisions	202
6.5.1 Letters of Map Amendment	203
6.5.2 Letters of Map Revision Based on Fill	203
6.5.3 Letters of Map Revision	203
6.5.4 Physical Map Revisions	204
6.5.5 Contracted Restudies	204
6.5.6 Community Map History	205
SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION	207
7.1 Contracted Studies	207
7.2 Community Meetings	213
<u>Tables</u>	
Table 23: Floodway Data	131
Table 24: Flood Hazard and Non-Encroachment Data for Selected Streams	181
Table 25: Summary of Coastal Transect Mapping Considerations	182
Table 26: Incorporated Letters of Map Change	204
Table 27: Community Map History	206
Table 28: Summary of Contracted Studies Included in this FIS Report	207

TABLE OF CONTENTS

Volume 4

	<u>Page</u>
SECTION 8.0 – ADDITIONAL INFORMATION	216
SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES	217

Tables

Table 29: Community Meetings	214
Table 30: Map Repositories	216
Table 31: Additional Information	217
Table 32: Bibliography and References	218

Volume 4

Exhibits

Flood Profiles	<u>Panel</u>
Bayshore Creek	01-02 P
Bedman Creek / Dog Canal	03-06 P
Billy Creek	07-08 P
Carrell Canal	09-10 P
Chapel Branch Creek	11-12 P
Cypress Creek	13-14 P
Daughtrey Creek	15-17 P
East Branch Daughtrey Creek	18-19 P
East Branch Yellow Fever Creek	20-22 P
Estero River	23-25 P
Fichter Creek	26 P
Ford Street Canal	27-28 P
Halfway Creek	29-30 P
Halls Creek	31 P
Hancock Creek	32 P
Hickey Creek / Hickey Creek Drainageway	33-35 P
Hickey Creek (Upstream of Hickey Creek Drainageway)	36 P
Imperial River	37-38 P
L-3 Canal	39-40 P
Leitner Creek	41-42 P
Manuels Branch	43-44 P
Marsh Point Creek	45-46 P
Mullock Creek	47 P
Mullock Creek Tributary	48 P
North Colonial Waterway	49 P
Oak Creek	50 P
Orange River	51-52 P
Owl Creek	53-54 P

Volume 4 (continued)

Exhibits

Flood Profiles	<u>Panel</u>
Palm Creek	55-57 P
Popash Creek	58-60 P
Powell Creek / Powell Bypass	61-63 P
Powell Creek (Upstream of Confluence of Powell Bypass)	64 P
Powell Creek Tributary No. 1	65 P
Six Mile Cypress Slough	66-69 P
South Branch	70 P
Spanish Canal	71 P
Spanish Creek	72-74 P
Spring Creek	75 P
Stricklin Gully	76 P

Volume 5

Exhibits

Flood Profiles	<u>Panel</u>
Stroud Creek	77-78 P
Telegraph Creek	79-80 P
Ten Mile Canal	81-84 P
Tributary L-1 (Yellow Fever Creek Tributary)	85 P
Tributary L-2 (Yellow Fever Creek Tributary)	86 P
Trout Creek / Curry Lake Canal	87-88 P
Winkler Canal	89-90 P
Yellow Fever Creek	91 P

Volume 5 (continued)

Exhibits

Transect Profiles	<u>Panel</u>
Transect 1	001 T
Transect 2	002 T
Transect 3	003 T
Transect 4	004 T
Transect 5	005-006 T
Transect 6	007-008 T
Transect 7	009-010 T
Transect 8	011-012 T
Transect 9	013-014 T
Transect 10	015 T
Transect 11	016 T
Transect 12	017 T
Transect 13	018-019 T
Transect 14	020-021 T
Transect 15	022-024 T
Transect 16	025-026 T
Transect 17	027-028 T
Transect 18	029-030 T
Transect 19	031 T
Transect 20	032-033 T
Transect 21	034 T
Transect 22	035 T
Transect 23	036-037 T
Transect 24	038-039 T
Transect 25	040 T
Transect 26	041 T
Transect 27	042 T
Transect 28	043 T
Transect 29	044-045 T
Transect 30	046 T
Transect 31	047 T
Transect 32	048 T
Transect 33	049-050 T
Transect 34	051 T
Transect 35	052 T
Transect 36	053 T
Transect 37	054-055 T
Transect 38	056-057 T
Transect 39	058-059 T
Transect 40	060-061 T

Volume 6
Exhibits

Transect Profiles	<u>Panel</u>
Transect 41	062-063 T
Transect 42	064-065 T
Transect 43	066-067 T
Transect 44	068-069 T
Transect 45	070-072 T
Transect 46	073-075 T
Transect 47	076-078 T
Transect 48	079-081 T
Transect 49	082-084 T
Transect 50	085-087 T
Transect 51	088-090 T
Transect 52	091-093 T
Transect 53	094-095 T
Transect 54	096-097 T
Transect 55	098-099 T
Transect 56	100-101 T
Transect 57	102-103 T
Transect 58	104-105 T
Transect 59	106-107 T
Transect 60	108-110 T
Transect 61	111-113 T
Transect 62	114-115 T
Transect 63	116-117 T
Transect 64	118-119 T
Transect 65	120 T
Transect 66	121 T
Transect 67	122 T
Transect 68	123 T
Transect 69	124 T
Transect 70	125-126 T
Transect 71	127-128 T
Transect 72	129-130 T
Transect 73	131-132 T
Transect 74	133-134 T
Transect 75	135 T
Transect 76	136 T

Volume 7
Exhibits

Transect Profiles	<u>Panel</u>
Transect 77	137-139 T
Transect 78	140-142 T
Transect 79	143-144 T
Transect 80	145-147 T
Transect 81	148-150 T
Transect 82	151-152 T
Transect 83	153-154 T
Transect 84	155-156 T
Transect 85	157 T
Transect 86	158 T
Transect 87	159 T
Transect 88	160 T
Transect 89	161 T
Transect 90	162 T
Transect 91	163 T
Transect 92	164 T
Transect 93	165-166 T
Transect 94	167 T
Transect 95	168-169 T
Transect 96	170-171 T
Transect 97	172 T
Transect 98	173 T
Transect 99	174-176 T
Transect 100	177-179 T
Transect 101	180-182 T
Transect 102	183-185 T
Transect 103	186-188 T
Transect 104	189-191 T
Transect 105	192-194 T
Transect 106	195-197 T
Transect 107	198-200 T
Transect 108	201-203 T
Transect 109	204-205 T
Transect 110	206-208 T
Transect 111	209-210 T
Transect 112	211-213 T

Volume 8
Exhibits

Transect Profiles	<u>Panel</u>
Transect 113	214-216 T
Transect 114	217-219 T
Transect 115	220-222 T
Transect 116	223-225 T
Transect 117	226-228 T
Transect 118	229-230 T
Transect 119	231-232 T
Transect 120	233-235 T
Transect 121	236-237 T
Transect 122	238-239 T
Transect 123	240-241 T
Transect 124	242-243 T
Transect 125	244-245 T
Transect 126	246-247 T
Transect 127	248-249 T
Transect 128	250-251 T
Transect 129	252-253 T
Transect 130	254-255 T
Transect 131	256-257 T
Transect 132	258-259 T
Transect 133	260-261 T
Transect 134	262-263 T
Transect 135	264-265 T
Transect 136	266-268 T
Transect 137	269-271 T
Transect 138	272-273 T
Transect 139	274-275 T
Transect 140	276-277 T
Transect 141	278-279 T
Transect 142	280-282 T
Transect 143	283-284 T
Transect 144	285-286 T

Volume 9
Exhibits

Transect Profiles	<u>Panel</u>
Transect 145	287-289 T
Transect 146	290-292 T
Transect 147	293-294 T
Transect 148	295-296 T
Transect 149	297-298 T
Transect 150	299-300 T
Transect 151	301-302 T
Transect 152	303-304 T
Transect 153	305-306 T
Transect 154	307-308 T
Transect 155	309-310 T
Transect 156	311-313 T
Transect 157	314-316 T
Transect 158	317-319 T
Transect 159	320-322 T
Transect 160	323-324 T
Transect 161	325-326 T
Transect 162	327-328 T
Transect 163	329-330 T
Transect 164	331-332 T
Transect 165	333-334 T
Transect 166	335-337 T
Transect 167	338-339 T
Transect 168	340-341 T
Transect 169	342-343 T
Transect 170	344-346 T
Transect 171	347-348 T
Transect 172	349-351 T
Transect 173	352-353 T
Transect 174	354-355 T
Transect 175	356-357 T
Transect 176	358-359 T
Transect 177	360-361 T
Transect 178	362-363 T

Volume 10
Exhibits

Transect Profiles	<u>Panel</u>
Transect 179	364 T
Transect 180	365-366 T
Transect 181	367-370 T
Transect 182	369-370 T
Transect 183	371-372 T
Transect 184	373-374 T
Transect 185	375-376 T
Transect 186	377-378 T
Transect 187	379 T
Transect 188	380-381 T
Transect 189	382-383 T
Transect 190	384-385 T
Transect 191	386-387 T
Transect 192	388-389 T
Transect 193	390-391 T
Transect 194	392-393 T
Transect 195	394-395 T
Transect 196	396-397 T
Transect 197	398-399 T
Transect 198	400-401 T
Transect 199	402-403 T
Transect 200	404-406 T
Transect 201	407-408 T
Transect 202	409-411 T
Transect 203	412-413 T
Transect 204	414-415 T
Transect 205	416-417 T
Transect 206	418-419 T
Transect 207	420-422 T
Transect 208	423-424 T
Transect 209	425-426 T
Transect 210	427-428 T
Transect 211	429-431 T
Transect 212	432-434 T
Transect 213	435-436 T
Transect 214	437-438 T
Transect 215	439-440 T

Volume 11
Exhibits

Transect Profiles	<u>Panel</u>
Transect 216	441-442 T
Transect 217	443-445 T
Transect 218	446-447 T
Transect 219	448-450 T
Transect 220	451-453 T
Transect 221	454-456 T
Transect 222	457-459 T
Transect 223	460-462 T
Transect 224	463-465 T
Transect 225	466-468 T
Transect 226	469-471 T
Transect 227	472-474 T
Transect 228	475-477 T
Transect 229	478-479 T
Transect 230	480-481 T
Transect 231	482-483 T
Transect 232	484-486 T
Transect 233	487-488 T
Transect 234	489-490 T
Transect 235	491-492 T
Transect 236	493-495 T
Transect 237	496-497 T
Transect 238	498-500 T
Transect 239	501-503 T
Transect 240	504-506 T
Transect 241	507 T
Transect 242	508-510 T
Transect 243	511-512 T
Transect 244	513-514 T
Transect 245	515-516 T
Transect 246	517-518 T

Volume 12
Exhibits

Transect Profiles	<u>Panel</u>
Transect 247	519-520 T
Transect 248	521-522 T
Transect 249	523-524 T
Transect 250	525-526 T
Transect 251	527-528 T
Transect 252	529-530 T
Transect 253	531-532 T
Transect 254	533-534 T
Transect 255	535-537 T
Transect 256	538-539 T
Transect 257	540-541 T
Transect 258	542-543 T
Transect 259	544-545 T
Transect 260	546-548 T
Transect 261	549-551 T
Transect 262	552-553 T
Transect 263	554-556 T
Transect 264	557-558 T
Transect 265	559-561 T
Transect 266	562-563 T
Transect 267	564-565 T
Transect 268	566-567 T
Transect 269	568-570 T
Transect 270	571-572 T
Transect 271	573-575 T
Transect 272	576-578 T
Transect 273	579-581 T
Transect 274	582-584 T
Transect 275	585-587 T
Transect 276	588-589 T
Transect 277	590-592 T
Transect 278	593-594 T
Transect 279	595 T
Transect 280	596 T

Volume 13
Exhibits

Transect Profiles	<u>Panel</u>
Transect 281	597 T
Transect 282	598 T
Transect 283	599 T
Transect 284	600-601 T
Transect 285	602-603 T
Transect 286	604-605 T
Transect 287	606-607 T
Transect 288	608-609 T
Transect 289	610 T
Transect 290	611 T
Transect 291	612 T
Transect 292	613-614 T
Transect 293	615 T
Transect 294	616-617 T
Transect 295	618-619 T
Transect 296	620-621 T
Transect 297	622-623 T
Transect 298	624-626 T
Transect 299	627-629 T
Transect 300	630-631 T
Transect 301	632-633 T
Transect 302	634-636 T
Transect 303	637-639 T
Transect 304	640-641 T
Transect 305	642-643 T
Transect 306	644-646 T
Transect 307	647-648 T
Transect 308	649-650 T
Transect 309	651-653 T
Transect 310	654-655 T
Transect 311	656-658 T
Transect 312	659-660 T
Transect 313	661-662 T
Transect 314	663-664 T
Transect 315	665-666 T
Transect 316	667-668 T
Transect 317	669-670 T
Transect 318	671-672 T
Transect 319	673 T
Transect 320	674 T

Volume 14
Exhibits

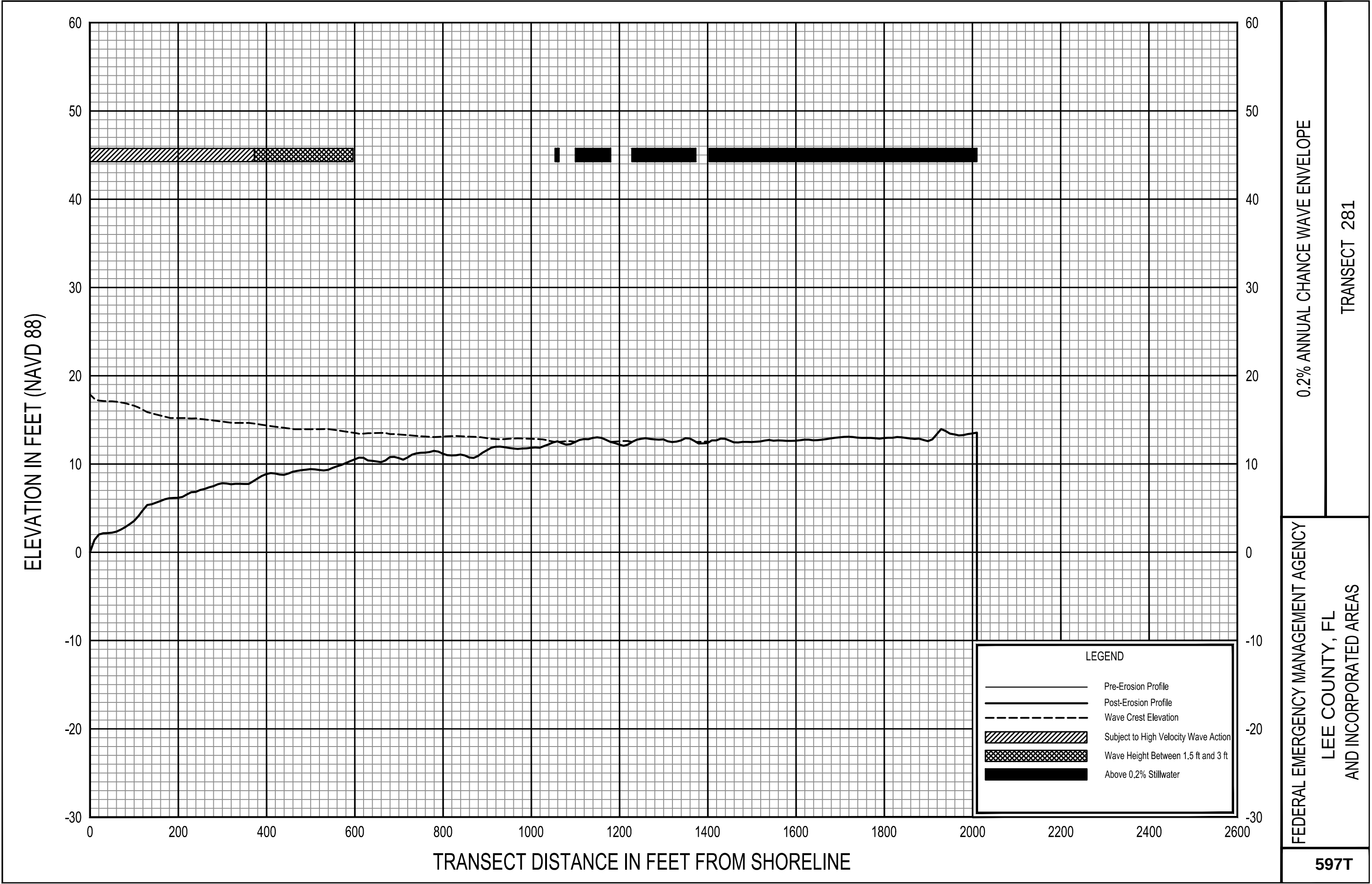
Transect Profiles	<u>Panel</u>
Transect 321	675-676 T
Transect 322	677-678 T
Transect 323	679-680 T
Transect 324	681-682 T
Transect 325	683-684 T
Transect 326	685 T
Transect 327	686-687 T
Transect 328	688 T
Transect 329	689-690 T
Transect 330	691-692 T
Transect 331	693-694 T
Transect 332	695-696 T
Transect 333	697-699 T
Transect 334	700-701 T
Transect 335	702-704 T
Transect 336	705-706 T
Transect 337	707 T
Transect 338	708-709 T
Transect 339	710 T
Transect 340	711-713 T
Transect 341	714-715 T
Transect 342	716-718 T
Transect 343	719-721 T
Transect 344	722-724 T
Transect 345	725-727 T
Transect 346	728-729 T
Transect 347	730 T
Transect 348	731-732 T
Transect 349	733-734 T
Transect 350	735-736 T
Transect 351	737-738 T
Transect 352	739-740 T
Transect 353	741-742 T
Transect 354	743 T
Transect 355	744-745 T
Transect 356	746-748 T
Transect 357	749-750 T

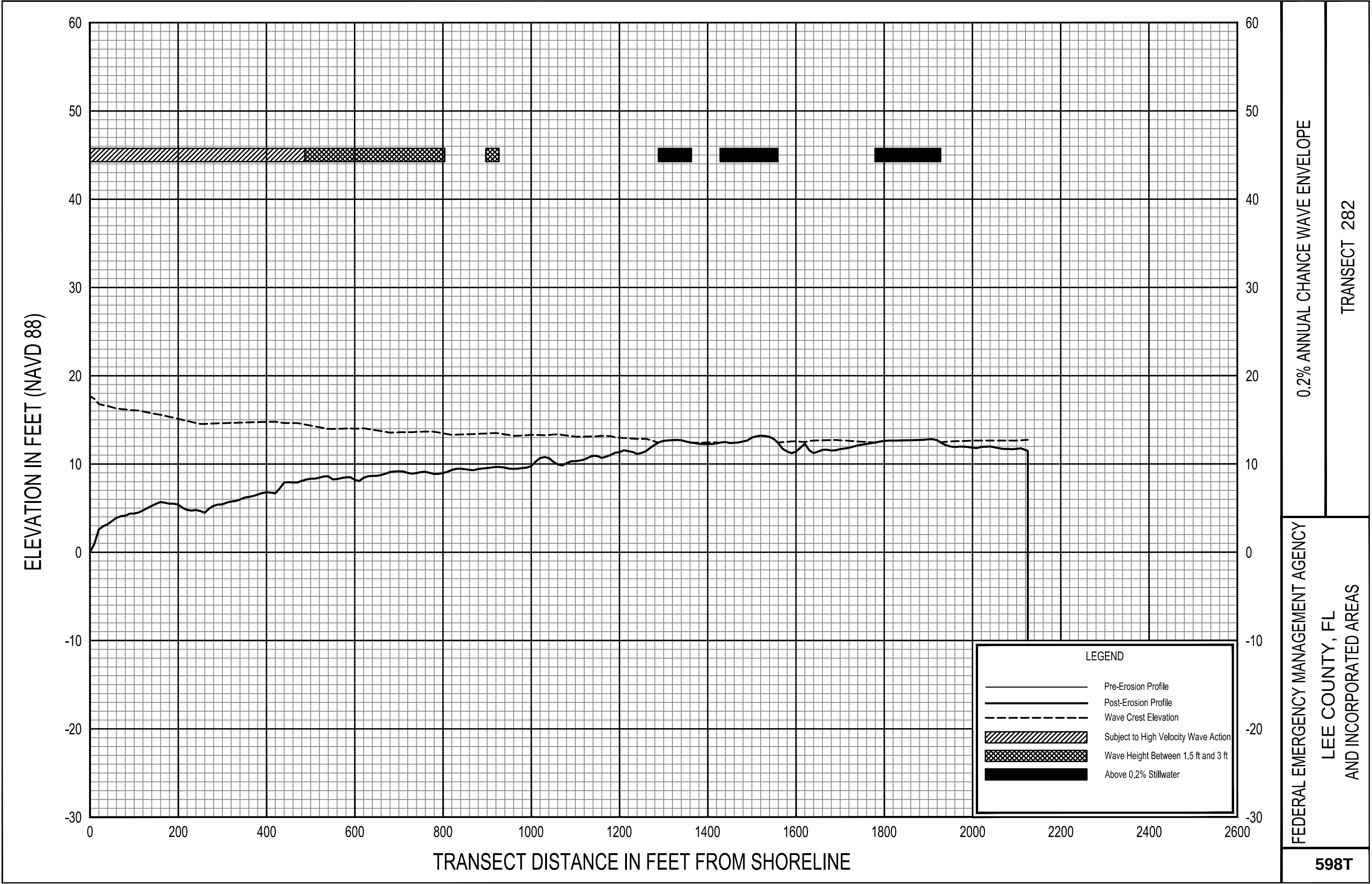
Volume 15
Exhibits

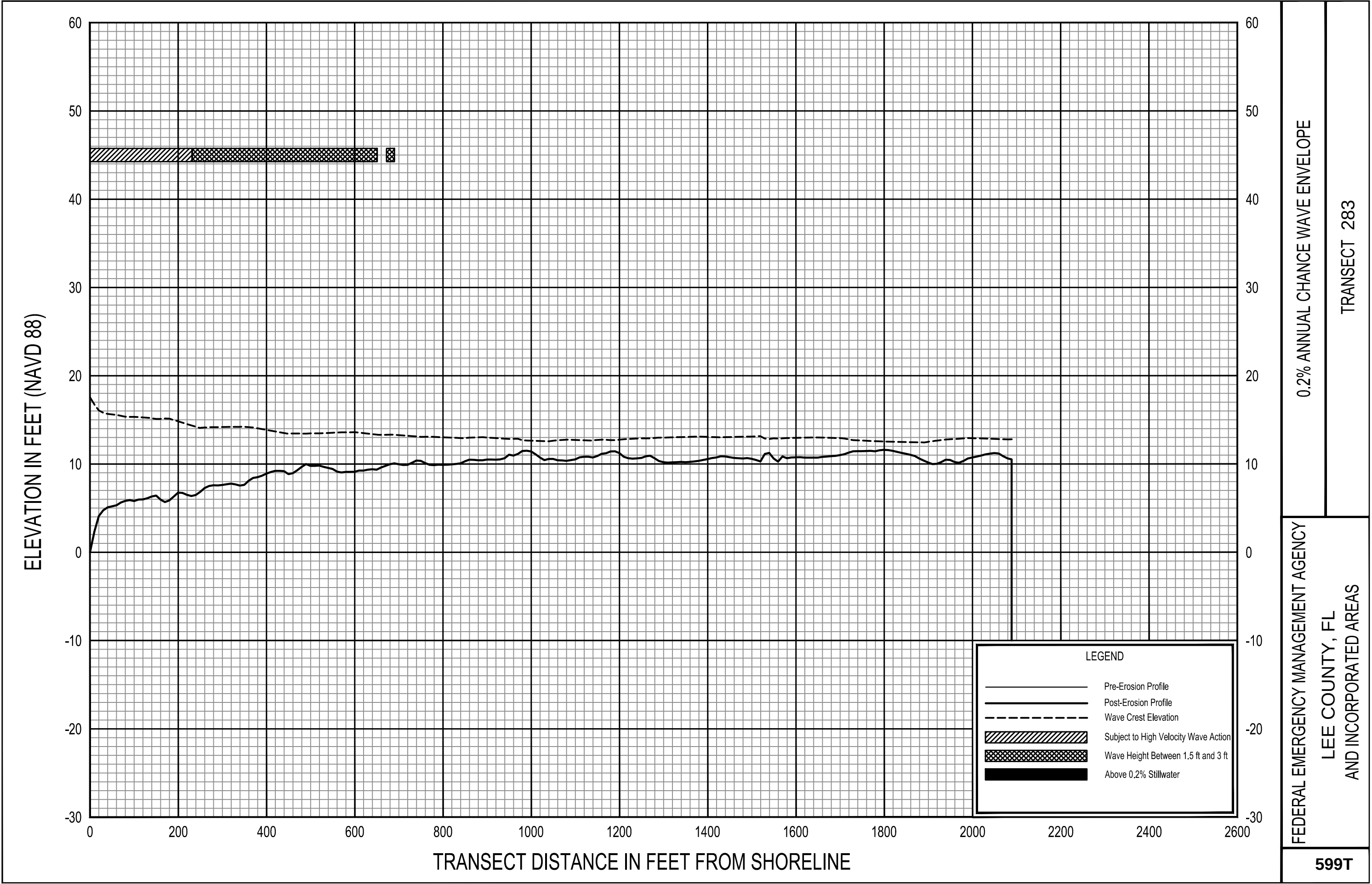
Transect Profiles	<u>Panel</u>
Transect 358	751-752 T
Transect 359	753-755 T
Transect 360	756-757 T
Transect 361	758-760 T
Transect 362	761-762 T
Transect 363	763-764 T
Transect 364	765-766 T
Transect 365	767-768 T
Transect 366	769-770 T
Transect 367	771-772 T
Transect 368	773-775 T
Transect 369	776-778 T
Transect 370	779-781 T
Transect 371	782-784 T
Transect 372	785-786 T
Transect 373	787 T
Transect 374	788-789 T
Transect 375	790-791 T
Transect 376	792-793 T
Transect 377	794-795 T
Transect 378	796-797 T
Transect 379	798-799 T
Transect 380	800-801 T
Transect 381	802-803 T
Transect 382	804-805 T
Transect 383	806-807 T
Transect 384	808-809 T
Transect 385	810-811 T
Transect 386	812-813 T
Transect 387	814-815 T
Transect 388	816-818 T
Transect 389	818-819 T

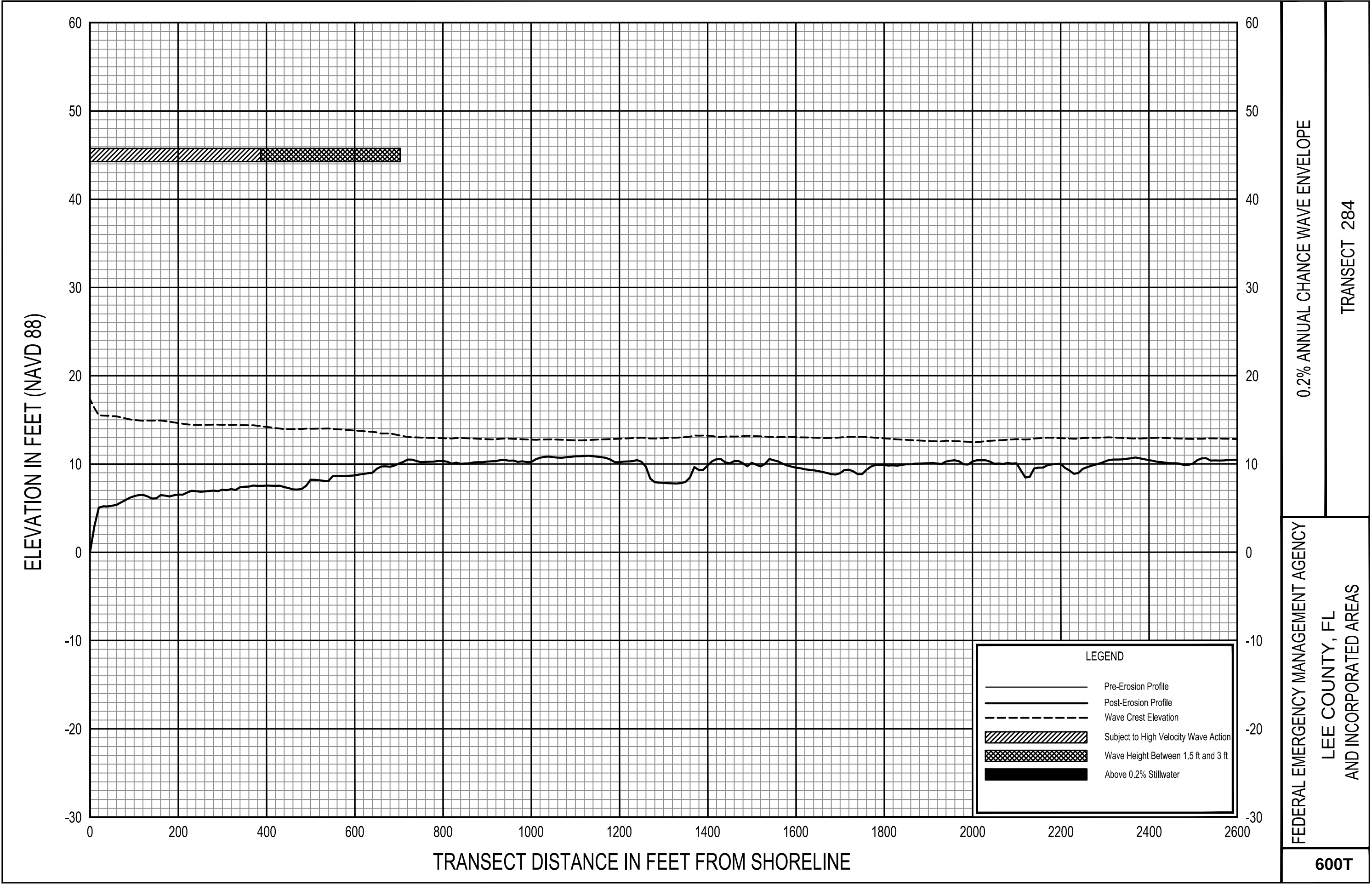
Published Separately

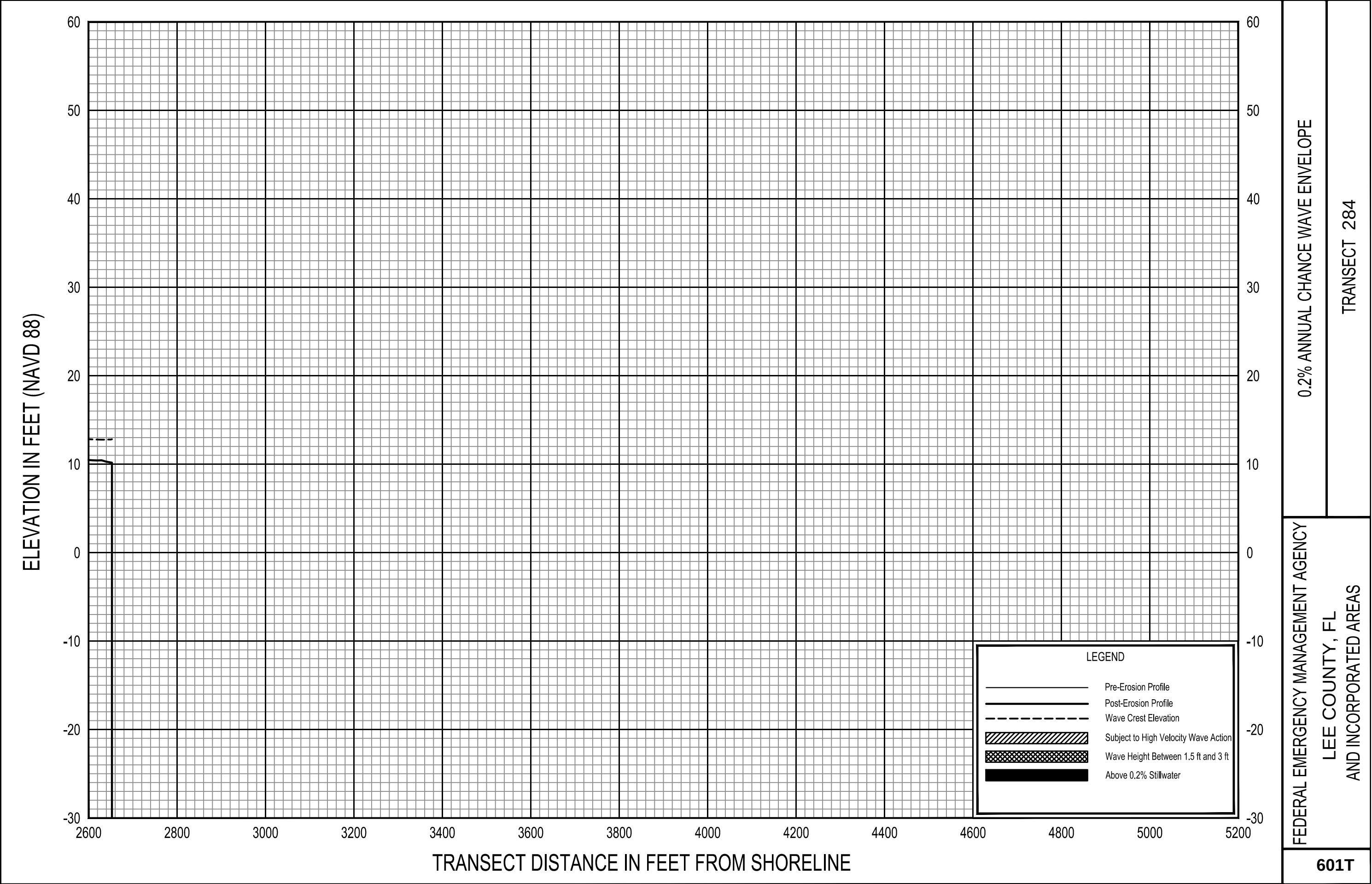
Flood Insurance Rate Map (FIRM)

