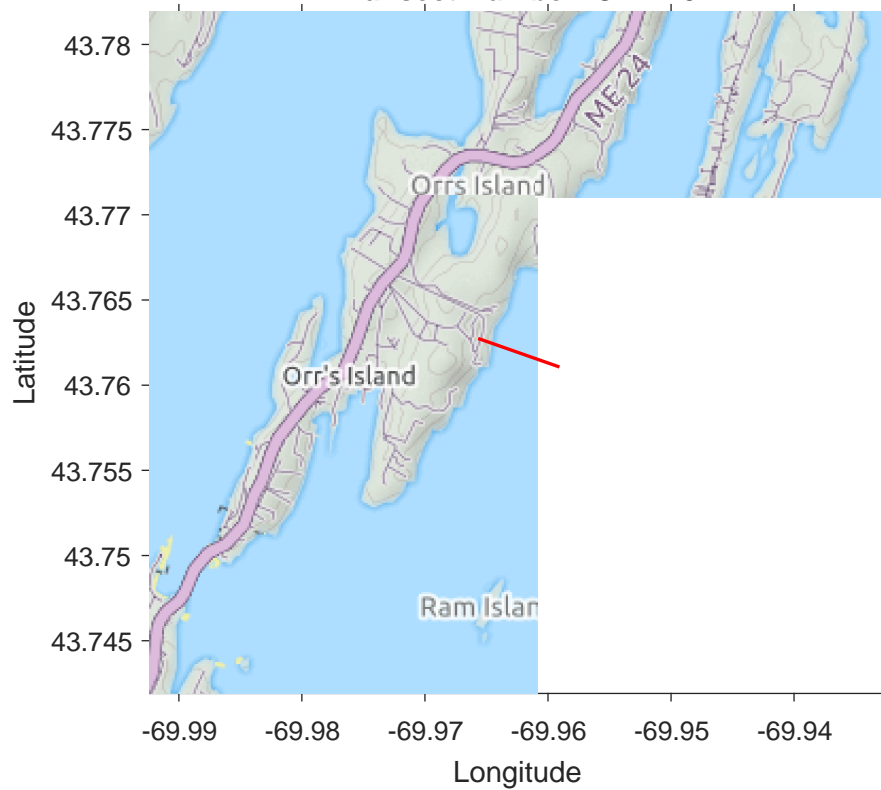
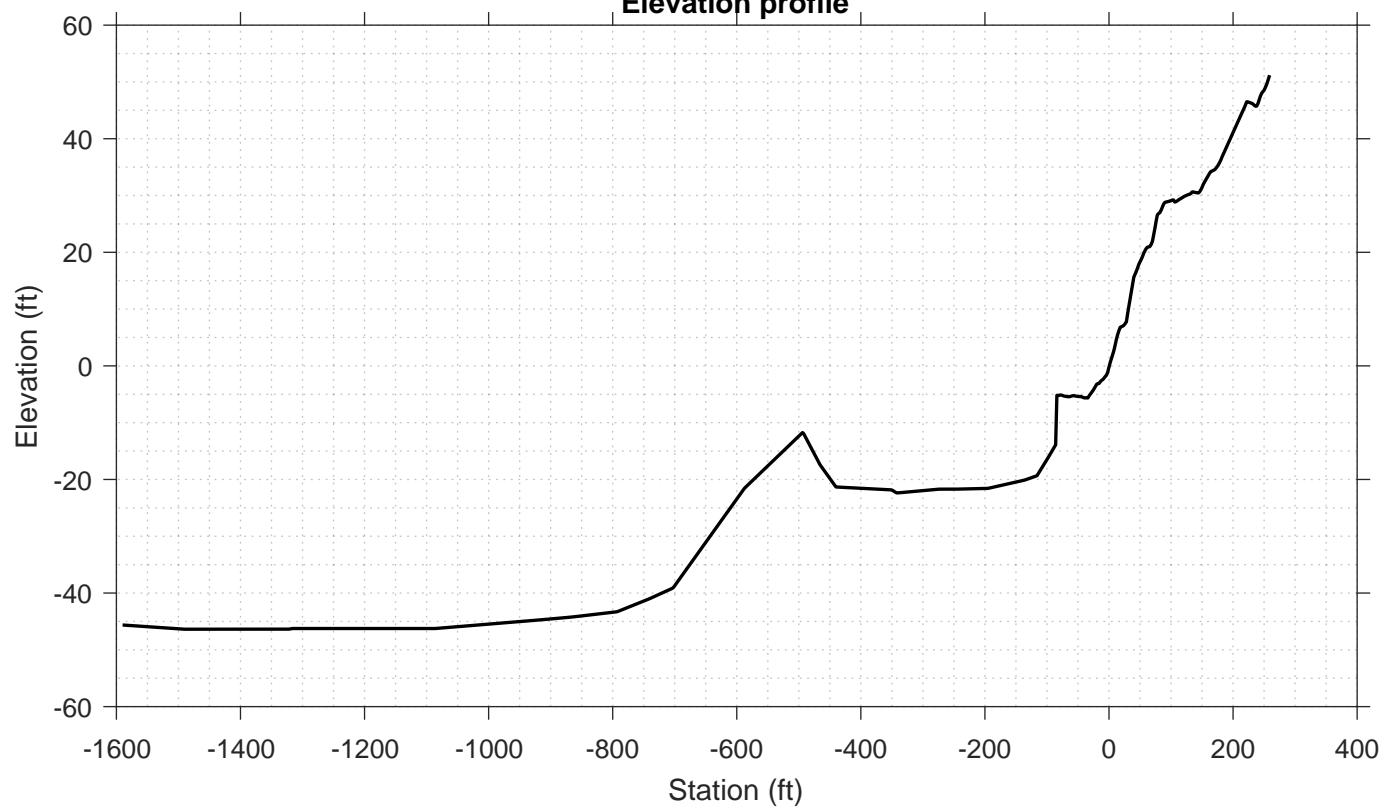


Transect Number: CM-145



Elevation profile



DATA LOG FOR TRANSECT ID: CM-145

PART 1: USER INPUT

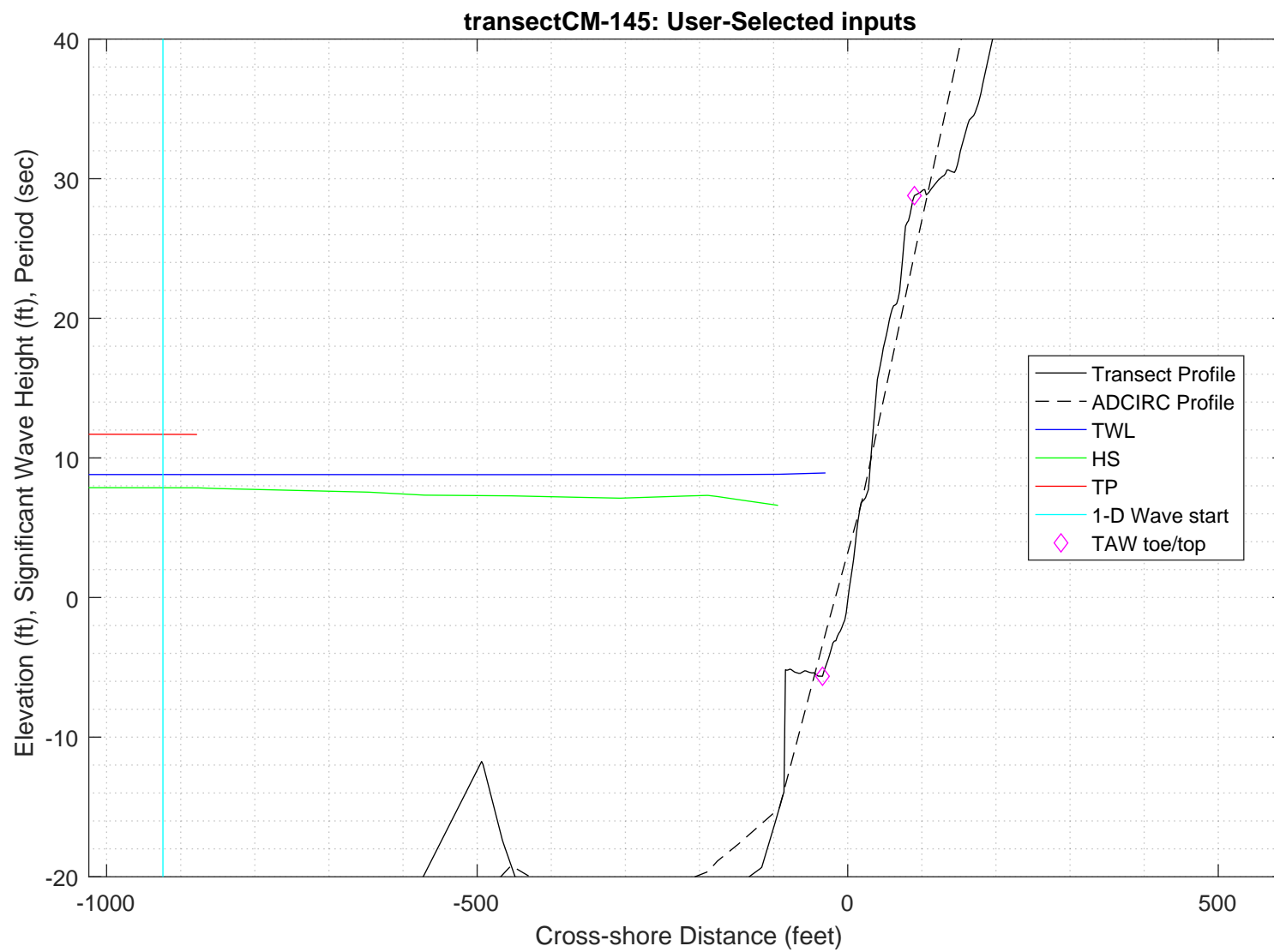
SWAN 1-D / WHAFIS input

station: -924 ft
LON: -69.9615 deg E
LAT: 43.7617 deg N
Bottom ELEV: -44.7872 ft-NAVD88
TWL: 8.8099 ft-NAVD88
HS: 7.8621 ft
TP: 11.6885 sec
Wave Direction bin: 180 deg CCW from East (90 deg sector)
Transect Direction: 165.7577 deg CCW from East

TAW/RUNUP input

toe sta: -34 ft
toe elev: -5.6389 ft-NAVD88
top sta: 90 ft
top elev: 28.7886 ft-NAVD88
Wave and water level conditions at toe to be calculated in SWAN 1-D

PART 1 COMPLETE



PART 2: SWAN 1-D

swan input grid name: 2_swan/gridfiles/CM-145meters_xmeters.grd
swan file name: 2_swan/swanfiles/CM-145.swn
swan output name: 2_swan/swanfiles/CM-145.dat

Boundary Conditions:

TWL- 2.6853 meters
HS- 2.3964 meters
PER- 11.6885 seconds

Batch File: 2_swan/swanfiles/runswan.dat

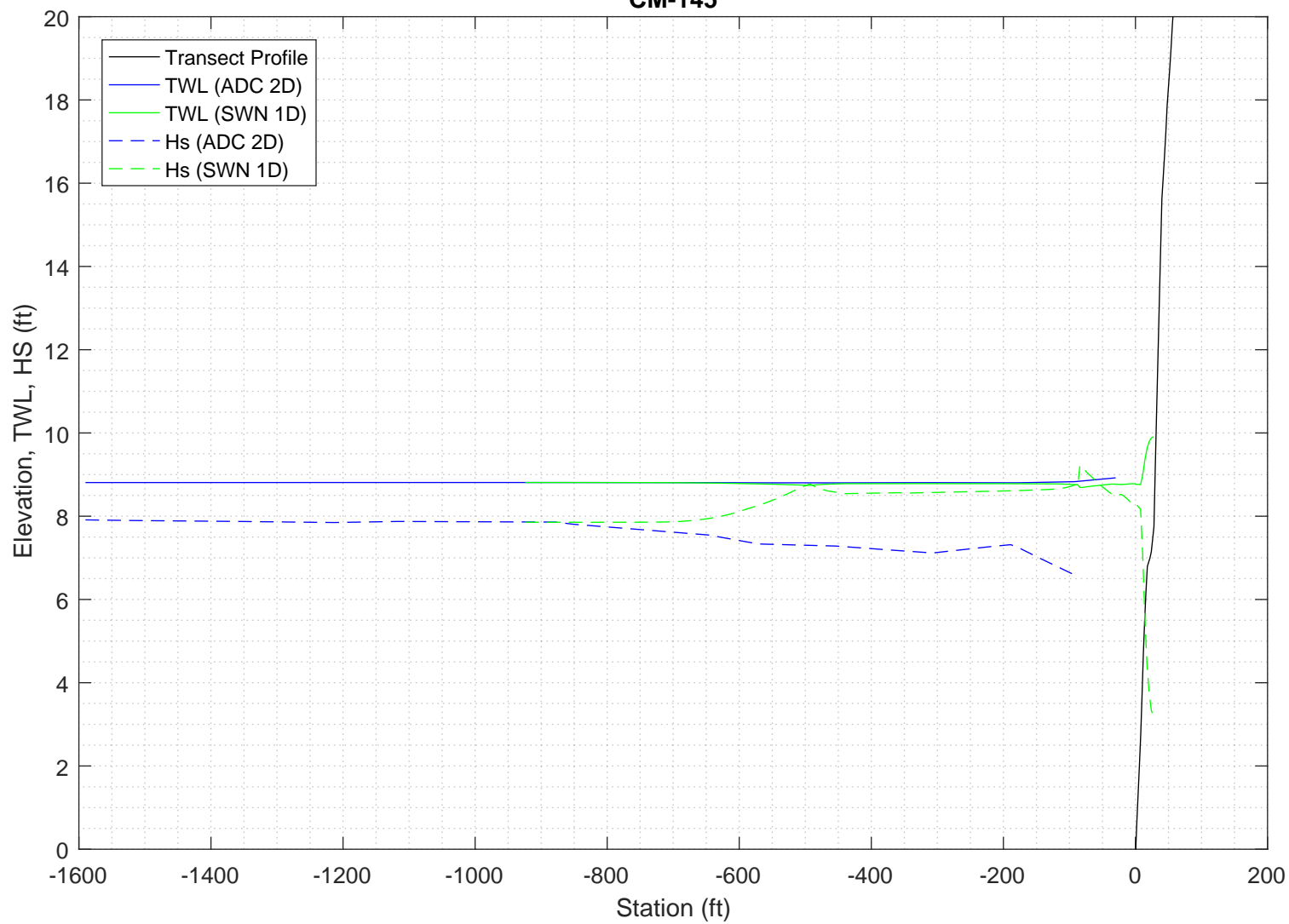
SWAN maximum additional wave setup: 1.1002 feet

SWAN output at toe:

SETUP- -0.03793 feet
HS- 8.5251 feet
PER- 11.4911 seconds

PART 2 COMPLETE

2-D ADCIRC+SWAN and SWAN 1-D results, Transect:
CM-145



Execution started at 20200220.141946

```

-----
                        SWAN
SIMULATION OF WAVES IN NEAR SHORE AREAS
VERSION NUMBER 41.20A
-----

```

PROJECT '2018FemaAppeal' '1'

'100-year Wind and Wave conditions'

! -- SET commands -----

SET DEPMIN=0.01 MAXMES=999 MAXERR=3 PWTAIL=4

SET LEVEL 0

SET CARTESIAN

! -- MODE commands -----

MODE STATIONARY ONED

!-- COORDINATES commands-----

COORDINATES CART

!

! -- computational (CGRID) grid commands -----

! xlenc=length of grid in meters

! mxc = number of mesh cells (one less than number of grid points)

!CGRID REGular [xpc] [ypc] [alpc] [xlenc] [ylenc] [mxc] [myc] &

! [CIRCle|SECTor[dir1] [dir2]] [mdc] [flow] [fhigh] [msc]

CGRID REGULAR 0 0 0 290 0. 290 0 &

CIRCLE 36 0.03 0.8 30

Resolution in sigma-space: df/f = 0.1157

! -- READgrid ---- not used in 1-D mode -----

! -- INPgrid commands -----

!INPgrid BOTtom REGular [xpinp] [ypinp] [alpinp] [mxinp] [myinp] [dxinp] [dyinp]

!

INPGRID BOTTOM REGULAR 0 0 0 290 0 1 1

!READinp BOTtom [fac] 'fname1' [idla] [nhedf] [FREe|FORmat[form]|UNFormatted]

READ BOTTOM -1. '../gridfiles/CM-145zeters_xmeters.grd' 1 0 FREE

!-----

! -- WIND [vel] [dir]

WIND 25.1 0

! -- BOUNd SHAPespec

BOUND SHAPE JONSWAP 3.3 PEAK DSPR POWER

! -- BOUNdspec

! BOU SIDE W CCW CON FILE 'swanspec.txt' 1

BOUN SIDE W CCW CONSTANT PAR 2.3964 11.6885 0 2

!-- BOUNdnest1 - optional for boundary from parent run

!-- BOUNdnest2

!-- BOUNdnest3

!-- INITIAL -- usest to specify initial values

!

```

!----- P H Y S I C S -----
!-- GEN1 [cf10] [cf20] [cf30] [cf40] [edmlpm] [cdrag] [umin] [cfpm]
!-- GEN2 [cf10] [cf20] [cf30] [cf40] [cf50] [cf60] [edmlpm] [cdrag] [umin] [cfpm]
    GEN3 KOMEN
!   whitecapping ( on by default)
!-- WCAPping KOMen [cds2] [stpm] [powst] [delta] [powk]
    WCAP KOM
!   quadruplet wave interactions
!-- QUADrupl [iquad] [lambda] [Cn14] [Csh1] [Csh2]
! -- BREaking CONstant [alpha] [gamma]
    BREAK      CON      1.      0.73
!-- FRIction JONswap CONstant [cfjon]
    FRIC      JONSWAP CON      0.038
!-- TRIad [itriad] [trfac] [cutfr] [a] [b] [urcrit] [urslim]
! TRIAD      1      0.65      2.5      0.95 -0.75 0.2      0.01
    TRIAD
!-- VEGETation [height] [diamtr] [nstems] [drag]
!-- MUD [layer] [rhom] [viscm]
!- LIMiter [ursell] [qb] deactivates quadruplets with Ursell number exceeds ursell
!-- OBSTacle -- not in 1-D
!-- SETUP [supcor]
    SETUP      0
!
! ----- N U M E R I C S -----
!
!-- PROP can use BBST or GSE instead of default
! -- NUMeric -- lots of options
!     NUM ACCUR npnts=100. stat 30
    NUMeric STOPC
!
! -----O U T P U T -----
!
!OUTPut OPTIOns "comment' (TABLE [field]) (BLOck [ndec] [len]) (SPEC [ndec])
OUTPUT OPTIONS '%' TABLE 16
$BLOCK 9 1000 SPEC 8
!CURve 'sname' [xpl] [yp1] <[int] [xp] [yp] >
CURVE 'curve' 0 0 290 290 0
!TABLE 'sname' < HEADER|NOHEAdER|INDEXed > 'fname' <output parameters> (output time)
Table 'curve' HEADER 'CM-145.dat' XP YP HSIGN TPS RTP TMM10 DIR &
DSPR DEPTH SETUP
!QUANTITY XP hexp=99999
!
!-----
COMPUTE STATIONARY
-----
COMPUTATIONAL PART OF SWAN
-----

```

```

One-dimensional mode of SWAN is activated
Gridresolution      : MXC          291 MYC          1
                   : MCGRD         292
                   : MSC           31 MDC           36
                   : MTC           1
                   : NSTATC         0 ITERMX         50
Propagation flags   : ITFRE         1 IREFR         1
Source term flags   : IBOT          1 ISURF         1
                   : IWCAP         1 IWIND          3
                   : ITRIAD        1 IQUAD          2
                   : IVEG          0 ITURBV         0
                   : IMUD          0
Spatial step        : DX           0.1000E+01 DY           0.1000E+01
Spectral bin        : df/f         0.1157E+00 DDIR         0.1000E+02
Physical constants   : GRAV         0.9810E+01 RHO         0.1025E+04
Wind input          : WSPEED       0.2510E+02 DIR         0.0000E+00
Tail parameters     : E(f)         0.4000E+01 E(k)         0.2500E+01
                   : A(f)         0.5000E+01 A(k)         0.3000E+01
Accuracy parameters : DREL         0.1000E-01 NPNTS       0.9950E+02
                   : DHABS        0.0000E+00 CURVAT       0.5000E-02
                   : GRWMX        0.1000E+00
Drying/flooding     : LEVEL        0.0000E+00 DEPMIN       0.1000E-01
The Cartesian convention for wind and wave directions is used
Scheme for geographic propagation is SORDUP
Scheme geogr. space : PROPSC         2 ICMAx         7
Scheme spectral space: CSS          0.5000E+00 CDD         0.5000E+00
Current is off
Quadruplets         : IQUAD         2
                   : LAMBDA       0.2500E+00 CNL4         0.3000E+08
                   : CSH1         0.5500E+01 CSH2         0.8330E+00
                   : CSH3        -0.1250E+01
Maximum Ursell nr for Snl4 : 0.1000E+02
Triads              : ITRIAD         1 TRFAC         0.8000E+00
                   : CUTFR         0.2500E+01 URCRI         0.2000E+00
Minimum Ursell nr for Snl3 : 0.1000E-01
JONSWAP ('73)       : GAMMA        0.3800E-01
Vegetation is off
Turbulence is off
Fluid mud is off
W-cap Komen ('84)   : EMPCOF (CDS2): 0.2360E-04
W-cap Komen ('84)   : APM (STPM)   : 0.3020E-02
W-cap Komen ('84)   : POWST        : 0.2000E+01
W-cap Komen ('84)   : DELTA         : 0.1000E+01
W-cap Komen ('84)   : POWK         : 0.1000E+01
Wind drag is fit
Snyder/Komen wind input
Battjes&Janssen ('78): ALPHA       0.1000E+01 GAMMA       0.7300E+00
Set-up              : SUPCOR        0.0000E+00
Diffraction is off
Janssen ('89,'90)   : ALPHA       0.1000E-01 KAPPA       0.4100E+00
Janssen ('89,'90)   : RHOA        0.1280E+01 RHOW       0.1025E+04

1st and 2nd gen. wind: CF10        0.1880E+03 CF20        0.5900E+00
                   : CF30        0.1200E+00 CF40        0.2500E+03
                   : CF50        0.2300E-02 CF60       -0.2230E+00
                   : CF70        0.0000E+00 CF80       -0.5600E+00
                   : RHOAW       0.1249E-02 EDMLEPM      0.3600E-02
                   : CDRAG       0.1230E-02 UMIN         0.1000E+01
                   : LIM_PM      0.1300E+00

```

First guess by 2nd generation model flags for first iteration:

```

ITER      1 GRWMX      0.1000E+23 ALFA      0.0000E+00
IWIND     2 IWCAP      0 IQUAD      0
ITRIAD    1 IBOT      1 ISURF      1
IVEG      0 ITURBV     0 IMUD      0

```

```

iteration   1; sweep 1
iteration   1; sweep 2
iteration   1; sweep 3
iteration   1; sweep 4
not possible to compute, first iteration

```

Options given by user are activated for proceeding calculation:

```

ITER      2 GRWMX      0.1000E+00 ALFA      0.0000E+00
IWIND     3 IWCAP      1 IQUAD      2
ITRIAD    1 IBOT      1 ISURF      1
IVEG      0 ITURBV     0 IMUD      0

```

```

iteration   2; sweep 1
iteration   2; sweep 2
iteration   2; sweep 3
iteration   2; sweep 4
accuracy OK in 68.39 % of wet grid points ( 99.50 % required)

iteration   3; sweep 1
iteration   3; sweep 2
iteration   3; sweep 3

```



```
iteration    3; sweep 4
accuracy OK in  0.35 % of wet grid points ( 99.50 % required)

iteration    4; sweep 1
iteration    4; sweep 2
iteration    4; sweep 3
iteration    4; sweep 4
accuracy OK in 43.65 % of wet grid points ( 99.50 % required)

iteration    5; sweep 1
iteration    5; sweep 2
iteration    5; sweep 3
iteration    5; sweep 4
accuracy OK in 72.51 % of wet grid points ( 99.50 % required)

iteration    6; sweep 1
iteration    6; sweep 2
iteration    6; sweep 3
iteration    6; sweep 4
accuracy OK in 98.63 % of wet grid points ( 99.50 % required)

iteration    7; sweep 1
iteration    7; sweep 2
iteration    7; sweep 3
iteration    7; sweep 4
accuracy OK in 99.66 % of wet grid points ( 99.50 % required)
```

STOP

Run: 1

Table:curve

SWAN version:41.20A

Xp [m]	Yp [m]	Hsig [m]	TPsmoo [sec]	RTpeak [sec]	Tm_10 [sec]	Dir [degr]	Dspr [degr]	Depth [m]	Setup [m]
0.	0.	2.39427	11.4043	11.1572	10.5373	359.994	31.7123	16.3400	0.000000
1.	0.	2.39425	11.4043	11.1572	10.5370	359.994	31.6967	16.3300	-0.000006
2.	0.	2.39423	11.4044	11.1572	10.5367	359.994	31.6818	16.3200	-0.000012
3.	0.	2.39422	11.4044	11.1572	10.5364	359.994	31.6668	16.3100	-0.000018
4.	0.	2.39420	11.4044	11.1572	10.5361	359.994	31.6519	16.3000	-0.000025
5.	0.	2.39419	11.4044	11.1572	10.5358	359.994	31.6370	16.2900	-0.000031
6.	0.	2.39418	11.4044	11.1572	10.5355	359.995	31.6221	16.2800	-0.000037
7.	0.	2.39417	11.4045	11.1572	10.5352	359.995	31.6073	16.2700	-0.000043
8.	0.	2.39416	11.4045	11.1572	10.5349	359.995	31.5925	16.2600	-0.000050
9.	0.	2.39415	11.4045	11.1572	10.5346	359.995	31.5777	16.2499	-0.000056
10.	0.	2.39415	11.4045	11.1572	10.5344	359.995	31.5629	16.2399	-0.000062
11.	0.	2.39414	11.4045	11.1572	10.5340	359.995	31.5481	16.2299	-0.000068
12.	0.	2.39413	11.4046	11.1572	10.5337	359.995	31.5334	16.2199	-0.000075
13.	0.	2.39413	11.4046	11.1572	10.5334	359.995	31.5187	16.2099	-0.000081
14.	0.	2.39413	11.4046	11.1572	10.5331	359.995	31.5041	16.1999	-0.000087
15.	0.	2.39412	11.4046	11.1572	10.5328	359.995	31.4894	16.1899	-0.000094
16.	0.	2.39412	11.4046	11.1572	10.5325	359.995	31.4748	16.1799	-0.000100
17.	0.	2.39412	11.4047	11.1572	10.5322	359.995	31.4602	16.1699	-0.000106
18.	0.	2.39412	11.4047	11.1572	10.5319	359.995	31.4457	16.1599	-0.000113
19.	0.	2.39412	11.4047	11.1572	10.5316	359.995	31.4311	16.1499	-0.000119
20.	0.	2.39406	11.4047	11.1572	10.5312	359.995	31.4117	16.1399	-0.000125
21.	0.	2.39410	11.4048	11.1572	10.5311	359.995	31.3907	16.1199	-0.000138
22.	0.	2.39407	11.4048	11.1572	10.5307	359.995	31.3742	16.1099	-0.000144
23.	0.	2.39407	11.4048	11.1572	10.5304	359.995	31.3590	16.0998	-0.000150
24.	0.	2.39401	11.4048	11.1572	10.5300	359.996	31.3395	16.0898	-0.000157
25.	0.	2.39405	11.4049	11.1572	10.5299	359.996	31.3188	16.0698	-0.000169
26.	0.	2.39403	11.4049	11.1572	10.5295	359.996	31.3035	16.0598	-0.000176
27.	0.	2.39397	11.4049	11.1572	10.5291	359.996	31.2863	16.0498	-0.000181
28.	0.	2.39402	11.4050	11.1572	10.5289	359.996	31.2693	16.0298	-0.000193
29.	0.	2.39400	11.4050	11.1572	10.5286	359.996	31.2561	16.0198	-0.000199
30.	0.	2.39400	11.4050	11.1572	10.5282	359.996	31.2441	16.0098	-0.000205
31.	0.	2.39395	11.4050	11.1572	10.5278	359.996	31.2286	15.9998	-0.000211
32.	0.	2.39403	11.4051	11.1572	10.5275	359.996	31.2121	15.9798	-0.000223
33.	0.	2.39405	11.4051	11.1572	10.5268	359.996	31.1988	15.9698	-0.000229
34.	0.	2.39404	11.4051	11.1572	10.5261	359.996	31.1829	15.9598	-0.000235

60.	0.	2.39532	11.4080	11.1572	10.5048	0.002	30.0961	14.9791	-0.000868
61.	0.	2.39553	11.4081	11.1572	10.5036	0.002	30.0410	14.9291	-0.000905
62.	0.	2.39576	11.4083	11.1572	10.5024	0.002	29.9862	14.8791	-0.000942
63.	0.	2.39601	11.4085	11.1572	10.5011	0.002	29.9314	14.8290	-0.000979
64.	0.	2.39628	11.4086	11.1572	10.4998	0.003	29.8767	14.7790	-0.001017
65.	0.	2.39658	11.4088	11.1572	10.4984	0.003	29.8222	14.7289	-0.001055
66.	0.	2.39689	11.4090	11.1572	10.4969	0.004	29.7678	14.6789	-0.001093
67.	0.	2.39693	11.4091	11.1572	10.4953	0.004	29.6912	14.6289	-0.001132
68.	0.	2.39736	11.4095	11.1572	10.4947	0.005	29.5697	14.5188	-0.001218
69.	0.	2.39815	11.4100	11.1572	10.4948	0.005	29.4186	14.3687	-0.001339
70.	0.	2.39890	11.4105	11.1572	10.4950	0.006	29.2581	14.2185	-0.001464
71.	0.	2.39966	11.4111	11.1572	10.4953	0.006	29.0911	14.0684	-0.001592
72.	0.	2.40067	11.4116	11.1572	10.4959	0.007	28.9229	13.9083	-0.001734
73.	0.	2.40165	11.4122	11.1572	10.4965	0.008	28.7641	13.7581	-0.001870
74.	0.	2.40273	11.4128	11.1572	10.4969	0.009	28.6161	13.6080	-0.002007
75.	0.	2.40409	11.4133	11.1572	10.4975	0.010	28.4715	13.4478	-0.002158
76.	0.	2.40541	11.4139	11.1572	10.4978	0.011	28.3314	13.2977	-0.002303
77.	0.	2.40684	11.4144	11.1572	10.4979	0.013	28.1929	13.1475	-0.002453
78.	0.	2.40834	11.4149	11.1572	10.4980	0.014	28.0521	12.9974	-0.002608
79.	0.	2.41015	11.4155	11.1572	10.4983	0.016	27.9102	12.8372	-0.002778
80.	0.	2.41190	11.4161	11.1572	10.4981	0.017	27.7708	12.6871	-0.002943
81.	0.	2.41378	11.4166	11.1572	10.4980	0.019	27.6339	12.5369	-0.003113
82.	0.	2.41573	11.4172	11.1572	10.4976	0.021	27.4926	12.3867	-0.003289
83.	0.	2.41804	11.4178	11.1572	10.4973	0.022	27.3499	12.2265	-0.003483
84.	0.	2.42028	11.4184	11.1572	10.4966	0.024	27.2100	12.0763	-0.003672
85.	0.	2.42268	11.4190	11.1572	10.4956	0.026	27.0707	11.9261	-0.003867
86.	0.	2.42518	11.4196	11.1572	10.4944	0.028	26.9280	11.7759	-0.004069
87.	0.	2.42806	11.4202	11.1572	10.4932	0.029	26.7838	11.6157	-0.004292
88.	0.	2.43086	11.4208	11.1572	10.4917	0.030	26.6414	11.4655	-0.004509
89.	0.	2.43383	11.4215	11.1572	10.4899	0.030	26.4993	11.3153	-0.004734
90.	0.	2.43692	11.4221	11.1572	10.4877	0.030	26.3542	11.1650	-0.004968
91.	0.	2.44045	11.4228	11.1572	10.4855	0.030	26.2082	11.0048	-0.005225
92.	0.	2.44392	11.4235	11.1572	10.4825	0.030	26.0660	10.8545	-0.005476
93.	0.	2.44755	11.4242	11.1572	10.4793	0.029	25.9242	10.7043	-0.005736
94.	0.	2.45133	11.4249	11.1572	10.4757	0.028	25.7812	10.5540	-0.006006
95.	0.	2.45560	11.4257	11.1572	10.4719	0.026	25.6429	10.3937	-0.006302
96.	0.	2.45978	11.4264	11.1572	10.4673	0.024	25.5141	10.2434	-0.006589
97.	0.	2.46417	11.4271	11.1572	10.4621	0.022	25.3880	10.0931	-0.006886
98.	0.	2.46873	11.4279	11.1572	10.4561	0.020	25.2616	9.9428	-0.007195
99.	0.	2.47388	11.4288	11.1572	10.4497	0.018	25.1343	9.7825	-0.007537
100.	0.	2.47893	11.4296	11.1572	10.4420	0.016	25.0113	9.6321	-0.007872
101.	0.	2.48419	11.4305	11.1572	10.4335	0.014	24.8846	9.4818	-0.008221
102.	0.	2.49014	11.4314	11.1572	10.4244	0.013	24.7630	9.3214	-0.008608
103.	0.	2.49539	11.4323	11.1572	10.4133	0.011	24.6617	9.1911	-0.008937
104.	0.	2.49975	11.4330	11.1572	10.4004	0.010	24.5713	9.0908	-0.009201
105.	0.	2.50465	11.4339	11.1572	10.3871	0.006	24.4781	8.9805	-0.009497
106.	0.	2.50940	11.4347	11.1572	10.3726	0.004	24.3942	8.8802	-0.009777
107.	0.	2.51427	11.4356	11.1572	10.3573	0.003	24.3093	8.7799	-0.010065
108.	0.	2.51973	11.4365	11.1572	10.3415	0.002	24.2242	8.6696	-0.010391
109.	0.	2.52492	11.4374	11.1572	10.3244	0.000	24.1397	8.5693	-0.010698
110.	0.	2.53061	11.4385	11.1572	10.3070	359.999	24.0455	8.4590	-0.011044
111.	0.	2.53610	11.4395	11.1572	10.2881	359.998	23.9591	8.3586	-0.011372
112.	0.	2.54222	11.4405	11.1572	10.2688	359.997	23.8724	8.2483	-0.011744
113.	0.	2.54804	11.4416	11.1572	10.2481	359.995	23.7864	8.1479	-0.012094
114.	0.	2.55450	11.4428	11.1572	10.2268	359.994	23.6994	8.0375	-0.012491
115.	0.	2.56064	11.4440	11.1572	10.2042	359.993	23.6123	7.9371	-0.012866
116.	0.	2.56743	11.4452	11.1572	10.1812	359.992	23.5237	7.8267	-0.013291
117.	0.	2.57388	11.4465	11.1572	10.1567	359.992	23.4348	7.7263	-0.013693
118.	0.	2.58099	11.4479	11.1572	10.1317	359.991	23.3440	7.6159	-0.014147
119.	0.	2.58775	11.4492	11.1572	10.1053	359.990	23.2524	7.5154	-0.014577
120.	0.	2.59517	11.4507	11.1572	10.0785	359.990	23.1585	7.4049	-0.015064
121.	0.	2.60220	11.4521	11.1572	10.0503	359.990	23.0632	7.3045	-0.015525
122.	0.	2.60989	11.4537	11.1572	10.0216	359.989	22.9645	7.1940	-0.016045
123.	0.	2.61714	11.4552	11.1572	9.9916	359.989	22.8646	7.0935	-0.016536
124.	0.	2.62473	11.4569	11.1572	9.9623	359.987	22.7659	6.9829	-0.017074
125.	0.	2.63158	11.4586	11.1572	9.9324	359.984	22.6656	6.8824	-0.017568
126.	0.	2.63907	11.4603	11.1572	9.9019	359.981	22.5618	6.7719	-0.018125

127.	0.	2.64607	11.4621	11.1572	9.8697	359.978	22.4535	6.6714	-0.018645
128.	0.	2.65297	11.4639	11.1572	9.8369	359.974	22.3334	6.5708	-0.019175
129.	0.	2.66006	11.4659	11.1572	9.8049	359.965	22.2012	6.4602	-0.019758
130.	0.	2.66648	11.4678	11.1572	9.7713	359.957	22.0551	6.3597	-0.020295
131.	0.	2.67446	11.4697	11.1572	9.7379	359.949	22.0012	6.2491	-0.020898
132.	0.	2.66929	11.4703	11.1572	9.6906	359.947	22.1814	6.3800	-0.019986
133.	0.	2.66084	11.4702	11.1572	9.6429	359.947	22.4646	6.5913	-0.018670
134.	0.	2.65348	11.4696	11.1572	9.6008	359.941	22.7772	6.8025	-0.017468
135.	0.	2.64725	11.4693	11.1572	9.5641	359.942	23.0839	7.0036	-0.016409
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137.	0.	2.63564	11.4682	11.1572	9.5013	359.945	23.7341	7.4256	-0.014436
138.	0.	2.63069	11.4675	11.1572	9.4748	359.946	24.0717	7.6364	-0.013557
139.	0.	2.62603	11.4668	11.1572	9.4508	359.947	24.3946	7.8473	-0.012740
140.	0.	2.62261	11.4662	11.1572	9.4306	359.948	24.6805	8.0279	-0.012082
141.	0.	2.61988	11.4656	11.1572	9.4131	359.949	24.9332	8.1885	-0.011528
142.	0.	2.61748	11.4650	11.1572	9.3973	359.950	25.1634	8.3390	-0.011031
143.	0.	2.61508	11.4645	11.1572	9.3824	359.951	25.3784	8.4894	-0.010556
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145.	0.	2.61006	11.4633	11.1572	9.3542	359.953	25.7713	8.8004	-0.009632
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148.	0.	2.60332	11.4619	11.1572	9.3202	359.952	26.0992	9.1814	-0.008594
149.	0.	2.60393	11.4619	11.1572	9.3167	359.952	26.1165	9.1814	-0.008591
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151.	0.	2.60472	11.4619	11.1572	9.3092	359.953	26.1422	9.1914	-0.008570
152.	0.	2.60495	11.4618	11.1572	9.3052	359.953	26.1534	9.2015	-0.008546
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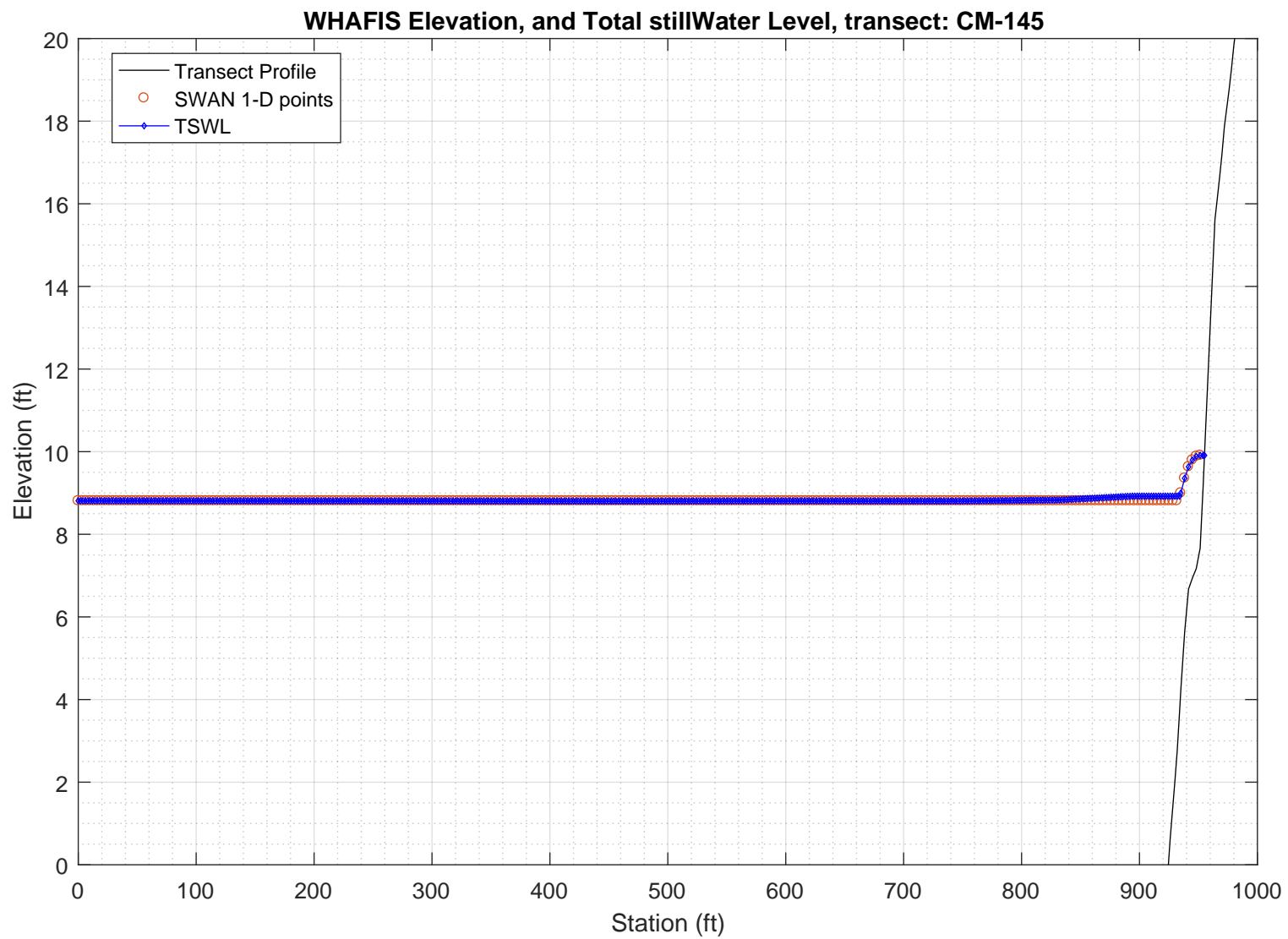
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281.	0.	2.52314	11.4397	11.1572	8.2169	0.072	14.8618	3.0207	-0.009265
282.	0.	2.52753	11.4366	11.1572	8.2018	0.076	14.0534	2.5862	-0.013810
283.	0.	2.50686	11.4358	11.1572	8.1493	0.043	13.2279	2.2158	-0.014211
284.	0.	2.49056	11.4375	11.1572	8.0137	0.069	12.2849	1.8550	-0.014967
285.	0.	2.14784	11.5707	11.1572	8.2185	359.364	12.0207	1.4573	0.057273
286.	0.	1.68518	11.6447	11.1572	8.4923	357.064	11.3992	1.1368	0.166779
287.	0.	1.34216	11.8451	12.4477	8.7175	355.473	10.5048	0.9009	0.250874
288.	0.	1.13544	11.6298	11.1572	8.6233	354.403	9.4649	0.8707	0.300702
289.	0.	1.01342	11.6186	11.1572	8.3563	353.681	8.2574	0.8274	0.327359
290.	0.	0.97360	11.6068	11.1572	8.3592	353.746	8.1912	0.6854	0.335352

PART 3: WHAFIS

WHAFIS input: CM-145.dat

WHAFIS output: CM-145.out

PART 3 COMPLETE



WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (WHAFIS VERSION 4.0G, 08_2007)

Executed on: Thu Feb 20 14:57:37 2020

Input file: C:\FEMA-TransectAnalysis\LOMR-TransectAnalysis-Harpswell\3_whafis\whafis4\CM-145.dat