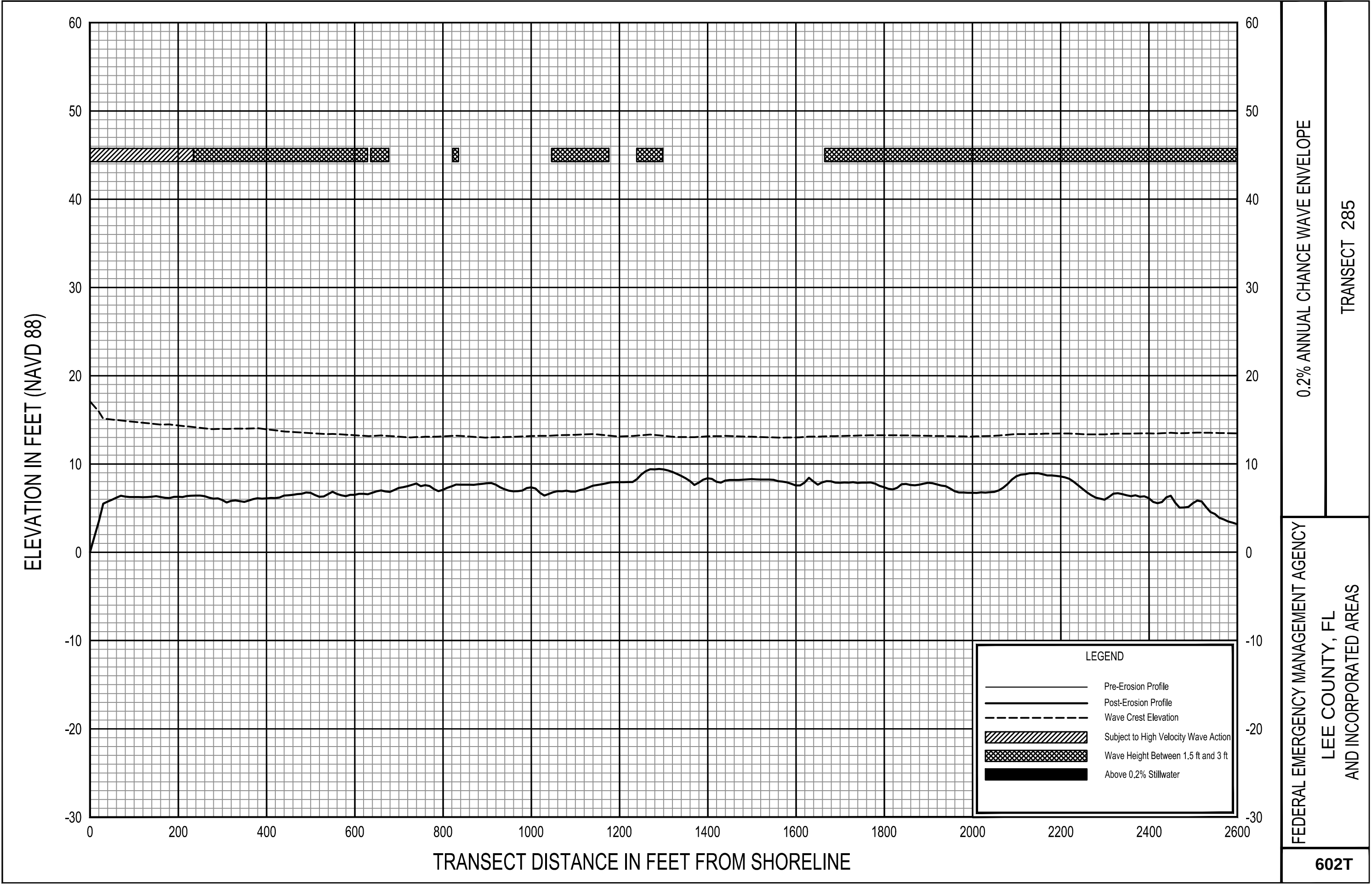


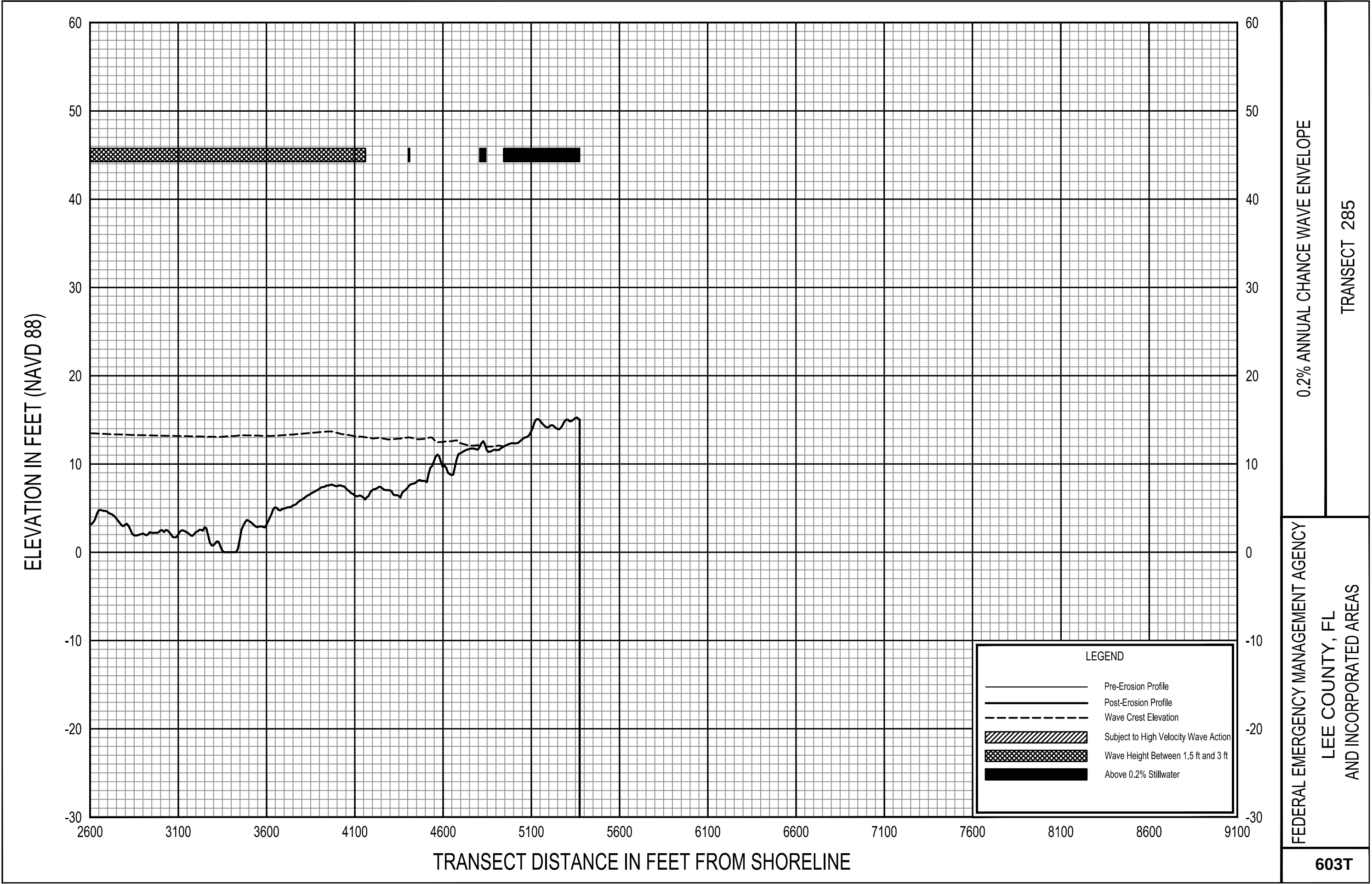


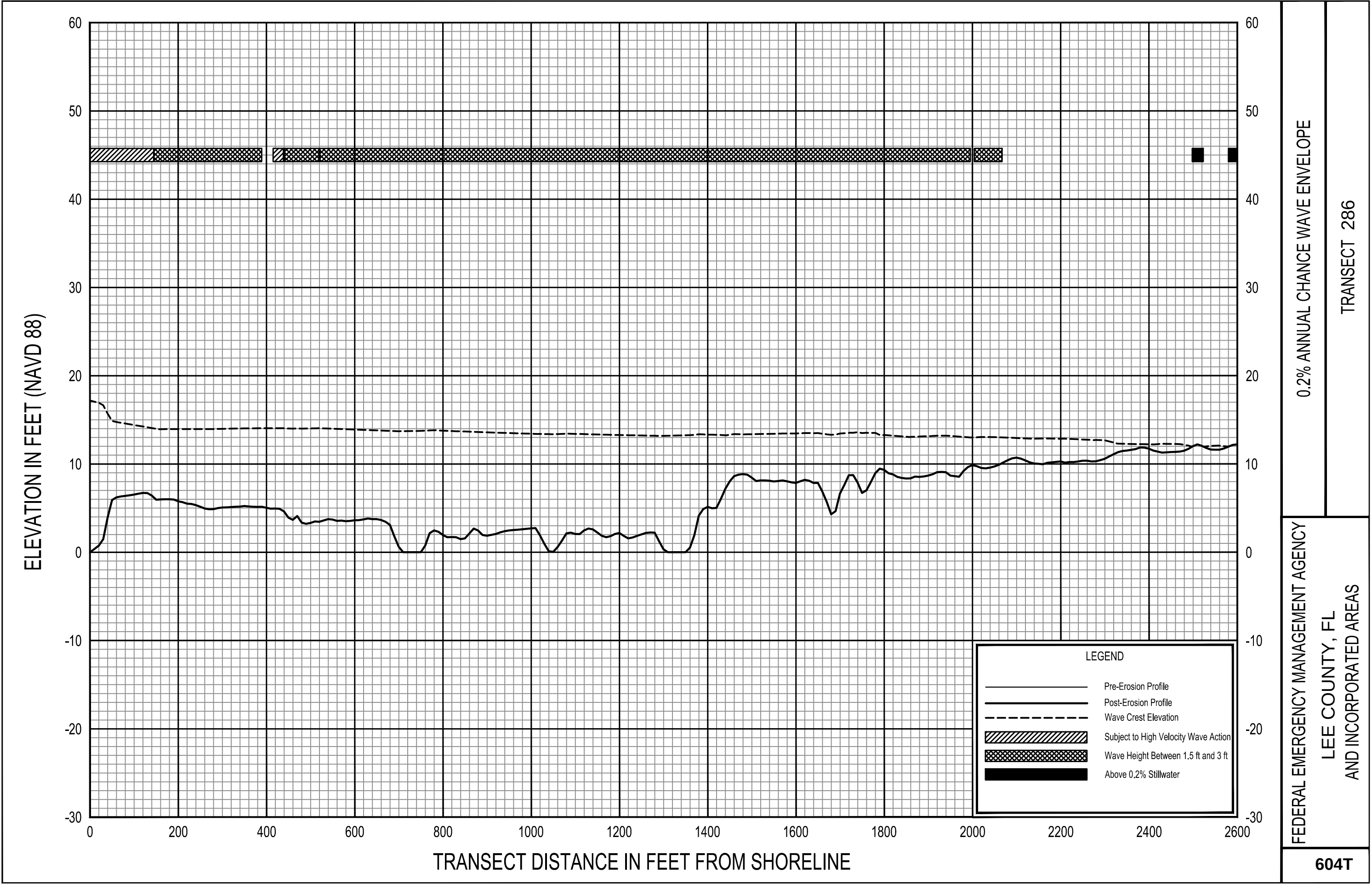


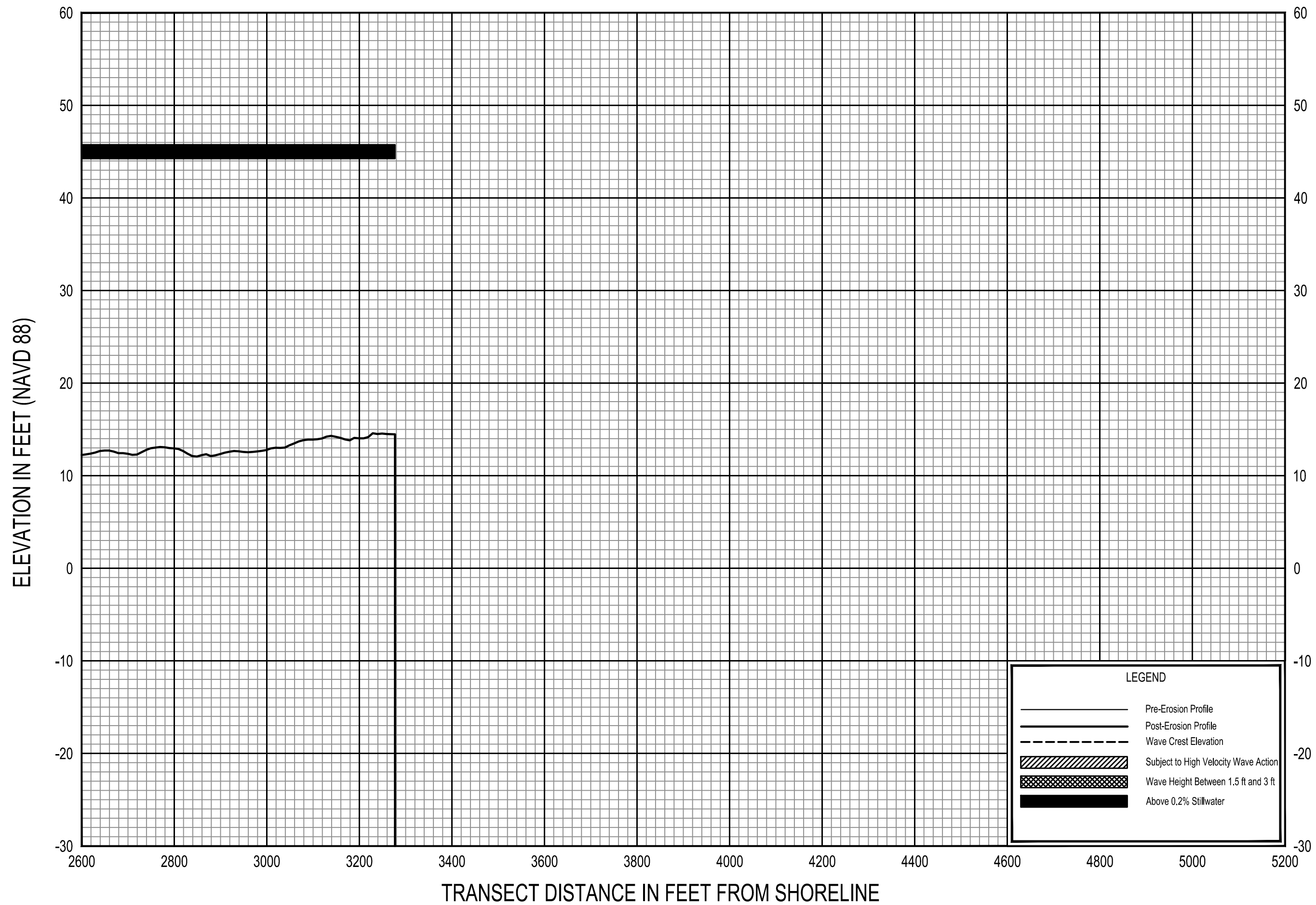












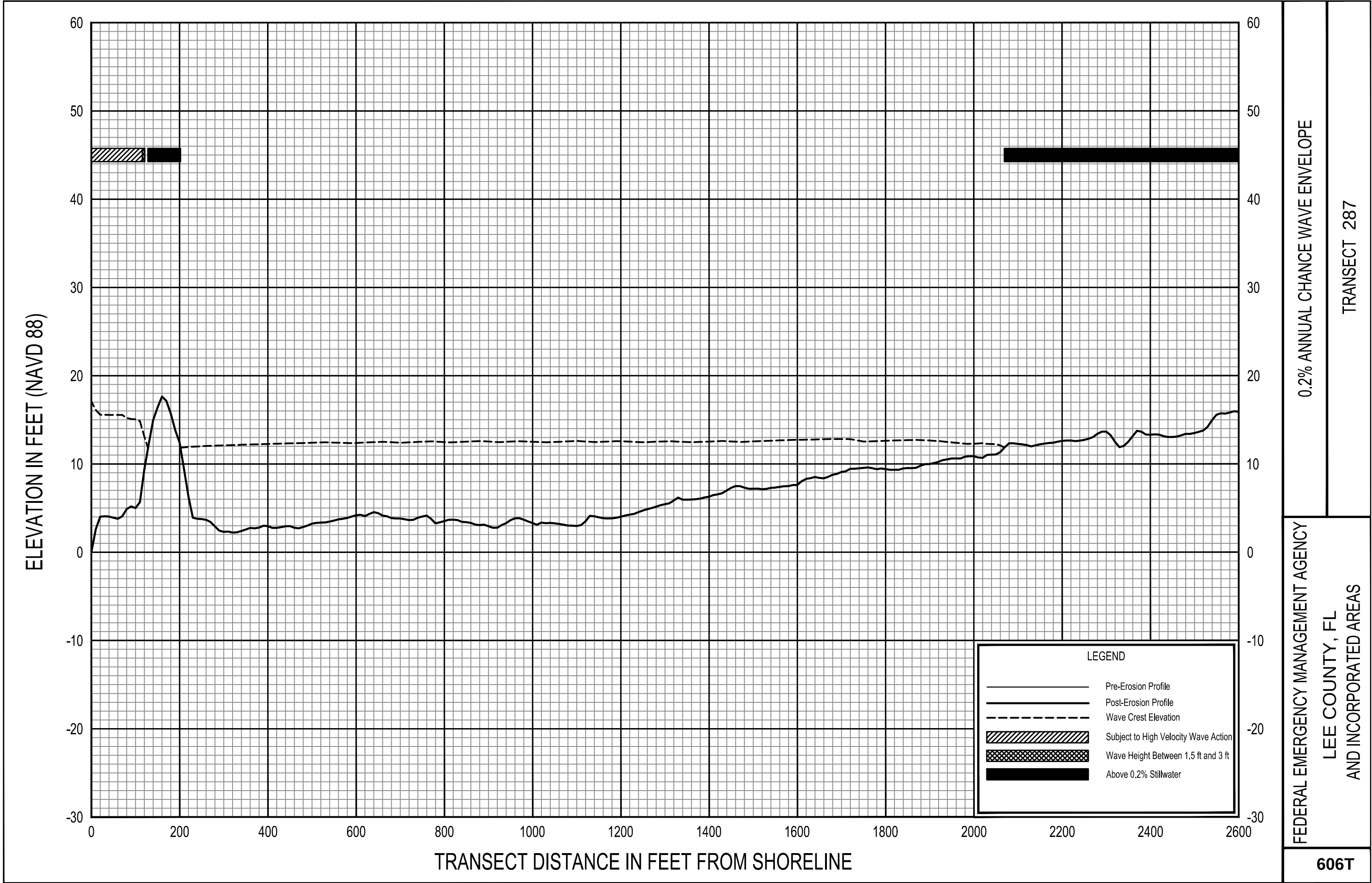
FEDERAL EMERGENCY MANAGEMENT AGENCY

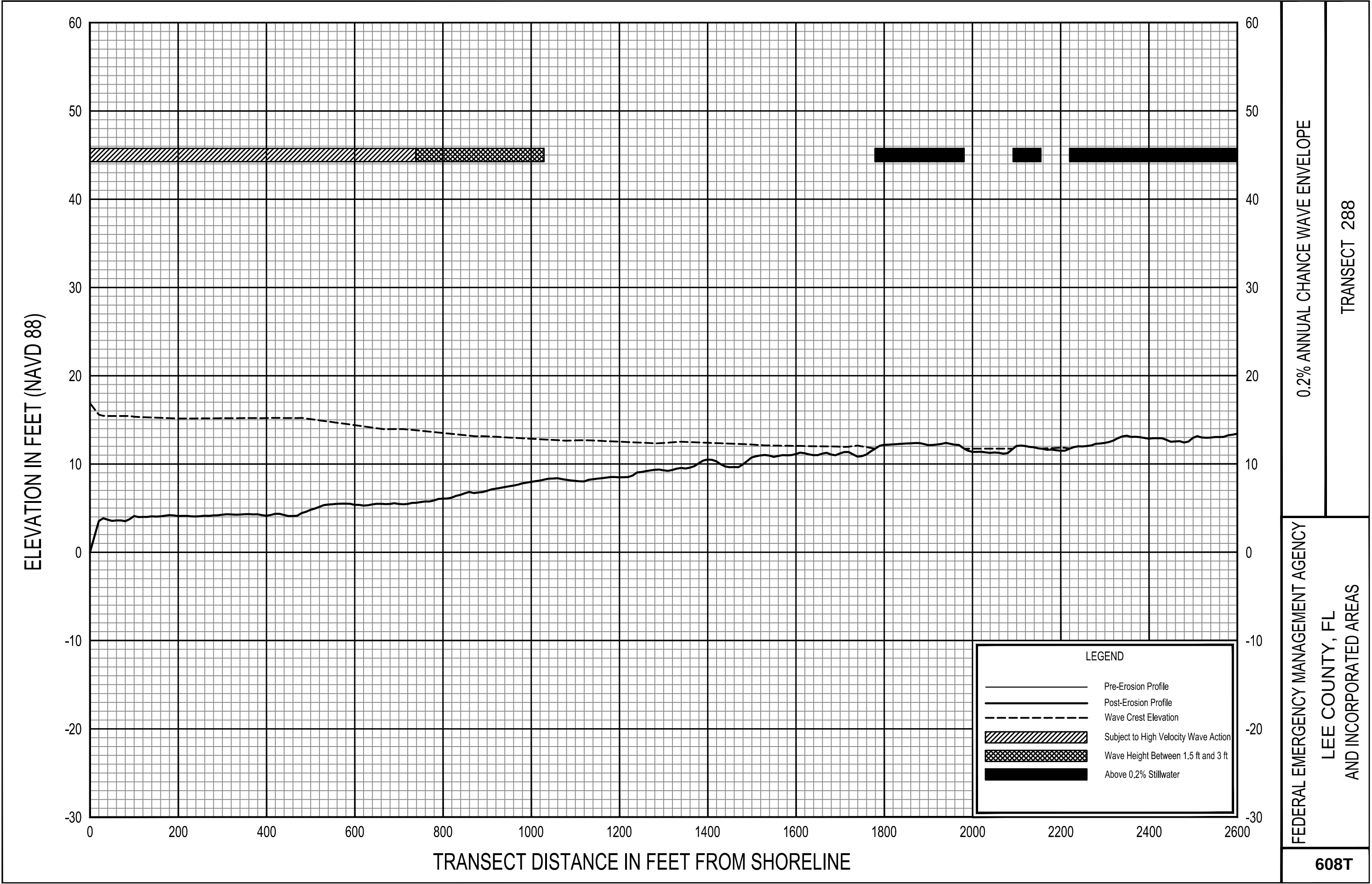
LEE COUNTY, FL
AND INCORPORATED AREAS

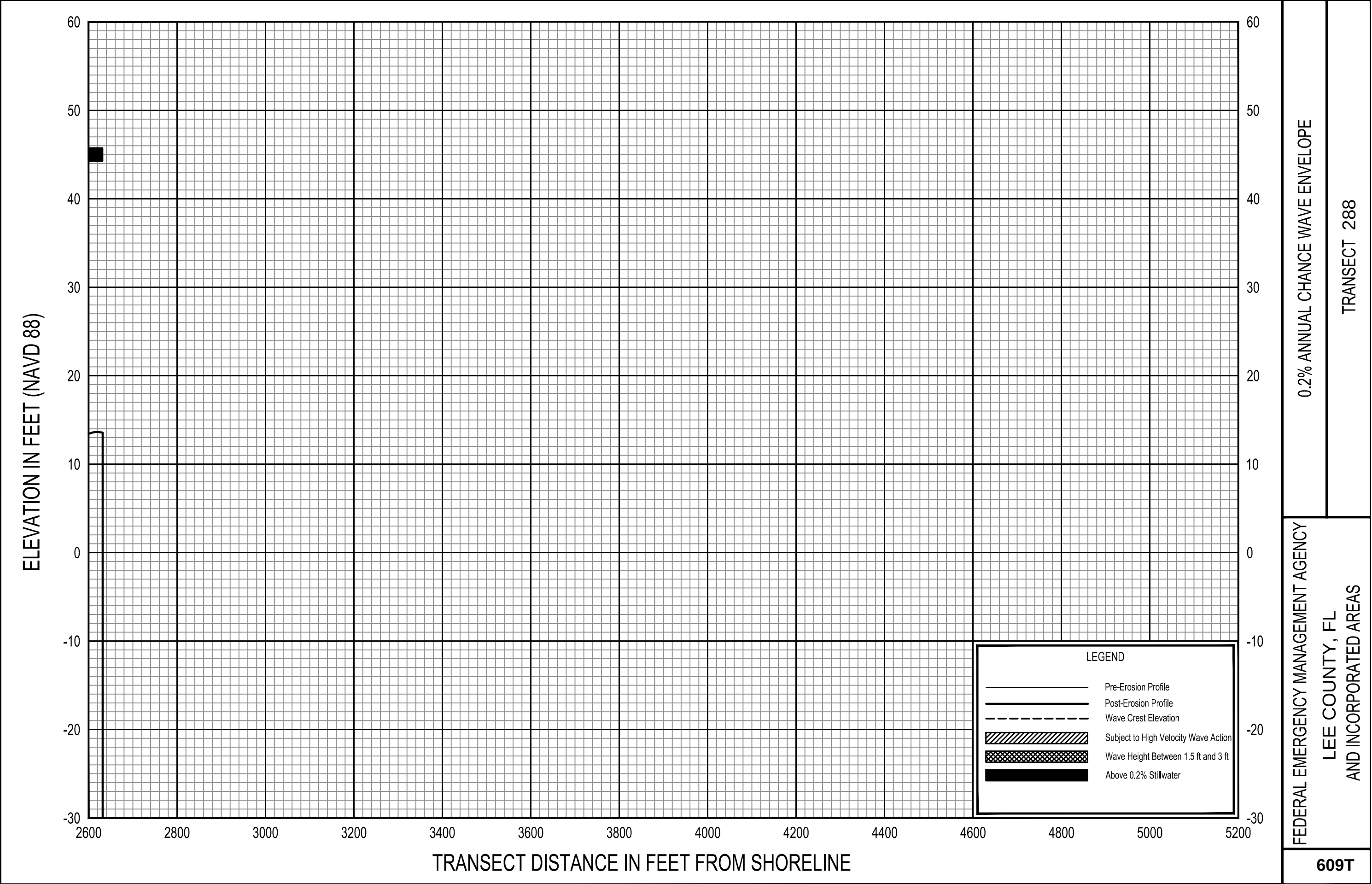
0.2% ANNUAL CHANCE WAVE ENVELOPE

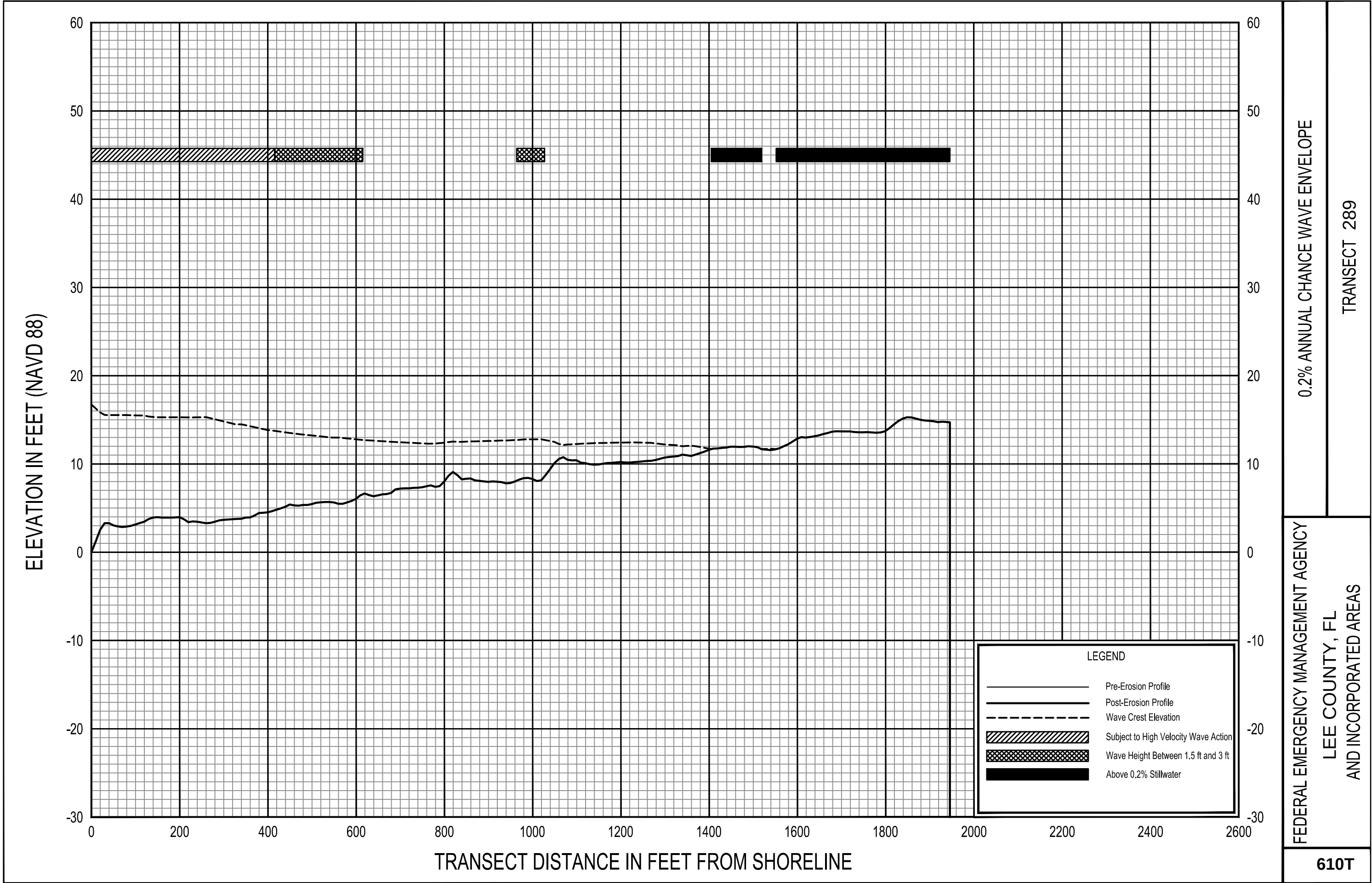
TRANSECT 286

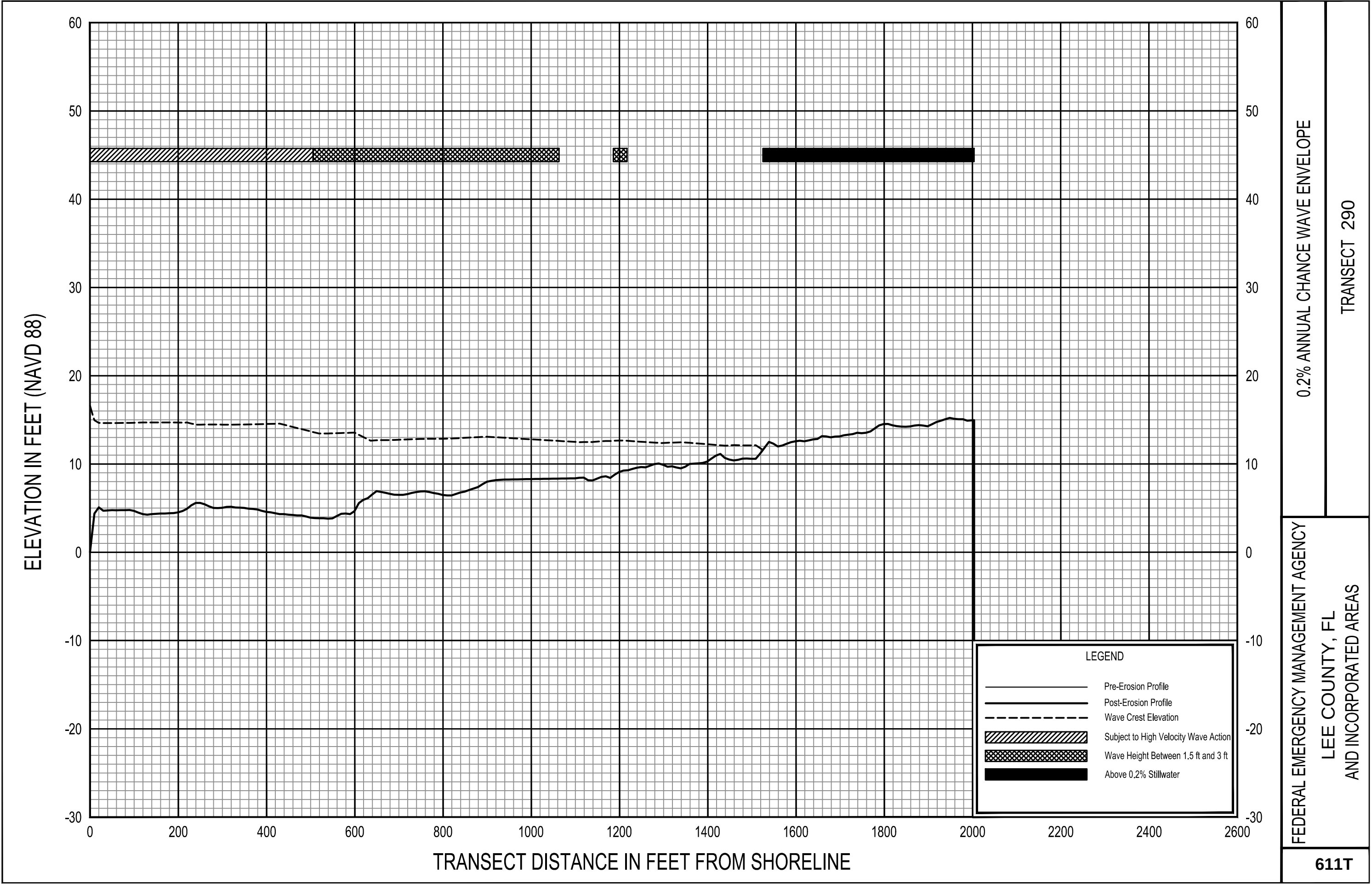
605T

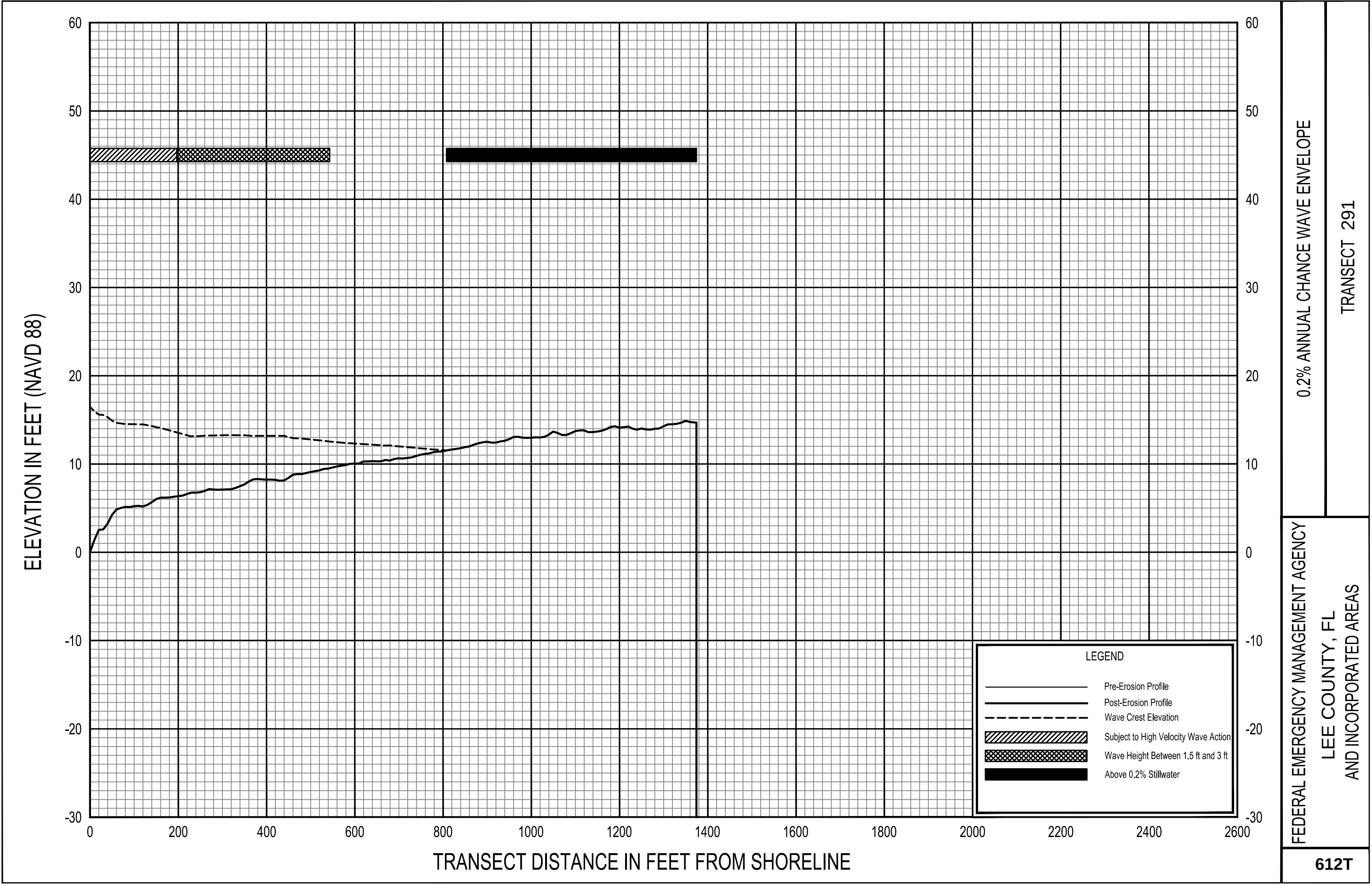