Output file: C:\FEMA-TransectAnalysis\LOMR-TransectAnalysis-Harpswell\3_whafis\whafis4\CM-145.out

header

THIS IS A 100-YEAR CASE
THE FOLLOWING NON-DEFAULT WIND SPEEDS ARE BEING USED
WINDIF 56.14 WINDOF 56.14 WINDVH 60.00

PART1 INPUT

IE	0.000	-44.787	1.000	1.000	8.810	12.579	11.689	56.140	0.009	0.000
OF	2.000	-44.769	0.000	8.810	0.000	0.000	0.000	0.000	0.009	0.000
OF	4.000	-44.751	0.000	8.810	0.000	0.000	0.000	0.000	0.009	0.000
OF	6.000	-44.733	0.000	8.810	0.000	0.000	0.000	0.000	0.009	0.000
OF	8.000	-44.715	0.000	8.810	0.000	0.000	0.000	0.000	0.009	0.000
OF	10.000	-44.697	0.000	8.810	0.000	0.000	0.000	0.000	0.009	0.000
OF	12.000	-44.678	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	14.000	-44.658	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	16.000	-44.638	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	18.000	-44.619	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	20.000	-44.599	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	22.000	-44.580	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	24.000	-44.560	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	26.000	-44.540	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	28.000	-44.521	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	30.000	-44.501	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	32.000	-44.482	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	34.000	-44.462	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	36.000	-44.442	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	38.000	-44.423	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	40.000	-44.403	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	42.000	-44.383	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	44.000	-44.364	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	46.000	-44.344	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	48.000	-44.325	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	50.000	-44.305	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	52.000	-44.285	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
OF	54.000	-44.264	0.000	8.810	0.000	0.000	0.000	0.000	0.011	0.000
OF	56.000	-44.241	0.000	8.810	0.000	0.000	0.000	0.000	0.012	0.000
OF	58.000	-44.218	0.000	8.810	0.000	0.000	0.000	0.000	0.012	0.000
OF	60.000	-44.195	0.000	8.810	0.000	0.000	0.000	0.000	0.012	0.000
OF	62.000	-44.172	0.000	8.810	0.000	0.000	0.000	0.000	0.012	0.000
OF	64.000	-44.149	0.000	8.810	0.000	0.000	0.000	0.000	0.012	0.000
OF	66.000	-44.126	0.000	8.810	0.000	0.000	0.000	0.000	0.012	0.000
OF	68.000	-44.102	0.000	8.810	0.000	0.000	0.000	0.000	0.013	0.000
OF	70.000	-44.076	0.000	8.810	0.000	0.000	0.000	0.000	0.013	0.000
OF	72.000	-44.051	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	74.000	-44.025	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	76.000	-44.000	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	78.000	-43.974	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	80.000	-43.948	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	82.000	-43.923	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	84.000	-43.897	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	86.000	-43.871	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	88.000	-43.846	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	90.000	-43.820	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	92.000	-43.795	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	94.000	-43.769	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	96.000	-43.743	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	98.000	-43.718	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	100.000	-43.692	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	102.000	-43.666	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	104.000	-43.641	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	106.000	-43.615	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	108.000	-43.590	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	110.000	-43.564	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	112.000	-43.538	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	114.000	-43.513	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	116.000	-43.487	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	118.000	-43.461	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	120.000	-43.436	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	122.000	-43.410	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	124.000	-43.384	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	126.000	-43.359	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	128.000	-43.333	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
OF	130.000	-43.308	0.000	8.809	0.000	0.000	0.000	0.000	0.019	0.000
OF	132.000	-43.256	0.000	8.809	0.000	0.000	0.000	0.000	0.035	0.000
OF	134.000	-43.168	0.000	8.809	0.000	0.000	0.000	0.000	0.044	0.000
OF	136.000	-43.080	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	138.000	-42.992	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	140.000	-42.904	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	142.000	-42.816	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	144.000	-42.728	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	146.000	-42.640	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	148.000	-42.552	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	150.000	-42.464	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	152.000	-42.376	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	154.000	-42.288	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	156.000	-42.200	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	158.000	-42.113	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	160.000	-42.025	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	162.000	-41.937	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	164.000	-41.849	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	166.000	-41.761	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	168.000	-41.673	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	170.000	-41.585	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	172.000	-41.497	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	174.000	-41.409	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	176.000	-41.321	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	178.000	-41.233	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	180.000	-41.145	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	182.000	-41.057	0.000	8.808	0.000	0.000	0.000	0.000	0.045	0.000
OF	184.000	-40.966	0.000	8.808	0.000	0.000	0.000	0.000	0.047	0.000

OF	186.000	-40.867	0.000	8.808	0.000	0.000	0.000	0.000	0.050	0.000
OF	188.000	-40.767	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	190.000	-40.668	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	192.000	-40.568	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	194.000	-40.469	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	196.000	-40.369	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	198.000	-40.269	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	200.000	-40.170	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	202.000	-40.070	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	204.000	-39.971	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	206.000	-39.871	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	208.000	-39.772	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	210.000	-39.672	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	212.000	-39.572	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	214.000	-39.473	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	216.000	-39.373	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	218.000	-39.274	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	220.000	-39.174	0.000	8.807	0.000	0.000	0.000	0.000	0.067	0.000
OF	222.000	-39.005	0.000	8.807	0.000	0.000	0.000	0.000	0.119	0.000
OF	224.000	-38.700	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
OF	226.000	-38.394	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
OF	228.000	-38.089	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
OF	230.000	-37.784	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
OF	232.000	-37.479	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
OF	234.000	-37.174	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
OF	236.000	-36.868	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
OF	238.000	-36.563	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
OF	240.000	-36.258	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
OF	242.000	-35.953	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
OF	244.000	-35.648	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
OF	246.000	-35.342	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
OF	248.000	-35.037	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
OF	250.000	-34.732	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
OF	252.000	-34.427	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	254.000	-34.122	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	256.000	-33.816	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	258.000	-33.511	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	260.000	-33.206	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	262.000	-32.901	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	264.000	-32.596	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	266.000	-32.290	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	268.000	-31.985	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	270.000	-31.680	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	272.000	-31.375	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	274.000	-31.070	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	276.000	-30.764	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	278.000	-30.459	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	280.000	-30.154	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	282.000	-29.849	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	284.000	-29.544	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	286.000	-29.238	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	288.000	-28.933	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	290.000	-28.628	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	292.000	-28.323	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	294.000	-28.018	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	296.000	-27.712	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	298.000	-27.407	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	300.000	-27.102	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	302.000	-26.797	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	304.000	-26.491	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	306.000	-26.186	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	308.000	-25.881	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	310.000	-25.576	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	312.000	-25.271	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	314.000	-24.965	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	316.000	-24.660	0.000	8.804	0.000	0.000	0.000	0.000	0.153	0.000
OF	318.000	-24.355	0.000	8.804	0.000	0.000	0.000	0.000	0.153	0.000
OF	320.000	-24.050	0.000	8.804	0.000	0.000	0.000	0.000	0.153	0.000
OF	322.000	-23.745	0.000	8.804	0.000	0.000	0.000	0.000	0.153	0.000
OF	324.000	-23.439	0.000	8.804	0.000	0.000	0.000	0.000	0.153	0.000
OF	326.000	-23.134	0.000	8.804	0.000	0.000	0.000	0.000	0.153	0.000
OF	328.000	-22.829	0.000	8.804	0.000	0.000	0.000	0.000	0.153	0.000
OF	330.000	-22.524	0.000	8.804	0.000	0.000	0.000	0.000	0.153	0.000
OF	332.000	-22.219	0.000	8.804	0.000	0.000	0.000	0.000	0.153	0.000
OF	334.000	-21.913	0.000	8.804	0.000	0.000	0.000	0.000	0.153	0.000
OF	336.000	-21.608	0.000	8.804	0.000	0.000	0.000	0.000	0.133	0.000
OF	338.000	-21.379	0.000	8.804	0.000	0.000	0.000	0.000	0.109	0.000
OF	340.000	-21.170	0.000	8.804	0.000	0.000	0.000	0.000	0.105	0.000
OF	342.000	-20.960	0.000	8.804	0.000	0.000	0.000	0.000	0.105	0.000
OF	344.000	-20.751	0.000	8.804	0.000	0.000	0.000	0.000	0.105	0.000
OF	346.000	-20.541	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	348.000	-20.332	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	350.000	-20.122	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	352.000	-19.913	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	354.000	-19.703	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	356.000	-19.494	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	358.000	-19.284	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	360.000	-19.075	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	362.000	-18.865	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	364.000	-18.656	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	366.000	-18.446	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	368.000	-18.237	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	370.000	-18.027	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	372.000	-17.818	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	374.000	-17.608	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	376.000	-17.399	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	378.000	-17.189	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	380.000	-16.980	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	382.000	-16.770	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	384.000	-16.561	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	386.000	-16.351	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	388.000	-16.142	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000

OF	390.000	-15.932	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	392.000	-15.723	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
OF	394.000	-15.513	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	396.000	-15.304	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	398.000	-15.094	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	400.000	-14.885	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	402.000	-14.675	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	404.000	-14.466	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	406.000	-14.256	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	408.000	-14.046	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	410.000	-13.837	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	412.000	-13.627	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	414.000	-13.418	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	416.000	-13.208	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	418.000	-12.999	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	420.000	-12.789	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	422.000	-12.580	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	424.000	-12.370	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	426.000	-12.161	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	428.000	-11.951	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	430.000	-11.742	0.000	8.802	0.000	0.000	0.000	0.000	-0.004	0.000
OF	432.000	-11.967	0.000	8.802	0.000	0.000	0.000	0.000	-0.160	0.000
OF	434.000	-12.383	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	436.000	-12.798	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	438.000	-13.214	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	440.000	-13.629	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	442.000	-14.045	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	444.000	-14.460	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	446.000	-14.876	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	448.000	-15.291	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	450.000	-15.707	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	452.000	-16.122	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	454.000	-16.538	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	456.000	-16.954	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	458.000	-17.369	0.000	8.802	0.000	0.000	0.000	0.000	-0.183	0.000
OF	460.000	-17.686	0.000	8.802	0.000	0.000	0.000	0.000	-0.155	0.000
OF	462.000	-17.9								

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OF	798.000	-19.725	0.000	8.819	0.000	0.000	0.000	0.000	0.039	0.000
OF	800.000	-19.647	0.000	8.820	0.000	0.000	0.000	0.000	0.039	0.000
OF	802.000	-19.570	0.000	8.820	0.000	0.000	0.000	0.000	0.038	0.000
OF	804.000	-19.493	0.000	8.821	0.000	0.000	0.000	0.000	0.039	0.000
OF	806.000	-19.415	0.000	8.821	0.000	0.000	0.000	0.000	0.043	0.000
OF	808.000	-19.320	0.000	8.822	0.000	0.000	0.000	0.000	0.112	0.000
OF	810.000	-18.966	0.000	8.823	0.000	0.000	0.000	0.000	0.177	0.000
OF	812.000	-18.612	0.000	8.823	0.000	0.000	0.000	0.000	0.177	0.000
OF	814.000	-18.258	0.000	8.824	0.000	0.000	0.000	0.000	0.177	0.000
OF	816.000	-17.903	0.000	8.825	0.000	0.000	0.000	0.000	0.177	0.000
OF	818.000	-17.549	0.000	8.825	0.000	0.000	0.000	0.000	0.177	0.000
OF	820.000	-17.195	0.000	8.826	0.000	0.000	0.000	0.000	0.177	0.000
OF	822.000	-16.840	0.000	8.826	0.000	0.000	0.000	0.000	0.177	0.000
OF	824.000	-16.486	0.000	8.827	0.000	0.000	0.000	0.000	0.177	0.000
OF	826.000	-16.132	0.000	8.828	0.000	0.000	0.000	0.000	0.181	0.000
OF	828.000	-15.764	0.000	8.828	0.000	0.000	0.000	0.000	0.185	0.000
OF	830.000	-15.392	0.000	8.829	0.000	0.000	0.000	0.000	0.186	0.000
OF	832.000	-15.020	0.000	8.830	0.000	0.000	0.000	0.000	0.186	0.000
OF	834.000	-14.648	0.000	8.833	0.000	0.000	0.000	0.000	0.186	0.000
OF	836.000	-14.276	0.000	8.836	0.000	0.000	0.000	0.000	0.186	0.000
OF	838.000	-13.904	0.000	8.839	0.000	0.000	0.000	0.000	2.275	0.000
OF	840.000	-5.175	0.000	8.842	0.000	0.000	0.000	0.000	2.174	0.000
OF	842.000	-5.209	0.000	8.845	0.000	0.000	0.000	0.000	-0.001	0.000
OF	844.000	-5.180	0.000	8.848	0.000	0.000	0.000	0.000	0.020	0.000
OF	846.000	-5.128	0.000	8.851	0.000	0.000	0.000	0.000	0.003	0.000
OF	848.000	-5.170	0.000	8.854	0.000	0.000	0.000	0.000	-0.030	0.000
OF	850.000	-5.248	0.000	8.856	0.000	0.000	0.000	0.000	-0.039	0.000
OF	852.000	-5.326	0.000	8.859	0.000	0.000	0.000	0.000	-0.030	0.000
OF	854.000	-5.368	0.000	8.862	0.000	0.000	0.000	0.000	-0.018	0.000
OF	856.000	-5.397	0.000	8.865	0.000	0.000	0.000	0.000	-0.015	0.000
OF	858.000	-5.428	0.000	8.868	0.000	0.000	0.000	0.000	-0.007	0.000
OF	860.000	-5.427	0.000	8.871	0.000	0.000	0.000	0.000	0.015	0.000
OF	862.000	-5.367	0.000	8.874	0.000	0.000	0.000	0.000	0.030	0.000
OF	864.000	-5.306	0.000	8.877	0.000	0.000	0.000	0.000	0.030	0.000
OF	866.000	-5.247	0.000	8.880	0.000	0.000	0.000	0.000	0.011	0.000
OF	868.000	-5.263	0.000	8.883	0.000	0.000	0.000	0.000	-0.016	0.000
OF	870.000	-5.311	0.000	8.886	0.000	0.000	0.000	0.000	-0.022	0.000
OF	872.000	-5.352	0.000	8.889	0.000	0.000	0.000	0.000	-0.017	0.000
OF	874.000	-5.379	0.000	8.892	0.000	0.000	0.000	0.000	-0.013	0.000
OF	876.000	-5.403	0.000	8.895	0.000	0.000	0.000	0.000	0.000	0.000
OF	878.000	-5.379	0.000	8.898	0.000	0.000	0.000	0.000	-0.012	0.000
OF	880.000	-5.453	0.000	8.901	0.000	0.000	0.000	0.000	-0.040	0.000
OF	882.000	-5.538	0.000	8.904	0.000	0.000	0.000	0.000	-0.044	0.000
OF	884.000	-5.628	0.000	8.907	0.000	0.000	0.000	0.000	-0.023	0.000
OF	886.000	-5.630	0.000	8.910	0.000	0.000	0.000	0.000	-0.002	0.000
OF	888.000	-5.635	0.000	8.913	0.000	0.000	0.000	0.000	-0.002	0.000
OF	890.000	-5.639	0.000	8.916	0.000	0.000	0.000	0.000	0.093	0.000
OF	892.000	-5.264	0.000	8.919	0.000	0.000	0.000	0.000	0.168	0.000
OF	894.000	-4.969	0.000	8.922	0.000	0.000	0.000	0.000	0.149	0.000
OF	896.000	-4.670	0.000	8.922	0.000	0.000	0.000	0.000	0.150	0.000
OF	898.000	-4.370	0.000	8.922	0.000	0.000	0.000	0.000	0.162	0.000
OF	900.000	-4.023	0.000	8.922	0.000	0.000	0.000	0.000	0.182	0.000
OF	902.000	-3.640	0.000	8.922	0.000	0.000	0.000	0.000	0.191	0.000
OF	904.000	-3.258	0.000	8.922	0.000	0.000	0.000	0.000	0.131	0.000
OF	906.000	-3.116	0.000	8.922	0.000	0.000	0.000	0.000	0.041	0.000
OF	908.000	-3.095	0.000	8.922	0.000	0.000	0.000	0.000	0.084	0.000
OF	910.000	-2.781	0.000	8.922	0.000	0.000	0.000	0.000	0.133	0.000
OF	912.000	-2.562	0.000	8.922	0.000	0.000	0.000	0.000	0.095	0.000
OF	914.000	-2.401	0.000	8.922	0.000	0.000	0.000	0.000	0.102	0.000
OF	916.000	-2.154	0.000	8.922	0.000	0.000	0.000	0.000	0.134	0.000
OF	918.000	-1.865	0.000	8.922	0.000	0.000	0.000	0.000	0.133	0.000
OF	920.000	-1.622	0.000	8.922	0.000	0.000	0.000	0.000	0.193	0.000
OF	922.000	-1.093	0.000	8.922	0.000	0.000	0.000	0.000	0.353	0.000
OF	924.000	-0.210	0.000	8.922	0.000	0.000	0.000	0.000	0.428	0.000
IF	926.000	0.621	0.000	8.922	0.000	0.000	0.000	0.000	0.382	0.000
IF	928.000	1.317	0.000	8.922	0.000	0.000	0.000	0.000	0.348	0.000
IF	930.000	2.013	0.000	8.922	0.000	0.000	0.000	0.000	0.361	0.000
IF	932.000	2.760	0.000	8.922	0.000	0.000	0.000	0.000	0.423	0.000
IF	934.000	3.704	0.000	8.922	0.000	0.000	0.000	0.000	0.489	0.000
IF	935.000	4.227	0.000	8.998	0.000	0.000	0.000	0.000	0.450	0.000
IF	938.300	5.637	0.000	9.357	0.000	0.000	0.000	0.000	0.371	0.000
IF	941.600	6.673	0.000	9.633	0.000	0.000	0.000	0.000	0.198	0.000
IF	944.900	6.941	0.000	9.797	0.000	0.000	0.000	0.000	0.075	0.000
IF	948.200	7.171	0.000	9.884	0.000	0.000	0.000	0.000	0.111	0.000
IF	951.400	7.663	0.000	9.910	0.000	0.000	0.000	0.000	0.345	0.000
IF	954.000	9.170	0.000	9.910	0.000	0.000	0.000	0.000	0.607	0.000
IF	955.100	9.910	0.000	9.910	0.000	0.000	0.000	0.000	0.673	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

	END	END	FETCH	SURGE ELEV	SURGE ELEV	INITIAL	INITIAL		BOTTOM	AVERAGE
IE	STATION	ELEVATION	LENGTH	10-YEAR	100-YEAR	WAVE HEIGHT	W. PERIOD		SLOPE	A-ZONES
	0.000	-44.787	1.000	1.000	8.810	12.579	11.689	56.140	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	2.000	-44.769	0.000	8.810	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	4.000	-44.751	0.000	8.810	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	6.000	-44.733	0.000	8.810	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	8.000	-44.715	0.000	8.810	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	10.000	-44.697	0.000	8.810	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	12.000	-44.678	0.000	8.810	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES

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OF	82.000	-43.923	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	84.000	-43.897	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	86.000	-43.871	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	88.000	-43.846	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	90.000	-43.820	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	92.000	-43.795	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	94.000	-43.769	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	96.000	-43.743	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	98.000	-43.718	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	100.000	-43.692	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	102.000	-43.666	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	104.000	-43.641	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	106.000	-43.615	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	108.000	-43.590	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	110.000	-43.564	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	112.000	-43.538	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	114.000	-43.513	0.000	8.809	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SUR							

OF	150.000	-42.464	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	152.000	-42.376	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	154.000	-42.288	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	156.000	-42.200	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	158.000	-42.113	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	160.000	-42.025	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	162.000	-41.937	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	164.000	-41.849	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	166.000	-41.761	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	168.000	-41.673	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	170.000	-41.585	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	172.000	-41.497	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	174.000	-41.409	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	176.000	-41.321	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	178.000	-41.233	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	180.000	-41.145	0.000	8.808	0.000	0.000	0.000	0.000	0.044	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	182.000	-41.057	0.000	8.808	0.000	0.000	0.000	0.000	0.045	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	184.000	-40.966	0.000	8.808	0.000	0.000	0.000	0.000	0.047	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	186.000	-40.867	0.000	8.808	0.000	0.000	0.000	0.000	0.050	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	188.000	-40.767	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	190.000	-40.668	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	192.000	-40.568	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	194.000	-40.469	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	196.000	-40.369	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	198.000	-40.269	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	200.000	-40.170	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	202.000	-40.070	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	204.000	-39.971	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	206.000	-39.871	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	208.000	-39.772	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	210.000	-39.672	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	212.000	-39.572	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	214.000	-39.473	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	216.000	-39.373	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES

OF	218.000	-39.274	0.000	8.807	0.000	0.000	0.000	0.000	0.050	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	220.000	-39.174	0.000	8.807	0.000	0.000	0.000	0.000	0.067	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	222.000	-39.005	0.000	8.807	0.000	0.000	0.000	0.000	0.119	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	224.000	-38.700	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	226.000	-38.394	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	228.000	-38.089	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	230.000	-37.784	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	232.000	-37.479	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	234.000	-37.174	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	236.000	-36.868	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	238.000	-36.563	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	240.000	-36.258	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	242.000	-35.953	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	244.000	-35.648	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	246.000	-35.342	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	248.000	-35.037	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	250.000	-34.732	0.000	8.807	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	252.000	-34.427	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	254.000	-34.122	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	256.000	-33.816	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	258.000	-33.511	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	260.000	-33.206	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	262.000	-32.901	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	264.000	-32.596	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	266.000	-32.290	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	268.000	-31.985	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	270.000	-31.680	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	272.000	-31.375	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	274.000	-31.070	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	276.000	-30.764	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	278.000	-30.459	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	280.000	-30.154	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	282.000	-29.849	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	284.000	-29.544	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES

OF	286.000	-29.238	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	288.000	-28.933	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	290.000	-28.628	0.000	8.806	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	292.000	-28.323	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	294.000	-28.018	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	296.000	-27.712	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	298.000	-27.407	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	300.000	-27.102	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	302.000	-26.797	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	304.000	-26.491	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	306.000	-26.186	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	308.000	-25.881	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	310.000	-25.576	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	312.000	-25.271	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	314.000	-24.965	0.000	8.805	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	316.000	-24.660	0.000	8.804	0.000	0.000	0.000	0.000	0.153	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	318.000	-24.355	0.000	8.804	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SUR							

OF	354.000	-19.703	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	356.000	-19.494	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	358.000	-19.284	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	360.000	-19.075	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	362.000	-18.865	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	364.000	-18.656	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	366.000	-18.446	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	368.000	-18.237	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	370.000	-18.027	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	372.000	-17.818	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	374.000	-17.608	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	376.000	-17.399	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	378.000	-17.189	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	380.000	-16.980	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	382.000	-16.770	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	384.000	-16.561	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	386.000	-16.351	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	388.000	-16.142	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	390.000	-15.932	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	392.000	-15.723	0.000	8.803	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	394.000	-15.513	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	396.000	-15.304	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	398.000	-15.094	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	400.000	-14.885	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	402.000	-14.675	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	404.000	-14.466	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	406.000	-14.256	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	408.000	-14.046	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	410.000	-13.837	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	412.000	-13.627	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	414.000	-13.418	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	416.000	-13.208	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	418.000	-12.999	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	420.000	-12.789	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES

OF	422.000	-12.580	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	424.000	-12.370	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	426.000	-12.161	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	428.000	-11.951	0.000	8.802	0.000	0.000	0.000	0.000	0.105	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	430.000	-11.742	0.000	8.802	0.000	0.000	0.000	0.000	-0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	432.000	-11.967	0.000	8.802	0.000	0.000	0.000	0.000	-0.160	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	434.000	-12.383	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	436.000	-12.798	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	438.000	-13.214	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	440.000	-13.629	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	442.000	-14.045	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	444.000	-14.460	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	446.000	-14.876	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	448.000	-15.291	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	450.000	-15.707	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	452.000	-16.122	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	454.000	-16.538	0.000	8.802	0.000	0.000	0.000	0.000	-0.208	0.000
	END	END	NEW SUR							

OF	490.000	-21.359	0.000	8.802	0.000	0.000	0.000	0.000	-0.005	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	492.000	-21.370	0.000	8.802	0.000	0.000	0.000	0.000	-0.006	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	494.000	-21.382	0.000	8.802	0.000	0.000	0.000	0.000	-0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	496.000	-21.393	0.000	8.802	0.000	0.000	0.000	0.000	-0.005	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	498.000	-21.404	0.000	8.803	0.000	0.000	0.000	0.000	-0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	500.000	-21.416	0.000	8.803	0.000	0.000	0.000	0.000	-0.006	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	502.000	-21.427	0.000	8.803	0.000	0.000	0.000	0.000	-0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	504.000	-21.439	0.000	8.803	0.000	0.000	0.000	0.000	-0.006	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	506.000	-21.450	0.000	8.803	0.000	0.000	0.000	0.000	-0.005	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	508.000	-21.461	0.000	8.803	0.000	0.000	0.000	0.000	-0.006	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	510.000	-21.473	0.000	8.803	0.000	0.000	0.000	0.000	-0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	512.000	-21.484	0.000	8.803	0.000	0.000	0.000	0.000	-0.005	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	514.000	-21.495	0.000	8.803	0.000	0.000	0.000	0.000	-0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	516.000	-21.507	0.000	8.803	0.000	0.000	0.000	0.000	-0.006	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	518.000	-21.518	0.000	8.803	0.000	0.000	0.000	0.000	-0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	520.000	-21.530	0.000	8.804	0.000	0.000	0.000	0.000	-0.006	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	522.000	-21.541	0.000	8.804	0.000	0.000	0.000	0.000	-0.005	0.000
	END	END	NEW SUR							

OF	558.000	-21.746	0.000	8.805	0.000	0.000	0.000	0.000	-0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	560.000	-21.757	0.000	8.805	0.000	0.000	0.000	0.000	-0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	562.000	-21.769	0.000	8.805	0.000	0.000	0.000	0.000	-0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	564.000	-21.780	0.000	8.805	0.000	0.000	0.000	0.000	-0.005	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	566.000	-21.791	0.000	8.805	0.000	0.000	0.000	0.000	-0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	568.000	-21.803	0.000	8.805	0.000	0.000	0.000	0.000	-0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	570.000	-21.814	0.000	8.806	0.000	0.000	0.000	0.000	-0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	572.000	-21.826	0.000	8.806	0.000	0.000	0.000	0.000	-0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	574.000	-21.853	0.000	8.806	0.000	0.000	0.000	0.000	-0.041	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	576.000	-21.990	0.000	8.806	0.000	0.000	0.000	0.000	-0.068	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	578.000	-22.127	0.000	8.806	0.000	0.000	0.000	0.000	-0.068	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	580.000	-22.264	0.000	8.806	0.000	0.000	0.000	0.000	-0.060	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	582.000	-22.369	0.000	8.806	0.000	0.000	0.000	0.000	-0.022	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	584.000	-22.352	0.000	8.806	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	586.000	-22.334	0.000	8.806	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	588.000	-22.317	0.000	8.806	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	590.000	-22.299	0.000	8.806	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	592.000	-22.280	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	594.000	-22.260	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	596.000	-22.241	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	598.000	-22.221	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	600.000	-22.201	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	602.000	-22.181	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	604.000	-22.162	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	606.000	-22.142	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	608.000	-22.122	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	610.000	-22.102	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	612.000	-22.082	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	614.000	-22.063	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	616.000	-22.043	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	618.000	-22.023	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	620.000	-22.003	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	622.000	-21.984	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	624.000	-21.964	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES

OF	626.000	-21.944	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	628.000	-21.924	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	630.000	-21.905	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	632.000	-21.885	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	634.000	-21.865	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	636.000	-21.845	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	638.000	-21.826	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	640.000	-21.806	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	642.000	-21.786	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	644.000	-21.766	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	646.000	-21.747	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	648.000	-21.727	0.000	8.806	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	650.000	-21.707	0.000	8.806	0.000	0.000	0.000	0.000	0.005	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	652.000	-21.707	0.000	8.806	0.000	0.000	0.000	0.000	0.000	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	654.000	-21.706	0.000	8.806	0.000	0.000	0.000	0.000	0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	656.000	-21.705	0.000	8.805	0.000	0.000	0.000	0.000	0.000	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	658.000	-21.705	0.000	8.805	0.000	0.000	0.000	0.000	0.000	0.000
	END	END	NEW SURGE	NEW SURGE						

OF	694.000	-21.663	0.000	8.804	0.000	0.000	0.000	0.000	0.003	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	696.000	-21.657	0.000	8.804	0.000	0.000	0.000	0.000	0.003	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	698.000	-21.652	0.000	8.804	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	700.000	-21.647	0.000	8.804	0.000	0.000	0.000	0.000	0.002	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	702.000	-21.642	0.000	8.804	0.000	0.000	0.000	0.000	0.003	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	704.000	-21.636	0.000	8.804	0.000	0.000	0.000	0.000	0.003	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	706.000	-21.631	0.000	8.804	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	708.000	-21.626	0.000	8.804	0.000	0.000	0.000	0.000	0.002	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	710.000	-21.621	0.000	8.804	0.000	0.000	0.000	0.000	0.003	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	712.000	-21.615	0.000	8.804	0.000	0.000	0.000	0.000	0.003	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	714.000	-21.610	0.000	8.804	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	716.000	-21.605	0.000	8.804	0.000	0.000	0.000	0.000	0.002	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	718.000	-21.600	0.000	8.804	0.000	0.000	0.000	0.000	0.003	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	720.000	-21.594	0.000	8.804	0.000	0.000	0.000	0.000	0.003	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	722.000	-21.589	0.000	8.804	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	724.000	-21.584	0.000	8.804	0.000	0.000	0.000	0.000	0.002	0.000
OF	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	726.000	-21.579	0.000	8.804	0.000	0.000	0.000	0.000	0.003	0.000
	END	END	NEW SUR							

OF	762.000	-20.752	0.000	8.808	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	764.000	-20.702	0.000	8.809	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	766.000	-20.653	0.000	8.809	0.000	0.000	0.000	0.000	0.024	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	768.000	-20.604	0.000	8.810	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	770.000	-20.554	0.000	8.810	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	772.000	-20.505	0.000	8.811	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	774.000	-20.455	0.000	8.812	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	776.000	-20.406	0.000	8.812	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	778.000	-20.356	0.000	8.813	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	780.000	-20.307	0.000	8.813	0.000	0.000	0.000	0.000	0.024	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	782.000	-20.258	0.000	8.814	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	784.000	-20.208	0.000	8.815	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	786.000	-20.159	0.000	8.815	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	788.000	-20.109	0.000	8.816	0.000	0.000	0.000	0.000	0.031	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	790.000	-20.035	0.000	8.816	0.000	0.000	0.000	0.000	0.038	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	792.000	-19.957	0.000	8.817	0.000	0.000	0.000	0.000	0.039	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	794.000	-19.880	0.000	8.818	0.000	0.000	0.000	0.000	0.039	0.000
	END									

OF	830.000	-15.392	0.000	8.829	0.000	0.000	0.000	0.000	0.186	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	832.000	-15.020	0.000	8.830	0.000	0.000	0.000	0.000	0.186	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	834.000	-14.648	0.000	8.833	0.000	0.000	0.000	0.000	0.186	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	836.000	-14.276	0.000	8.836	0.000	0.000	0.000	0.000	0.186	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	838.000	-13.904	0.000	8.839	0.000	0.000	0.000	0.000	2.275	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	840.000	-5.175	0.000	8.842	0.000	0.000	0.000	0.000	2.174	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	842.000	-5.209	0.000	8.845	0.000	0.000	0.000	0.000	-0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	844.000	-5.180	0.000	8.848	0.000	0.000	0.000	0.000	0.020	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	846.000	-5.128	0.000	8.851	0.000	0.000	0.000	0.000	0.003	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	848.000	-5.170	0.000	8.854	0.000	0.000	0.000	0.000	-0.030	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	850.000	-5.248	0.000	8.856	0.000	0.000	0.000	0.000	-0.039	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	852.000	-5.326	0.000	8.859	0.000	0.000	0.000	0.000	-0.030	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	854.000	-5.368	0.000	8.862	0.000	0.000	0.000	0.000	-0.018	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	856.000	-5.397	0.000	8.865	0.000	0.000	0.000	0.000	-0.015	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	858.000	-5.428	0.000	8.868	0.000	0.000	0.000	0.000	-0.007	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	860.000	-5.427	0.000	8.871	0.000	0.000	0.000	0.000	0.015	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	862.000	-5.367	0.000	8.874	0.000	0.000	0.000	0.000	0.030	0.000
	END	END	NEW SURGE							

OF	898.000	-4.370	0.000	8.922	0.000	0.000	0.000	0.000	0.162	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	900.000	-4.023	0.000	8.922	0.000	0.000	0.000	0.000	0.182	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	902.000	-3.640	0.000	8.922	0.000	0.000	0.000	0.000	0.191	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	904.000	-3.258	0.000	8.922	0.000	0.000	0.000	0.000	0.131	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	906.000	-3.116	0.000	8.922	0.000	0.000	0.000	0.000	0.041	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	908.000	-3.095	0.000	8.922	0.000	0.000	0.000	0.000	0.084	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	910.000	-2.781	0.000	8.922	0.000	0.000	0.000	0.000	0.133	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	912.000	-2.562	0.000	8.922	0.000	0.000	0.000	0.000	0.095	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	914.000	-2.401	0.000	8.922	0.000	0.000	0.000	0.000	0.102	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	916.000	-2.154	0.000	8.922	0.000	0.000	0.000	0.000	0.134	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	918.000	-1.865	0.000	8.922	0.000	0.000	0.000	0.000	0.133	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	920.000	-1.622	0.000	8.922	0.000	0.000	0.000	0.000	0.193	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	922.000	-1.093	0.000	8.922	0.000	0.000	0.000	0.000	0.353	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	924.000	-0.210	0.000	8.922	0.000	0.000	0.000	0.000	0.428	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	926.000	0.621	0.000	8.922	0.000	0.000	0.000	0.000	0.382	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	928.000	1.317	0.000	8.922	0.000	0.000	0.000	0.000	0.348	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	930.000	2.013	0.000	8.922	0.000	0.000	0.000	0.000	0.361	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	932.000	2.760	0.000	8.922	0.000	0.000	0.000	0.000	0.423	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	934.000	3.704	0.000	8.922	0.000	0.000	0.000	0.000	0.489	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	935.000	4.227	0.000	8.998	0.000	0.000	0.000	0.000	0.450	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	938.300	5.637	0.000	9.357	0.000	0.000	0.000	0.000	0.371	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	941.600	6.673	0.000	9.633	0.000	0.000	0.000	0.000	0.198	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	944.900	6.941	0.000	9.797	0.000	0.000	0.000	0.000	0.075	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	948.200	7.171	0.000	9.884	0.000	0.000	0.000	0.000	0.111	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	951.400	7.663	0.000	9.910	0.000	0.000	0.000	0.000	0.345	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	954.000	9.170	0.000	9.910	0.000	0.000	0.000	0.000	0.607	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	955.100	9.910	0.000	9.910	0.000	0.000	0.000	0.000	0.673	0.000
-----END OF TRANSECT-----										

NOTE:
SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

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PART2: CONTROLLING WAVE HEIGHTS, SPECTRAL			
PEAK WAVE PERIOD, AND WAVE CREST ELEVATIONS			
LOCATION	CONTROLLING		WAVE CREST
	WAVE HEIGHT	SPECTRAL PEAK	ELEVATION
		WAVE PERIOD	
IE	0.00	12.58	11.69
OF	2.00	12.58	11.69
OF	4.00	12.58	11.69
OF	6.00	12.58	11.69
OF	8.00	12.58	11.69
OF	10.00	12.58	11.69
OF	12.00	12.59	11.69
OF	14.00	12.59	11.69
OF	16.00	12.59	11.69
OF	18.00	12.59	11.69
OF	20.00	12.59	11.69
OF	22.00	12.59	11.69
OF	24.00	12.59	11.69
OF	26.00	12.59	11.69
OF	28.00	12.59	11.69

OF	30.00	12.60	11.69	17.63
OF	32.00	12.60	11.69	17.63
OF	34.00	12.60	11.69	17.63
OF	36.00	12.60	11.69	17.63
OF	38.00	12.60	11.69	17.63
OF	40.00	12.60	11.69	17.63
OF	42.00	12.60	11.69	17.63
OF	44.00	12.60	11.69	17.63
OF	46.00	12.60	11.69	17.63
OF	48.00	12.61	11.69	17.63
OF	50.00	12.61	11.69	17.63
OF	52.00	12.61	11.69	17.64
OF	54.00	12.61	11.69	17.64
OF	56.00	12.61	11.69	17.64
OF	58.00	12.61	11.69	17.64
OF	60.00	12.61	11.69	17.64
OF	62.00	12.61	11.69	17.64
OF	64.00	12.62	11.69	17.64
OF	66.00	12.62	11.69	17.64
OF	68.00	12.62	11.69	17.64
OF	70.00	12.62	11.69	17.64
OF	72.00	12.62	11.69	17.64
OF	74.00	12.62	11.69	17.64
OF	76.00	12.62	11.69	17.65
OF	78.00	12.63	11.69	17.65
OF	80.00	12.63	11.69	17.65
OF	82.00	12.63	11.69	17.65
OF	84.00	12.63	11.69	17.65
OF	86.00	12.63	11.69	17.65
OF	88.00	12.63	11.69	17.65
OF	90.00	12.63	11.69	17.65
OF	92.00	12.64	11.69	17.65
OF	94.00	12.64	11.69	17.66
OF	96.00	12.64	11.69	17.66
OF	98.00	12.64	11.69	17.66
OF	100.00	12.64	11.69	17.66
OF	102.00	12.64	11.69	17.66
OF	104.00	12.64	11.69	17.66
OF	106.00	12.65	11.69	17.66
OF	108.00	12.65	11.69	17.66
OF	110.00	12.65	11.69	17.66
OF	112.00	12.65	11.69	17.66
OF	114.00	12.65	11.69	17.67
OF	116.00	12.65	11.69	17.67
OF	118.00	12.65	11.69	17.67
OF	120.00	12.66	11.69	17.67
OF	122.00	12.66	11.69	17.67
OF	124.00	12.66	11.69	17.67
OF	126.00	12.66	11.69	17.67
OF	128.00	12.66	11.69	17.67
OF	130.00	12.66	11.69	17.67
OF	132.00	12.67	11.69	17.68
OF	134.00	12.67	11.69	17.68
OF	136.00	12.68	11.69	17.68
OF	138.00	12.68	11.69	17.68
OF	140.00	12.69	11.69	17.69
OF	142.00	12.69	11.69	17.69
OF	144.00	12.69	11.69	17.69
OF	146.00	12.70	11.69	17.70
OF	148.00	12.70	11.69	17.70
OF	150.00	12.71	11.69	17.70
OF	152.00	12.71	11.69	17.71
OF	154.00	12.72	11.69	17.71
OF	156.00	12.72	11.69	17.71
OF	158.00	12.73	11.69	17.72
OF	160.00	12.73	11.69	17.72
OF	162.00	12.74	11.69	17.72
OF	164.00	12.74	11.69	17.73
OF	166.00	12.75	11.69	17.73
OF	168.00	12.75	11.69	17.73
OF	170.00	12.76	11.69	17.74
OF	172.00	12.76	11.69	17.74
OF	174.00	12.77	11.69	17.74
OF	176.00	12.77	11.69	17.75
OF	178.00	12.78	11.69	17.75
OF	180.00	12.78	11.69	17.75
OF	182.00	12.79	11.69	17.76
OF	184.00	12.79	11.69	17.76
OF	186.00	12.80	11.69	17.77
OF	188.00	12.80	11.69	17.77
OF	190.00	12.81	11.69	17.77
OF	192.00	12.81	11.69	17.78
OF	194.00	12.82	11.69	17.78
OF	196.00	12.83	11.69	17.79
OF	198.00	12.83	11.69	17.79
OF	200.00	12.84	11.69	17.79
OF	202.00	12.84	11.69	17.80
OF	204.00	12.85	11.69	17.80
OF	206.00	12.86	11.69	17.81
OF	208.00	12.86	11.69	17.81
OF	210.00	12.87	11.69	17.81
OF	212.00	12.87	11.69	17.82
OF	214.00	12.88	11.69	17.82
OF	216.00	12.88	11.69	17.83
OF	218.00	12.89	11.69	17.83
OF	220.00	12.90	11.69	17.83
OF	222.00	12.91	11.69	17.84
OF	224.00	12.93	11.69	17.86
OF	226.00	12.94	11.69	17.87
OF	228.00	12.96	11.69	17.88
OF	230.00	12.98	11.69	17.89
OF	232.00	13.00	11.69	17.91

OF	234.00	13.02	11.69	17.92
OF	236.00	13.04	11.69	17.94
OF	238.00	13.06	11.69	17.95
OF	240.00	13.08	11.69	17.96
OF	242.00	13.10	11.69	17.98
OF	244.00	13.12	11.69	17.99
OF	246.00	13.15	11.69	18.01
OF	248.00	13.17	11.69	18.02
OF	250.00	13.19	11.69	18.04
OF	252.00	13.21	11.69	18.05
OF	254.00	13.23	11.69	18.07
OF	256.00	13.26	11.69	18.09
OF	258.00	13.28	11.69	18.10
OF	260.00	13.30	11.69	18.12
OF	262.00	13.33	11.69	18.13
OF	264.00	13.35	11.69	18.15
OF	266.00	13.37	11.69	18.17
OF	268.00	13.40	11.69	18.19
OF	270.00	13.42	11.69	18.20
OF	272.00	13.45	11.69	18.22
OF	274.00	13.47	11.69	18.24
OF	276.00	13.50	11.69	18.26
OF	278.00	13.53	11.69	18.27
OF	280.00	13.55	11.69	18.29
OF	282.00	13.58	11.69	18.31
OF	284.00	13.61	11.69	18.33
OF	286.00	13.64	11.69	18.35
OF	288.00	13.66	11.69	18.37
OF	290.00	13.69	11.69	18.39
OF	292.00	13.72	11.69	18.41
OF	294.00	13.75	11.69	18.43
OF	296.00	13.78	11.69	18.45
OF	298.00	13.81	11.69	18.47
OF	300.00	13.84	11.69	18.50
OF	302.00	13.88	11.69	18.52
OF	304.00	13.91	11.69	18.54
OF	306.00	13.94	11.69	18.56
OF	308.00	13.97	11.69	18.59
OF	310.00	14.01	11.69	18.61
OF	312.00	14.04	11.69	18.63
OF	314.00	14.08	11.69	18.66
OF	316.00	14.11	11.69	18.68
OF	318.00	14.15	11.69	18.71
OF	320.00	14.18	11.69	18.73
OF	322.00	14.22	11.69	18.76
OF	324.00	14.26	11.69	18.78
OF	326.00	14.29	11.69	18.81
OF	328.00	14.33	11.69	18.84
OF	330.00	14.37	11.69	18.86
OF	332.00	14.41	11.69	18.89
OF	334.00	14.45	11.69	18.92
OF	336.00	14.49	11.69	18.95
OF	338.00	14.53	11.69	18.97
OF	340.00	14.56	11.69	18.99
OF	342.00	14.59	11.69	19.01
OF	344.00	14.62	11.69	19.03
OF	346.00	14.65	11.69	19.06
OF	348.00	14.68	11.69	19.08
OF	350.00	14.71	11.69	19.10
OF	352.00	14.74	11.69	19.12
OF	354.00	14.77	11.69	19.14
OF	356.00	14.80	11.69	19.17
OF	358.00	14.84	11.69	19.19
OF	360.00	14.87	11.69	19.21
OF	362.00	14.90	11.69	19.24
OF	364.00	14.94	11.69	19.26
OF	366.00	14.97	11.69	19.28
OF	368.00	15.01	11.69	19.31
OF	370.00	15.04	11.69	19.33
OF	372.00	15.08	11.69	19.36
OF	374.00	15.11	11.69	19.38
OF	376.00	15.15	11.69	19.41
OF	378.00	15.19	11.69	19.43
OF	380.00	15.23	11.69	19.46
OF	382.00	15.25	11.69	19.48
OF	384.00	15.22	11.69	19.46
OF	386.00	15.20	11.69	19.44
OF	388.00	15.17	11.69	19.42
OF	390.00	15.14	11.69	19.40
OF	392.00	15.12	11.69	19.39
OF	394.00	15.09	11.69	19.37
OF	396.00	15.06	11.69	19.35
OF	398.00	15.03	11.69	19.33
OF	400.00	15.01	11.69	19.31
OF	402.00	14.98	11.69	19.29
OF	404.00	14.95	11.69	19.27
OF	406.00	14.92	11.69	19.24
OF	408.00	14.89	11.69	19.22
OF	410.00	14.86	11.69	19.20
OF	412.00	14.83	11.69	19.18
OF	414.00	14.79	11.69	19.16
OF	416.00	14.76	11.69	19.13
OF	418.00	14.73	11.69	19.11
OF	420.00	14.69	11.69	19.09
OF	422.00	14.66	11.69	19.06
OF	424.00	14.63	11.69	19.04
OF	426.00	14.59	11.69	19.02
OF	428.00	14.55	11.69	18.99
OF	430.00	14.52	11.69	18.97
OF	432.00	14.56	11.69	19.00
OF	434.00	14.64	11.69	19.05
OF	436.00	14.72	11.69	19.11