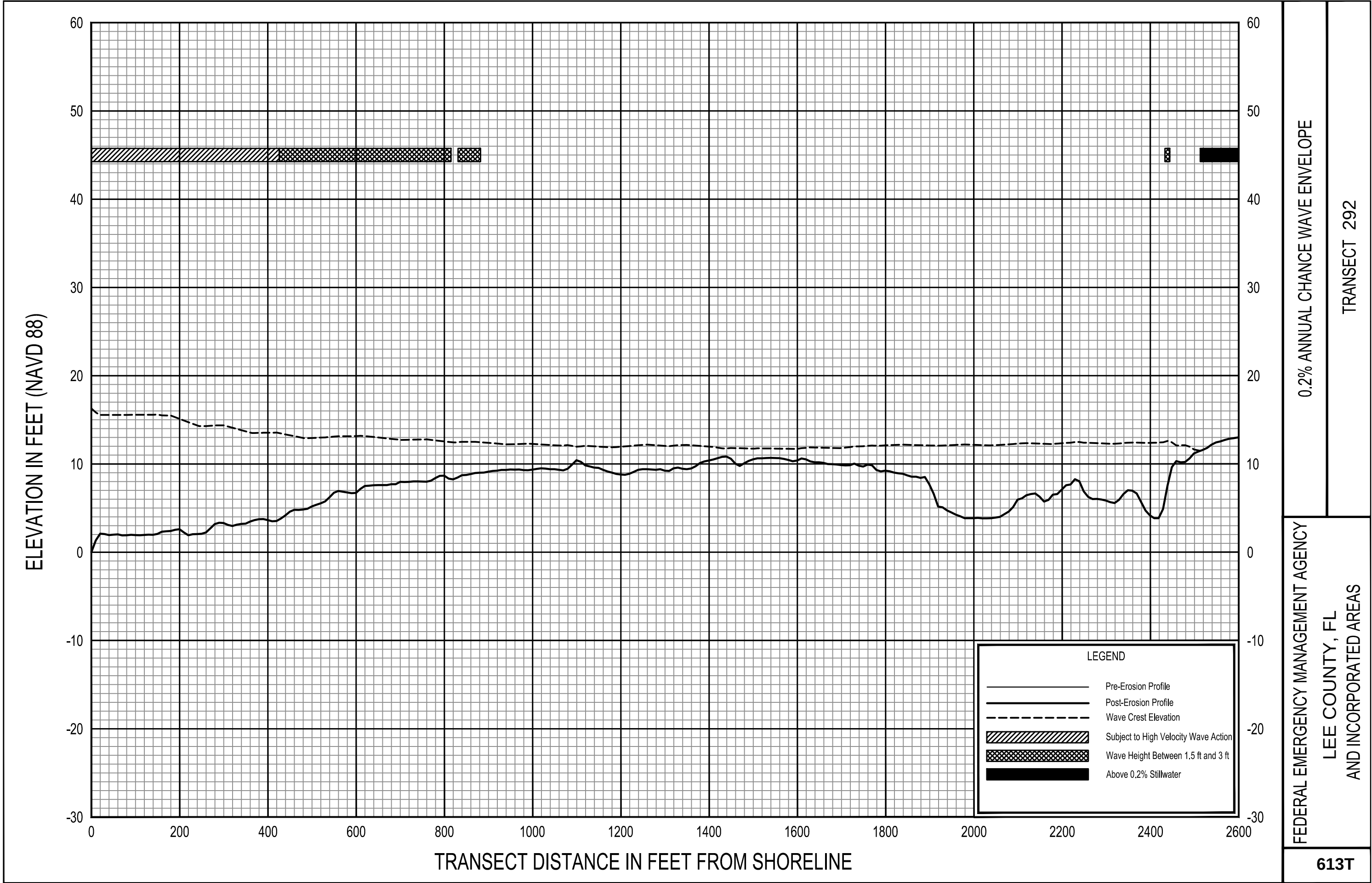


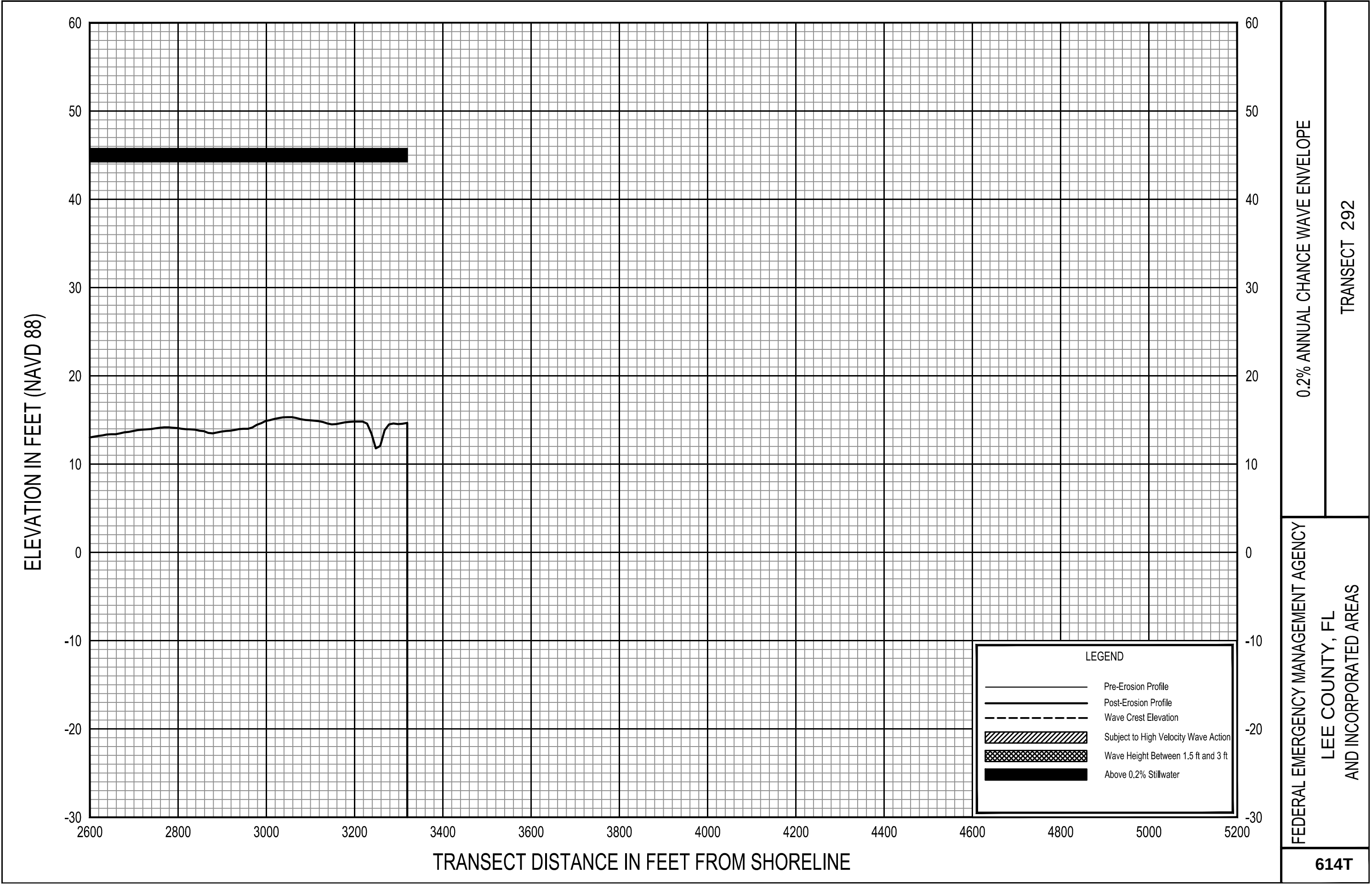


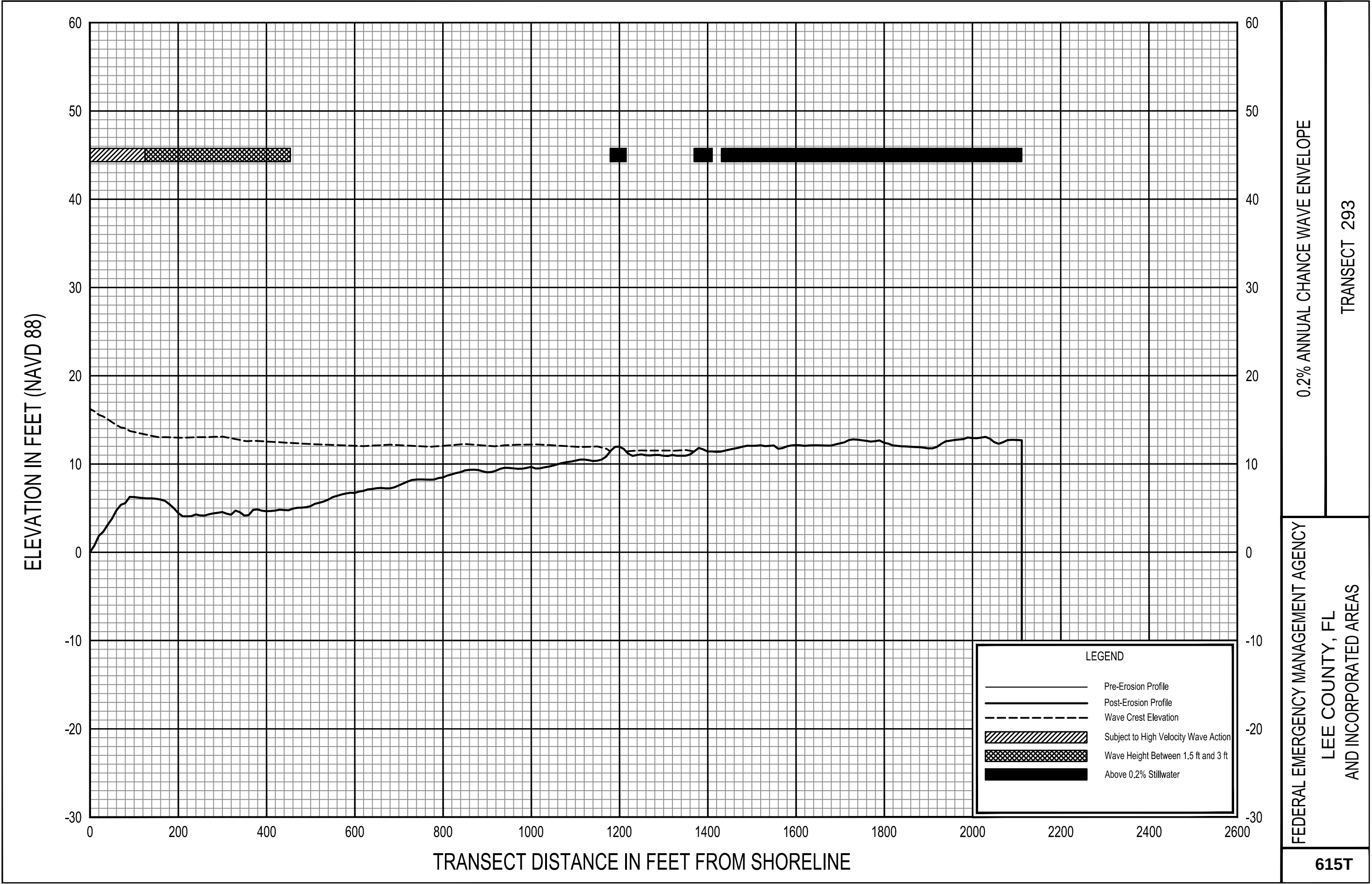


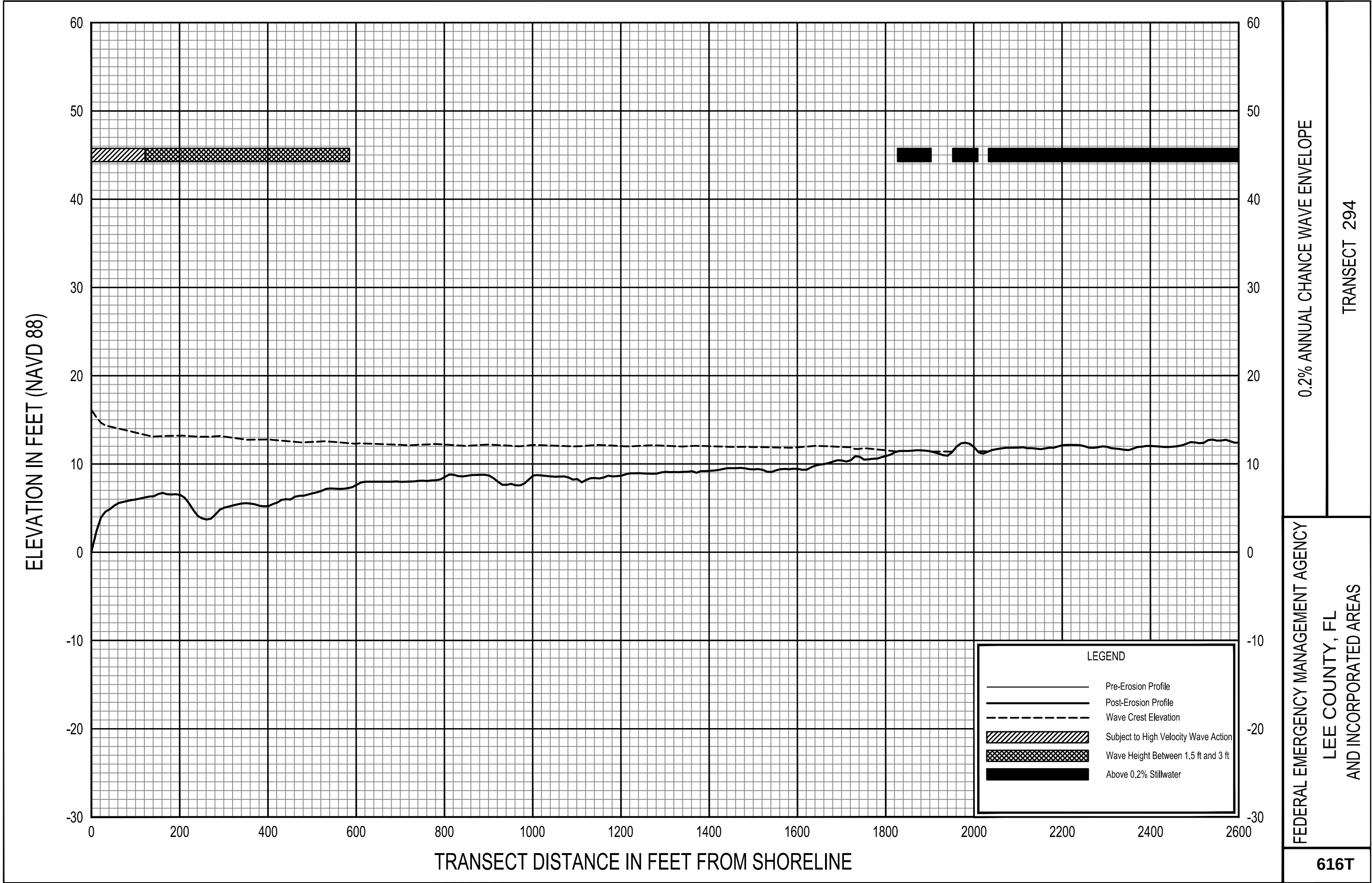


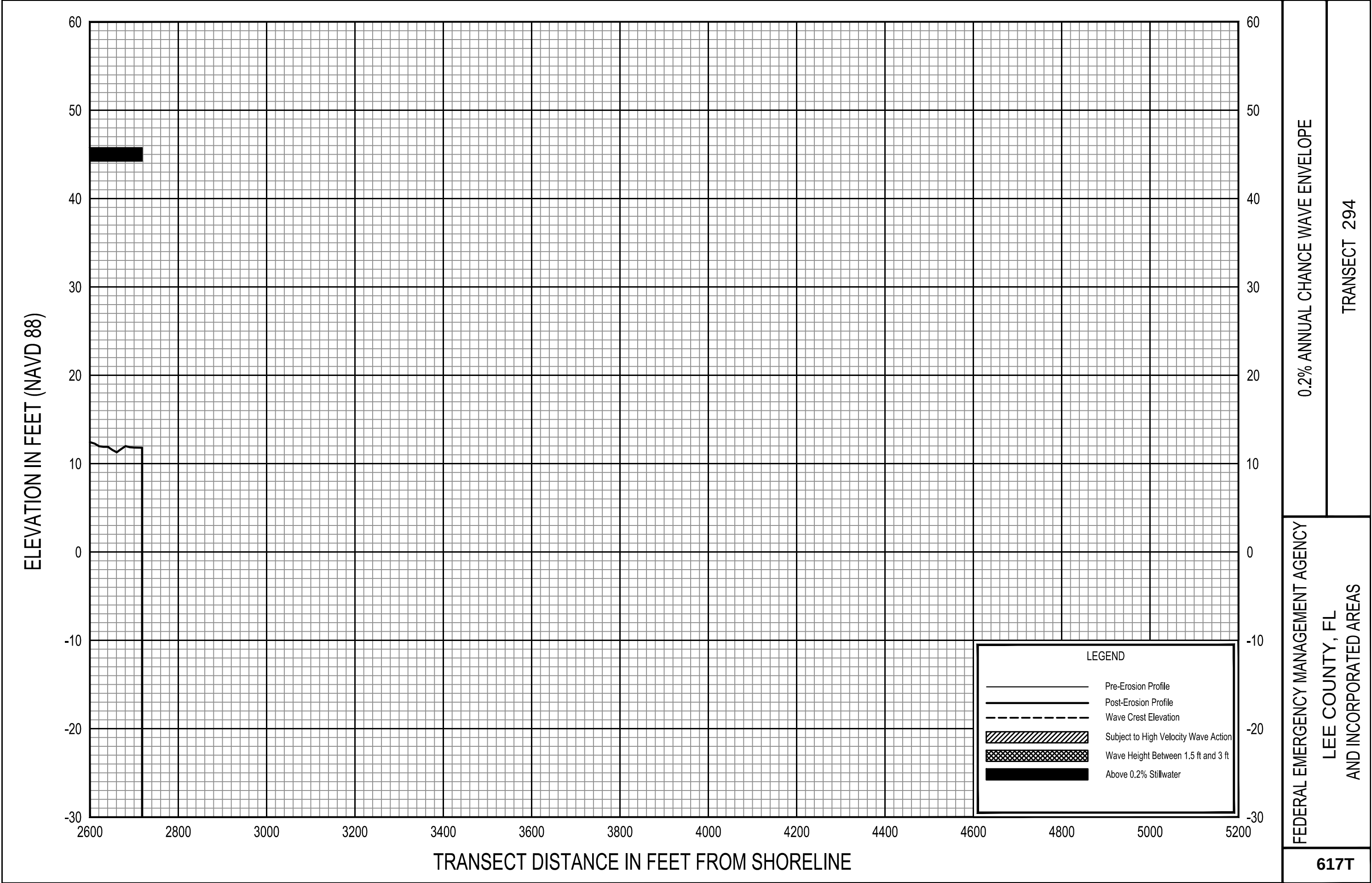


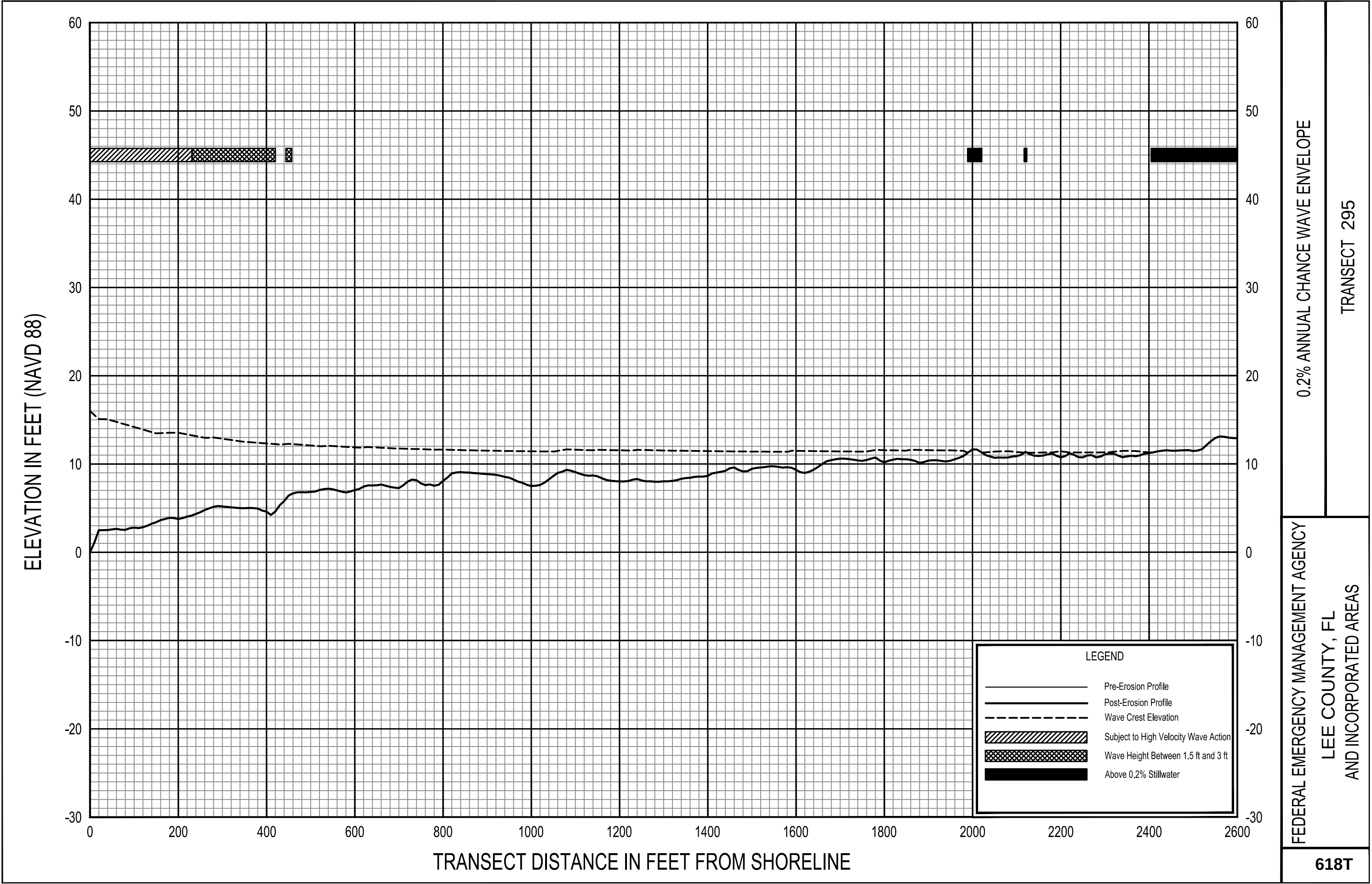


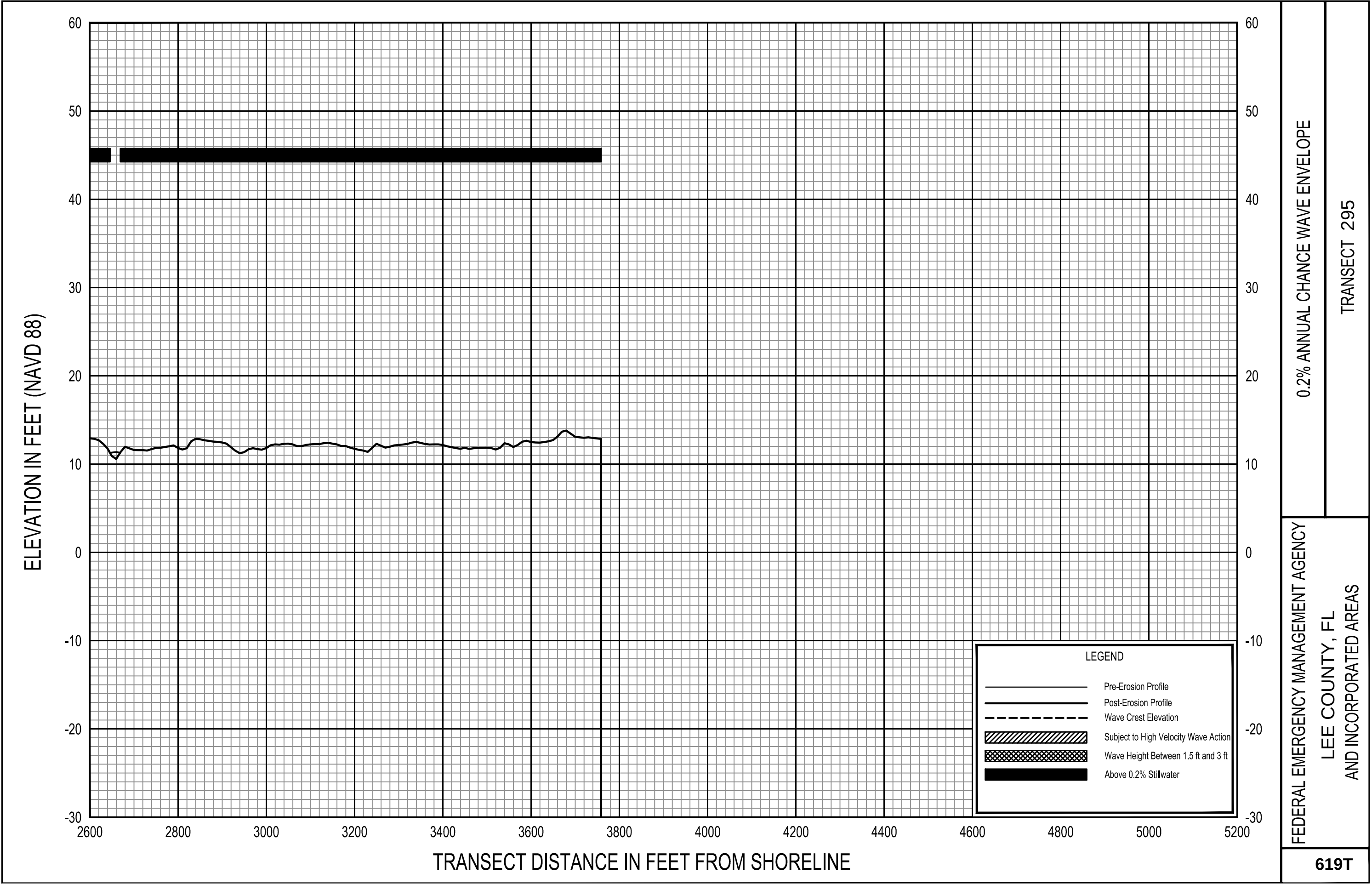


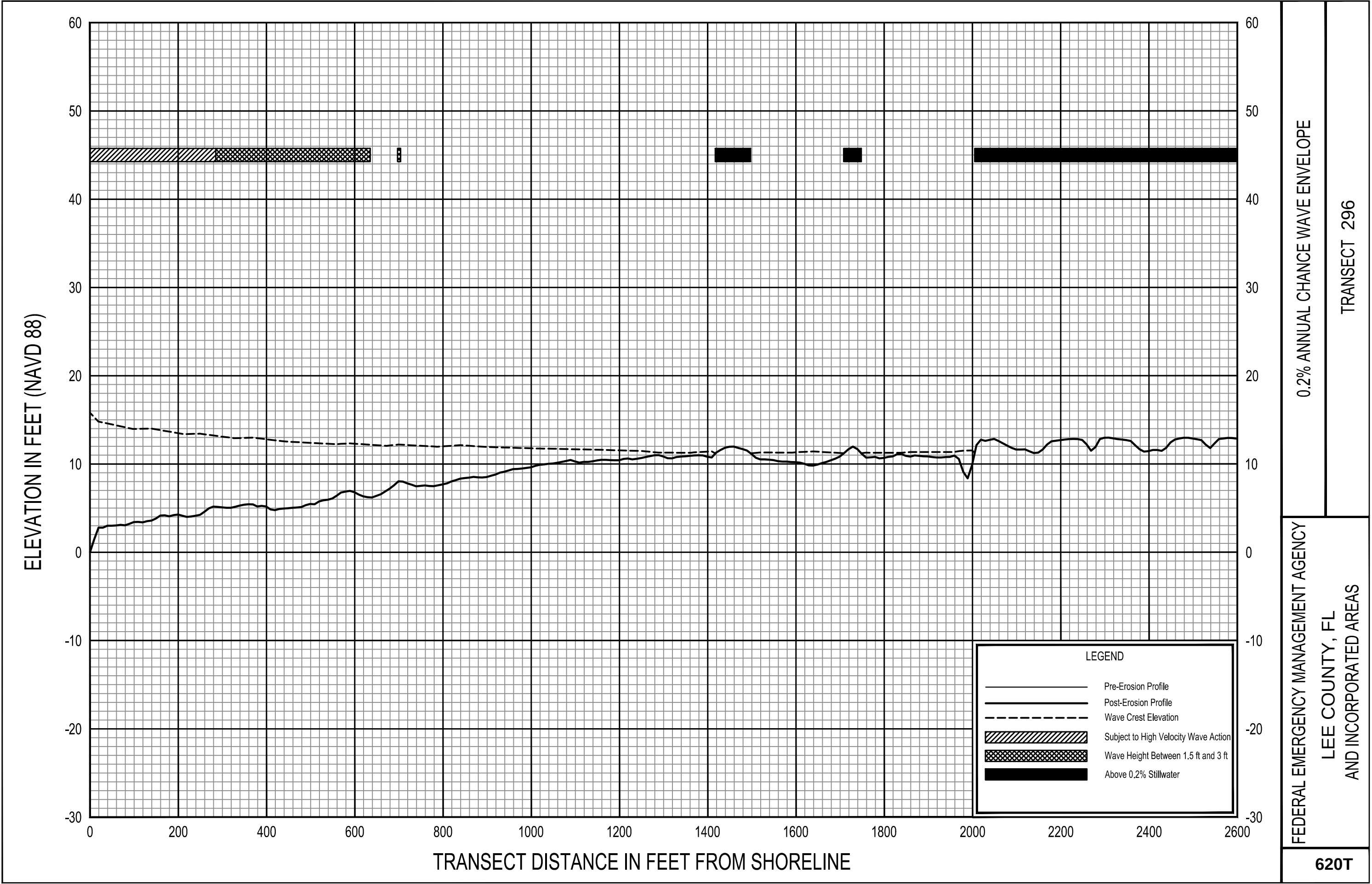


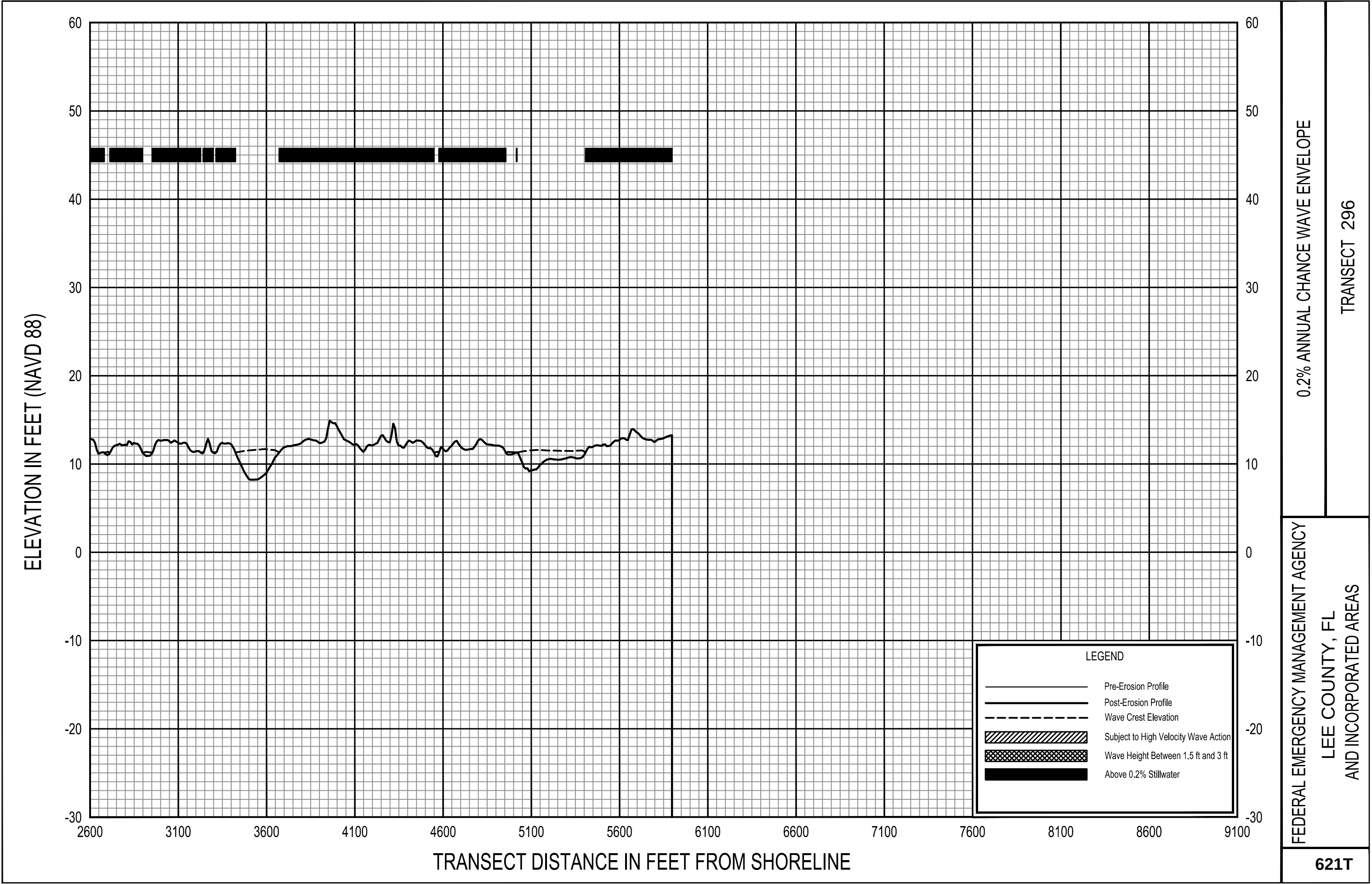


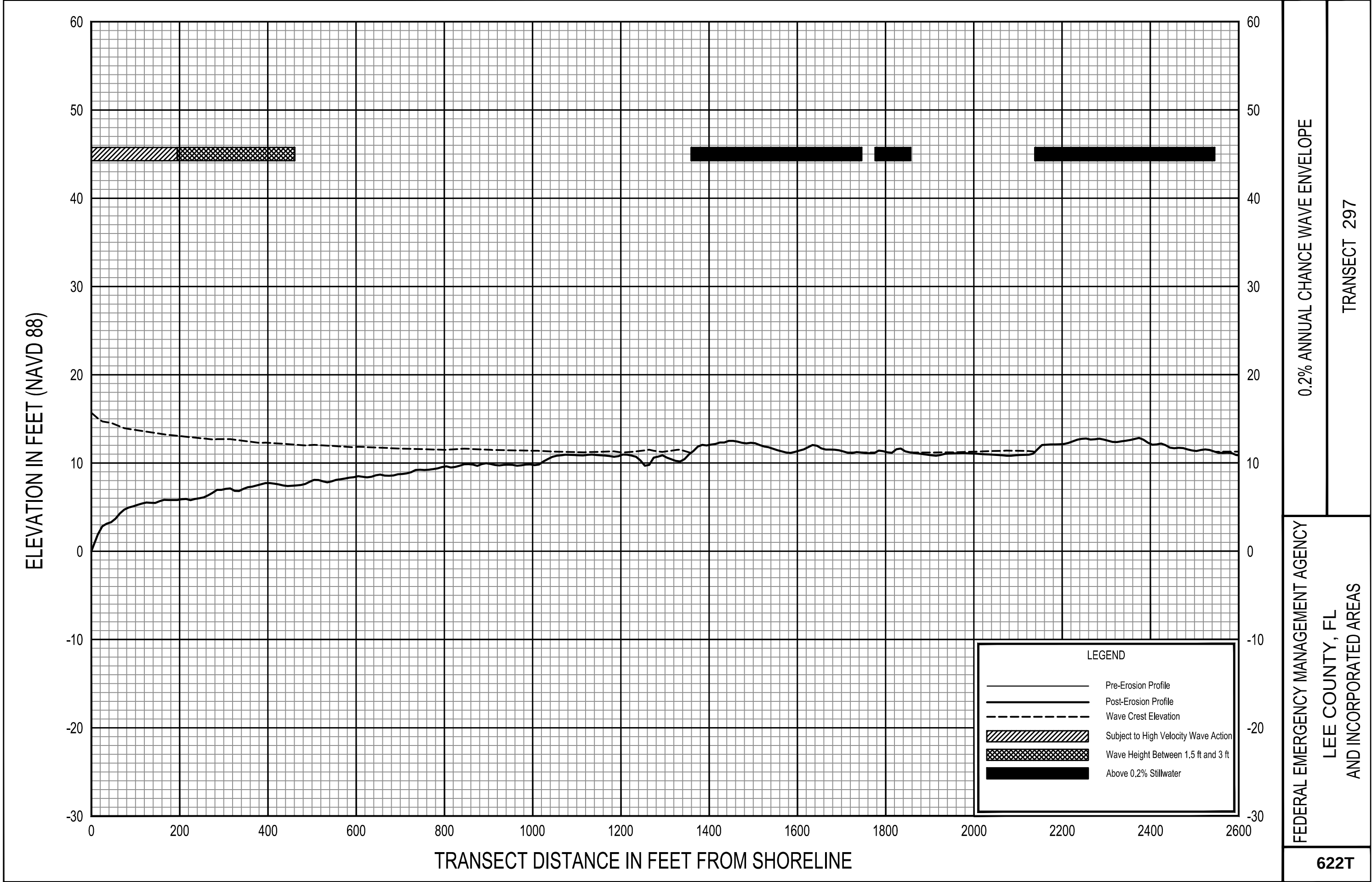


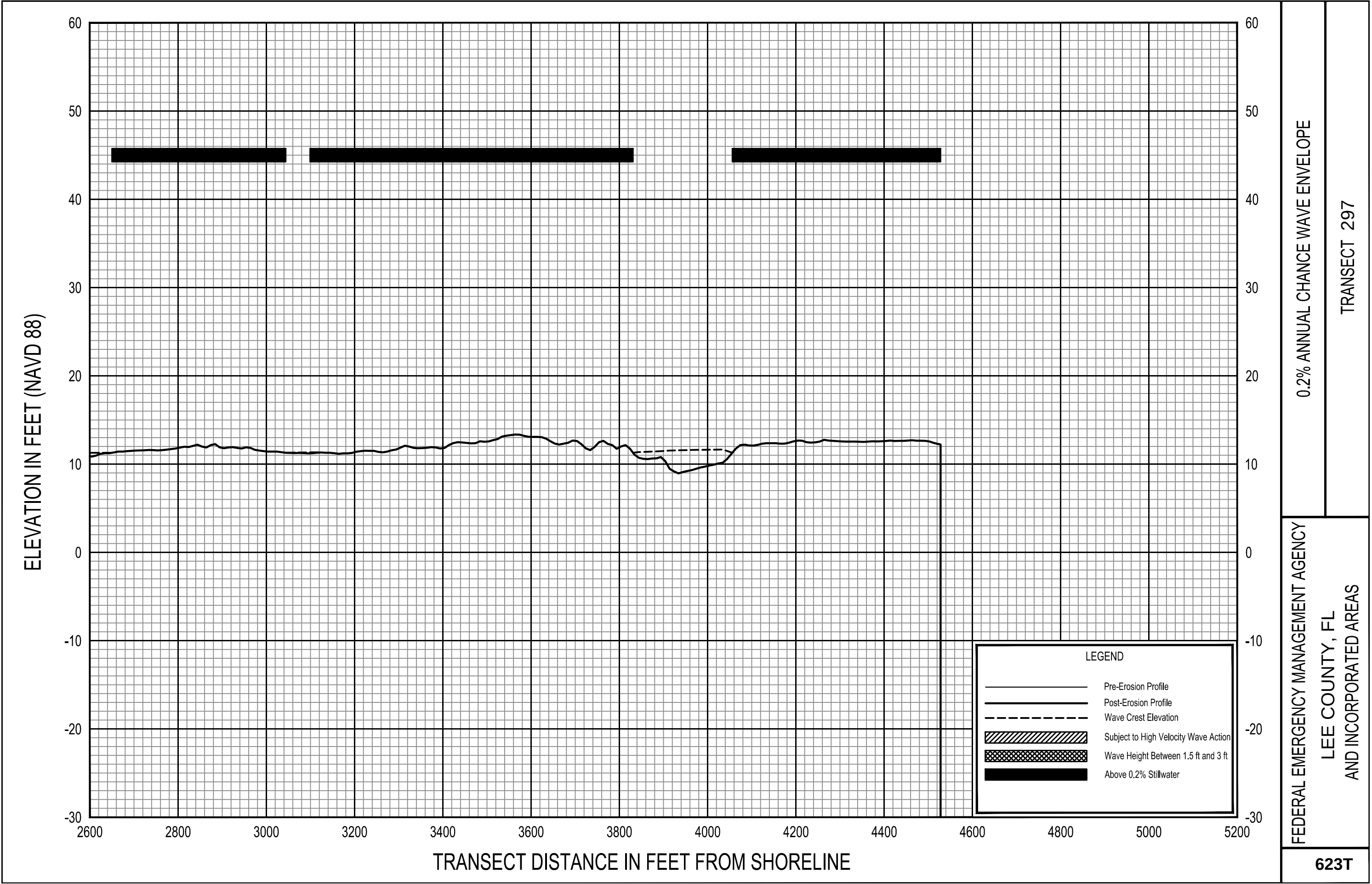


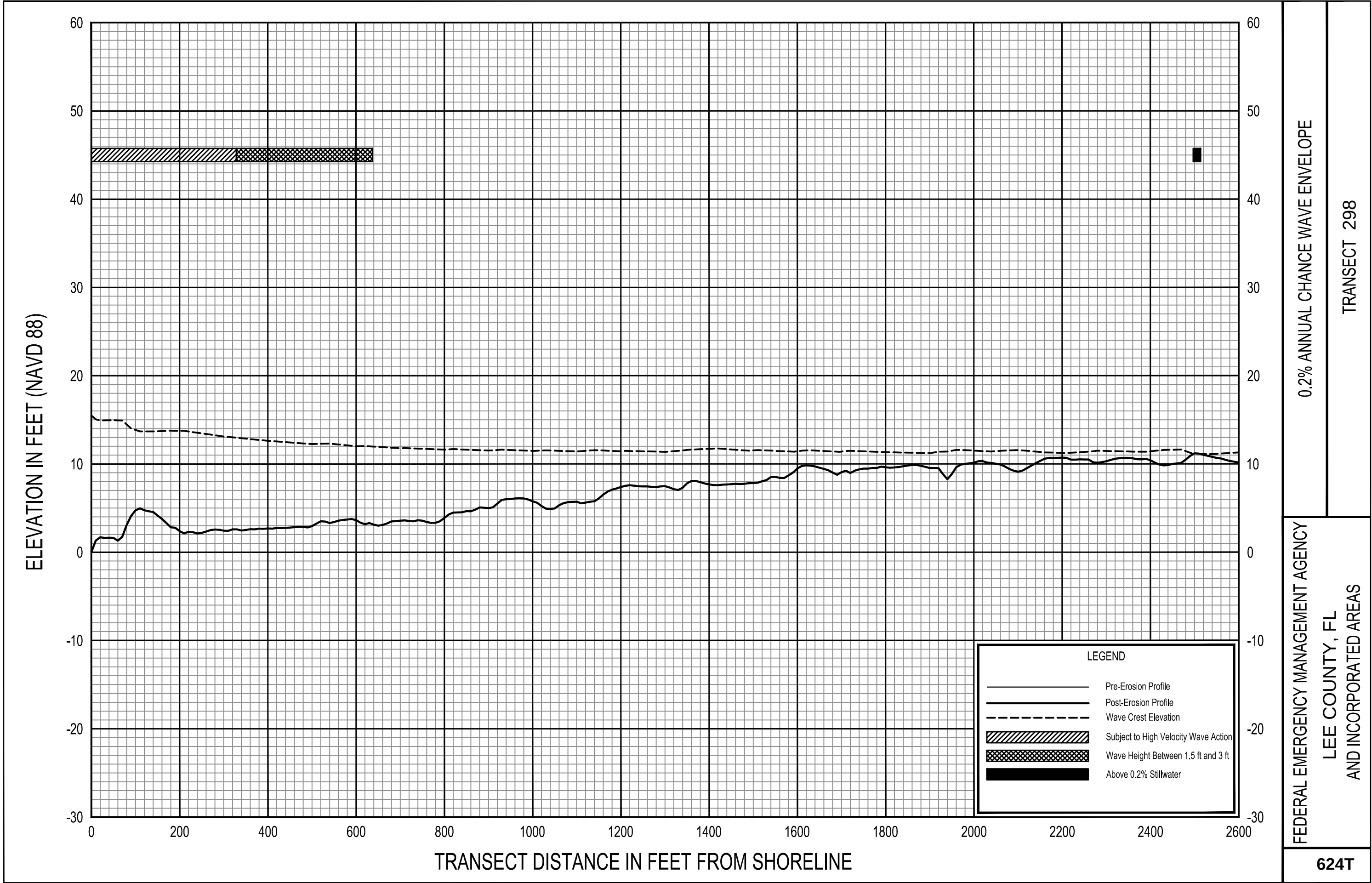