OF	438.00	14.80	11.69	19.16
OF	440.00	14.87	11.69	19.21
OF	442.00	14.94	11.69	19.26
OF	444.00	15.01	11.69	19.31
OF	446.00	15.08	11.69	19.36
OF	448.00	15.14	11.69	19.40
OF	450.00	15.21	11.69	19.45
OF	452.00	15.27	11.69	19.49
OF	454.00	15.33	11.69	19.53
OF	456.00	15.39	11.69	19.58
OF	458.00	15.35	11.69	19.55
OF	460.00	15.30	11.69	19.51
OF	462.00	15.24	11.69	19.47
OF	464.00	15.19	11.69	19.44
OF	466.00	15.14	11.69	19.40
OF	468.00	15.09	11.69	19.37
OF	470.00	15.04	11.69	19.33
OF	472.00	14.99	11.69	19.30
OF	474.00	14.95	11.69	19.26
OF	476.00	14.90	11.69	19.23
OF	478.00	14.85	11.69	19.20
OF	480.00	14.81	11.69	19.17
OF	482.00	14.77	11.69	19.14
OF	484.00	14.72	11.69	19.11
OF	486.00	14.72	11.69	19.11
OF	488.00	14.72	11.69	19.11
OF	490.00	14.72	11.69	19.11
OF	492.00	14.72	11.69	19.10
OF	494.00	14.72	11.69	19.10
OF	496.00	14.72	11.69	19.10
OF	498.00	14.71	11.69	19.10
OF	500.00	14.71	11.69	19.10
OF	502.00	14.71	11.69	19.10
OF	504.00	14.71	11.69	19.10
OF	506.00	14.71	11.69	19.10
OF	508.00	14.71	11.69	19.10
OF	510.00	14.70	11.69	19.10
OF	512.00	14.70	11.69	19.09
OF	514.00	14.70	11.69	19.09
OF	516.00	14.70	11.69	19.09
OF	518.00	14.70	11.69	19.09
OF	520.00	14.70	11.69	19.09
OF	522.00	14.69	11.69	19.09
OF	524.00	14.69	11.69	19.09
OF	526.00	14.69	11.69	19.09
OF	528.00	14.69	11.69	19.09
OF	530.00	14.69	11.69	19.09
OF	532.00	14.69	11.69	19.08
OF	534.00	14.69	11.69	19.08
OF	536.00	14.68	11.69	19.08
OF	538.00	14.68	11.69	19.08
OF	540.00	14.68	11.69	19.08
OF	542.00	14.68	11.69	19.08
OF	544.00	14.68	11.69	19.08
OF	546.00	14.68	11.69	19.08
OF	548.00	14.67	11.69	19.08
OF	550.00	14.67	11.69	19.08
OF	552.00	14.67	11.69	19.08
OF	554.00	14.67	11.69	19.07
OF	556.00	14.67	11.69	19.07
OF	558.00	14.67	11.69	19.07
OF	560.00	14.67	11.69	19.07
OF	562.00	14.66	11.69	19.07
OF	564.00	14.66	11.69	19.07
OF	566.00	14.66	11.69	19.07
OF	568.00	14.66	11.69	19.07
OF	570.00	14.66	11.69	19.07
OF	572.00	14.66	11.69	19.07
OF	574.00	14.65	11.69	19.06
OF	576.00	14.63	11.69	19.05
OF	578.00	14.62	11.69	19.04
OF	580.00	14.60	11.69	19.02
OF	582.00	14.58	11.69	19.01
OF	584.00	14.59	11.69	19.02
OF	586.00	14.59	11.69	19.02
OF	588.00	14.59	11.69	19.02
OF	590.00	14.59	11.69	19.02
OF	592.00	14.60	11.69	19.02
OF	594.00	14.60	11.69	19.02
OF	596.00	14.60	11.69	19.03
OF	598.00	14.60	11.69	19.03
OF	600.00	14.61	11.69	19.03
OF	602.00	14.61	11.69	19.03
OF	604.00	14.61	11.69	19.03
OF	606.00	14.61	11.69	19.04
OF	608.00	14.62	11.69	19.04
OF	610.00	14.62	11.69	19.04
OF	612.00	14.62	11.69	19.04
OF	614.00	14.63	11.69	19.04
OF	616.00	14.63	11.69	19.05
OF	618.00	14.63	11.69	19.05
OF	620.00	14.63	11.69	19.05
OF	622.00	14.64	11.69	19.05
OF	624.00	14.64	11.69	19.05
OF	626.00	14.64	11.69	19.06
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OF	632.00	14.65	11.69	19.06
OF	634.00	14.65	11.69	19.06
OF	636.00	14.66	11.69	19.06
OF	638.00	14.66	11.69	19.07
OF	640.00	14.66	11.69	19.07

OF	642.00	14.66	11.69	19.07
OF	644.00	14.67	11.69	19.07
OF	646.00	14.67	11.69	19.07
OF	648.00	14.67	11.69	19.08
OF	650.00	14.67	11.69	19.08
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OF	692.00	14.68	11.69	19.08
OF	694.00	14.68	11.69	19.08
OF	696.00	14.68	11.69	19.08
OF	698.00	14.68	11.69	19.08
OF	700.00	14.68	11.69	19.08
OF	702.00	14.69	11.69	19.08
OF	704.00	14.69	11.69	19.08
OF	706.00	14.69	11.69	19.08
OF	708.00	14.69	11.69	19.09
OF	710.00	14.69	11.69	19.09
OF	712.00	14.69	11.69	19.09
OF	714.00	14.69	11.69	19.09
OF	716.00	14.69	11.69	19.09
OF	718.00	14.69	11.69	19.09
OF	720.00	14.69	11.69	19.09
OF	722.00	14.69	11.69	19.09
OF	724.00	14.69	11.69	19.09
OF	726.00	14.69	11.69	19.09
OF	728.00	14.70	11.69	19.09
OF	730.00	14.70	11.69	19.09
OF	732.00	14.71	11.69	19.10
OF	734.00	14.71	11.69	19.10
OF	736.00	14.72	11.69	19.11
OF	738.00	14.73	11.69	19.11
OF	740.00	14.73	11.69	19.12
OF	742.00	14.74	11.69	19.12
OF	744.00	14.75	11.69	19.13
OF	746.00	14.76	11.69	19.13
OF	748.00	14.76	11.69	19.14
OF	750.00	14.77	11.69	19.14
OF	752.00	14.78	11.69	19.15
OF	754.00	14.78	11.69	19.15
OF	756.00	14.79	11.69	19.16
OF	758.00	14.80	11.69	19.17
OF	760.00	14.81	11.69	19.17
OF	762.00	14.81	11.69	19.18
OF	764.00	14.82	11.69	19.18
OF	766.00	14.83	11.69	19.19
OF	768.00	14.83	11.69	19.19
OF	770.00	14.84	11.69	19.20
OF	772.00	14.85	11.69	19.20
OF	774.00	14.86	11.69	19.21
OF	776.00	14.86	11.69	19.22
OF	778.00	14.87	11.69	19.22
OF	780.00	14.88	11.69	19.23
OF	782.00	14.88	11.69	19.23
OF	784.00	14.89	11.69	19.24
OF	786.00	14.90	11.69	19.24
OF	788.00	14.91	11.69	19.25
OF	790.00	14.92	11.69	19.26
OF	792.00	14.93	11.69	19.27
OF	794.00	14.94	11.69	19.28
OF	796.00	14.95	11.69	19.29
OF	798.00	14.97	11.69	19.29
OF	800.00	14.98	11.69	19.30
OF	802.00	14.99	11.69	19.31
OF	804.00	15.00	11.69	19.32
OF	806.00	15.01	11.69	19.33
OF	808.00	15.03	11.69	19.34
OF	810.00	15.09	11.69	19.38
OF	812.00	15.14	11.69	19.42
OF	814.00	15.20	11.69	19.47
OF	816.00	15.26	11.69	19.51
OF	818.00	15.33	11.69	19.55
OF	820.00	15.39	11.69	19.60
OF	822.00	15.39	11.69	19.60
OF	824.00	15.34	11.69	19.57
OF	826.00	15.29	11.69	19.53
OF	828.00	15.24	11.69	19.50
OF	830.00	15.19	11.69	19.46
OF	832.00	15.14	11.69	19.43
OF	834.00	15.09	11.69	19.39
OF	836.00	15.03	11.69	19.36
OF	838.00	14.97	11.69	19.32
OF	840.00	10.60	11.69	16.26
OF	842.00	10.59	11.69	16.26
OF	844.00	10.60	11.69	16.27

OF	846.00	10.57	11.69	16.25
OF	848.00	10.57	11.69	16.25
OF	850.00	10.59	11.69	16.27
OF	852.00	10.61	11.69	16.28
OF	854.00	10.62	11.69	16.29
OF	856.00	10.63	11.69	16.30
OF	858.00	10.63	11.69	16.31
OF	860.00	10.64	11.69	16.32
OF	862.00	10.63	11.69	16.31
OF	864.00	10.62	11.69	16.31
OF	866.00	10.61	11.69	16.31
OF	868.00	10.61	11.69	16.31
OF	870.00	10.63	11.69	16.33
OF	872.00	10.64	11.69	16.34
OF	874.00	10.65	11.69	16.34
OF	876.00	10.65	11.69	16.35
OF	878.00	10.65	11.69	16.35
OF	880.00	10.67	11.69	16.37
OF	882.00	10.69	11.69	16.39
OF	884.00	10.71	11.69	16.40
OF	886.00	10.71	11.69	16.41
OF	888.00	10.72	11.69	16.42
OF	890.00	10.72	11.69	16.42
OF	892.00	10.65	11.69	16.37
OF	894.00	10.51	11.69	16.28
OF	896.00	10.29	11.69	16.12
OF	898.00	10.07	11.69	15.97
OF	900.00	9.81	11.69	15.79
OF	902.00	9.53	11.69	15.59
OF	904.00	9.25	11.69	15.39
OF	906.00	9.14	11.69	15.32
OF	908.00	9.13	11.69	15.31
OF	910.00	8.89	11.69	15.15
OF	912.00	8.73	11.69	15.03
OF	914.00	8.61	11.69	14.95
OF	916.00	8.43	11.69	14.82
OF	918.00	8.21	11.69	14.67
OF	920.00	8.03	11.69	14.55
OF	922.00	7.64	11.69	14.27
OF	924.00	6.98	11.69	13.81
IF	926.00	6.36	11.69	13.37
IF	928.00	5.83	11.69	13.00
IF	930.00	5.31	11.69	12.64
IF	932.00	4.74	11.69	12.24
IF	934.00	4.02	11.69	11.74
IF	935.00	3.68	11.69	11.58
IF	938.30	2.88	11.69	11.37
IF	941.60	2.29	11.69	11.24
IF	944.90	2.21	11.69	11.35
IF	948.20	2.10	11.69	11.36
IF	951.40	1.74	11.69	11.13
IF	954.00	0.58	11.69	10.31
IF	955.10	0.01	11.69	9.92

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE
NO AREAS ABOVE 100-YEAR SURGE IN THIS TRANSECT

PART4 LOCATION OF SURGE CHANGES		
STATION	10-YEAR SURGE	100-YEAR SURGE
72.00	1.00	8.81
136.00	1.00	8.81
188.00	1.00	8.81
252.00	1.00	8.81
292.00	1.00	8.81
316.00	1.00	8.80
346.00	1.00	8.80
394.00	1.00	8.80
498.00	1.00	8.80
520.00	1.00	8.80
546.00	1.00	8.81
570.00	1.00	8.81
656.00	1.00	8.81
690.00	1.00	8.80
732.00	1.00	8.80
738.00	1.00	8.80
752.00	1.00	8.81
754.00	1.00	8.81
758.00	1.00	8.81
762.00	1.00	8.81
764.00	1.00	8.81
768.00	1.00	8.81
772.00	1.00	8.81
774.00	1.00	8.81
778.00	1.00	8.81
782.00	1.00	8.81
784.00	1.00	8.81
788.00	1.00	8.82
792.00	1.00	8.82
794.00	1.00	8.82
798.00	1.00	8.82
800.00	1.00	8.82
804.00	1.00	8.82
808.00	1.00	8.82
810.00	1.00	8.82
814.00	1.00	8.82
816.00	1.00	8.82
820.00	1.00	8.83
824.00	1.00	8.83
826.00	1.00	8.83
830.00	1.00	8.83
832.00	1.00	8.83
834.00	1.00	8.83
836.00	1.00	8.84
838.00	1.00	8.84

840.00	1.00	8.84
842.00	1.00	8.85
844.00	1.00	8.85
846.00	1.00	8.85
848.00	1.00	8.85
850.00	1.00	8.86
852.00	1.00	8.86
854.00	1.00	8.86
856.00	1.00	8.86
858.00	1.00	8.87
860.00	1.00	8.87
862.00	1.00	8.87
864.00	1.00	8.88
866.00	1.00	8.88
868.00	1.00	8.88
870.00	1.00	8.89
872.00	1.00	8.89
874.00	1.00	8.89
876.00	1.00	8.90
878.00	1.00	8.90
880.00	1.00	8.90
882.00	1.00	8.90
884.00	1.00	8.91
886.00	1.00	8.91
888.00	1.00	8.91
890.00	1.00	8.92
892.00	1.00	8.92
894.00	1.00	8.92
935.00	1.00	9.00
938.30	1.00	9.36
941.60	1.00	9.63
944.90	1.00	9.80
948.20	1.00	9.88
951.40	1.00	9.91

PART5 LOCATION OF V ZONES

STATION OF GUTTER	LOCATION OF ZONE
937.80	WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	17.62		
70.00	17.64	V22 EL=18	120
72.00	17.64	V22 EL=18	120
134.00	17.68	V22 EL=18	120
136.00	17.68	V22 EL=18	120
186.00	17.77	V22 EL=18	120
188.00	17.77	V22 EL=18	120
250.00	18.04	V22 EL=18	120
252.00	18.05	V22 EL=18	120
290.00	18.39	V22 EL=18	120
292.00	18.41	V22 EL=18	120
300.37	18.50	V22 EL=19	120
314.00	18.66	V22 EL=19	120
316.00	18.68	V22 EL=19	120
344.00	19.03	V22 EL=19	120
346.00	19.06	V22 EL=19	120
392.00	19.39	V22 EL=19	120
394.00	19.37	V22 EL=19	120
452.43	19.50	V22 EL=20	120
460.56	19.50	V22 EL=19	120
496.00	19.10	V22 EL=19	120
498.00	19.10	V22 EL=19	120
518.00	19.09	V22 EL=19	120
520.00	19.09	V22 EL=19	120
544.00	19.08	V22 EL=19	120
546.00	19.08	V22 EL=19	120
568.00	19.07	V22 EL=19	120
570.00	19.07	V22 EL=19	120
654.00	19.08	V22 EL=19	120
656.00	19.08	V22 EL=19	120
688.00	19.08	V22 EL=19	120
690.00	19.08		

		V22	EL=19	120
730.00	19.09			
		V22	EL=19	120
732.00	19.10			
		V22	EL=19	120
736.00	19.11			
		V22	EL=19	120
738.00	19.11			
		V22	EL=19	120
750.00	19.14			
		V22	EL=19	120
752.00	19.15			
		V22	EL=19	120
754.00	19.15			
		V22	EL=19	120
756.00	19.16			
		V22	EL=19	120
758.00	19.17			
		V22	EL=19	120
760.00	19.17			
		V22	EL=19	120
762.00	19.18			
		V22	EL=19	120
764.00	19.18			
		V22	EL=19	120
766.00	19.19			
		V22	EL=19	120
768.00	19.19			
		V22	EL=19	120
770.00	19.20			
		V22	EL=19	120
772.00	19.20			
		V22	EL=19	120
774.00	19.21			
		V22	EL=19	120
776.00	19.22			
		V22	EL=19	120
778.00	19.22			
		V22	EL=19	120
780.00	19.23			
		V22	EL=19	120
782.00	19.23			
		V22	EL=19	120
784.00	19.24			
		V22	EL=19	120
786.00	19.24			
		V22	EL=19	120
788.00	19.25			
		V22	EL=19	120
790.00	19.26			
		V22	EL=19	120
792.00	19.27			
		V22	EL=19	120
794.00	19.28			
		V22	EL=19	120
796.00	19.29			
		V22	EL=19	120
798.00	19.29			
		V22	EL=19	120
800.00	19.30			
		V22	EL=19	120
802.00	19.31			
		V22	EL=19	120
804.00	19.32			
		V22	EL=19	120
806.00	19.33			
		V22	EL=19	120
808.00	19.34			
		V22	EL=19	120
810.00	19.38			
		V22	EL=19	120
812.00	19.42			
		V22	EL=19	120
814.00	19.47			
		V22	EL=19	120
815.57	19.50			
		V22	EL=20	120
816.00	19.51			
		V22	EL=20	120
818.00	19.55			
		V22	EL=20	120
820.00	19.60			
		V22	EL=20	120
822.00	19.60			
		V22	EL=20	120
824.00	19.57			
		V22	EL=20	120
826.00	19.53			
		V22	EL=20	120
827.94	19.50			
		V22	EL=19	120
828.00	19.50			
		V22	EL=19	120
830.00	19.46			
		V22	EL=19	120
832.00	19.43			
		V22	EL=19	120
834.00	19.39			
		V22	EL=19	120
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		V22	EL=19	120
838.00	19.32			

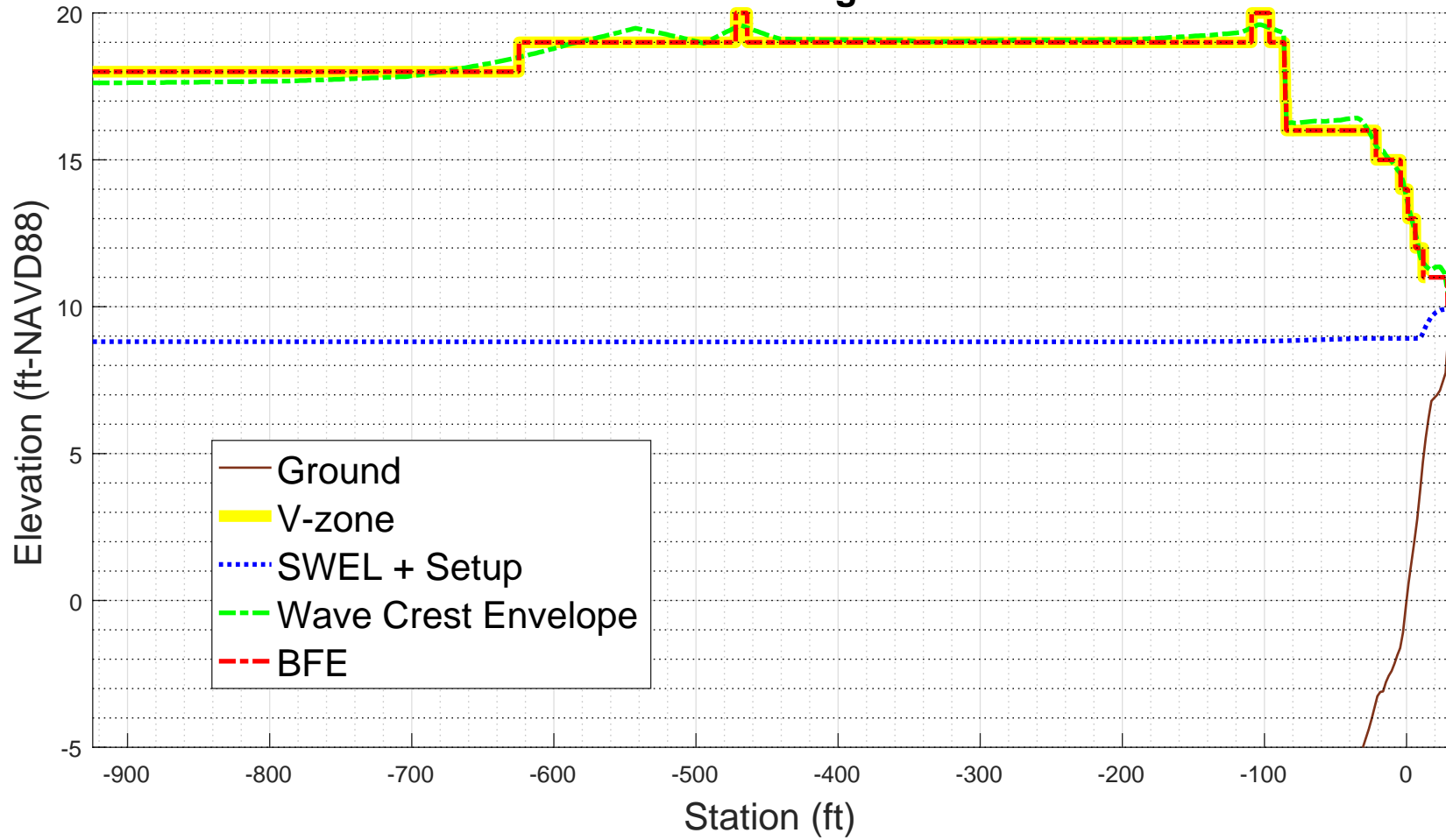
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842.00	16.26	V22	EL=16	120
844.00	16.27	V22	EL=16	120
846.00	16.25	V22	EL=16	120
848.00	16.25	V22	EL=16	120
850.00	16.27	V22	EL=16	120
852.00	16.28	V22	EL=16	120
854.00	16.29	V22	EL=16	120
856.00	16.30	V22	EL=16	120
858.00	16.31	V22	EL=16	120
860.00	16.32	V22	EL=16	120
862.00	16.31	V22	EL=16	120
864.00	16.31	V22	EL=16	120
866.00	16.31	V22	EL=16	120
868.00	16.31	V22	EL=16	120
870.00	16.33	V22	EL=16	120
872.00	16.34	V22	EL=16	120
874.00	16.34	V22	EL=16	120
876.00	16.35	V22	EL=16	120
878.00	16.35	V22	EL=16	120
880.00	16.37	V22	EL=16	120
882.00	16.39	V22	EL=16	120
884.00	16.40	V22	EL=16	120
886.00	16.41	V22	EL=16	120
888.00	16.42	V22	EL=16	120
890.00	16.42	V22	EL=16	120
892.00	16.37	V22	EL=16	120
894.00	16.28	V22	EL=16	120
902.93	15.50	V22	EL=15	120
920.33	14.50	V22	EL=14	120
925.41	13.50	V22	EL=13	120
930.69	12.50	V22	EL=12	120
934.00	11.74	V23	EL=12	130
935.00	11.58	V23	EL=12	130
936.22	11.50	V23	EL=11	130
937.80	11.28	A20	EL=11	100
938.30	11.37	A20	EL=11	100
941.60	11.24	A20	EL=11	100
944.90	11.35	A20	EL=11	100
948.20	11.36	A20	EL=11	100
951.40	11.13	A20	EL=11	100
953.41	10.50	A20	EL=10	100
955.10	9.92			

ZONE TERMINATED AT END OF TRANSECT
PART 7 POSTSCRIPT NOTES

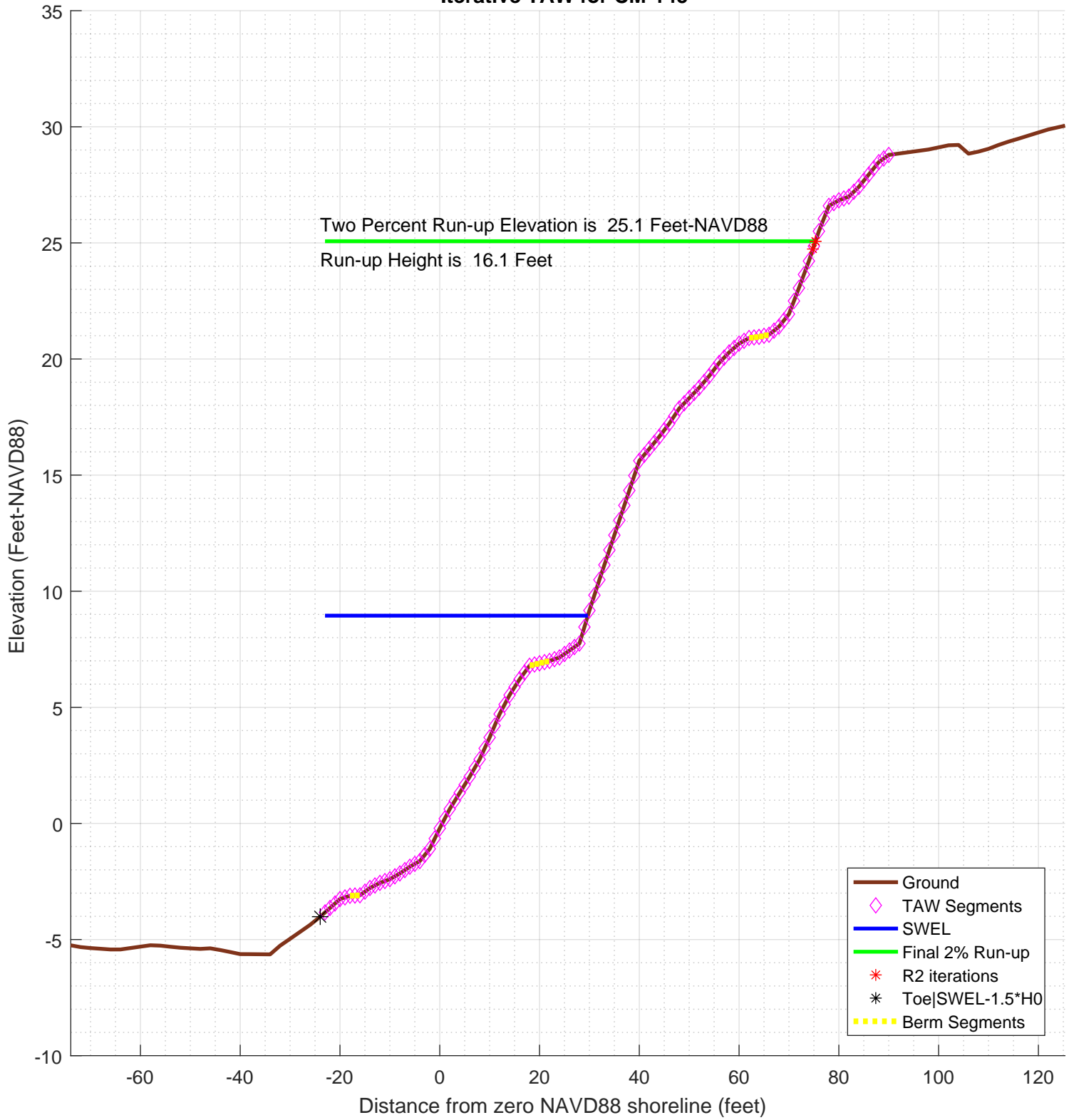
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CM-145
100-year WHAFIS Output
Zero Station: -69.96475475, 43.76250764
Onshore Dir: 160.0 deg CCW from E



Iterative TAW for CM-145



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diary on          % begin recording

% FEMA appeal for The Town of Harpswell, Cumberland county, Maine
% TRANSECT ID: CM-145
% calculation by SJH, Ransom Consulting, Inc. 20-Feb-2020
% 100-year wave runup using TAW methodology
% including berm and weighted average with foreshore if necessary
%
% chk nld 20200220
%
% This script assumes that the incident wave conditions provided
% as input in the configuration section below are the
% appropriate values located at the end of the foreshore
% or toe of the slope on which the run-up is being calculated
% the script does not attempt to apply a depth limit or any other
% transformation to the incident wave conditions other than
% conversion of the peak wave period to the spectral mean wave
% as recommended in the references below
%
% references:
%
% Van der Meer, J.W., 2002. Technical Report Wave Run-up and
% Wave Overtopping at Dikes. TAW Technical Advisory Committee on
% Flood Defence, The Netherlands.
%
% FEMA. 2007, Atlantic Ocean and Gulf of Mexico Coastal Guidelines Update
%
%
%-----
% CONFIG
%-----
fname='inpfiles/CM-145sta_ele_include.csv'; % file with station, elevation, include
                                         % third column is 0 for excluded points
imgname='logfiles/CM-145-runup';
SWEL=8.8099; % 100-yr still water level including wave setup.
H0=8.5251; % significant wave height at toe of structure
Tp=11.4911; % peak period, 1/fma,
T0=Tp/1.1;

gamma_berm=0.95254; % this may get changed automatically below
gamma_rough=0.8;
gamma_beta=1;
gamma_perm=1;

setupAtToe=-0.03793;
maxSetup=1.1002; % only used in case of berm/shallow foreshore weighted average

plotTitle='Iterative TAW for CM-145'

plotTitle =

Iterative TAW for CM-145

% END CONFIG
%-----

SWEL=SWEL+setupAtToe

SWEL =

8.77197

SWEL_fore=SWEL+maxSetup

SWEL_fore =

9.87217

% FIND WAVELENGTH USING DEEPWATER DISPERSION RELATION
% using English units
L0=32.15/(2*pi)*T0^2

L0 =

558.391690298303

% Find Hb (Munk, 1949)
%Hb=H0/(3.3*(H0/L0)^(1/3))
%Db=-Hb/.78+SWEL; % depth at breaking

% The toe elevation here is only used to determine the average
% structure slope, it is not used to depth limit the wave height.
% Any depth limiting or other modification of the wave height

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% to make it consistent with TAW guidance should be performed
% prior to the input of the significant wave height given above.
Ztoe=SWEL-1.5*H0

Ztoe =

        -4.01568

% read the transect
[sta,dep,inc] = textread(fname,'%n%n%n%[^\\n]','delimiter',' ','headerlines',0);

% remove unselected points
k=find(inc==0);
sta(k)=[];
dep(k)=[];

sta_org=sta; % used for plotting purposes
dep_org=dep;

% initial guess at maximum run-up elevation to estimate slope
Z2=SWEL+1.5*H0

Z2 =

        21.55962

% determine station at the max runup and -1.5*H0 (i.e. the toe)
top_sta=-999;
toe_sta=-999;
for kk=1:length(sta)-1
    if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1))) % here is the intersection of z2 with profile
        top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
    end
    if ((Ztoe > dep(kk)) & (Ztoe <= dep(kk+1))) % here is the intersection of Ztoe with profile
        toe_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Ztoe)
    end
end

toe_sta =

        -23.9617354939885

top_sta =

        68.6101870716799

% check to make sure we got them, if not extend the end slopes outward
S=diff(dep)./diff(sta);
if toe_sta== -999
    dy=dep(1)-Ztoe;
    toe_sta=sta(1)-dy/S(1)
end
if top_sta== -999
    dy=Z2-dep(end);
    top_sta=sta(end)+dy/S(end)
end

% just so the reader can tell the values aren't -999 anymore
top_sta

top_sta =

        68.6101870716799

toe_sta

toe_sta =

        -23.9617354939885

% check for case where the toe of slope is below SWL-1.5*H0
% in this case interpolate setup from the setupAtToe(really setup as first station), and the max setup
% also un-include points seaward of SWL-1.5*H0
if Ztoe > dep(1)
    dd=SWEL_fore-dep;
    k=find(dd<0,1); % k is index of first land point
    staAtSWL=interp1(dep(k-1:k),sta(k-1:k),SWEL_fore);
    dsta=staAtSWL-sta(1);
    dsetup=maxSetup-setupAtToe;
    dsetdsta=dsetup/dsta;
    setup=setupAtToe+dsetdsta*(toe_sta-sta(1));
    sprintf('!!- Location of SWEL-1.5*H0 is %4.1f ft landward of toe of slope',dsta)
    sprintf('!!- Setup is interpolated between setup at toe of slope and max setup')

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    sprintf('!!!-      setup is adjusted to %4.2f feet',setup)
    SWEL=SWEL-setupAtToe+setup;
    sprintf('!!!-      SWEL is adjusted to %4.2f feet',SWEL)
    k=find(dep < SWEL-1.5*H0)
    sta(k)=[];
    dep(k)=[];
else
    sprintf('!!!- The User has selected a starting point that is %4.2f feet above the elevation of SWEL-1.5H0\n',dep(1)
    sprintf('!!!- This may be reasonable for some cases.  However the user may want to consider:\n')
    sprintf('!!!-      1) Selecting a starting point that is at or below %4.2f feet elevation, or\n', Ztoe)
    sprintf('!!!-      2) Reducing the incident wave height to a depth limited condition.\n')
end

ans =

-!!!- Location of SWEL-1.5*H0 is 65.1 ft landward of toe of slope

ans =

-!!!- Setup is interpolated between setup at toe of slope and max setup

ans =

-!!!-      setup is adjusted to 0.14 feet

ans =

-!!!-      SWEL is adjusted to 8.95 feet

k =

    1
    2
    3
    4
    5
    6
    7
    8
    9
   10
   11

% now iterate converge on a runup elevation
tol=0.01; % convergence criteria
R2del=999;
R2_new=3*H0; %initial guess
R2=R2_new;
iter=0;
R2_all=[];
topStaAll=[];
Berm_Segs=[];
TAW_ALWAYS_VALID=1;
while(abs(R2del) > tol && iter <= 25)
    iter=iter+1;
    sprintf('!----- STARTING ITERATION %d -----!',iter)
    % elevation of toe of slope
    Ztoe
    % station of toe slope (relative to 0-NAVD88 shoreline)
    toe_sta
    % station of top of slope/extent of 2% run-up
    top_sta
    % elevation of top of slope/extent of 2% run-up
    Z2
    % incident significant wave height
    H0
    % incident spectral peak wave period
    Tp
    % incident spectral mean wave period
    T0

    R2=R2_new
    Z2=R2+SWEL
    % determine slope for this iteration
    top_sta=-999;
    for kk=1:length(sta)-1
        if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1))) % here is the intersection of z2 with profile
            top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
            break;
        end
    end
end
if top_sta== -999
    dy=Z2-dep(end);

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        top_sta=sta(end)+dy/S(end)
    end

    % get the length of the slope (not accounting for berm)
    Lslope=top_sta-toe_sta

    % loop over profile segments to determine berm factor
    % re-calculate influence of depth of berm based on this run-up elevation
    % check for berm, berm width, berm height
    berm_width=0;
    rdh_sum=0;
    Berm_Segs=[];
    Berm_Heights=[];
    for kk=1:length(sta)-1
        ddep=dep(kk+1)-dep(kk);
        dsta=sta(kk+1)-sta(kk);
        s=ddep/dsta;
        if (s < 1/15) % count it as a berm if slope is flatter than 1:15 (see TAW manual)
            sprintf('Berm Factor Calculation: Iteration %d, Profile Segment: %d',iter, kk)
            berm_width=berm_width+dsta; % tally the width of all berm segments
            % compute the rdh for this segment and weight it by the segment length
            dh=SWEL-(dep(kk)+dep(kk+1))/2
            if dh < 0
                chi=R2;
            else
                chi=2* H0;
            end
            if (dh <= R2 & dh >=-2*H0)
                rdh=(0.5-0.5*cos(3.14159*dh/chi)) ;
            else
                rdh=1;
            end
            rdh_sum=rdh_sum + rdh * dsta
            Berm_Segs=[Berm_Segs, kk];
            Berm_Heights=[Berm_Heights, (dep(kk)+dep(kk+1))/2];
        end
        if dep(kk) >= Z2 % jump out of loop if we reached limit of run-up for this iteration
            break
        end
    end
    end
    sprintf('!----- End Berm Factor Calculation, Iter: %d -----!',iter)
    berm_width
    rB=berm_width/Lslope
    if (berm_width > 0)
        rdh_mean=rdh_sum/berm_width
    else
        rdh_mean=1
    end
    gamma_berm=1- rB * (1-rdh_mean)
    if gamma_berm > 1
        gamma_berm=1
    end
    if gamma_berm < 0.6
        gamma_berm =0.6
    end
    % Iribarren number
    slope=(Z2-Ztoe)/(Lslope-berm_width)
    Irb=(slope/(sqrt(H0/L0)))
    % runup height
    gamma_berm
    gamma_perm
    gamma_beta
    gamma_rough
    gamma=gamma_berm*gamma_perm*gamma_beta*gamma_rough

    % check validity
    TAW_VALID=1;
    if (Irb*gamma_berm < 0.5 | Irb*gamma_berm > 10 )
        sprintf('!!! - - Iribarren number: %6.2f is outside the valid range (0.5-10), TAW NOT VALID - - !!!\n', Irb*gamma_berm)
        TAW_VALID=0;
    else
        sprintf('!!! - - Iribarren number: %6.2f is in the valid range (0.5-10), TAW RECOMMENDED - - !!!\n', Irb*gamma_berm)
    end
    islope=1/slope;
    if (slope < 1/8 | slope > 1)
        sprintf('!!! - - slope: 1:%3.1f V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!\n', islope)
        TAW_VALID=0;
    else
        sprintf('!!! - - slope: 1:%3.1f V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!\n', islope)
    end
    if TAW_VALID == 0
        TAW_ALWAYS_VALID=0;
    end

    if (Irb*gamma_berm < 1.8)
        R2_new=gamma*H0*1.77*Irb
    else
        R2_new=gamma*H0*(4.3-(1.6/sqrt(Irb)))
    end
end

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% check to see if we need to evaluate a shallow foreshore
if berm_width > 0.25 * L0;
    disp('!   Berm width is greater than 1/4 wave length')
    disp('!   Runup will be weighted average with foreshore calculation assuming depth limited wave height on berm')
    % do the foreshore calculation
    fore_H0=0.78*(SWEL_fore-min(Berm_Heights))
    % get upper slope
    fore_toe_sta=-999;
    fore_toe_dep=-999;
    for kk=length(dep)-1:-1:1
        ddep=dep(kk+1)-dep(kk);
        dsta=sta(kk+1)-sta(kk);
        s=ddep/dsta;
        if s < 1/15
            break
        end
        fore_toe_sta=sta(kk);
        fore_toe_dep=dep(kk);
        upper_slope=(Z2-fore_toe_dep)/(top_sta-fore_toe_sta)
    end
    fore_Irb=upper_slope/(sqrt(fore_H0/L0));
    fore_gamma=gamma_perm*gamma_beta*gamma_rough;
    if (fore_Irb < 1.8)
        fore_R2=fore_gamma*fore_H0*1.77*fore_Irb;
    else
        fore_R2=fore_gamma*fore_H0*(4.3-(1.6/sqrt(fore_Irb)));
    end
    if berm_width >= L0
        R2_new=fore_R2
        disp('berm is wider than one wavelength, use full shallow foreshore solution');
    else
        w2=(berm_width-0.25*L0)/(0.75*L0)
        w1=1-w2
        R2_new=w2*fore_R2 + w1*R2_new
    end
end % end berm width check

% convergence criterion
R2del=abs(R2-R2_new)
R2_all(iter)=R2_new;
% get the new top station (for plot purposes)
Z2=R2_new+SWEL
top_sta=-999;
for kk=1:length(sta)-1
    if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1))) % here is the intersection of z2 with profile
        top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
        break;
    end
end
if top_sta== -999
    dy=Z2-dep(end);
    top_sta=sta(end)+dy/S(end);
end
topStaAll(iter)=top_sta;
end
ans =
!----- STARTING ITERATION 1 -----!
Ztoe =
    -4.01568
toe_sta =
    -23.9617354939885
top_sta =
    68.6101870716799
Z2 =
    21.55962
H0 =
    8.5251
Tp =
    11.4911
T0 =
    10.4464545454545
R2 =
    25.5753
Z2 =
    34.5228664642314
top_sta =
    126.983337402331
Lslope =
    150.94507289632
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 6
dh =
    12.0584414642314
rdh_sum =
    0.803005262087444
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 7
dh =
    12.0481914642314

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rdh_sum =
    1.60525882777874
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 42
dh =
    2.13091646423142
rdh_sum =
    1.64330635863373
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 43
dh =
    2.07781646423143
rdh_sum =
    1.67950425045875
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 44
dh =
    2.02601646423143
rdh_sum =
    1.71394056532371
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 45
dh =
    1.97551646423143
rdh_sum =
    1.74670033892783
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 86
dh =
    -11.9684835357686
rdh_sum =
    2.19647261320465
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 87
dh =
    -11.9929835357686
rdh_sum =
    2.64774225273241
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 88
dh =
    -12.0282835357686
rdh_sum =
    3.10117009312888
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 89
dh =
    -12.0743835357686
rdh_sum =
    3.5574177460719
ans =
!----- End Berm Factor Calculation, Iter: 1 -----!
berm_width =
    10
rB =
    0.0662492641072739
rdh_mean =
    0.35574177460719
gamma_berm =
    0.957318366672668
slope =
    0.273429540120077
Irb =
    2.21291720002817
gamma_berm =
    0.957318366672668
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.765854693338135
ans =
!!! - - Iribaren number: 2.12 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.7 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
    21.052284975238
R2del =
    4.52301502476195
Z2 =
    29.9998514394695
ans =
!----- STARTING ITERATION 2 -----!
Ztoe =
    -4.01568
toe_sta =
    -23.9617354939885

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top_sta =
    97.8120054141856
Z2 =
    29.9998514394695
H0 =
    8.5251
Tp =
    11.4911
T0 =
    10.4464545454545
R2 =
    21.052284975238
Z2 =
    29.9998514394695
top_sta =
    97.8120054141856
Lslope =
    121.773740908174
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 6
dh =
    12.0584414642314
rdh_sum =
    0.803005262087444
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 7
dh =
    12.0481914642314
rdh_sum =
    1.60525882777874
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 42
dh =
    2.13091646423142
rdh_sum =
    1.64330635863373
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 43
dh =
    2.07781646423143
rdh_sum =
    1.67950425045875
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 44
dh =
    2.02601646423143
rdh_sum =
    1.71394056532371
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 45
dh =
    1.97551646423143
rdh_sum =
    1.74670033892783
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 86
dh =
    -11.9684835357686
rdh_sum =
    2.35348948813796
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 87
dh =
    -11.9929835357686
rdh_sum =
    2.96206378207293
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 88
dh =
    -12.0282835357686
rdh_sum =
    3.57320758355696
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 89
dh =
    -12.0743835357686
rdh_sum =
    4.18770237606831
ans =
!----- End Berm Factor Calculation, Iter: 2 -----!
berm_width =
    10
rB =
    0.0821195105399669
rdh_mean =
    0.418770237606831
gamma_berm =
    0.952269696401012
slope =
    0.304324890292563

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```

Irb =
    2.46295913685608
gamma_berm =
    0.952269696401012
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.761815757120809
ans =
!!! - - Iribaren number: 2.35 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
    21.3053260939424
R2del =
    0.253041118704378
Z2 =
    30.2528925581738
ans =
!----- STARTING ITERATION 3 -----!
Ztoe =
    -4.01568
toe_sta =
    -23.9617354939885
top_sta =
    99.4440023100539
Z2 =
    30.2528925581738
H0 =
    8.5251
Tp =
    11.4911
T0 =
    10.4464545454545
R2 =
    21.3053260939424
Z2 =
    30.2528925581738
top_sta =
    99.4440023100539
Lslope =
    123.405737804042
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 6
dh =
    12.0584414642314
rdh_sum =
    0.803005262087444
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 7
dh =
    12.0481914642314
rdh_sum =
    1.60525882777874
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 42
dh =
    2.13091646423142
rdh_sum =
    1.64330635863373
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 43
dh =
    2.07781646423143
rdh_sum =
    1.67950425045875
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 44
dh =
    2.02601646423143
rdh_sum =
    1.71394056532371
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 45
dh =
    1.97551646423143
rdh_sum =
    1.74670033892783
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 86
dh =
    -11.9684835357686
rdh_sum =
    2.34310470848153
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 87

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```

dh =
    -11.9929835357686
rdh_sum =
    2.94128088302934
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 88
dh =
    -12.0282835357686
rdh_sum =
    3.54200764410173
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 89
dh =
    -12.0743835357686
rdh_sum =
    4.14606122127127
ans =
!----- End Berm Factor Calculation, Iter: 3 -----!
berm_width =
    10
rB =
    0.0810335092836537
rdh_mean =
    0.414606122127127
gamma_berm =
    0.952563479762795
slope =
    0.302176708354807
Irb =
    2.44557349243462
gamma_berm =
    0.952563479762795
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.762050783810236
ans =
!!! - - Iribaren number: 2.33 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
    21.2883980394838
R2del =
    0.016928054458667
Z2 =
    30.2359645037152
ans =
!----- STARTING ITERATION 4 -----!
Ztoe =
    -4.01568
toe_sta =
    -23.9617354939885
top_sta =
    99.3348242742031
Z2 =
    30.2359645037152
H0 =
    8.5251
Tp =
    11.4911
T0 =
    10.4464545454545
R2 =
    21.2883980394838
Z2 =
    30.2359645037152
top_sta =
    99.3348242742031
Lslope =
    123.296559768192
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 6
dh =
    12.0584414642314
rdh_sum =
    0.803005262087444
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 7
dh =
    12.0481914642314
rdh_sum =
    1.60525882777874
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 42
dh =
    2.13091646423142