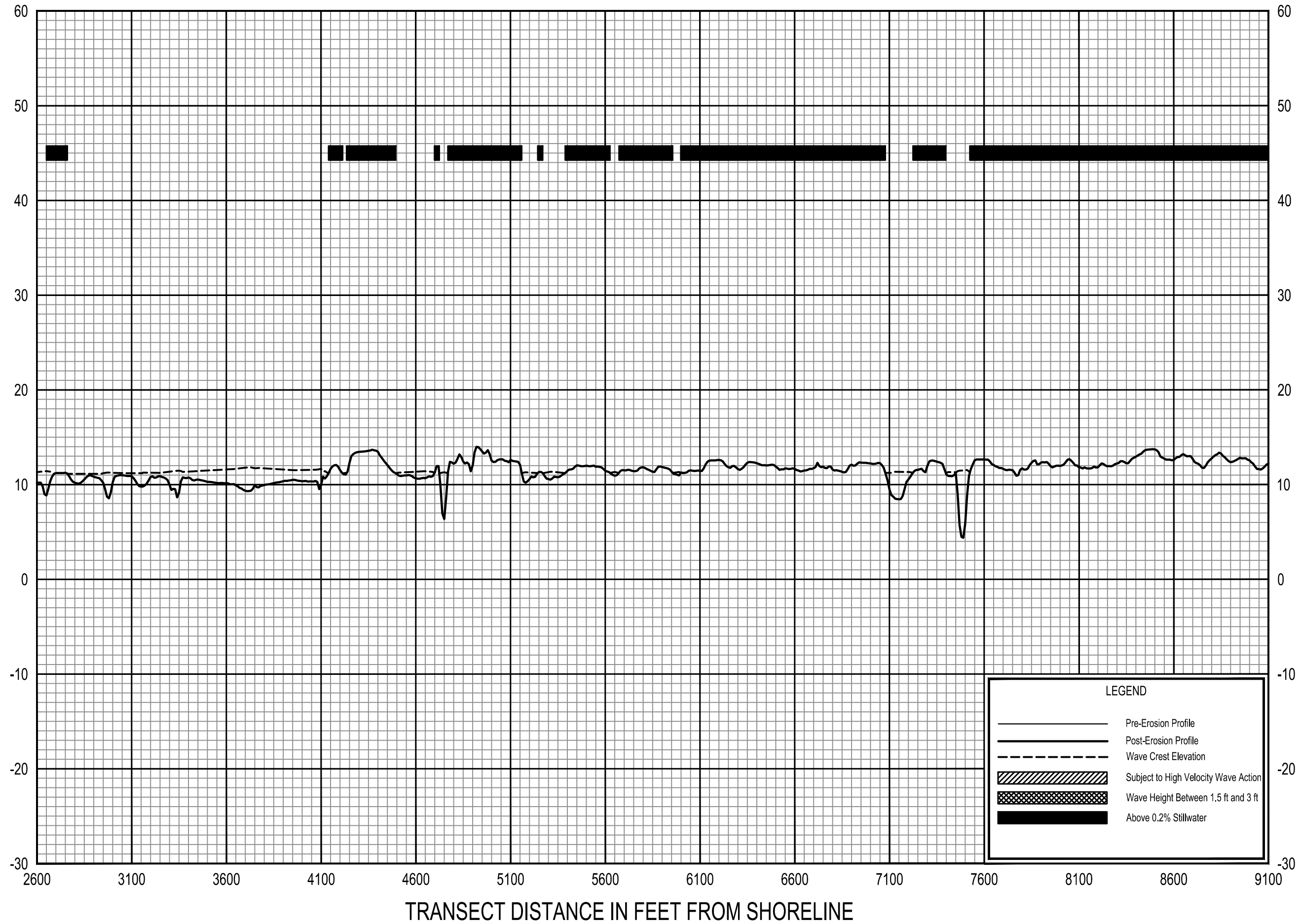








ELEVATION IN FEET (NAVD 88)



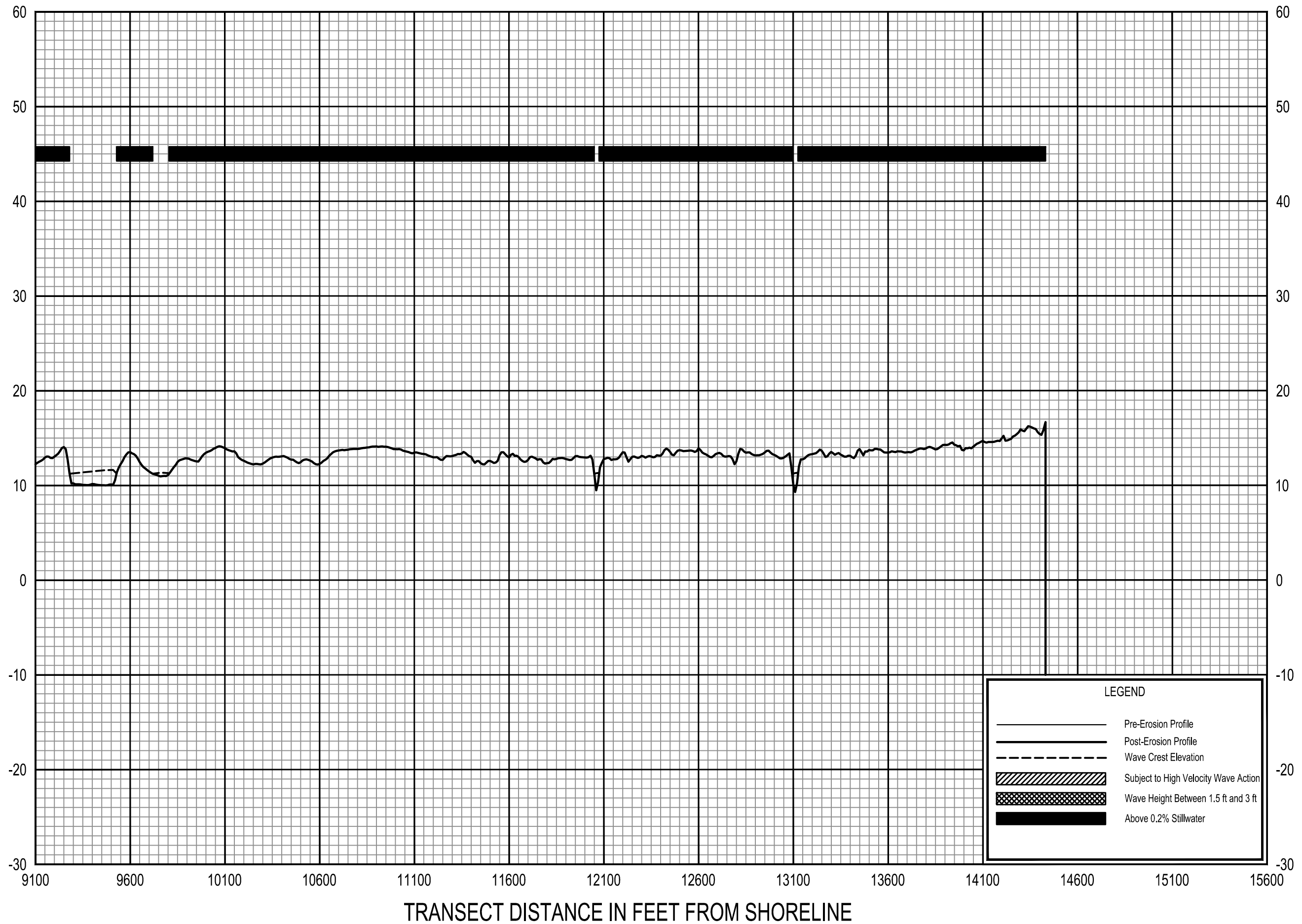
0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 298

FEDERAL EMERGENCY MANAGEMENT AGENCY
LEE COUNTY, FL
AND INCORPORATED AREAS

625T

ELEVATION IN FEET (NAVD 88)



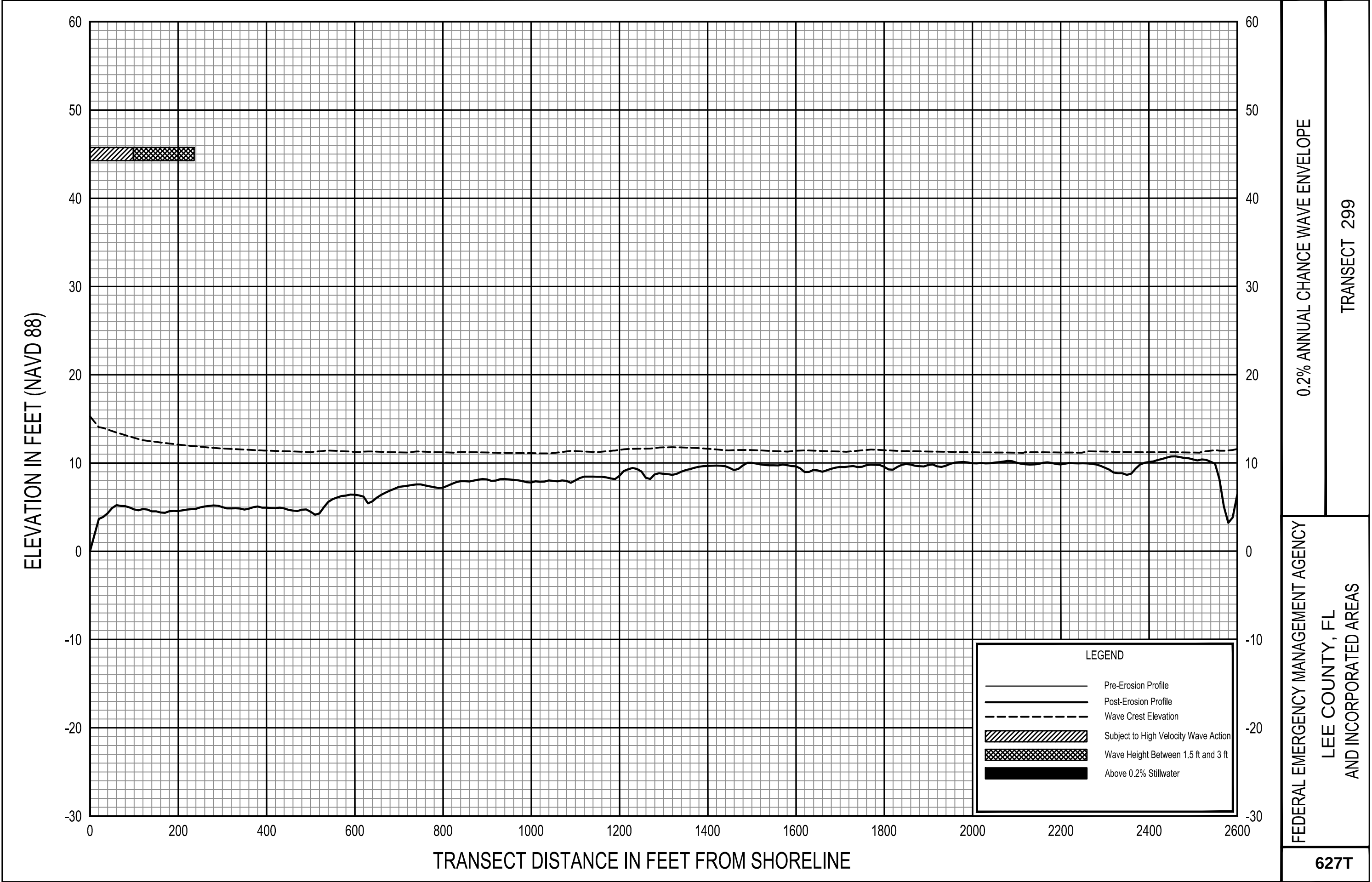
FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, FL
AND INCORPORATED AREAS

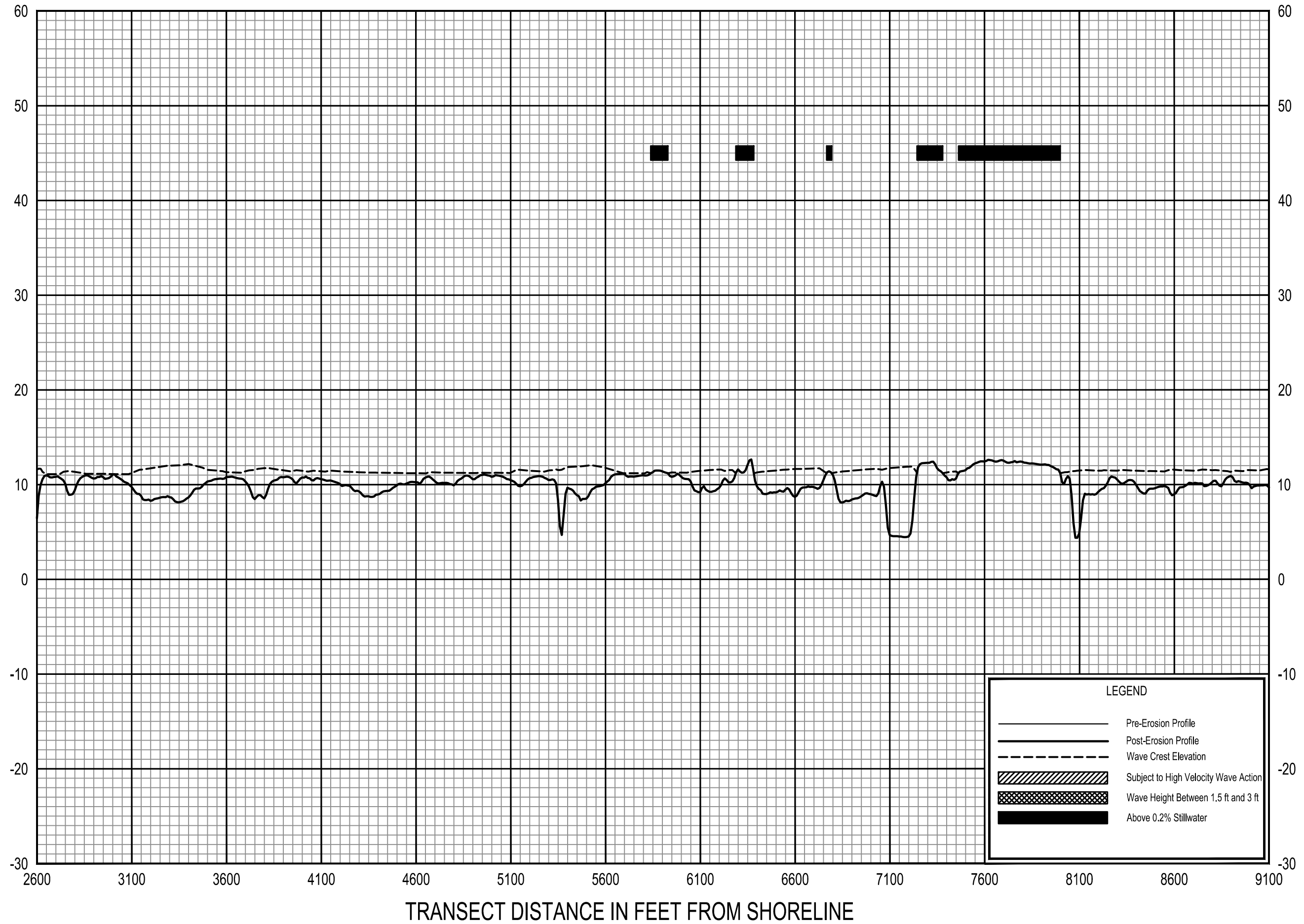
0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 298

626T



ELEVATION IN FEET (NAVD 88)

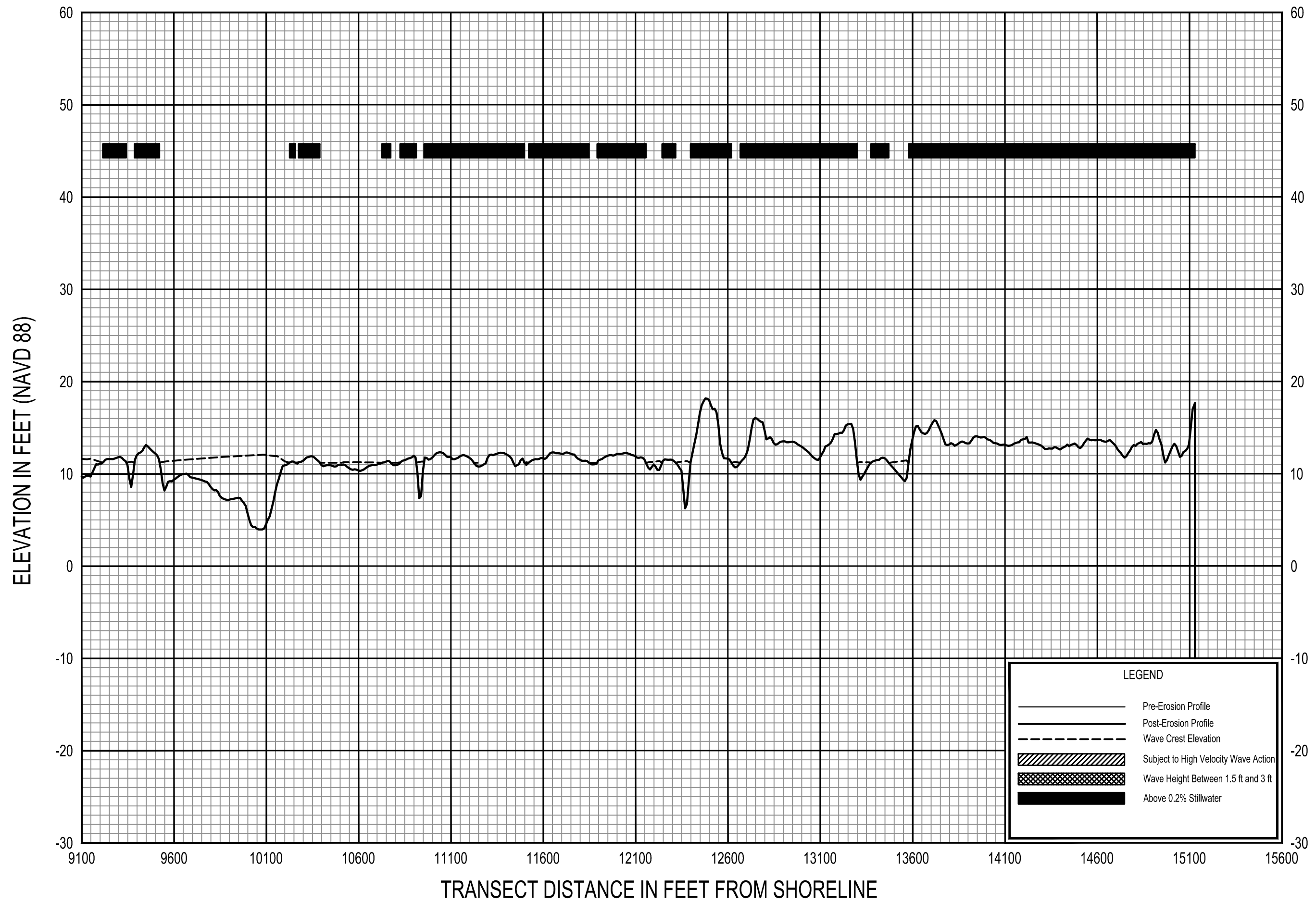


0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 299

FEDERAL EMERGENCY MANAGEMENT AGENCY
LEE COUNTY, FL
AND INCORPORATED AREAS

628T



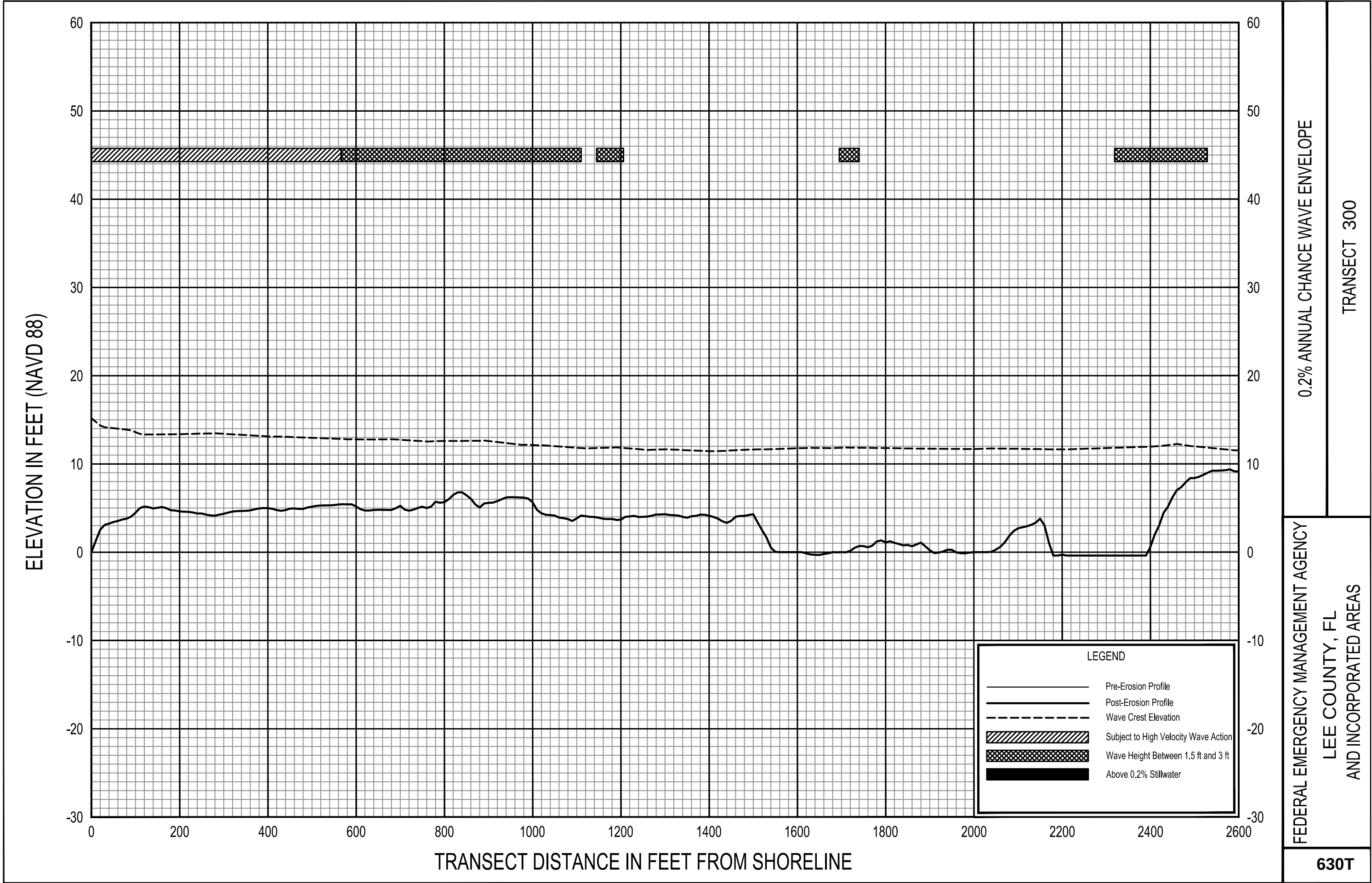
FEDERAL EMERGENCY MANAGEMENT AGENCY

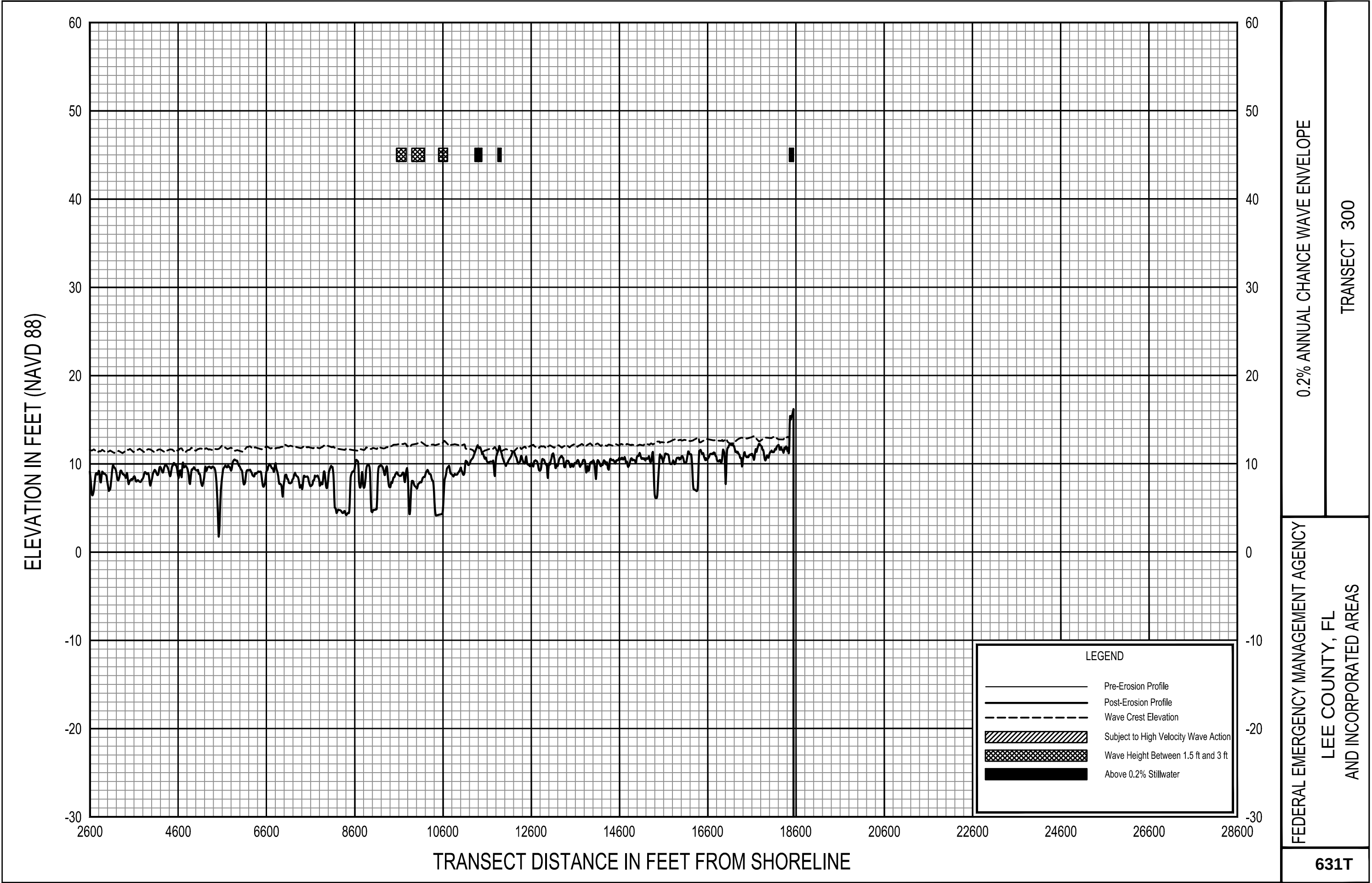
LEE COUNTY, FL
AND INCORPORATED AREAS

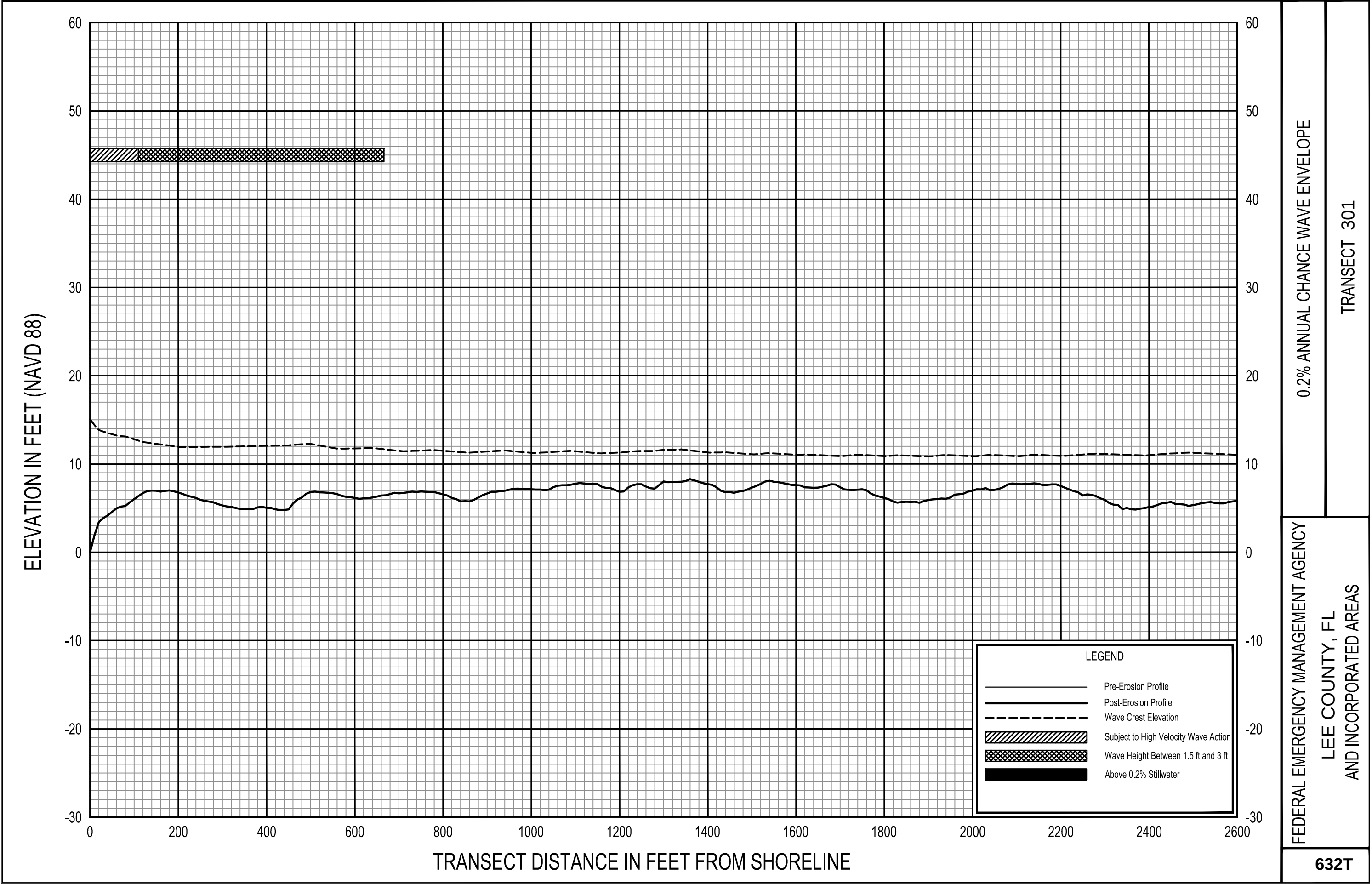
0.2% ANNUAL CHANGE WAVE ENVELOPE

TRANSECT 299

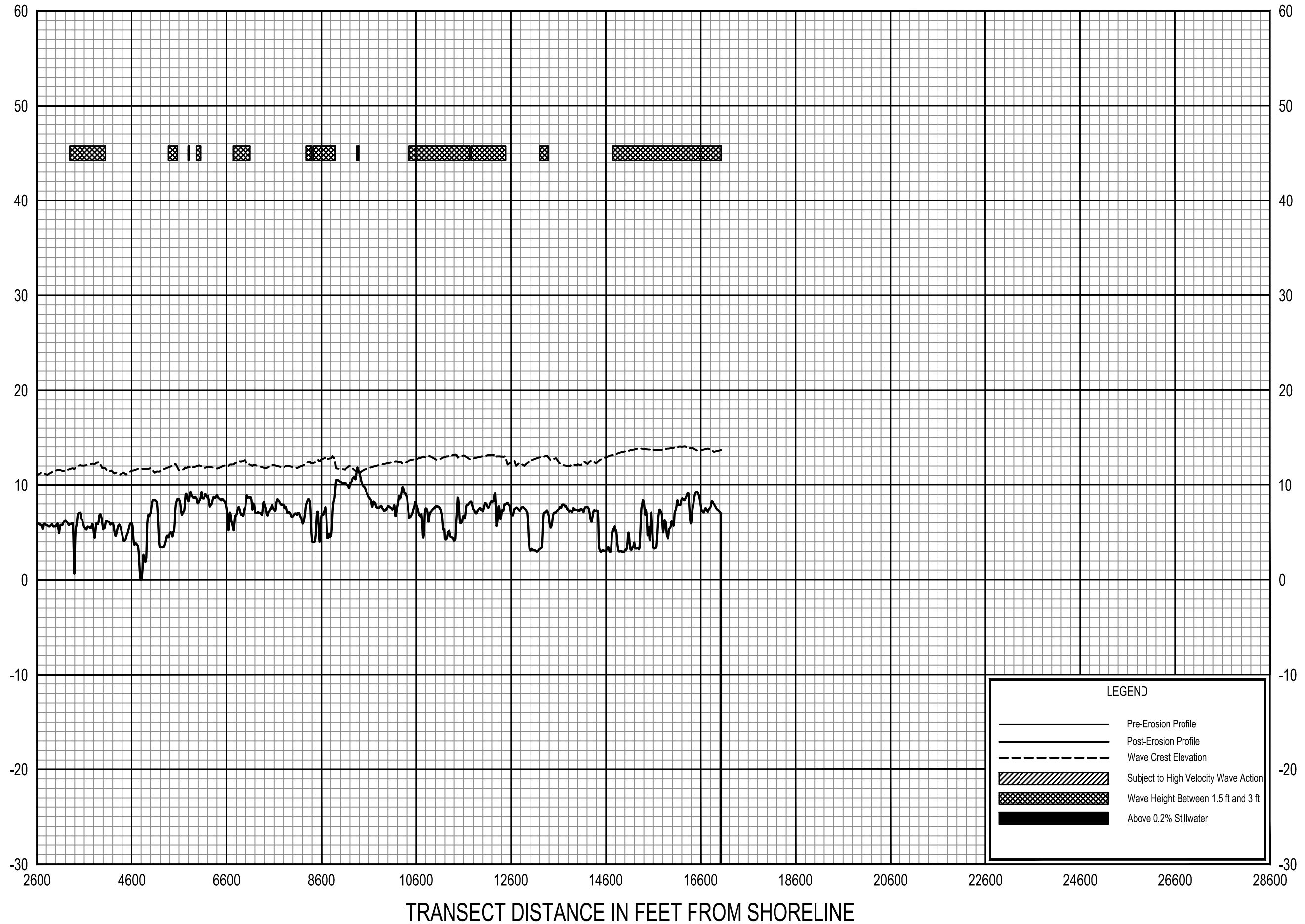
629T







ELEVATION IN FEET (NAVD 88)