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```

rdh_sum =
    1.64330635863373
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 43
dh =
    2.07781646423143
rdh_sum =
    1.67950425045875
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 44
dh =
    2.02601646423143
rdh_sum =
    1.71394056532371
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 45
dh =
    1.97551646423143
rdh_sum =
    1.74670033892783
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 86
dh =
    -11.9684835357686
rdh_sum =
    2.34379311999204
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 87
dh =
    -11.9929835357686
rdh_sum =
    2.94265861905729
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 88
dh =
    -12.0282835357686
rdh_sum =
    3.54407600068065
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 89
dh =
    -12.0743835357686
rdh_sum =
    4.14882185617557
ans =
!----- End Berm Factor Calculation, Iter: 4 -----!
berm_width =
    10
rB =
    0.0811052637543244
rdh_mean =
    0.414882185617557
gamma_berm =
    0.952543865337158
slope =
    0.302318486755424
Irb =
    2.44672093195846
gamma_berm =
    0.952543865337158
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.762035092269727
ans =
!!! - - Iribaren number: 2.33 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
    21.2895184139499
R2del =
    0.00112037446614011
Z2 =
    30.2370848781813
% final 2% runup elevation
Z2=R2_new+SWEL
Z2 =
    30.2370848781813
diary off
-1.000000e+00
diary on % begin recording
% FEMA appeal for The Town of Harpswell, Cumberland county, Maine
% TRANSECT ID: CM-145
% calculation by SJH, Ransom Consulting, Inc. 26-Feb-2020
% 100-year wave runup using TAW methodology
% including berm and weighted average with foreshore if necessary

```

```

%
% chk nld 20200220
%
% This script assumes that the incident wave conditions provided
% as input in the configuration section below are the
% appropriate values located at the end of the foreshore
% or toe of the slope on which the run-up is being calculated
% the script does not attempt to apply a depth limit or any other
% transformation to the incident wave conditions other than
% conversion of the peak wave period to the spectral mean wave
% as recommended in the references below
%
% references:
%
% Van der Meer, J.W., 2002. Technical Report Wave Run-up and
% Wave Overtopping at Dikes. TAW Technical Advisory Committee on
% Flood Defence, The Netherlands.
%
% FEMA. 2007, Atlantic Ocean and Gulf of Mexico Coastal Guidelines Update
%
%
%-----
% CONFIG
%-----
fname='inpfiles/CM-145sta_ele_include.csv'; % file with station, elevation, include
% third column is 0 for excluded points
imgname='logfiles/CM-145-runup';
SWEL=8.8099; % 100-yr still water level including wave setup.
H0=8.5251; % significant wave height at toe of structure
Tp=11.4911; % peak period, 1/fma,
T0=Tp/1.1;
gamma_berm=0.95254; % this may get changed automatically below
gamma_rough=0.8;
gamma_beta=1;
gamma_perm=1;
setupAtToe=-0.03793;
maxSetup=1.1002; % only used in case of berm/shallow foreshore weighted average
plotTitle='Iterative TAW for CM-145'
plotTitle =
Iterative TAW for CM-145
% END CONFIG
%-----
SWEL=SWEL+setupAtToe
SWEL =
8.77197
SWEL_fore=SWEL+maxSetup
SWEL_fore =
9.87217
% FIND WAVELENGTH USING DEEPWATER DISPERSION RELATION
% using English units
L0=32.15/(2*pi)*T0^2
L0 =
558.391690298303
% Find Hb (Munk, 1949)
%Hb=H0/(3.3*(H0/L0)^(1/3))
%Db=-Hb/.78+SWEL; % depth at breaking
% The toe elevation here is only used to determine the average
% structure slope, it is not used to depth limit the wave height.
% Any depth limiting or other modification of the wave height
% to make it consistent with TAW guidance should be performed
% prior to the input of the significant wave height given above.
Ztoe=SWEL-1.5*H0
Ztoe =
-4.01568
% read the transect
[sta,dep,inc] = textread(fname,'%n%n%n%[^\\n]','delimiter',' ','headerlines',0);
% remove unselected points
k=find(inc==0);
sta(k)=[];
dep(k)=[];
sta_org=sta; % used for plotting purposes
dep_org=dep;
% initial guess at maximum run-up elevation to estimate slope
Z2=SWEL+1.5*H0
Z2 =
21.55962
% determine station at the max runup and -1.5*H0 (i.e. the toe)
top_sta=-999;
toe_sta=-999;
for kk=1:length(sta)-1
    if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1))) % here is the intersection of z2 with profile
        top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
    end
    if ((Ztoe > dep(kk)) & (Ztoe <= dep(kk+1))) % here is the intersection of Ztoe with profile
        toe_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Ztoe)
    end
end
toe_sta =
-23.9617354939885

```



```

top_sta =
    68.6101870716799
% check to make sure we got them, if not extend the end slopes outward
S=diff(dep)./diff(sta);
if toe_sta== -999
    dy=dep(1)-Ztoe;
    toe_sta=sta(1)-dy/S(1)
end
if top_sta== -999
    dy=Z2-dep(end);
    top_sta=sta(end)+dy/S(end)
end
% just so the reader can tell the values aren't -999 anymore
top_sta
top_sta =
    68.6101870716799
toe_sta
toe_sta =
    -23.9617354939885
% check for case where the toe of slope is below SWL-1.5*H0
% in this case interpolate setup from the setupAtToe(really setup as first station), and the max setup
% also un-include points seaward of SWL-1.5*H0
if Ztoe > dep(1)
    dd=SWEL_fore-dep;
    k=find(dd<0,1); % k is index of first land point
    staAtSWL=interp1(dep(k-1:k),sta(k-1:k),SWEL_fore);
    dsta=staAtSWL-sta(1);
    dsetup=maxSetup-setupAtToe;
    dsetdsta=dsetup/dsta;
    setup=setupAtToe+dsetdsta*(toe_sta-sta(1));
    sprintf('!!!- Location of SWEL-1.5*H0 is %4.1f ft landward of toe of slope',dsta)
    sprintf('!!!- Setup is interpolated between setup at toe of slope and max setup')
    sprintf('!!!-          setup is adjusted to %4.2f feet',setup)
    SWEL=SWEL-setupAtToe+setup;
    sprintf('!!!-          SWEL is adjusted to %4.2f feet',SWEL)
    k=find(dep < SWEL-1.5*H0)
    sta(k)=[];
    dep(k)=[];
else
    sprintf('!!!- The User has selected a starting point that is %4.2f feet above the elevation of SWEL-1.5H0\n',dep(1)
    sprintf('!!!- This may be reasonable for some cases. However the user may want to consider:\n')
    sprintf('!!!- 1) Selecting a starting point that is at or below %4.2f feet elevation, or\n', Ztoe)
    sprintf('!!!- 2) Reducing the incident wave height to a depth limited condition.\n')
end
ans =
-!!!- Location of SWEL-1.5*H0 is 65.1 ft landward of toe of slope
ans =
-!!!- Setup is interpolated between setup at toe of slope and max setup
ans =
-!!!-          setup is adjusted to 0.14 feet
ans =
-!!!-          SWEL is adjusted to 8.95 feet
k =
    1
    2
    3
    4
    5
    6
    7
    8
    9
   10
   11
% now iterate converge on a runup elevation
tol=0.01; % convergence criteria
R2del=999;
R2_new=3*H0; %initial guess
R2=R2_new;
iter=0;
R2_all=[];
topStaAll=[];
Berm_Segs=[];
TAW_ALWAYS_VALID=1;
while(abs(R2del) > tol && iter <= 25)
    iter=iter+1;
    sprintf('!----- STARTING ITERATION %d -----!',iter)
    % elevation of toe of slope
    Ztoe
    % station of toe slope (relative to 0-NAVD88 shoreline)
    toe_sta
    % station of top of slope/extent of 2% run-up
    top_sta
    % elevation of top of slope/extent of 2% run-up
    Z2
    % incident significant wave height
    H0
    % incident spectral peak wave period
    Tp
    % incident spectral mean wave period

```

```

T0

R2=R2_new
Z2=R2+SWEL
% determine slope for this iteration
top_sta=-999;
for kk=1:length(sta)-1
    if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1))) % here is the intersection of z2 with profile
        top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
        break;
    end
end
if top_sta== -999
    dy=Z2-dep(end);
    top_sta=sta(end)+dy/S(end)
end

% get the length of the slope (not accounting for berm)
Lslope=top_sta-toe_sta
% loop over profile segments to determine berm factor
% re-calculate influence of depth of berm based on this run-up elevation
% check for berm, berm width, berm height
berm_width=0;
rdh_sum=0;
Berm_Segs=[];
Berm_Heights=[];
for kk=1:length(sta)-1
    ddep=dep(kk+1)-dep(kk);
    dsta=sta(kk+1)-sta(kk);
    s=ddep/dsta;
    if (s < 1/15) % count it as a berm if slope is flatter than 1:15 (see TAW manual)
        sprintf('Berm Factor Calculation: Iteration %d, Profile Segment: %d',iter, kk)
        berm_width=berm_width+dsta; % tally the width of all berm segments
        % compute the rdh for this segment and weight it by the segment length
        dh=SWEL-(dep(kk)+dep(kk+1))/2
        if dh < 0
            chi=R2;
        else
            chi=2* H0;
        end
        if (dh <= R2 & dh >=-2*H0)
            rdh=(0.5-0.5*cos(3.14159*dh/chi)) ;
        else
            rdh=1;
        end
        rdh_sum=rdh_sum + rdh * dsta
        Berm_Segs=[Berm_Segs, kk];
        Berm_Heights=[Berm_Heights, (dep(kk)+dep(kk+1))/2];
    end
    if dep(kk) >= Z2 % jump out of loop if we reached limit of run-up for this iteration
        break
    end
end
sprintf('!----- End Berm Factor Calculation, Iter: %d -----!',iter)
berm_width
rB=berm_width/Lslope
if (berm_width > 0)
    rdh_mean=rdh_sum/berm_width
else
    rdh_mean=1
end
gamma_berm=1- rB * (1-rdh_mean)
if gamma_berm > 1
    gamma_berm=1
end
if gamma_berm < 0.6
    gamma_berm =0.6
end
% Iribarren number
slope=(Z2-Ztoe)/(Lslope-berm_width)
Irb=(slope/(sqrt(H0/L0)))
% runup height
gamma_berm
gamma_perm
gamma_beta
gamma_rough
gamma=gamma_berm*gamma_perm*gamma_beta*gamma_rough
% check validity
TAW_VALID=1;
if (Irb*gamma_berm < 0.5 | Irb*gamma_berm > 10 )
    sprintf('!!! - - Iribarren number: %6.2f is outside the valid range (0.5-10), TAW NOT VALID - - !!!\n', Irb*gamma_berm)
    TAW_VALID=0;
else
    sprintf('!!! - - Iribarren number: %6.2f is in the valid range (0.5-10), TAW RECOMMENDED - - !!!\n', Irb*gamma_berm)
end
islope=1/slope;
if (slope < 1/8 | slope > 1)
    sprintf('!!! - - slope: 1:%3.1f V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!\n', islope)
    TAW_VALID=0;
else

```

```

        sprintf('!!! - - slope: 1:%3.1f V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!\n', islope)
    end
    if TAW_VALID == 0
        TAW_ALWAYS_VALID=0;
    end

    if (Irb*gamma_berm < 1.8)
        R2_new=gamma*H0*1.77*Irb
    else
        R2_new=gamma*H0*(4.3-(1.6/sqrt(Irb)))
    end
    % check to see if we need to evaluate a shallow foreshore
    if berm_width > 0.25 * L0;
        disp('!   Berm_width is greater than 1/4 wave length')
        disp('!   Runup will be weighted average with foreshore calculation assuming depth limited wave height on berm')
        % do the foreshore calculation
        fore_H0=0.78*(SWEL_fore-min(Berm_Heights))
        % get upper slope
        fore_toe_sta=-999;
        fore_toe_dep=-999;
        for kk=length(dep)-1:-1:1
            ddep=dep(kk+1)-dep(kk);
            dsta=sta(kk+1)-sta(kk);
            s=ddep/dsta;
            if s < 1/15
                break
            end
            fore_toe_sta=sta(kk);
            fore_toe_dep=dep(kk);
            upper_slope=(Z2-fore_toe_dep)/(top_sta-fore_toe_sta)
        end
        fore_Irb=upper_slope/(sqrt(fore_H0/L0));
        fore_gamma=gamma_perm*gamma_beta*gamma_rough;
        if (fore_Irb < 1.8)
            fore_R2=fore_gamma*fore_H0*1.77*fore_Irb;
        else
            fore_R2=fore_gamma*fore_H0*(4.3-(1.6/sqrt(fore_Irb)));
        end
        if berm_width >= L0
            R2_new=fore_R2
            disp('berm is wider than one wavelength, use full shallow foreshore solution');
        else
            w2=(berm_width-0.25*L0)/(0.75*L0)
            w1=1-w2
            R2_new=w2*fore_R2 + w1*R2_new
        end
    end % end berm width check
    % convergence criterion
    R2del=abs(R2-R2_new)
    R2_all(iter)=R2_new;
    % get the new top station (for plot purposes)
    Z2=R2_new+SWEL
    top_sta=-999;
    for kk=1:length(sta)-1
        if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1))) % here is the intersection of z2 with profile
            top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
            break;
        end
    end
    if top_sta== -999
        dy=Z2-dep(end);
        top_sta=sta(end)+dy/S(end);
    end
    topStaAll(iter)=top_sta;
end
ans =
!----- STARTING ITERATION 1 -----!
Ztoe =
        -4.01568
toe_sta =
        -23.9617354939885
top_sta =
        68.6101870716799
Z2 =
        21.55962
H0 =
        8.5251
Tp =
        11.4911
T0 =
        10.4464545454545
R2 =
        25.5753
Z2 =
        34.5228664642314
top_sta =
        126.983337402331
Lslope =
        150.94507289632
ans =

```

```

Berm Factor Calculation: Iteration 1, Profile Segment: 6
dh =
    12.0584414642314
rdh_sum =
    0.803005262087444
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 7
dh =
    12.0481914642314
rdh_sum =
    1.60525882777874
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 42
dh =
    2.13091646423142
rdh_sum =
    1.64330635863373
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 43
dh =
    2.07781646423143
rdh_sum =
    1.67950425045875
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 44
dh =
    2.02601646423143
rdh_sum =
    1.71394056532371
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 45
dh =
    1.97551646423143
rdh_sum =
    1.74670033892783
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 86
dh =
    -11.9684835357686
rdh_sum =
    2.19647261320465
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 87
dh =
    -11.9929835357686
rdh_sum =
    2.64774225273241
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 88
dh =
    -12.0282835357686
rdh_sum =
    3.10117009312888
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 89
dh =
    -12.0743835357686
rdh_sum =
    3.5574177460719
ans =
!----- End Berm Factor Calculation, Iter: 1 -----!
berm_width =
    10
rB =
    0.0662492641072739
rdh_mean =
    0.35574177460719
gamma_berm =
    0.957318366672668
slope =
    0.273429540120077
Irb =
    2.21291720002817
gamma_berm =
    0.957318366672668
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.765854693338135
ans =
!!! - - Iribaren number: 2.12 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.7 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
    21.052284975238
R2del =

```

```

4.52301502476195
Z2 =
29.9998514394695
ans =
!----- STARTING ITERATION 2 -----!
Ztoe =
-4.01568
toe_sta =
-23.9617354939885
top_sta =
97.8120054141856
Z2 =
29.9998514394695
H0 =
8.5251
Tp =
11.4911
T0 =
10.4464545454545
R2 =
21.052284975238
Z2 =
29.9998514394695
top_sta =
97.8120054141856
Lslope =
121.773740908174
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 6
dh =
12.0584414642314
rdh_sum =
0.803005262087444
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 7
dh =
12.0481914642314
rdh_sum =
1.60525882777874
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 42
dh =
2.13091646423142
rdh_sum =
1.64330635863373
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 43
dh =
2.07781646423143
rdh_sum =
1.67950425045875
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 44
dh =
2.02601646423143
rdh_sum =
1.71394056532371
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 45
dh =
1.97551646423143
rdh_sum =
1.74670033892783
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 86
dh =
-11.9684835357686
rdh_sum =
2.35348948813796
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 87
dh =
-11.9929835357686
rdh_sum =
2.96206378207293
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 88
dh =
-12.0282835357686
rdh_sum =
3.57320758355696
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 89
dh =
-12.0743835357686
rdh_sum =
4.18770237606831
ans =
!----- End Berm Factor Calculation, Iter: 2 -----!
berm_width =

```

```

10
rB =
0.0821195105399669
rdh_mean =
0.418770237606831
gamma_berm =
0.952269696401012
slope =
0.304324890292563
Irb =
2.46295913685608
gamma_berm =
0.952269696401012
gamma_perm =
1
gamma_beta =
1
gamma_rough =
0.8
gamma =
0.761815757120809
ans =
!!! - - Iribaren number: 2.35 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
21.3053260939424
R2del =
0.253041118704378
Z2 =
30.2528925581738
ans =
!----- STARTING ITERATION 3 -----!
Ztoe =
-4.01568
toe_sta =
-23.9617354939885
top_sta =
99.4440023100539
Z2 =
30.2528925581738
H0 =
8.5251
Tp =
11.4911
T0 =
10.4464545454545
R2 =
21.3053260939424
Z2 =
30.2528925581738
top_sta =
99.4440023100539
Lslope =
123.405737804042
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 6
dh =
12.0584414642314
rdh_sum =
0.803005262087444
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 7
dh =
12.0481914642314
rdh_sum =
1.60525882777874
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 42
dh =
2.13091646423142
rdh_sum =
1.64330635863373
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 43
dh =
2.07781646423143
rdh_sum =
1.67950425045875
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 44
dh =
2.02601646423143
rdh_sum =
1.71394056532371
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 45
dh =
1.97551646423143
rdh_sum =

```

```

1.74670033892783
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 86
dh =
-11.9684835357686
rdh_sum =
2.34310470848153
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 87
dh =
-11.9929835357686
rdh_sum =
2.94128088302934
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 88
dh =
-12.0282835357686
rdh_sum =
3.54200764410173
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 89
dh =
-12.0743835357686
rdh_sum =
4.14606122127127
ans =
!----- End Berm Factor Calculation, Iter: 3 -----!
berm_width =
10
rB =
0.0810335092836537
rdh_mean =
0.414606122127127
gamma_berm =
0.952563479762795
slope =
0.302176708354807
Irb =
2.44557349243462
gamma_berm =
0.952563479762795
gamma_perm =
1
gamma_beta =
1
gamma_rough =
0.8
gamma =
0.762050783810236
ans =
!!! - - Iribaren number: 2.33 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
21.2883980394838
R2del =
0.016928054458667
Z2 =
30.2359645037152
ans =
!----- STARTING ITERATION 4 -----!
Ztoe =
-4.01568
toe_sta =
-23.9617354939885
top_sta =
99.3348242742031
Z2 =
30.2359645037152
H0 =
8.5251
Tp =
11.4911
T0 =
10.4464545454545
R2 =
21.2883980394838
Z2 =
30.2359645037152
top_sta =
99.3348242742031
Lslope =
123.296559768192
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 6
dh =
12.0584414642314
rdh_sum =
0.803005262087444
ans =

```

```

Berm Factor Calculation: Iteration 4, Profile Segment: 7
dh =
    12.0481914642314
rdh_sum =
    1.60525882777874
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 42
dh =
    2.13091646423142
rdh_sum =
    1.64330635863373
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 43
dh =
    2.07781646423143
rdh_sum =
    1.67950425045875
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 44
dh =
    2.02601646423143
rdh_sum =
    1.71394056532371
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 45
dh =
    1.97551646423143
rdh_sum =
    1.74670033892783
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 86
dh =
    -11.9684835357686
rdh_sum =
    2.34379311999204
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 87
dh =
    -11.9929835357686
rdh_sum =
    2.94265861905729
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 88
dh =
    -12.0282835357686
rdh_sum =
    3.54407600068065
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 89
dh =
    -12.0743835357686
rdh_sum =
    4.14882185617557
ans =
!----- End Berm Factor Calculation, Iter: 4 -----!
berm_width =
    10
rB =
    0.0811052637543244
rdh_mean =
    0.414882185617557
gamma_berm =
    0.952543865337158
slope =
    0.302318486755424
Irb =
    2.44672093195846
gamma_berm =
    0.952543865337158
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.762035092269727
ans =
!!! - - Iribaren number: 2.33 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
    21.2895184139499
R2del =
    0.00112037446614011
Z2 =
    30.2370848781813
% final 2% runup elevation
Z2=R2_new+SWEL
Z2 =

```