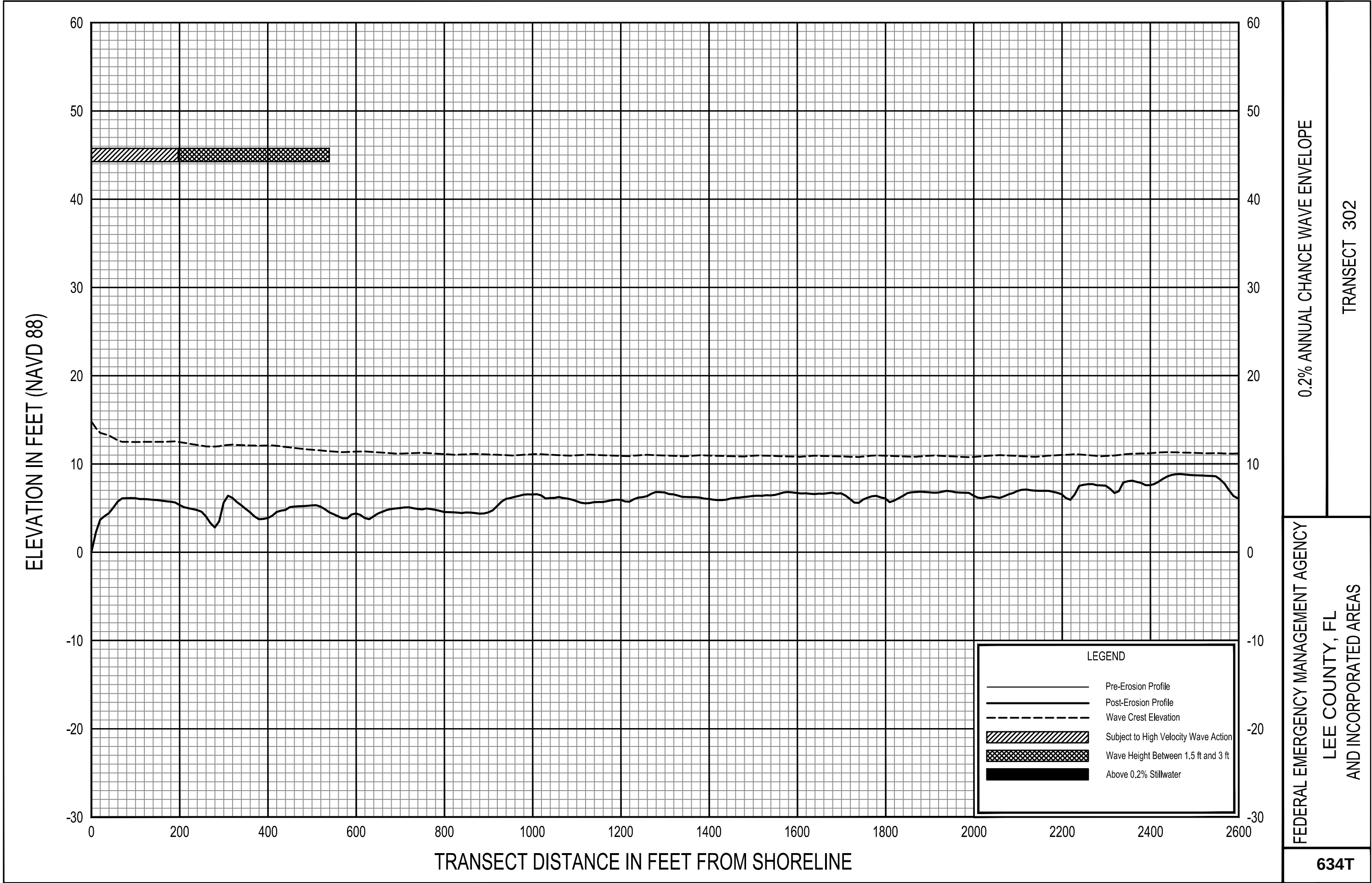


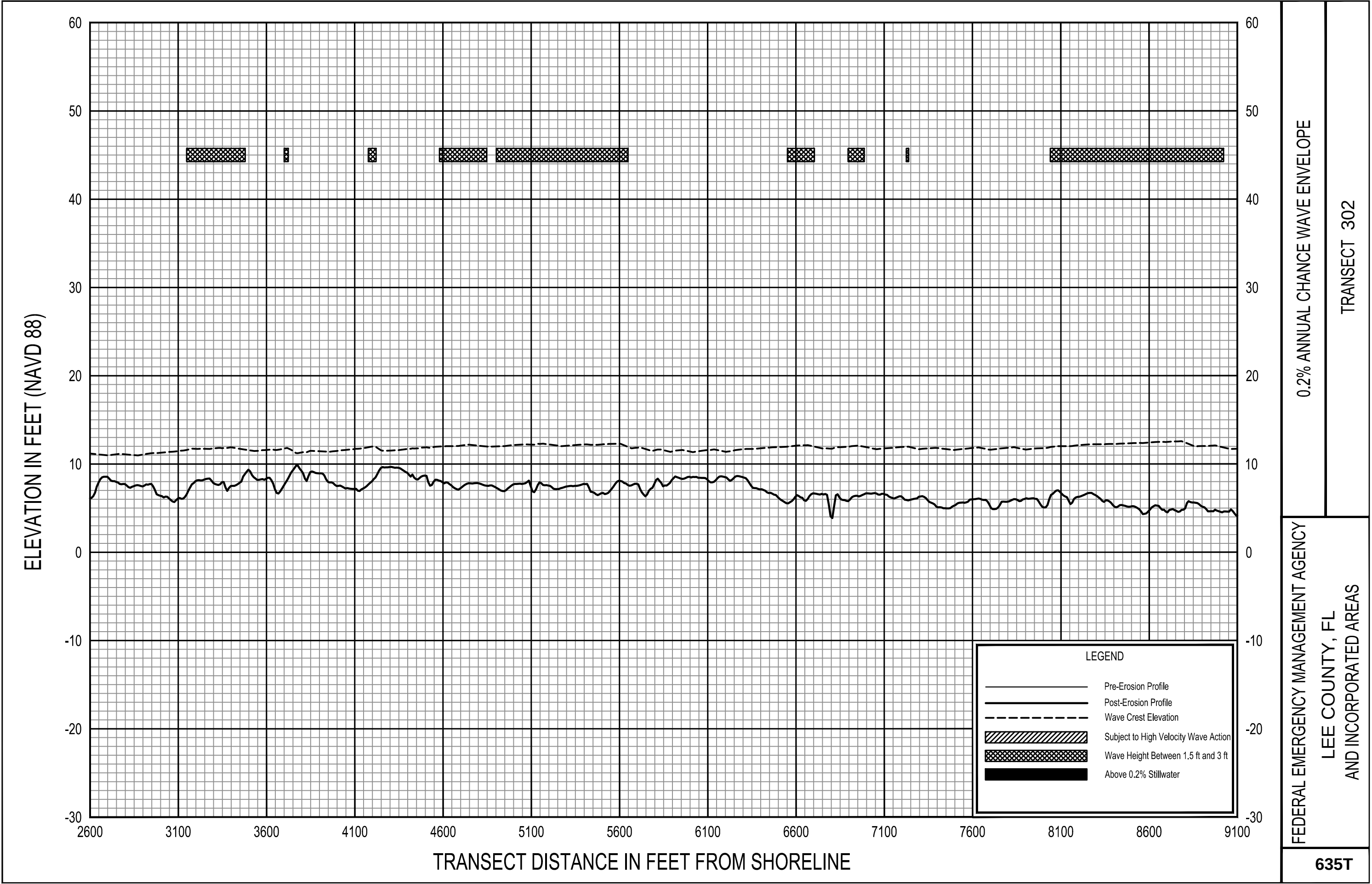
0.2% ANNUAL CHANCE WAVE ENVELOPE

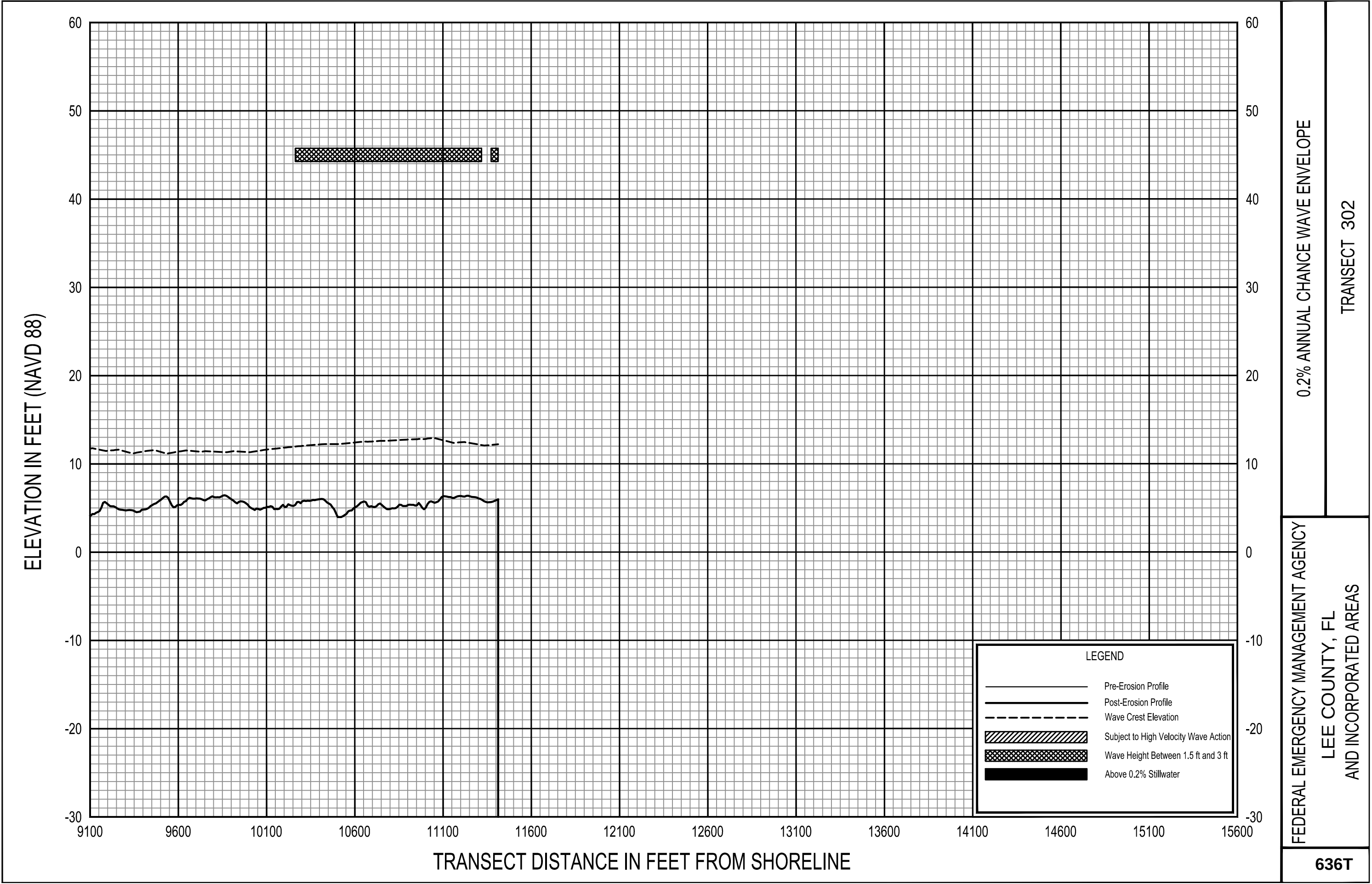
TRANSECT 301

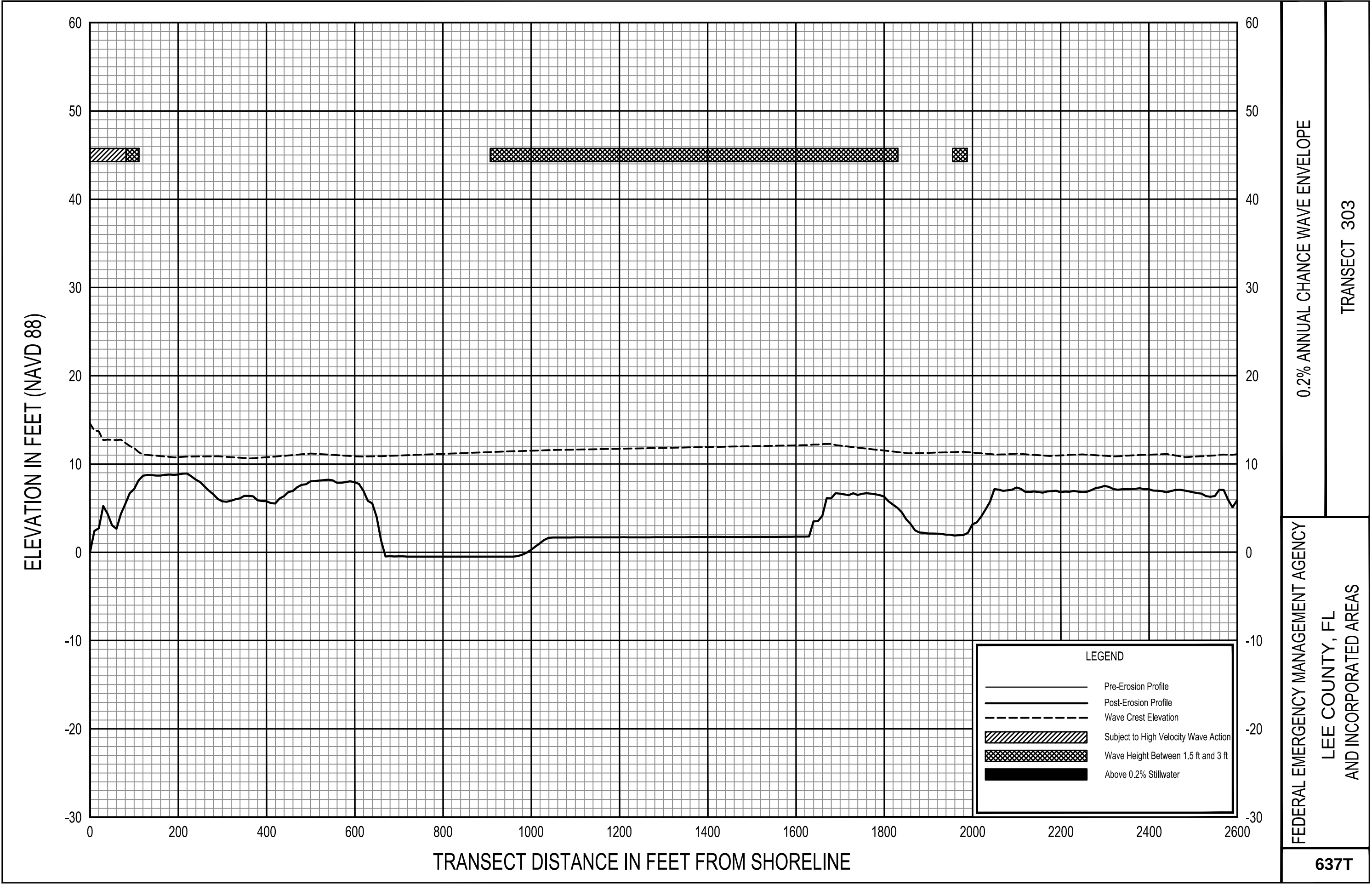
FEDERAL EMERGENCY MANAGEMENT AGENCY
LEE COUNTY, FL
AND INCORPORATED AREAS

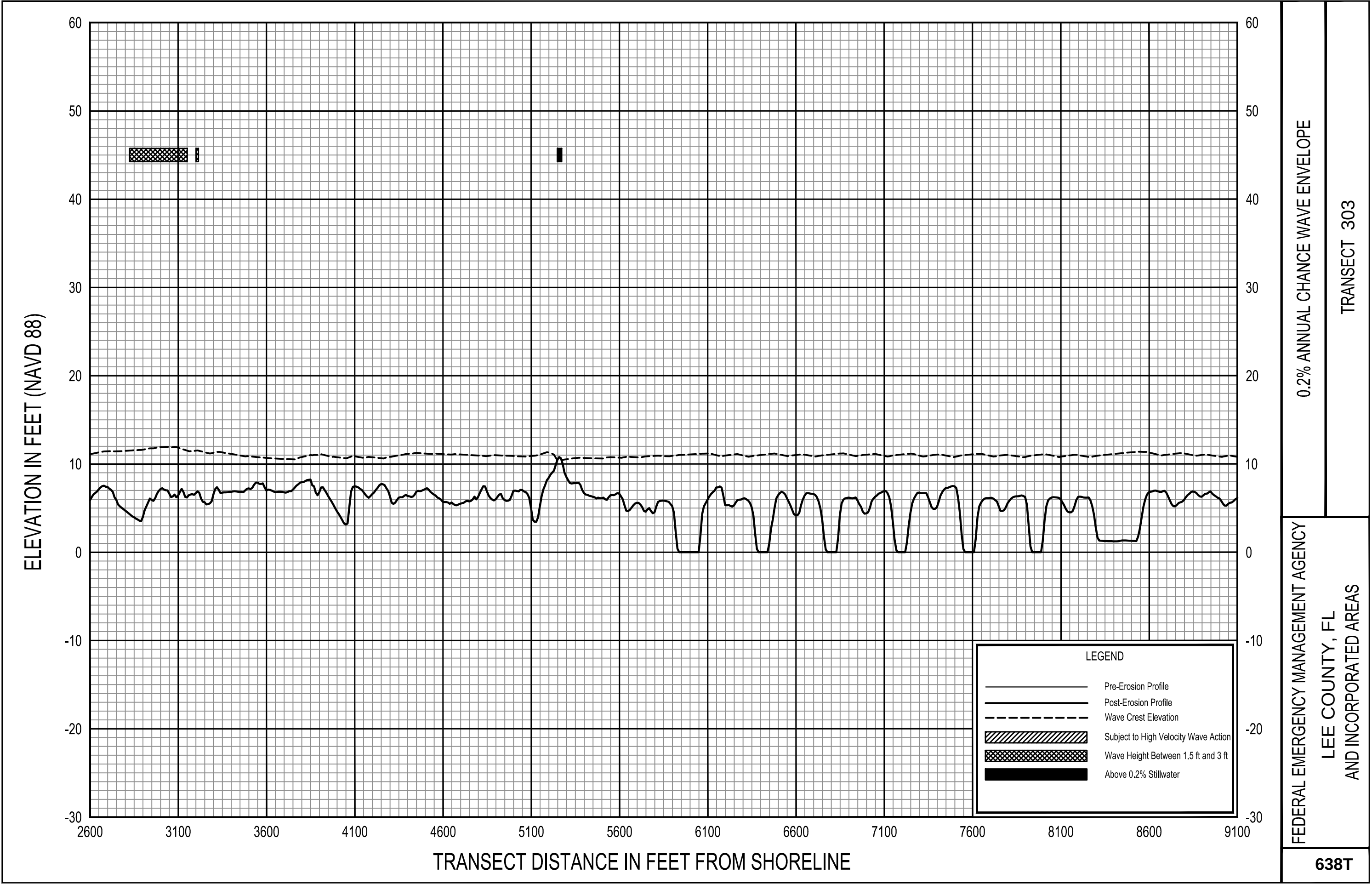
633T

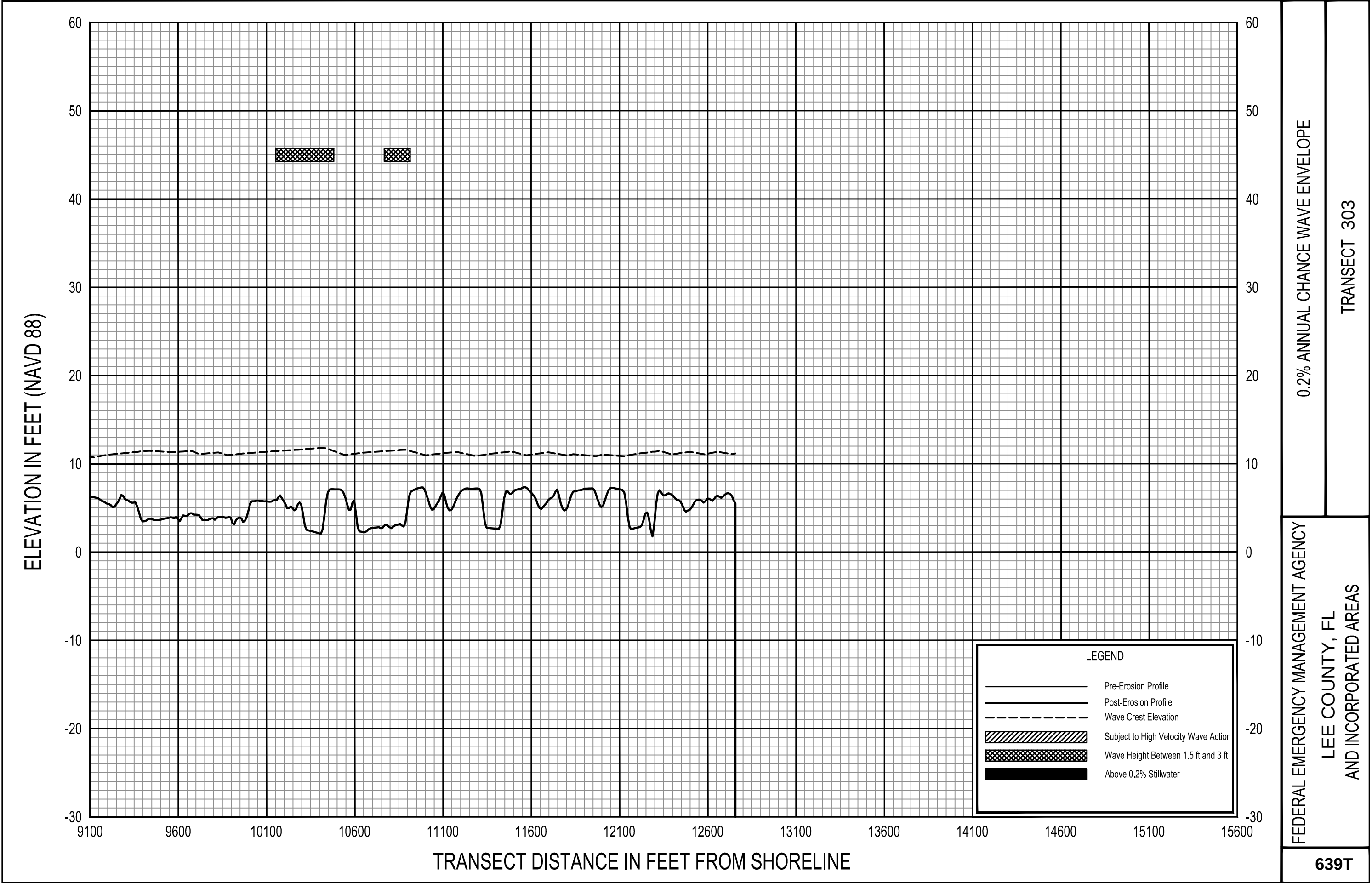


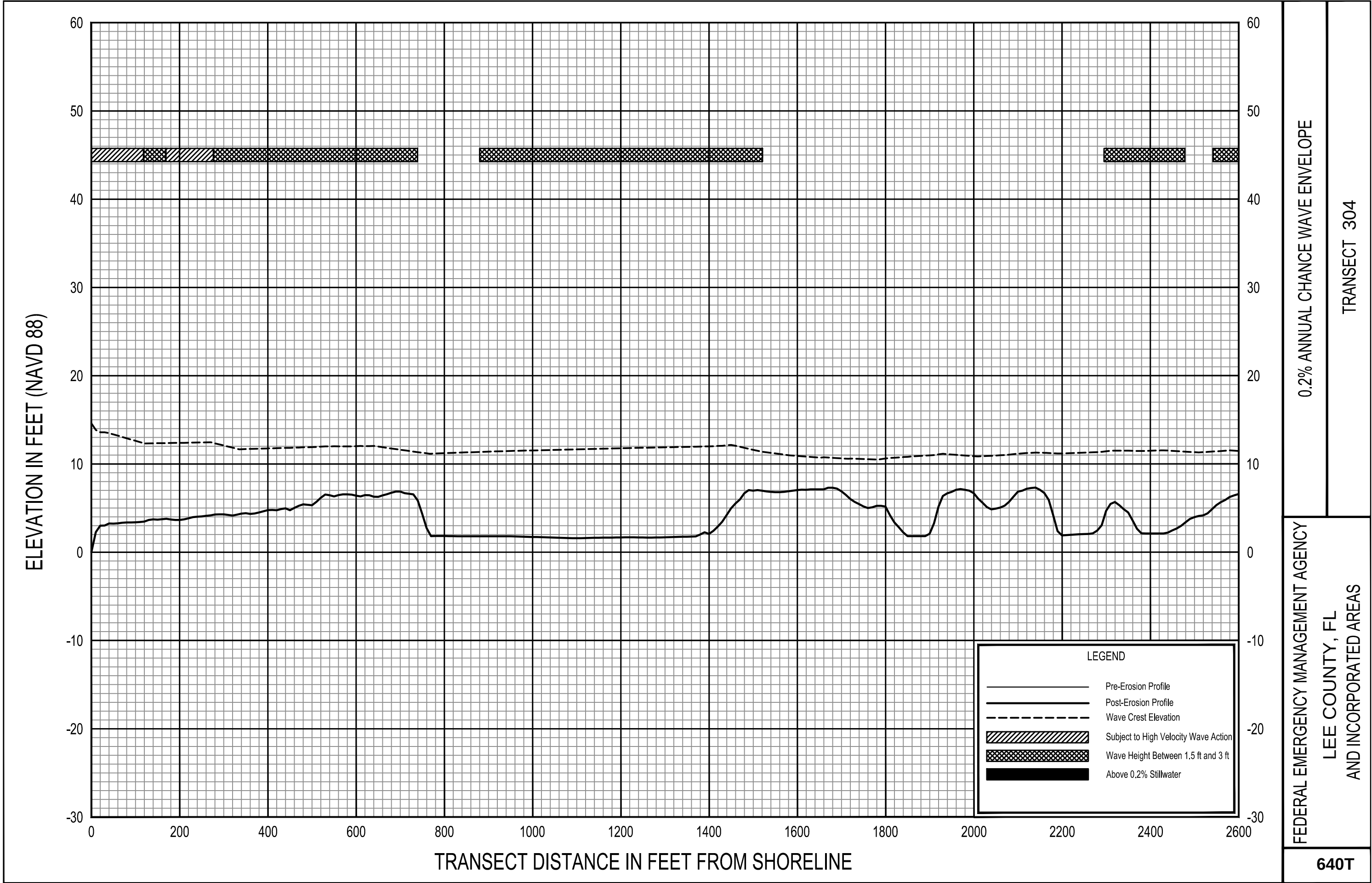


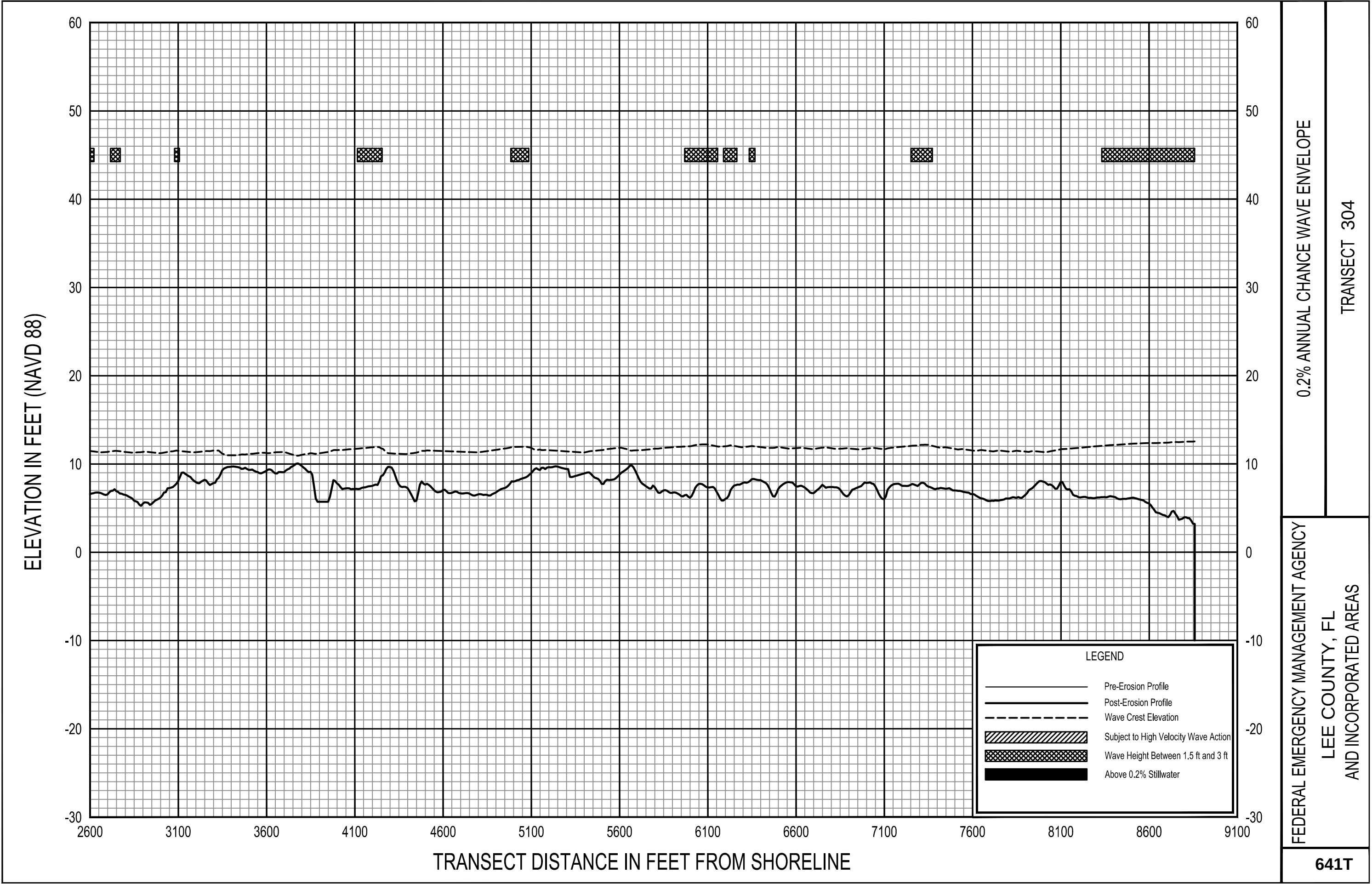


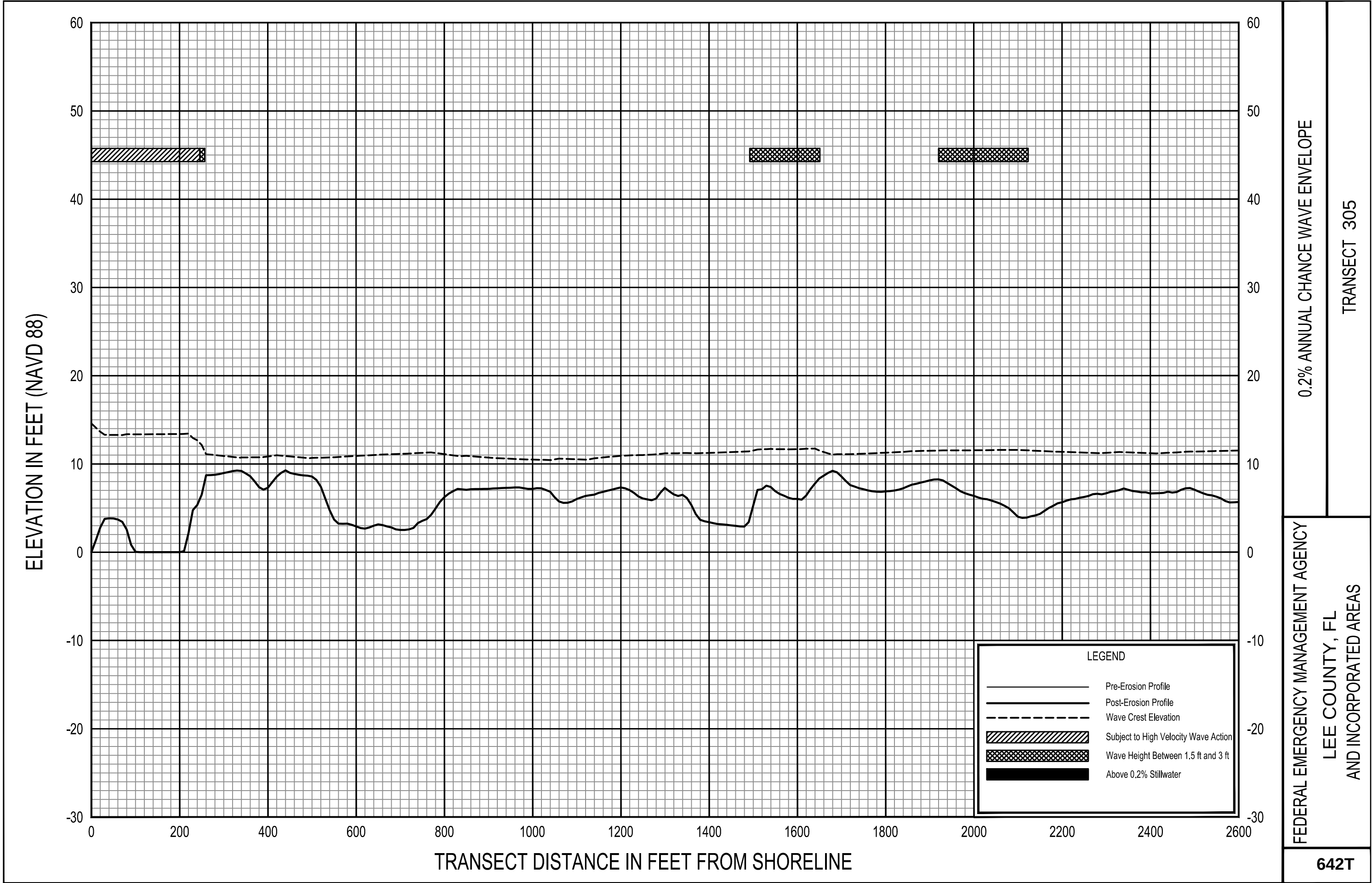


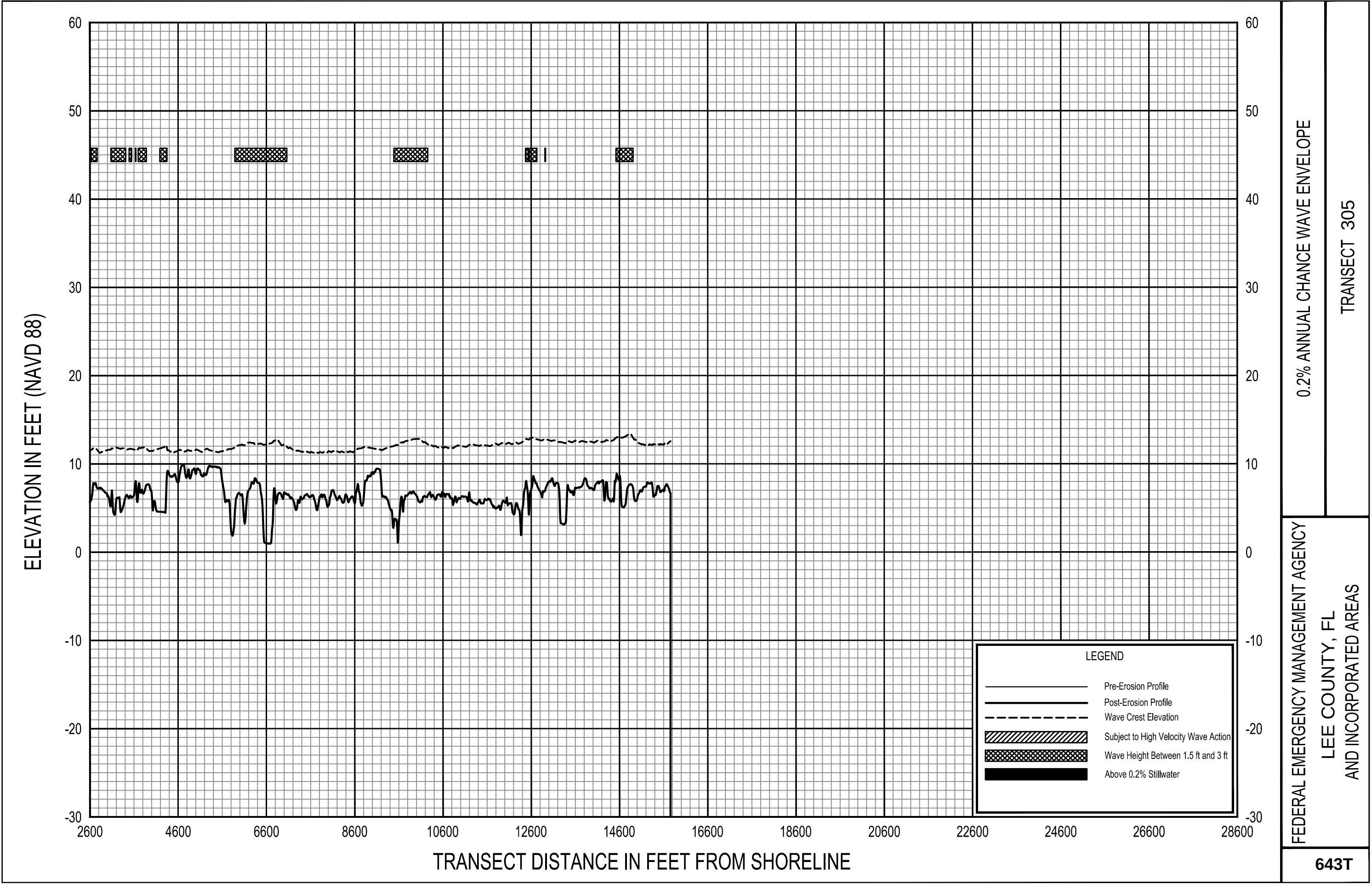


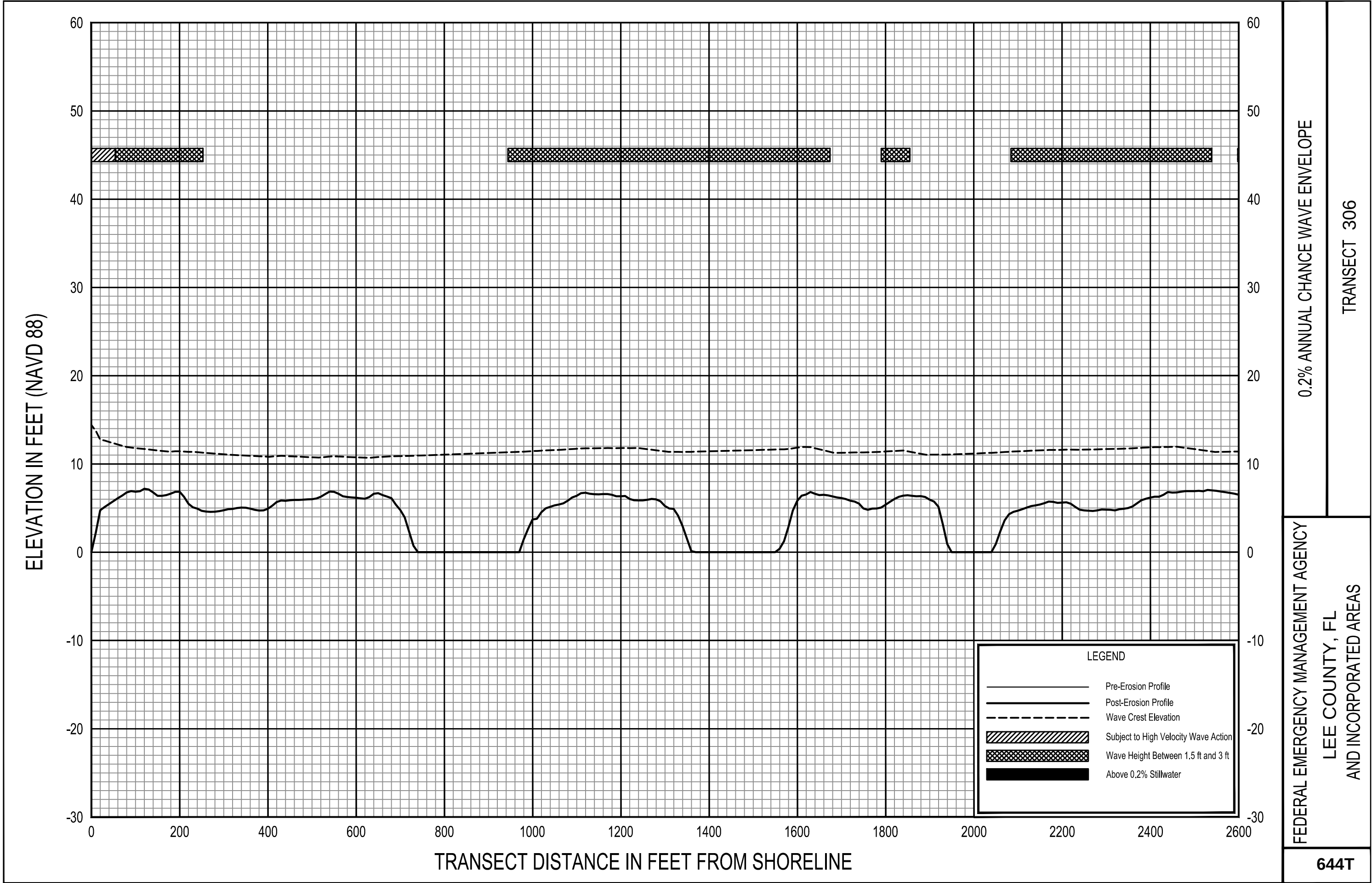


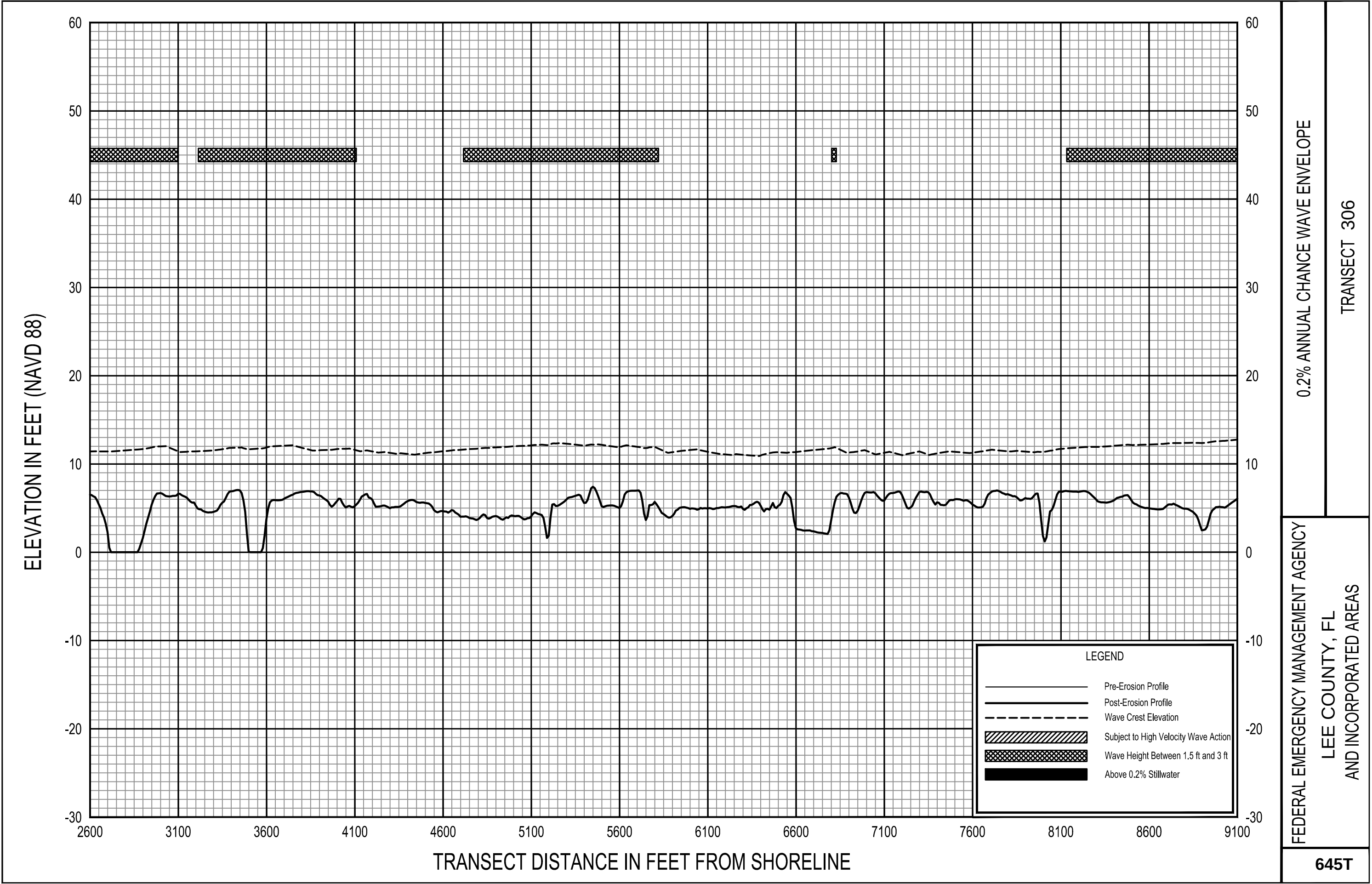




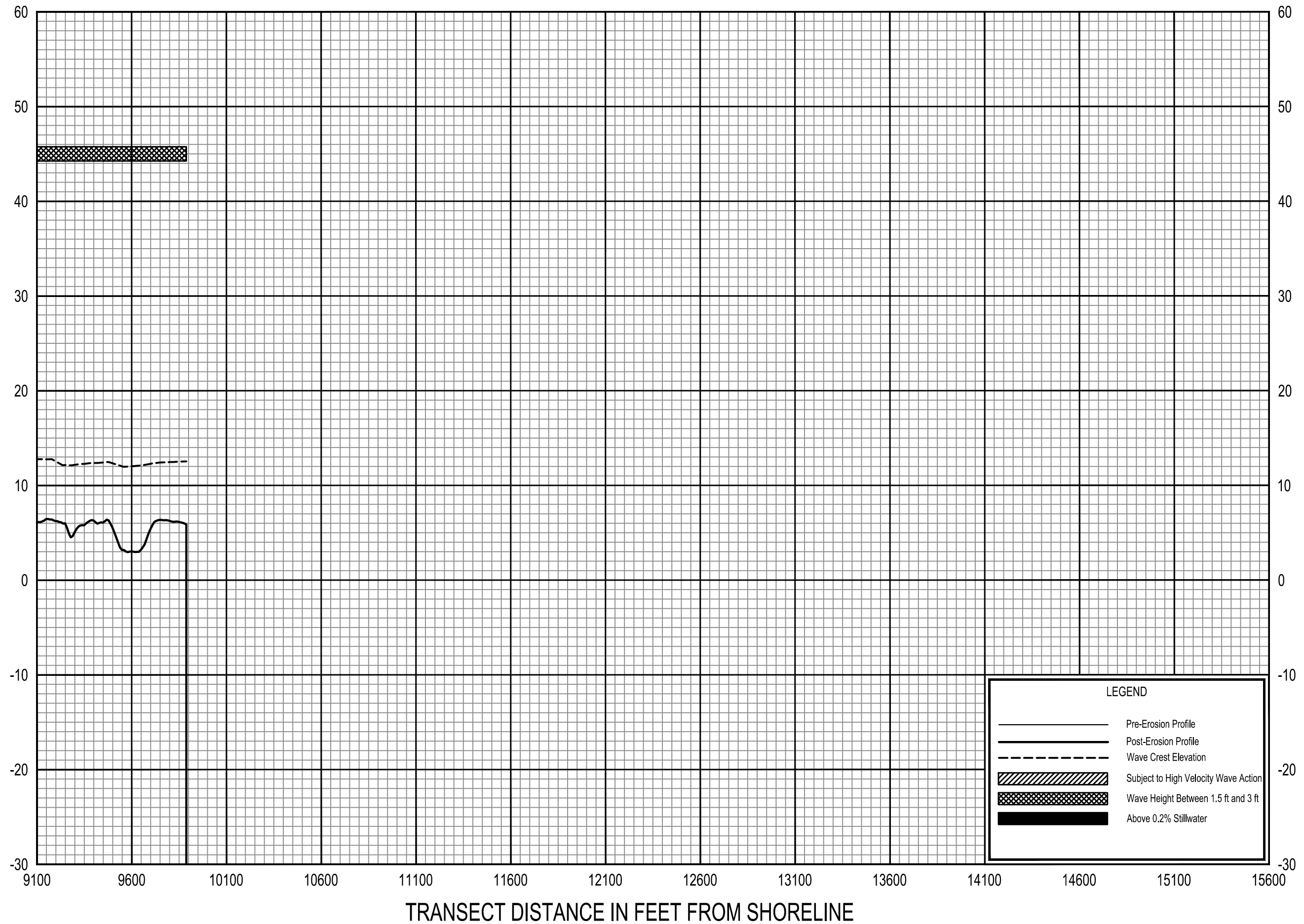








ELEVATION IN FEET (NAVD 88)



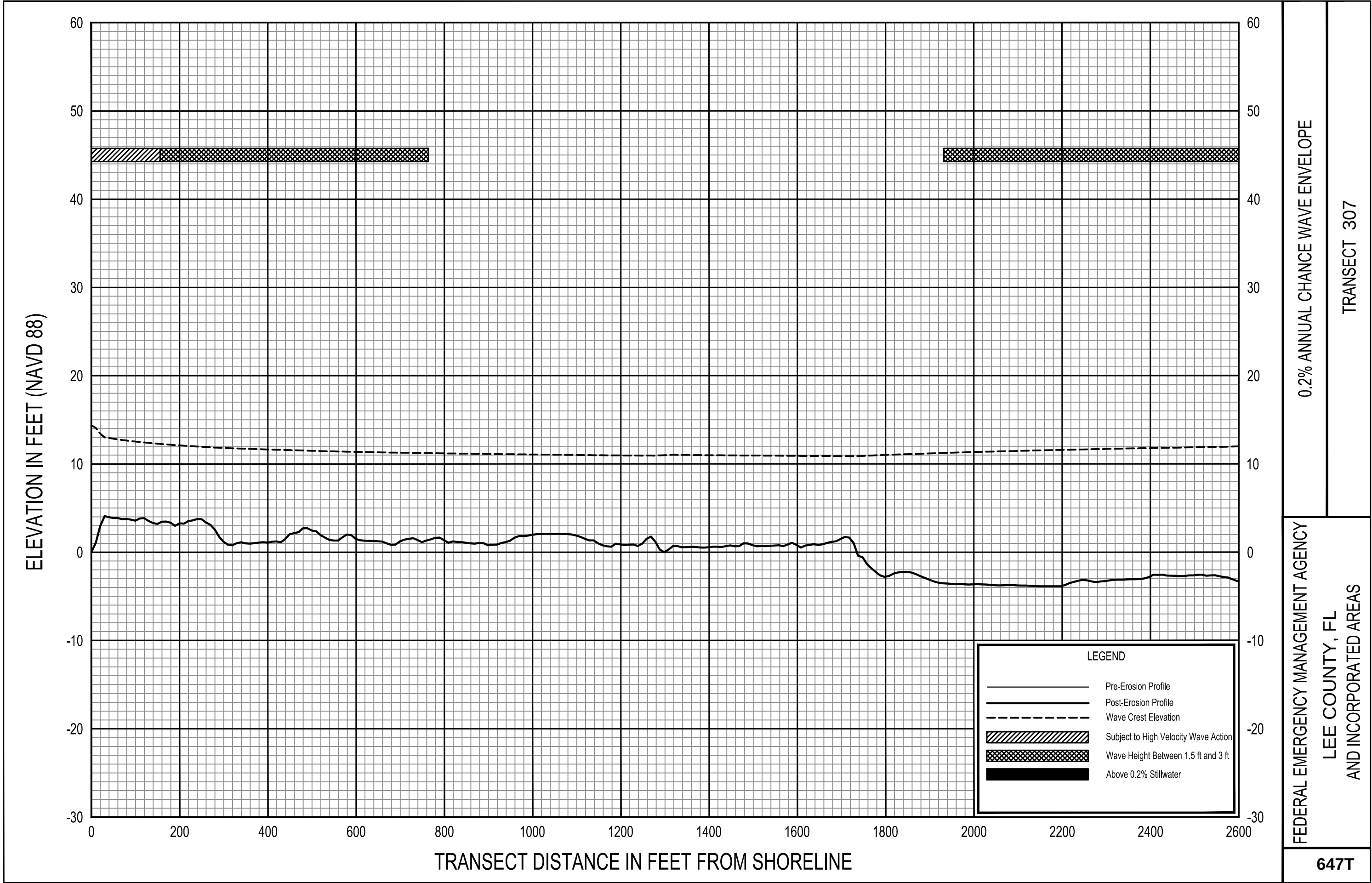
FEDERAL EMERGENCY MANAGEMENT AGENCY

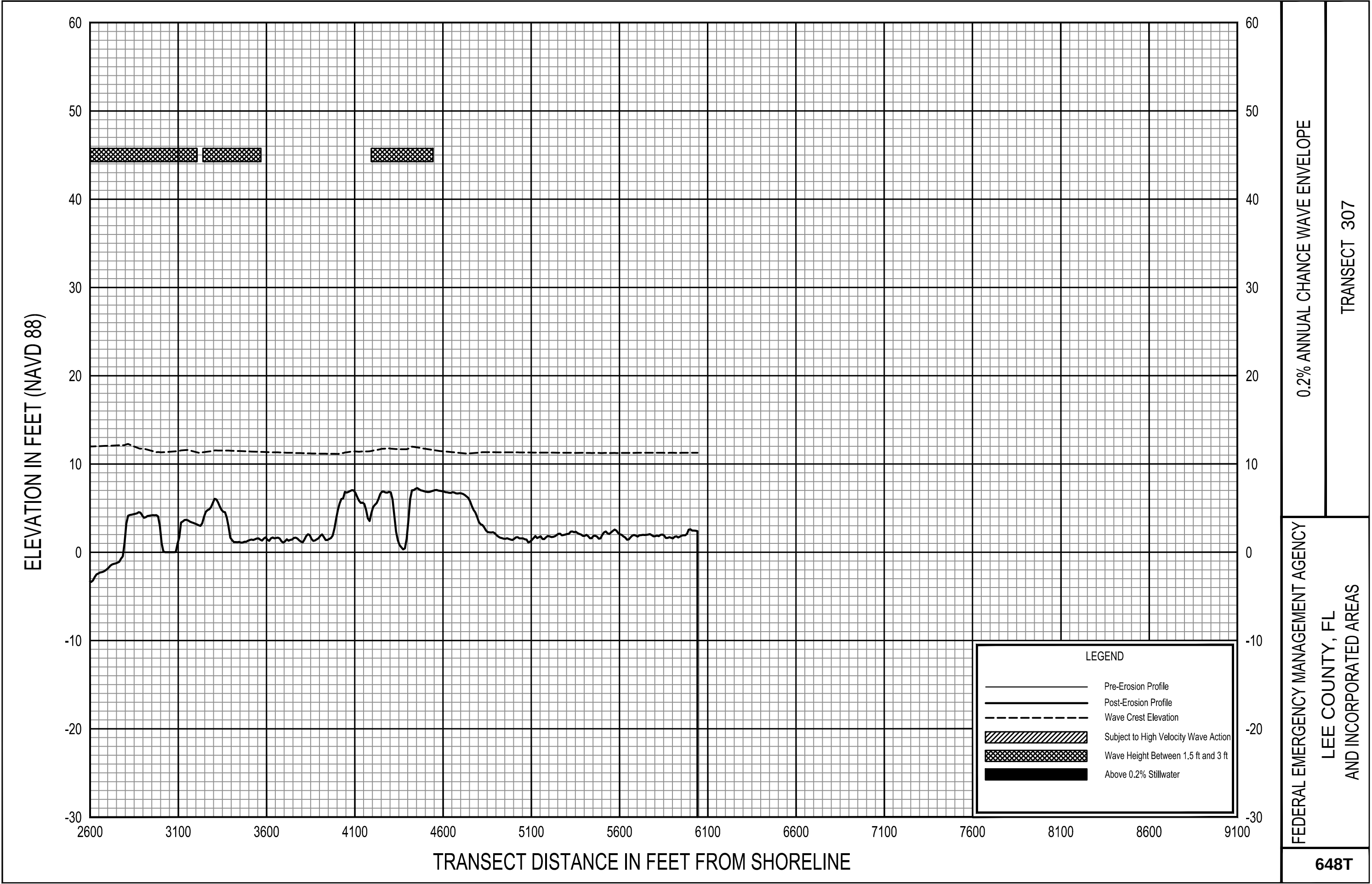
LEE COUNTY, FL
AND INCORPORATED AREAS

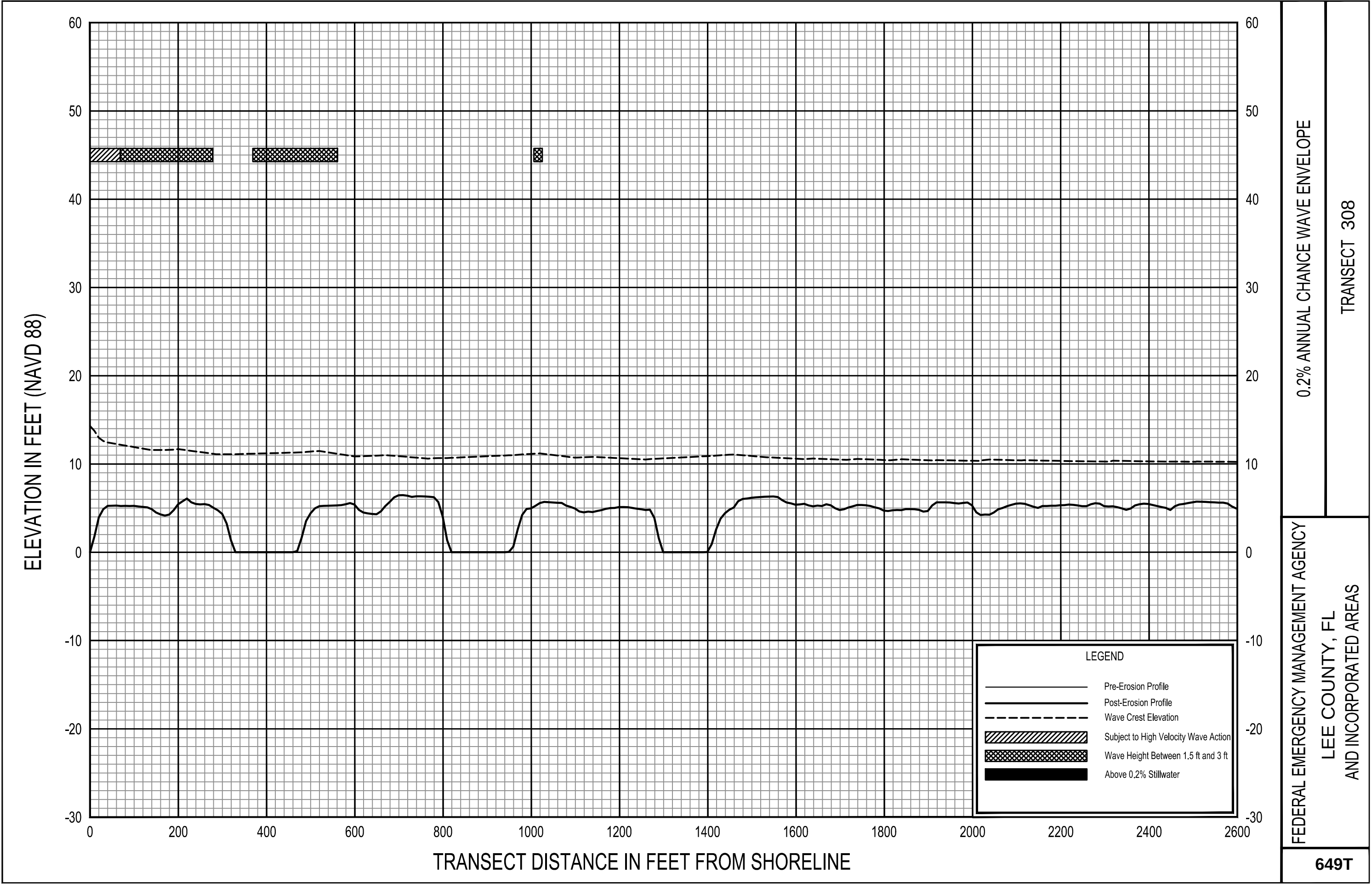
0.2% ANNUAL CHANCE WAVE ENVELOPE

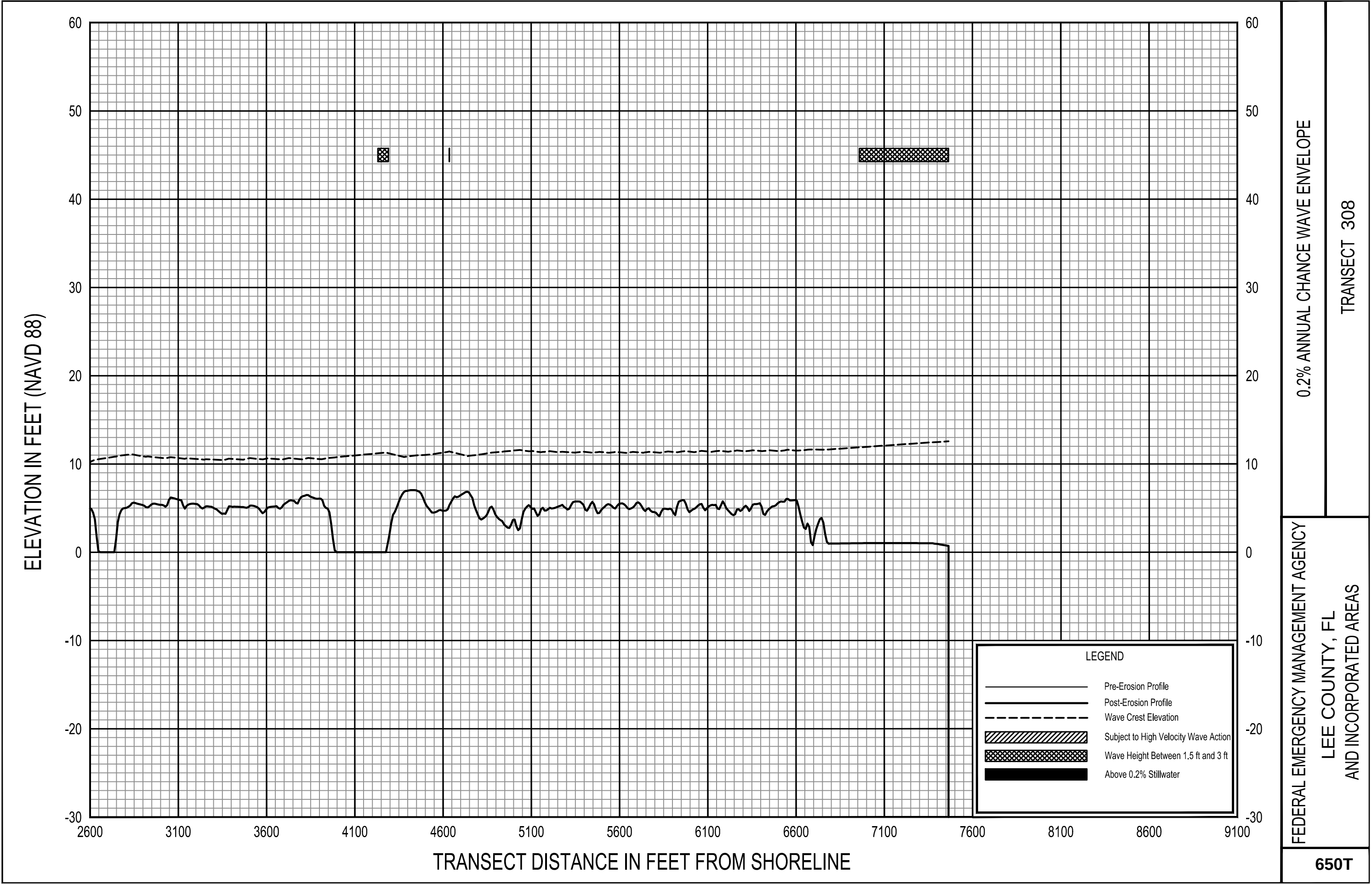
TRANSECT 306

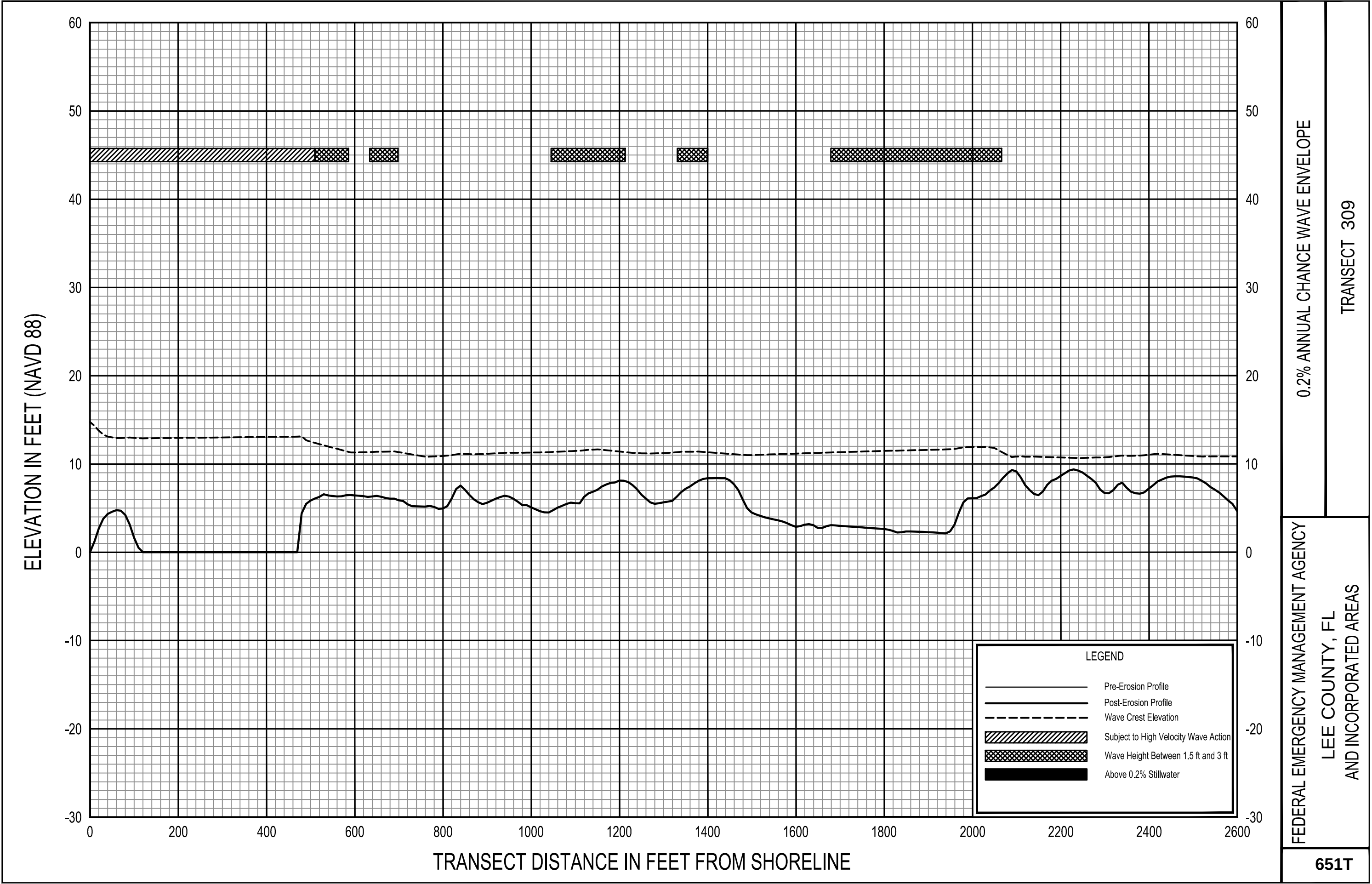
646T

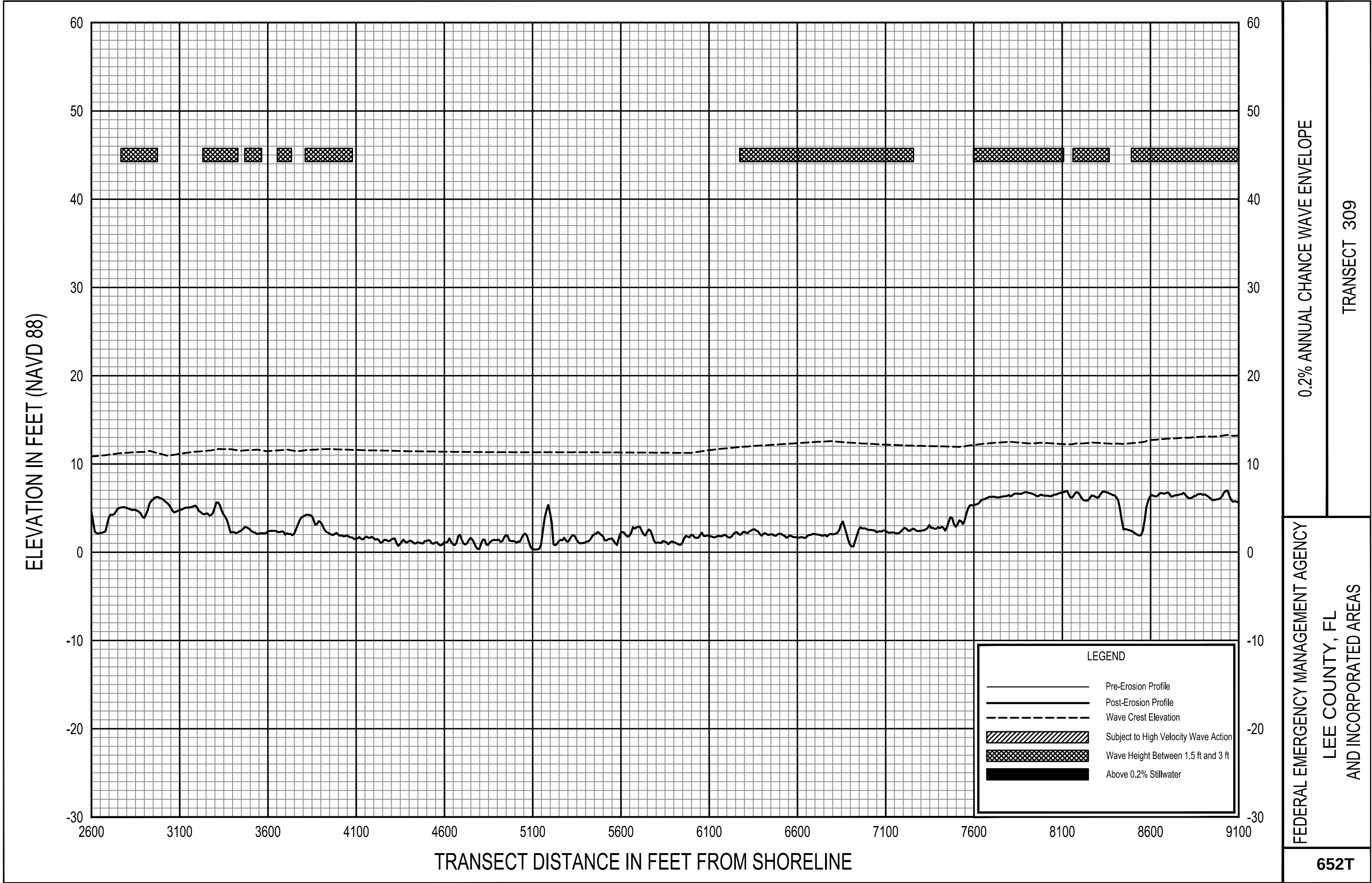


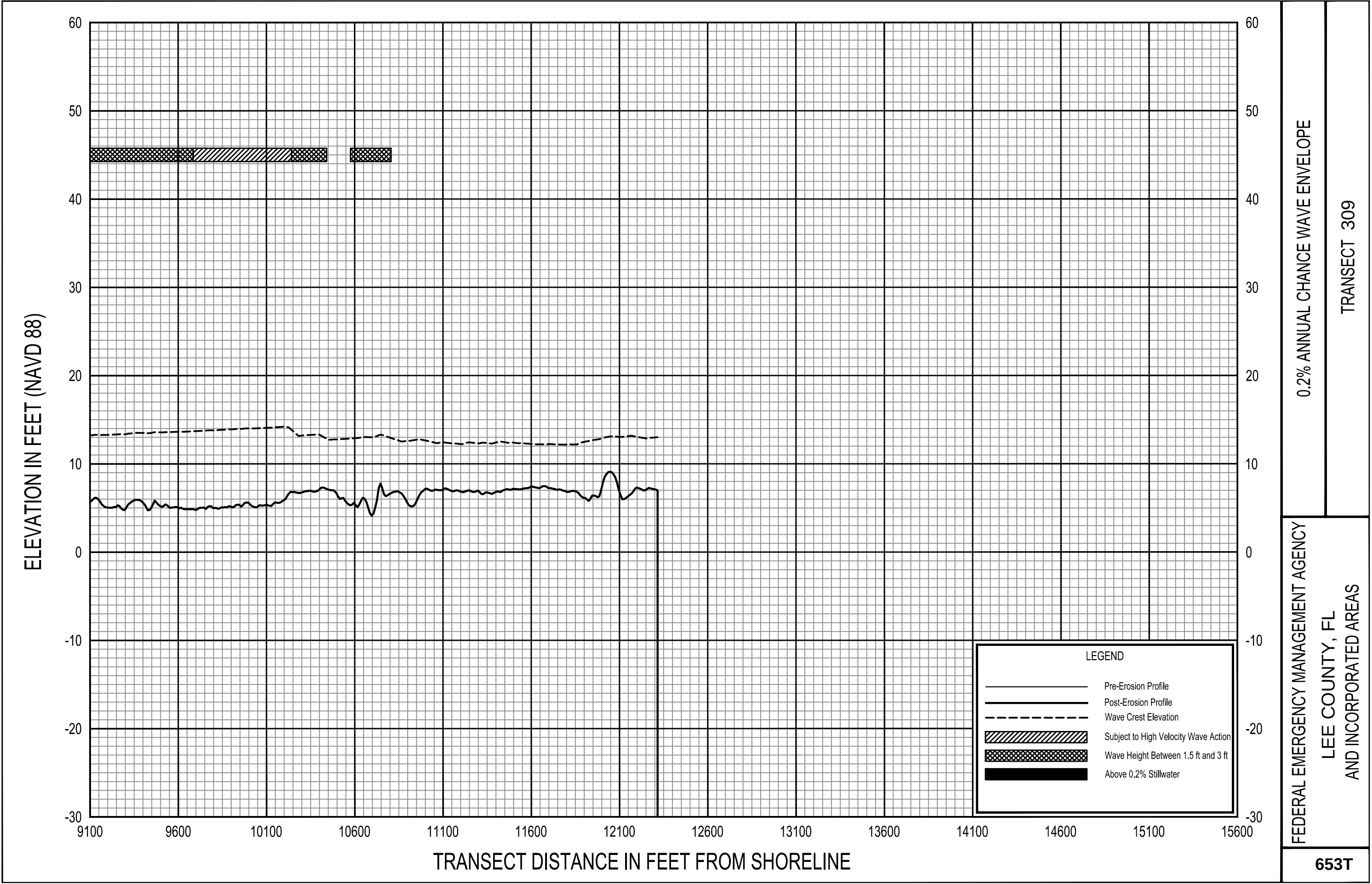


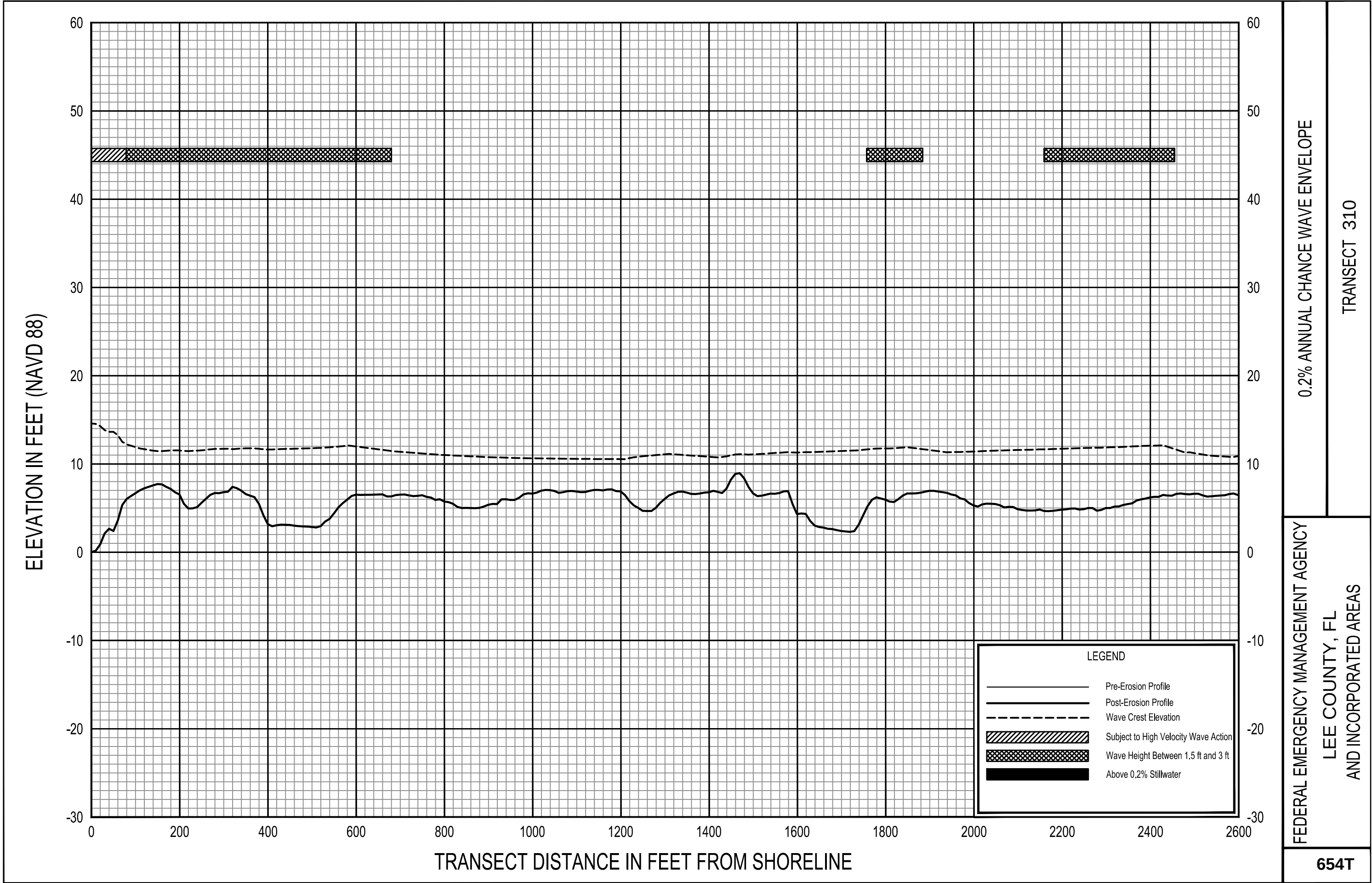


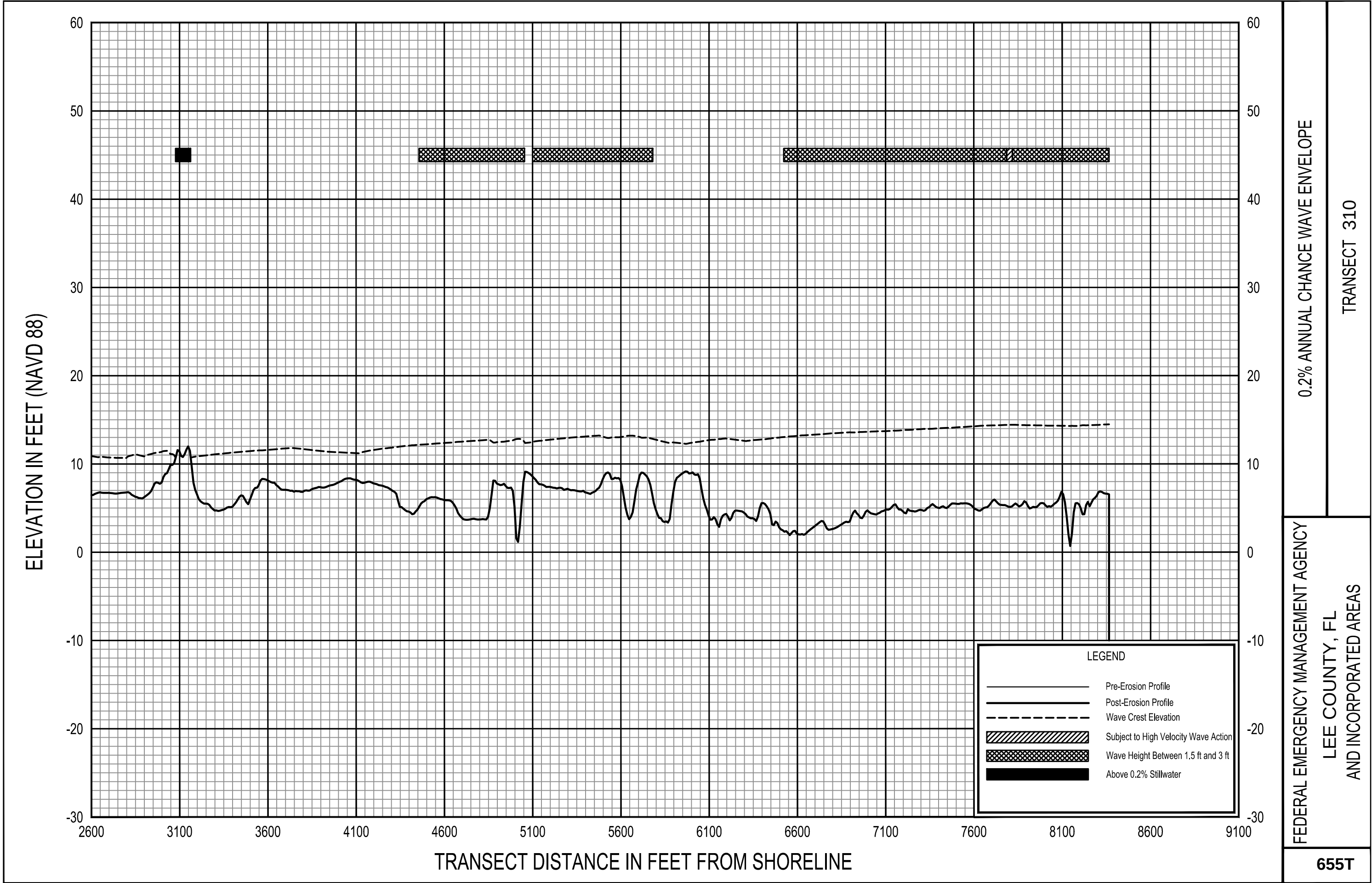


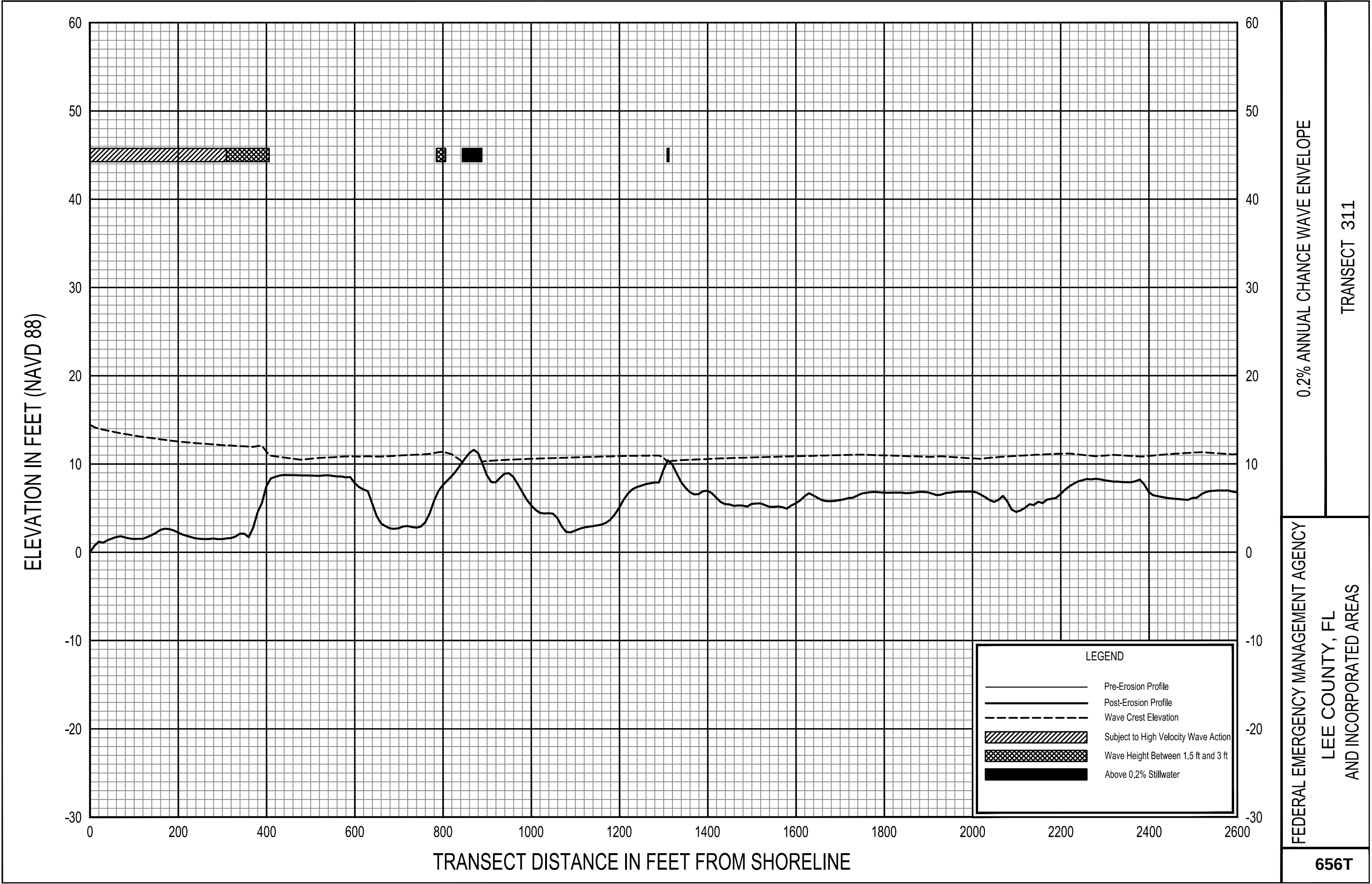


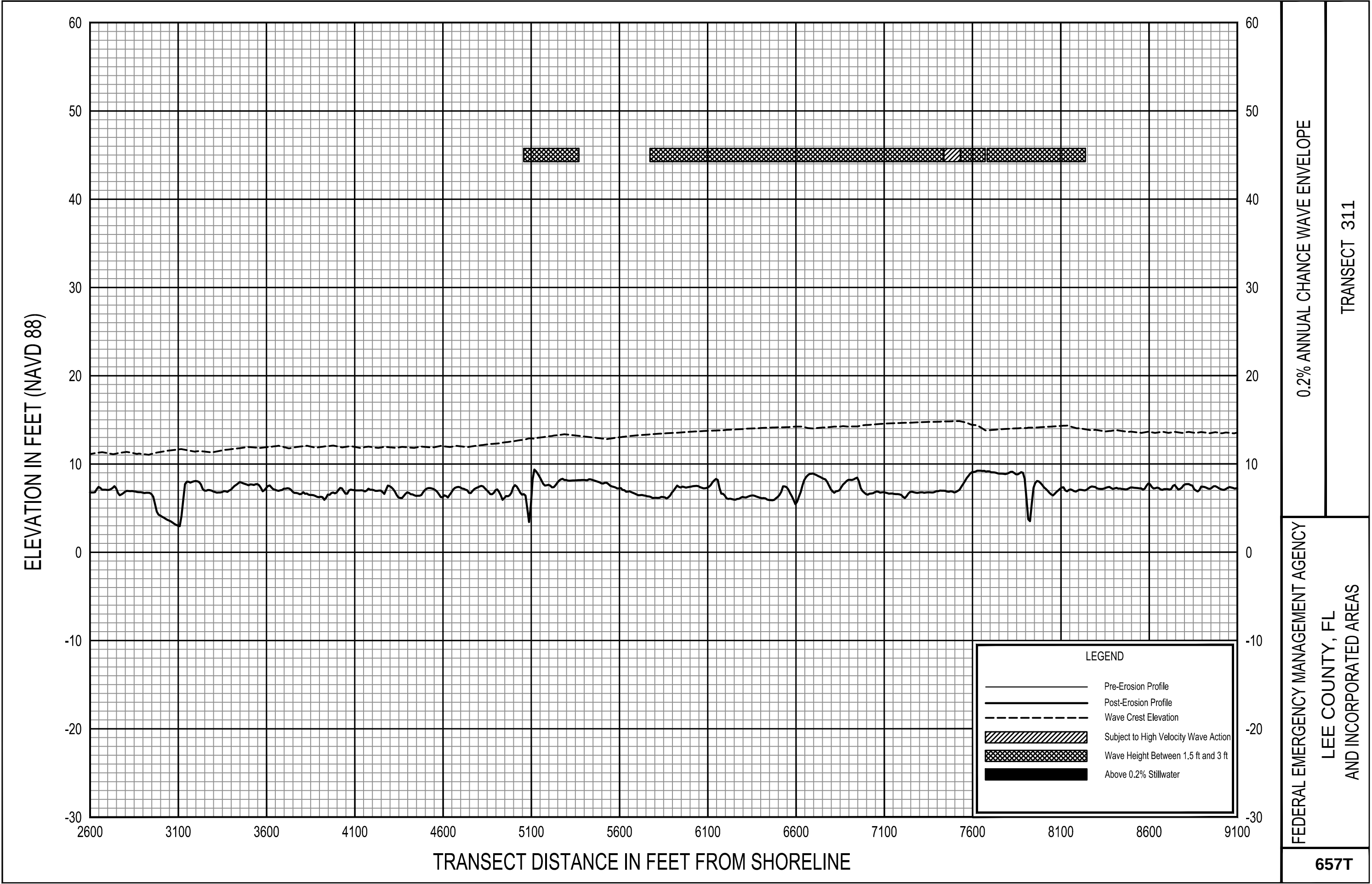