```

30.2370848781813
diary off
diary on          % begin recording
% FEMA appeal for The Town of Harpswell, Cumberland county, Maine
% TRANSECT ID: CM-145
% calculation by SJH, Ransom Consulting, Inc. 26-Feb-2020
% 100-year wave runup using TAW methodology
% including berm and weighted average with foreshore if necessary
%
% chk nld 20200220
%
% This script assumes that the incident wave conditions provided
% as input in the configuration section below are the
% appropriate values located at the end of the foreshore
% or toe of the slope on which the run-up is being calculated
% the script does not attempt to apply a depth limit or any other
% transformation to the incident wave conditions other than
% conversion of the peak wave period to the spectral mean wave
% as recommended in the references below
%
% references:
%
% Van der Meer, J.W., 2002. Technical Report Wave Run-up and
% Wave Overtopping at Dikes. TAW Technical Advisory Committee on
% Flood Defence, The Netherlands.
%
% FEMA. 2007, Atlantic Ocean and Gulf of Mexico Coastal Guidelines Update
%
%
%-----
% CONFIG
%-----
fname='inpfiles/CM-145sta_ele_include.csv'; % file with station, elevation, include
% third column is 0 for excluded points
imgname='logfiles/CM-145-runup';
SWEL=8.8099; % 100-yr still water level including wave setup.
H0=8.5251; % significant wave height at toe of structure
Tp=11.4911; % peak period, 1/fma,
T0=Tp/1.1;
gamma_berm=0.95254; % this may get changed automatically below
gamma_rough=0.6;
gamma_beta=1;
gamma_perm=1;
setupAtToe=-0.03793;
maxSetup=1.1002; % only used in case of berm/shallow foreshore weighted average
plotTitle='Iterative TAW for CM-145'
plotTitle =
Iterative TAW for CM-145
% END CONFIG
%-----
SWEL=SWEL+setupAtToe
SWEL =
8.77197
SWEL_fore=SWEL+maxSetup
SWEL_fore =
9.87217
% FIND WAVELENGTH USING DEEPWATER DISPERSION RELATION
% using English units
L0=32.15/(2*pi)*T0^2
L0 =
558.391690298303
% Find Hb (Munk, 1949)
%Hb=H0/(3.3*(H0/L0)^(1/3))
%Db=-Hb/.78+SWEL; % depth at breaking
% The toe elevation here is only used to determine the average
% structure slope, it is not used to depth limit the wave height.
% Any depth limiting or other modification of the wave height
% to make it consistent with TAW guidance should be performed
% prior to the input of the significant wave height given above.
Ztoe=SWEL-1.5*H0
Ztoe =
-4.01568
% read the transect
[sta,dep,inc] = textread(fname,'%n%n%n%*[\n]', 'delimiter',' ',' ','headerlines',0);
% remove unselected points
k=find(inc==0);
sta(k)=[];
dep(k)=[];
sta_org=sta; % used for plotting purposes
dep_org=dep;
% initial guess at maximum run-up elevation to estimate slope
Z2=SWEL+1.5*H0
Z2 =
21.55962
% determine station at the max runup and -1.5*H0 (i.e. the toe)
top_sta=-999;
toe_sta=-999;
for kk=1:length(sta)-1
    if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1))) % here is the intersection of z2 with profile

```

```

        top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
    end
    if ((Ztoe > dep(kk)) & (Ztoe <= dep(kk+1))) % here is the intersection of Ztoe with profile
        toe_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Ztoe)
    end
end
toe_sta =
    -23.9617354939885
top_sta =
    68.6101870716799
% check to make sure we got them, if not extend the end slopes outward
S=diff(dep)./diff(sta);
if toe_sta== -999
    dy=dep(1)-Ztoe;
    toe_sta=sta(1)-dy/S(1)
end
if top_sta== -999
    dy=Z2-dep(end);
    top_sta=sta(end)+dy/S(end)
end
% just so the reader can tell the values aren't -999 anymore
top_sta
top_sta =
    68.6101870716799
toe_sta
toe_sta =
    -23.9617354939885
% check for case where the toe of slope is below SWL-1.5*H0
% in this case interpolate setup from the setupAtToe(really setup as first station), and the max setup
% also un-include points seaward of SWL-1.5*H0
if Ztoe > dep(1)
    dd=SWEL_fore-dep;
    k=find(dd<0,1); % k is index of first land point
    staAtSWL=interp1(dep(k-1:k),sta(k-1:k),SWEL_fore);
    dsta=staAtSWL-sta(1);
    dsetup=maxSetup-setupAtToe;
    dsetdsta=dsetup/dsta;
    setup=setupAtToe+dsetdsta*(toe_sta-sta(1));
    sprintf('!!!- Location of SWEL-1.5*H0 is %4.1f ft landward of toe of slope',dsta)
    sprintf('!!!- Setup is interpolated between setup at toe of slope and max setup')
    sprintf('!!!-          setup is adjusted to %4.2f feet',setup)
    SWEL=SWEL-setupAtToe+setup;
    sprintf('!!!-          SWEL is adjusted to %4.2f feet',SWEL)
    k=find(dep < SWEL-1.5*H0)
    sta(k)=[];
    dep(k)=[];
else
    sprintf('!!!- The User has selected a starting point that is %4.2f feet above the elevation of SWEL-1.5H0\n',dep(1))
    sprintf('!!!- This may be reasonable for some cases. However the user may want to consider:\n')
    sprintf('!!!- 1) Selecting a starting point that is at or below %4.2f feet elevation, or\n', Ztoe)
    sprintf('!!!- 2) Reducing the incident wave height to a depth limited condition.\n')
end
ans =
    -!!!- Location of SWEL-1.5*H0 is 65.1 ft landward of toe of slope
ans =
    -!!!- Setup is interpolated between setup at toe of slope and max setup
ans =
    -!!!-          setup is adjusted to 0.14 feet
ans =
    -!!!-          SWEL is adjusted to 8.95 feet
k =
     1
     2
     3
     4
     5
     6
     7
     8
     9
    10
    11
% now iterate converge on a runup elevation
tol=0.01; % convergence criteria
R2del=999;
R2_new=3*H0; %initial guess
R2=R2_new;
iter=0;
R2_all=[];
topStaAll=[];
Berm_Segs=[];
TAW_ALWAYS_VALID=1;
while(abs(R2del) > tol && iter <= 25)
    iter=iter+1;
    sprintf('!----- STARTING ITERATION %d -----!',iter)
    % elevation of toe of slope
    Ztoe
    % station of toe slope (relative to 0-NAVD88 shoreline)
    toe_sta
    % station of top of slope/extent of 2% run-up

```

```

top_sta
% elevation of top of slope/extent of 2% run-up
Z2
% incident significant wave height
H0
% incident spectral peak wave period
Tp
% incident spectral mean wave period
T0

R2=R2_new
Z2=R2+SWEL
% determine slope for this iteration
top_sta=-999;
for kk=1:length(sta)-1
    if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1))) % here is the intersection of z2 with profile
        top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
        break;
    end
end
if top_sta==--999
    dy=Z2-dep(end);
    top_sta=sta(end)+dy/S(end)
end

% get the length of the slope (not accounting for berm)
Lslope=top_sta-toe_sta
% loop over profile segments to determine berm factor
% re-calculate influence of depth of berm based on this run-up elevation
% check for berm, berm width, berm height
berm_width=0;
rdh_sum=0;
Berm_Segs=[];
Berm_Heights=[];
for kk=1:length(sta)-1
    ddep=dep(kk+1)-dep(kk);
    dsta=sta(kk+1)-sta(kk);
    s=ddep/dsta;
    if (s < 1/15) % count it as a berm if slope is flatter than 1:15 (see TAW manual)
        sprintf('Berm Factor Calculation: Iteration %d, Profile Segment: %d',iter,kk)
        berm_width=berm_width+dsta; % tally the width of all berm segments
        % compute the rdh for this segment and weight it by the segment length
        dh=SWEL-(dep(kk)+dep(kk+1))/2
        if dh < 0
            chi=R2;
        else
            chi=2* H0;
        end
        if (dh <= R2 & dh >=-2*H0)
            rdh=(0.5-0.5*cos(3.14159*dh/chi)) ;
        else
            rdh=1;
        end
        rdh_sum=rdh_sum + rdh * dsta
        Berm_Segs=[Berm_Segs, kk];
        Berm_Heights=[Berm_Heights, (dep(kk)+dep(kk+1))/2];
    end
    if dep(kk) >= Z2 % jump out of loop if we reached limit of run-up for this iteration
        break
    end
end
sprintf('!----- End Berm Factor Calculation, Iter: %d -----!',iter)
berm_width
rB=berm_width/Lslope
if (berm_width > 0)
    rdh_mean=rdh_sum/berm_width
else
    rdh_mean=1
end
gamma_berm=1- rB * (1-rdh_mean)
if gamma_berm > 1
    gamma_berm=1
end
if gamma_berm < 0.6
    gamma_berm =0.6
end
% Iribarren number
slope=(Z2-Ztoe)/(Lslope-berm_width)
Irb=(slope/(sqrt(H0/L0)))
% runup height
gamma_berm
gamma_perm
gamma_beta
gamma_rough
gamma=gamma_berm*gamma_perm*gamma_beta*gamma_rough
% check validity
TAW_VALID=1;
if (Irb*gamma_berm < 0.5 | Irb*gamma_berm > 10 )
    sprintf('!!! - - Iribarren number: %6.2f is outside the valid range (0.5-10), TAW NOT VALID - - !!!\n', Irb*gam
    TAW_VALID=0;

```

```

else
    sprintf('!!! - - Iribaren number: %6.2f is in the valid range (0.5-10), TAW RECOMMENDED - - !!!\n', Irb*gamma_
end
islope=1/slope;
if (slope < 1/8 | slope > 1)
    sprintf('!!! - - slope: 1:%3.1f V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!\n', islope)
    TAW_VALID=0;
else
    sprintf('!!! - - slope: 1:%3.1f V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!\n', islope)
end
if TAW_VALID == 0
    TAW_ALWAYS_VALID=0;
end

if (Irb*gamma_berm < 1.8)
    R2_new=gamma*H0*1.77*Irb
else
    R2_new=gamma*H0*(4.3-(1.6/sqrt(Irb)))
end
% check to see if we need to evaluate a shallow foreshore
if berm_width > 0.25 * L0;
    disp('!   Berm width is greater than 1/4 wave length')
    disp('!   Runup will be weighted average with foreshore calculation assuming depth limited wave height on berm')
    % do the foreshore calculation
    fore_H0=0.78*(SWEL_fore-min(Berm_Heights))
    % get upper slope
    fore_toe_sta=-999;
    fore_toe_dep=-999;
    for kk=length(dep)-1:-1:1
        ddep=dep(kk+1)-dep(kk);
        dsta=sta(kk+1)-sta(kk);
        s=ddep/dsta;
        if s < 1/15
            break
        end
        fore_toe_sta=sta(kk);
        fore_toe_dep=dep(kk);
        upper_slope=(Z2-fore_toe_dep)/(top_sta-fore_toe_sta)
    end
    fore_Irb=upper_slope/(sqrt(fore_H0/L0));
    fore_gamma=gamma_perm*gamma_beta*gamma_rough;
    if (fore_Irb < 1.8)
        fore_R2=fore_gamma*fore_H0*1.77*fore_Irb;
    else
        fore_R2=fore_gamma*fore_H0*(4.3-(1.6/sqrt(fore_Irb)));
    end
    if berm_width >= L0
        R2_new=fore_R2
        disp('berm is wider than one wavelength, use full shallow foreshore solution');
    else
        w2=(berm_width-0.25*L0)/(0.75*L0)
        w1=1-w2
        R2_new=w2*fore_R2 + w1*R2_new
    end
end % end berm width check
% convergence criterion
R2del=abs(R2-R2_new)
R2_all(iter)=R2_new;
% get the new top station (for plot purposes)
Z2=R2_new+SWEL
top_sta=-999;
for kk=1:length(sta)-1
    if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1))) % here is the intersection of z2 with profile
        top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
        break;
    end
end
if top_sta== -999
    dy=Z2-dep(end);
    top_sta=sta(end)+dy/S(end);
end
topStaAll(iter)=top_sta;

end
ans =
!----- STARTING ITERATION 1 -----!
Ztoe =
    -4.01568
toe_sta =
    -23.9617354939885
top_sta =
    68.6101870716799
Z2 =
    21.55962
H0 =
    8.5251
Tp =
    11.4911
T0 =
    10.4464545454545
R2 =

```

```

25.5753
Z2 =
34.5228664642314
top_sta =
126.983337402331
Lslope =
150.94507289632
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 6
dh =
12.0584414642314
rdh_sum =
0.803005262087444
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 7
dh =
12.0481914642314
rdh_sum =
1.60525882777874
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 42
dh =
2.13091646423142
rdh_sum =
1.64330635863373
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 43
dh =
2.07781646423143
rdh_sum =
1.67950425045875
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 44
dh =
2.02601646423143
rdh_sum =
1.71394056532371
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 45
dh =
1.97551646423143
rdh_sum =
1.74670033892783
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 86
dh =
-11.9684835357686
rdh_sum =
2.19647261320465
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 87
dh =
-11.9929835357686
rdh_sum =
2.64774225273241
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 88
dh =
-12.0282835357686
rdh_sum =
3.10117009312888
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 89
dh =
-12.0743835357686
rdh_sum =
3.5574177460719
ans =
!----- End Berm Factor Calculation, Iter: 1 -----!
berm_width =
10
rB =
0.0662492641072739
rdh_mean =
0.35574177460719
gamma_berm =
0.957318366672668
slope =
0.273429540120077
Irb =
2.21291720002817
gamma_berm =
0.957318366672668
gamma_perm =
1
gamma_beta =
1
gamma_rough =
0.6
gamma =

```

```

0.574391020003601
ans =
!!! - - Iribaren number: 2.12 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.7 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
15.7892137314285
R2del =
9.78608626857146
Z2 =
24.73678019566
top_sta =
74.8059253070242
ans =
!----- STARTING ITERATION 2 -----!
Ztoe =
-4.01568
toe_sta =
-23.9617354939885
top_sta =
74.8059253070242
Z2 =
24.73678019566
H0 =
8.5251
Tp =
11.4911
T0 =
10.4464545454545
R2 =
15.7892137314285
Z2 =
24.73678019566
top_sta =
74.8059253070242
Lslope =
98.7676608010127
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 6
dh =
12.0584414642314
rdh_sum =
0.803005262087444
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 7
dh =
12.0481914642314
rdh_sum =
1.60525882777874
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 42
dh =
2.13091646423142
rdh_sum =
1.64330635863373
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 43
dh =
2.07781646423143
rdh_sum =
1.67950425045875
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 44
dh =
2.02601646423143
rdh_sum =
1.71394056532371
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 45
dh =
1.97551646423143
rdh_sum =
1.74670033892783
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 86
dh =
-11.9684835357686
rdh_sum =
2.60904400286677
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 87
dh =
-11.9929835357686
rdh_sum =
3.47306290659196
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 88
dh =
-12.0282835357686
rdh_sum =

```

```

4.33948030228988
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 89
dh =
-12.0743835357686
rdh_sum =
5.2090027706825
ans =
!----- End Berm Factor Calculation, Iter: 2 -----!
berm_width =
10
rB =
0.101247715283518
rdh_mean =
0.52090027706825
gamma_berm =
0.951492247660194
slope =
0.323906926646556
Irb =
2.62144027623954
gamma_berm =
0.951492247660194
gamma_perm =
1
gamma_beta =
1
gamma_rough =
0.6
gamma =
0.570895348596116
ans =
!!! - - Iribaren number: 2.49 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.1 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
16.1182746564473
R2del =
0.329060925018737
Z2 =
25.0658411206787
top_sta =
75.3190007338874
ans =
!----- STARTING ITERATION 3 -----!
Ztoe =
-4.01568
toe_sta =
-23.9617354939885
top_sta =
75.3190007338874
Z2 =
25.0658411206787
H0 =
8.5251
Tp =
11.4911
T0 =
10.4464545454545
R2 =
16.1182746564473
Z2 =
25.0658411206787
top_sta =
75.3190007338874
Lslope =
99.2807362278759
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 6
dh =
12.0584414642314
rdh_sum =
0.803005262087444
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 7
dh =
12.0481914642314
rdh_sum =
1.60525882777874
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 42
dh =
2.13091646423142
rdh_sum =
1.64330635863373
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 43
dh =
2.07781646423143
rdh_sum =

```

```

1.67950425045875
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 44
dh =
2.02601646423143
rdh_sum =
1.71394056532371
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 45
dh =
1.97551646423143
rdh_sum =
1.74670033892783
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 86
dh =
-11.9684835357686
rdh_sum =
2.59187210790687
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 87
dh =
-11.9929835357686
rdh_sum =
3.43876734155537
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 88
dh =
-12.0282835357686
rdh_sum =
4.28813185182255
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 89
dh =
-12.0743835357686
rdh_sum =
5.14069619158641
ans =
!----- End Berm Factor Calculation, Iter: 3 -----!
berm_width =
10
rB =
0.100724474655862
rdh_mean =
0.514069619158641
gamma_berm =
0.951054917670431
slope =
0.325731197449497
Irb =
2.63620444632726
gamma_berm =
0.951054917670431
gamma_perm =
1
gamma_beta =
1
gamma_rough =
0.6
gamma =
0.570632950602259
ans =
!!! - - Iribaren number: 2.51 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.1 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
16.1243470873076
R2del =
0.0060724308603497
Z2 =
25.071913551539
top_sta =
75.3284689351197
% final 2% runup elevation
Z2=R2_new+SWEL
Z2 =
25.071913551539
diary off
-1.000000e+00

```

PART 5: RUNUP2

for transect: CM-145

Station locations shifted by: 0.50 feet from their
original location to set the shoreline to
elevation 0 for RUNUP2 input

RUNUP2 INPUT CONVERSIONS

for transect: CM-145

Incident significant wave height: 7.86 feet

Peak wave period: 11.69 seconds

Mean wave height: 4.92 feet

Local Depth below SWEL: 53.60 feet

Mean wave height deshoaled using Hunt approximation for
celerity assuming constant wave energy flux.

References: R.G. Dean and R.A. Dalrymple. 2000. Water

Wave Mechanics for Engineers and Scientists. World
Scientific Publishing Company, River Edge New Jersey

USACE (1985), Direct Methods for Calculating Wavelength, CETN-1-17
US Army Engineer Waterways Experiment Station Coastal Engineering
Research Center, Vicksburg, MS

also see Coastal Engineering Manual Part II-3
for discussion of shoaling coefficient

Depth, $D = 53.60$

Period, $T = 9.94$

Waveheight, $H = 4.92$

Deep water wavelength, L_0 (ft)

$L_0 = g \cdot T^2 / 2\pi$

$L_0 = 32.17 \cdot 9.94^2 / 6.28 = 505.46$

Deep water wave celerity, C_0 (ft/s)

$C_0 = L_0 / T$

$C_0 = 505.46 / 9.94 = 50.88$

Angular frequency, σ (rad/s)

$\sigma = 2\pi / T$

$\sigma = 6.28 / 9.94 = 0.63$

Hunts (1979) approximation for Celerity C_{1H} (ft/s) at Depth D (ft)

$y = \sigma \cdot \sigma \cdot D / g$

$y = 0.63 \cdot 0.63 \cdot 53.60 / 32.17 = 0.67$

$C_{1H} = \sqrt{g \cdot D / (y + 1. / (1 + 0.6522 \cdot y + 0.4622 \cdot y^2 + 0.0864 \cdot y^4 + 0.0675 \cdot y^5))}$

$C_{1H} = 36.90$

Shoaling Coefficient K_{sH}

$K_{sH} = \sqrt{C_0 / C_{1H}}$

$K_{sH} = \sqrt{50.88 / 36.90} = 1.17$

Deepwater Wave Height H_{0_H} (ft)

$H_{0_H} = H / K_{sH}$

$H_{0_H} = 4.92 / 1.17 = 4.19$

Deepwater mean wave height: 4.19 feet

END RUNUP2 CONVERSIONS

RUNUP2 RESULTS

for transect: CM-145

RUNUP2 SWEL:

8.81

RUNUP2 deepwater mean wave heights:

-9999.00

RUNUP2 mean wave periods:
-9999.00

RUNUP2 runup above SWEL:
-9999.00

RUNUP2 Mean runup height above SWEL: -9999.00 feet

RUNUP2 2-percent runup height above SWEL: -9999.00 feet

RUNUP2 2-percent runup elevation: -9999.00 feet-NAVD88

RUNUP2 Messages:
RUNUP2 Failed

_____END RUNUP2 RESULTS_____

_____ACES BEACH RUNUP_____

Incident significant wave height: 7.86 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 5.87 feet

Peak wave period: 11.69 seconds

Average beach Slope: 1:13.78 (H:V)

ACES RUNUP CALCULATED USING 'Aces_Beach_Runup.m'

ACES Beach 2-percent runup height above SWEL: 9.25 feet

ACES Beach 2-percent runup elevation: 18.06 feet-NAVD88

ACES BEACH RUNUP is valid

_____END ACES BEACH RESULTS_____

PART 5 COMPLETE_____

FEMA
RUNUP2 transect: CM-145

sjh

job 2
1

6.00
-44.79 -924.5 0.8
-44.29 -872.5 0.8
-43.31 -794.5 0.8
-40.97 -740.5 0.8
-39.01 -702.5 0.8
-21.61 -588.5 0.8
-11.74 -494.5 0.8
-11.74 -86.5 0.8
-5.18 -84.5 0.8
-5.13 -32.5 0.8
-3.26 -20.5 0.8
-1.62 -4.5 0.8
6.79 17.5 0.8
7.75 27.5 0.8
15.62 39.5 0.8
17.87 47.5 0.8
20.66 59.5 0.8
21.93 69.5 0.8
26.60 77.5 0.8
1 28.79 89.5 0.8
8.8 3.98 9.44
8.8 3.98 9.94
8.8 3.98 10.43
8.8 4.19 9.44
8.8 4.19 9.94
8.8 4.19 10.43
8.8 4.40 9.44
8.8 4.40 9.94
8.8 4.40 10.43

CLIENT- FEMA
PROJECT-RUNUP2 transect: CM-145

** WAVE RUNUP-VERSION 2.0 **

ENGINEERED BY sjh

JOB job 2
RUN 1 PAGE 1

CROSS SECTION PROFILE

	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-924.0	-44.7		
2	-872.0	-44.2	.00	.80
3	-794.0	-43.3	86.67	.80
4	-740.0	-40.9	22.50	.80
5	-702.0	-39.0	20.00	.80
6	-588.0	-21.6	6.55	.80
7	-494.0	-11.7	9.49	.80
8	-86.5	-11.7	FLAT	.80
9	-84.5	-5.2	.31	.80
10	-32.5	-5.1	FLAT	.80
11	-20.5	-3.3	6.42	.80
12	-4.5	-1.6	9.76	.80
13	17.5	6.8	2.62	.80
14	27.5	7.8	10.42	.80
15	39.5	15.6	1.52	.80
16	47.5	17.9	3.56	.80
17	59.5	20.7	4.30	.80
18	69.5	21.9	7.87	.80
19	77.5	26.6	1.71	.80
20	89.5	28.8	5.48	.80
	LAST SLOPE	6.00	LAST ROUGHNESS	.80

CLIENT- FEMA
PROJECT-RUNUP2 transect: CM-145

** WAVE RUNUP-VERSION 2.0 **

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JOB job 2
RUN 1 PAGE 2

OUTPUT TABLE

INPUT PARAMETERS

WATER LEVEL ABOVE DATUM (FT.)	DEEP WATER WAVE HEIGHT (FT.)	WAVE PERIOD (SEC.)
-------------------------------------	------------------------------------	-----------------------

RUNUP RESULTS

BREAKING SLOPE NUMBER	RUNUP SLOPE NUMBER	RUNUP ABOVE WATER LEVEL (FT.)	BREAKER DEPTH (FT.)
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Runup2 error, see log sheet