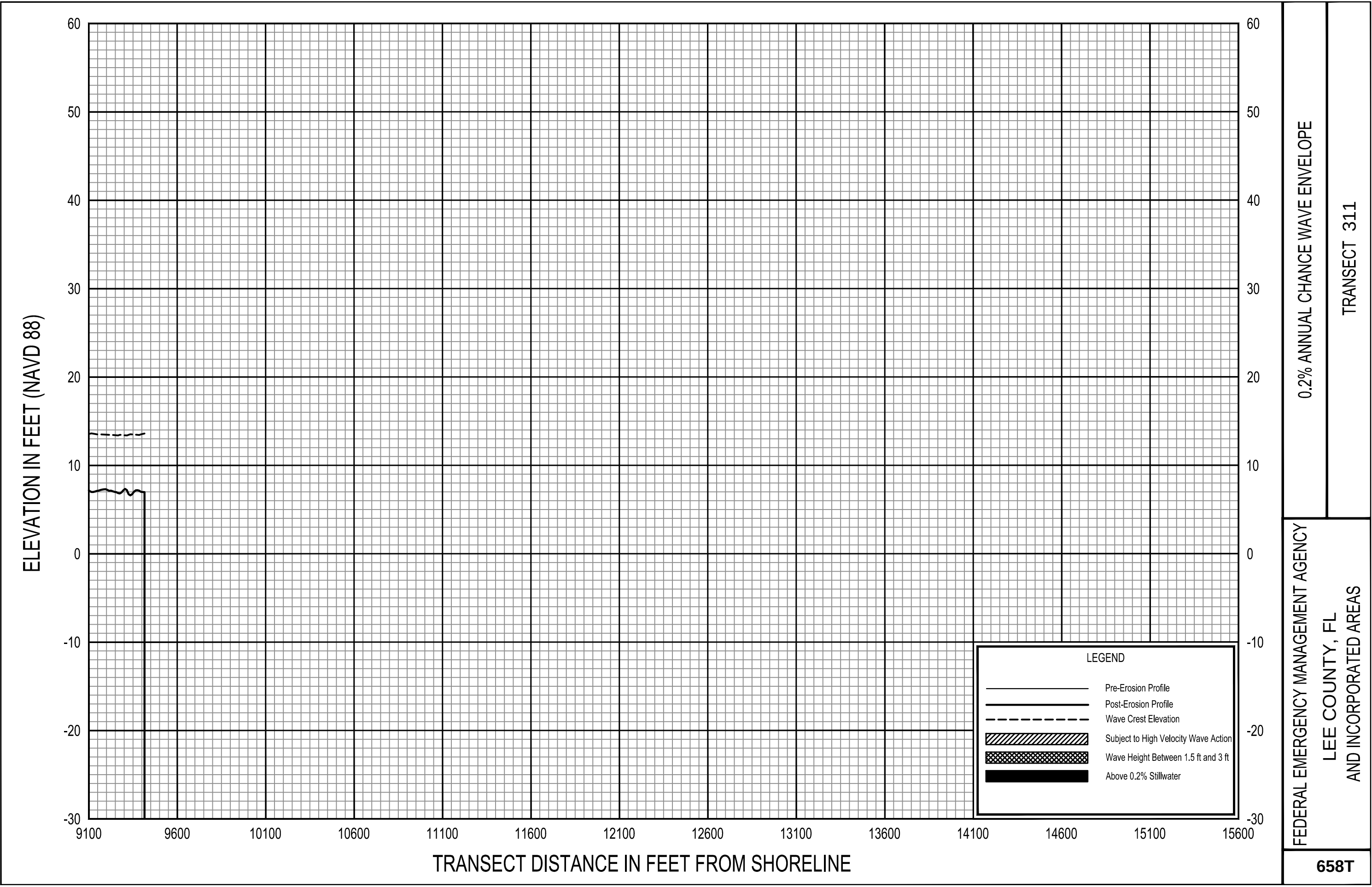


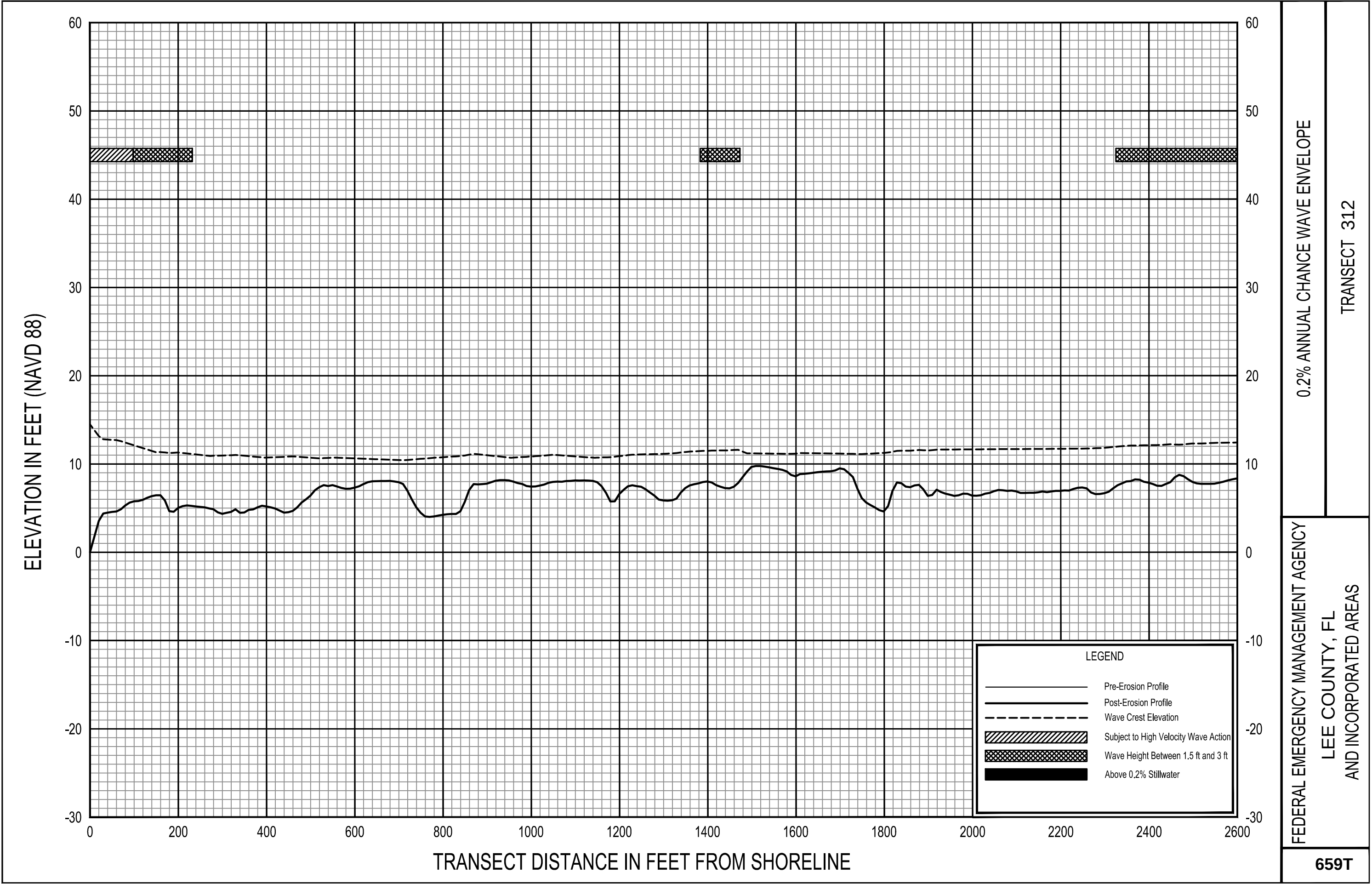


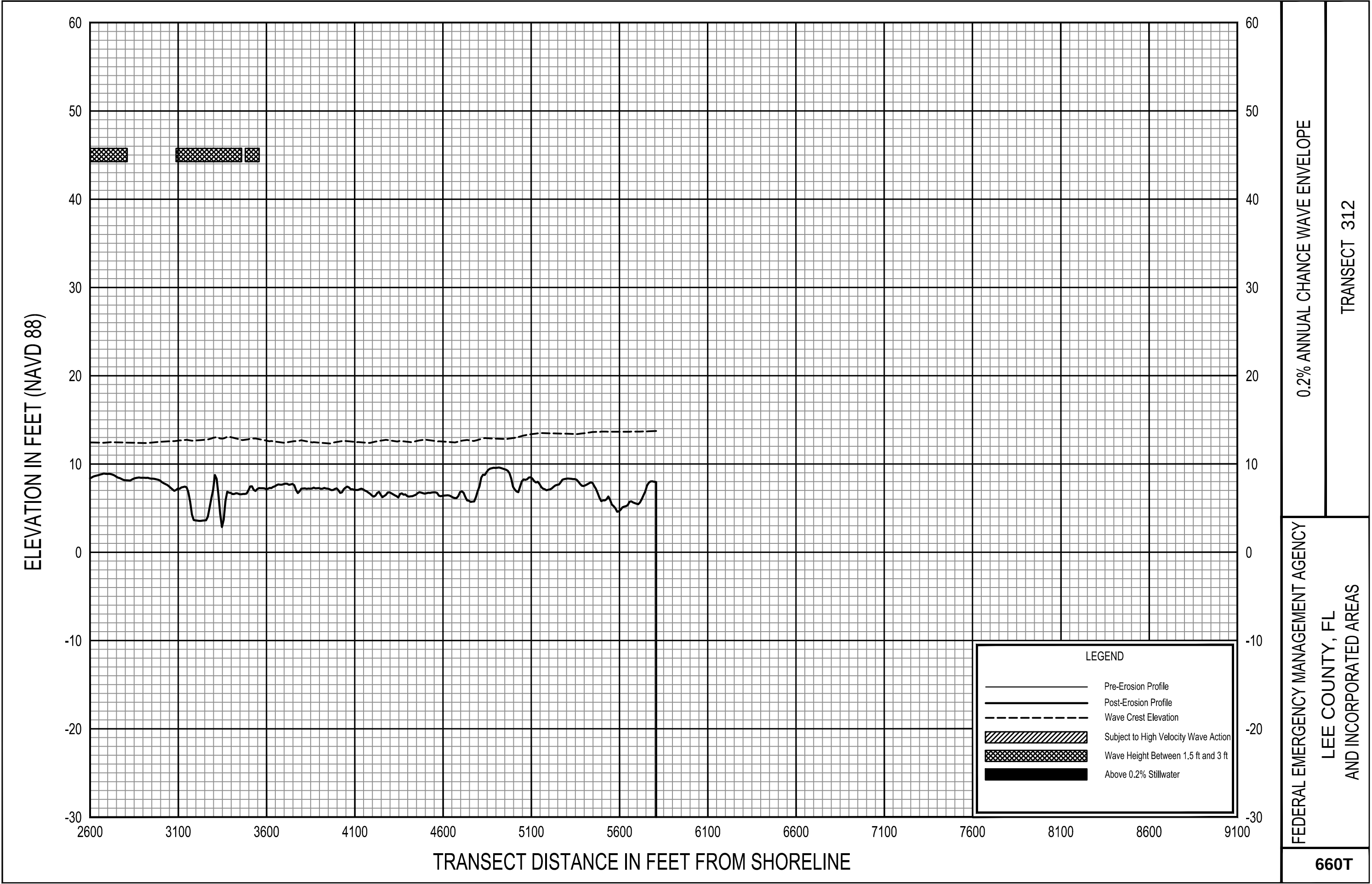


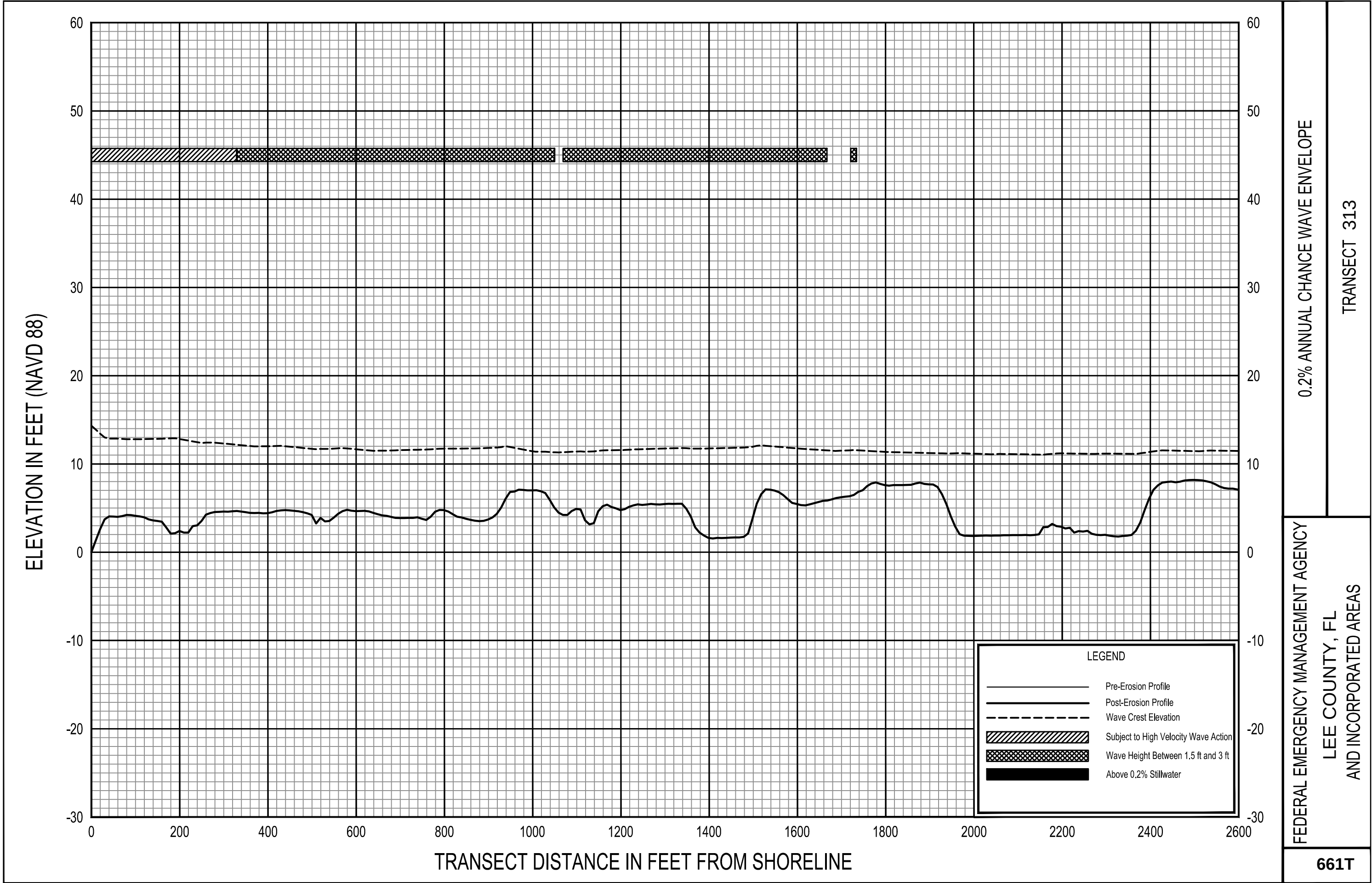


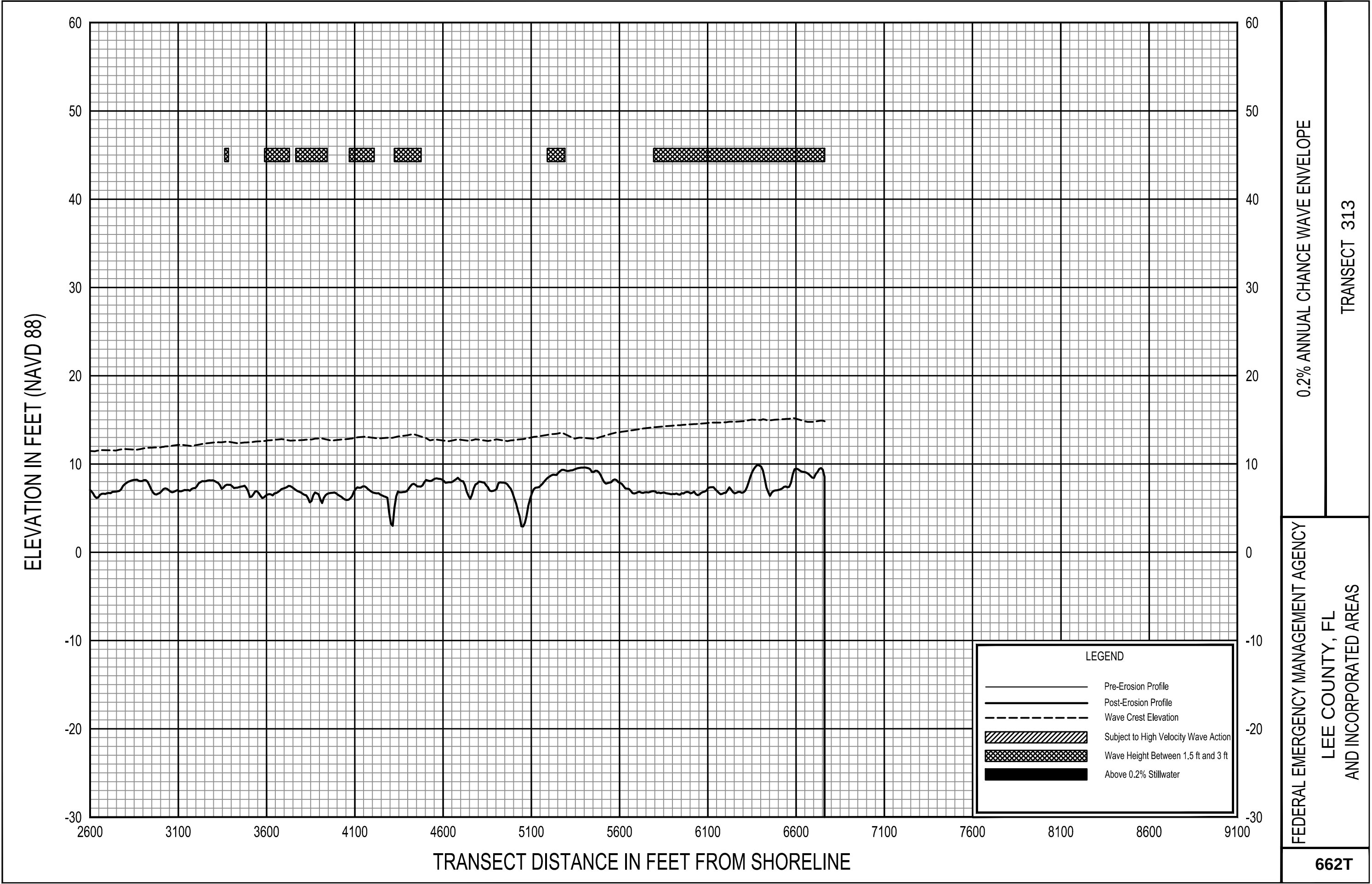


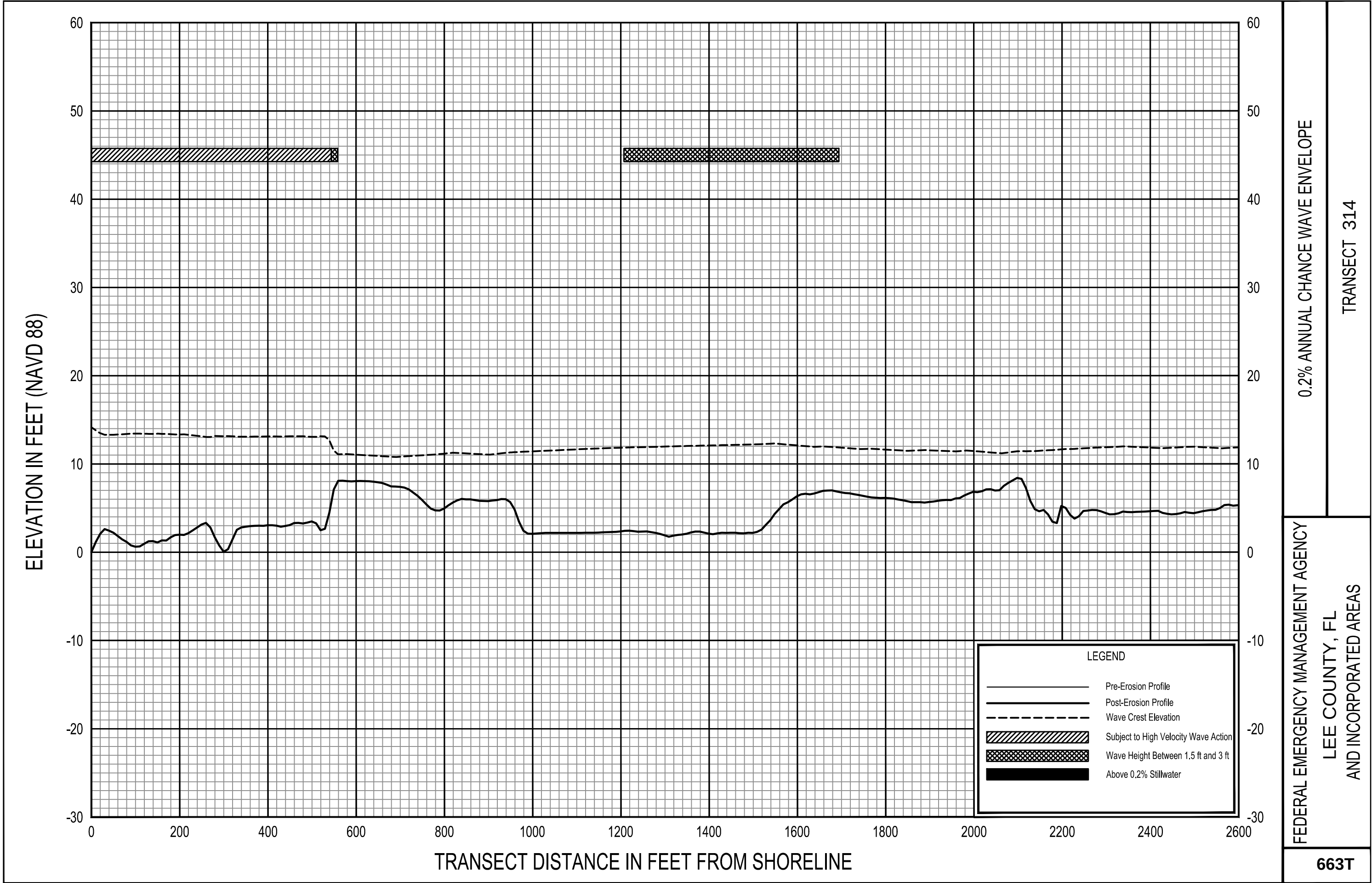


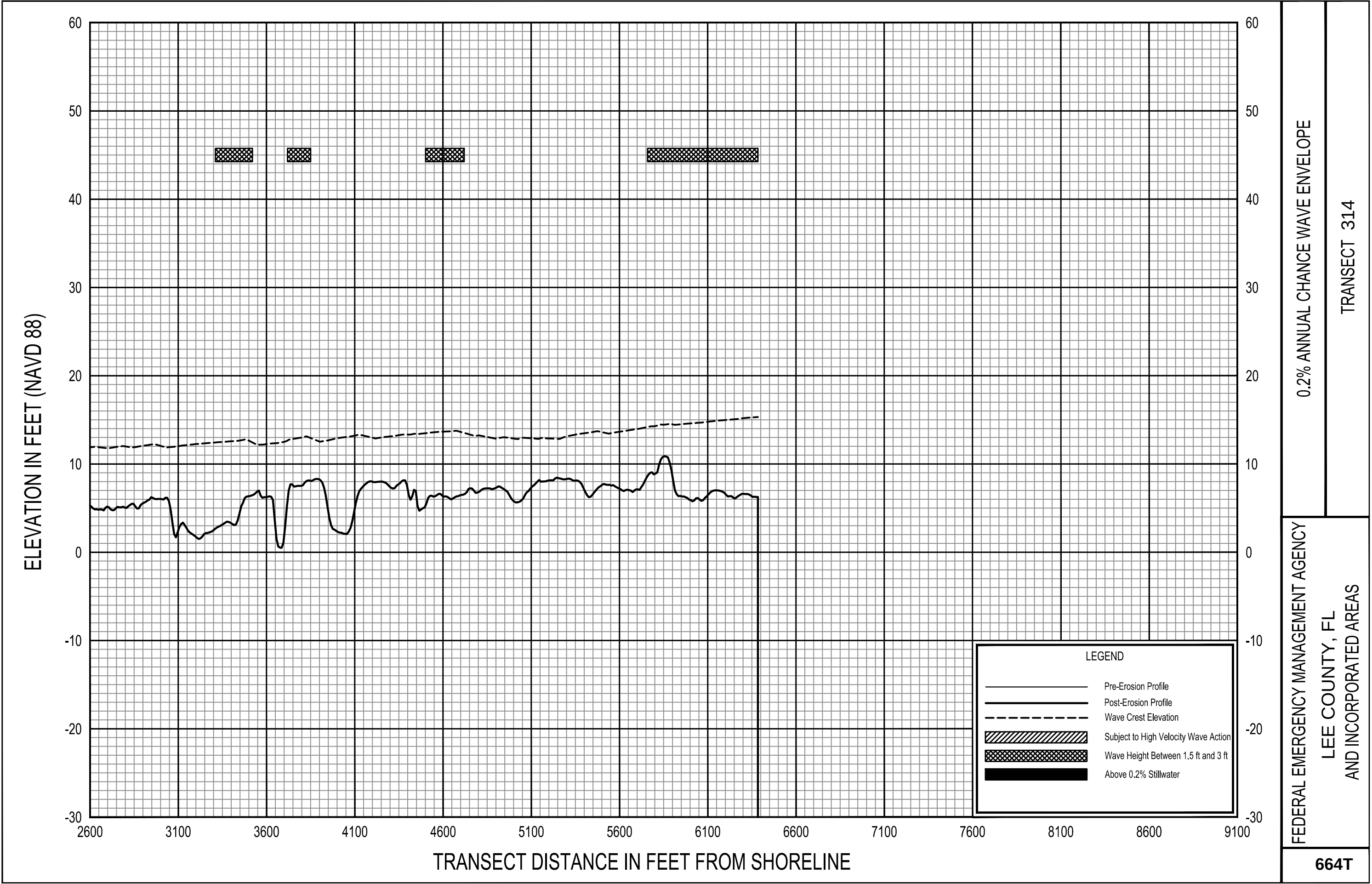


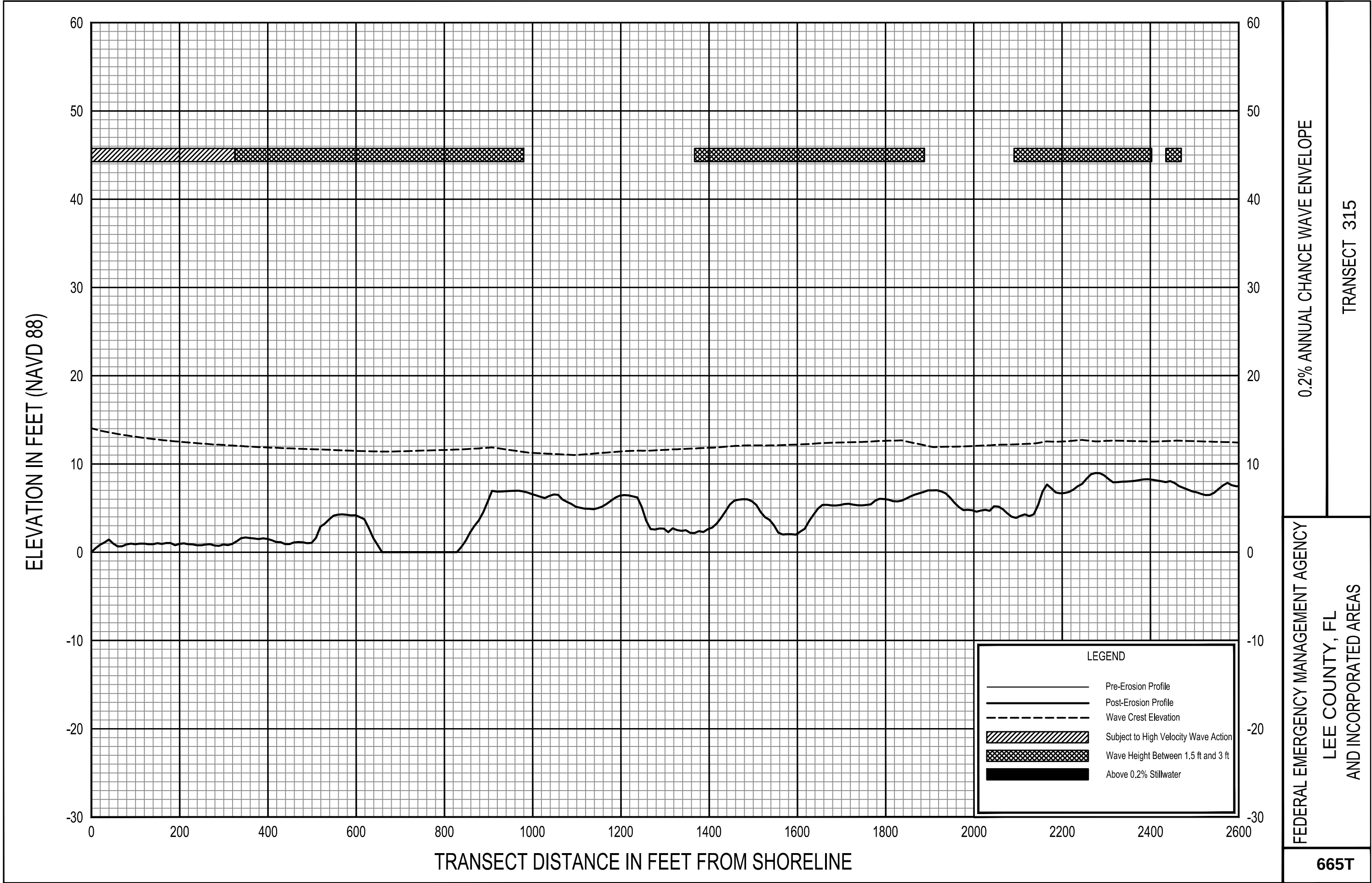


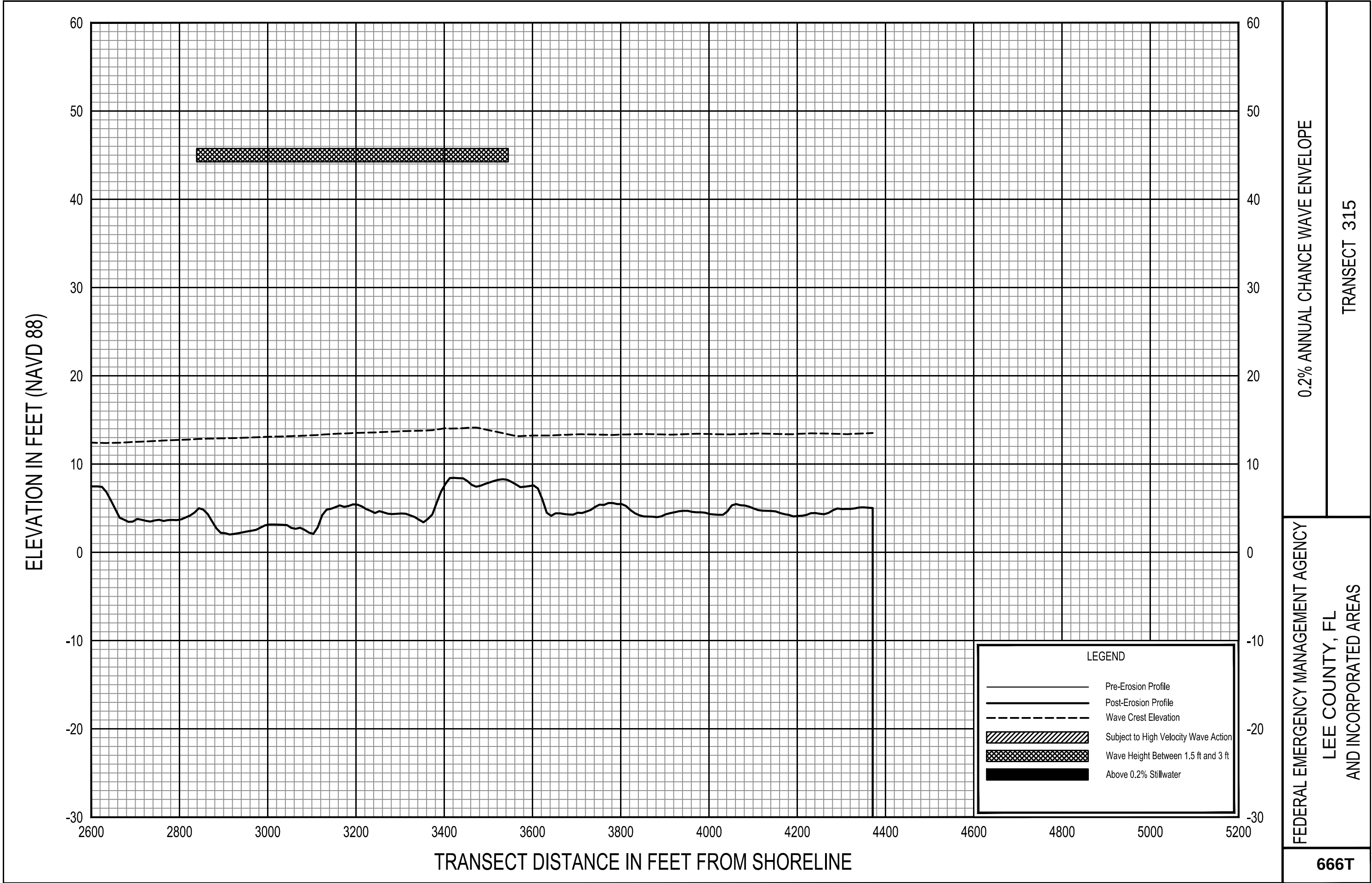




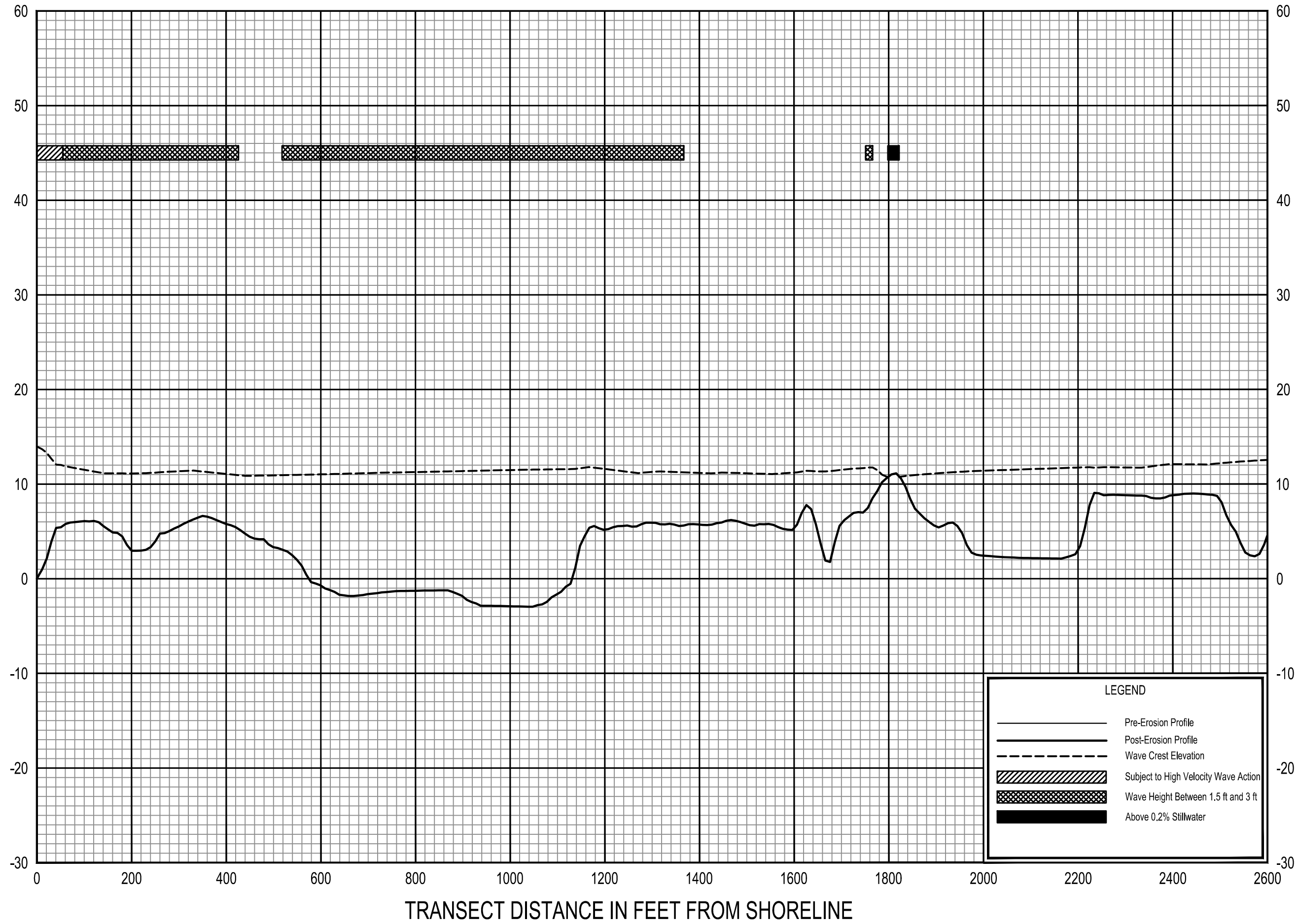








ELEVATION IN FEET (NAVD 88)



FEDERAL EMERGENCY MANAGEMENT AGENCY

LEE COUNTY, FL
AND INCORPORATED AREAS

0.2% ANNUAL CHANCE WAVE ENVELOPE

TRANSECT 316

667T

