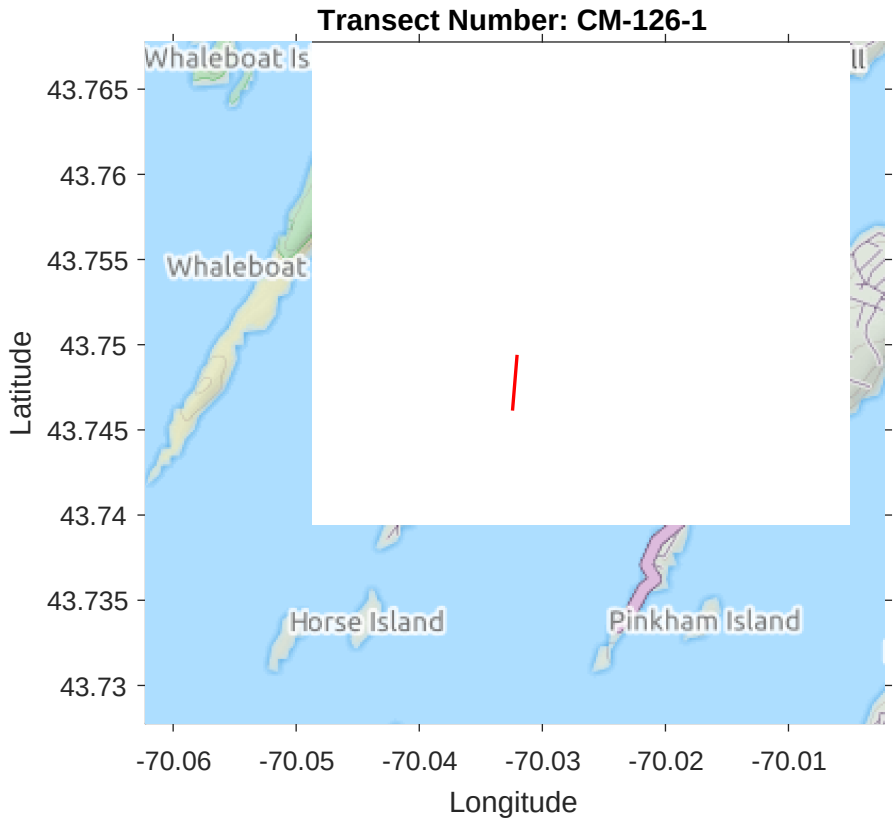
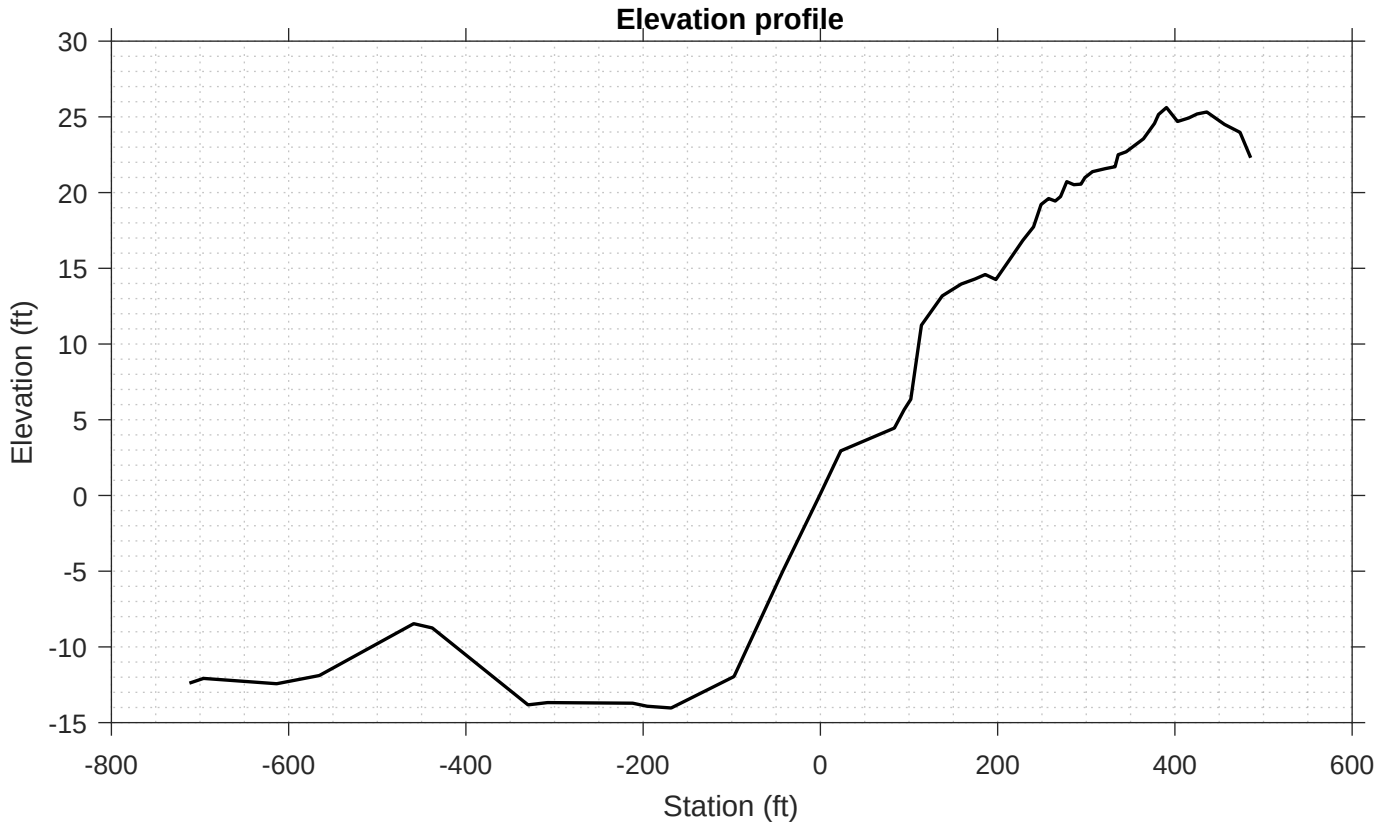

Transect Number: CM-126-1
Whaleboat Is
Whaleboat
Horse Island
Pinkham Island
Latitude
Longitude
43.765
43.76
43.755
43.75
43.745
43.74
43.735
43.73
-70.06
-70.05
-70.04
-70.03
-70.02
-70.01


Elevation profile
Elevation (ft)
Station (ft)
30
25
20
15
10
5
0
-5
-10
-15
-800
-600
-400
-200
0
200
400
600

DATA LOG FOR TRANSECT ID: CM-126-1

PART 1: USER INPUT

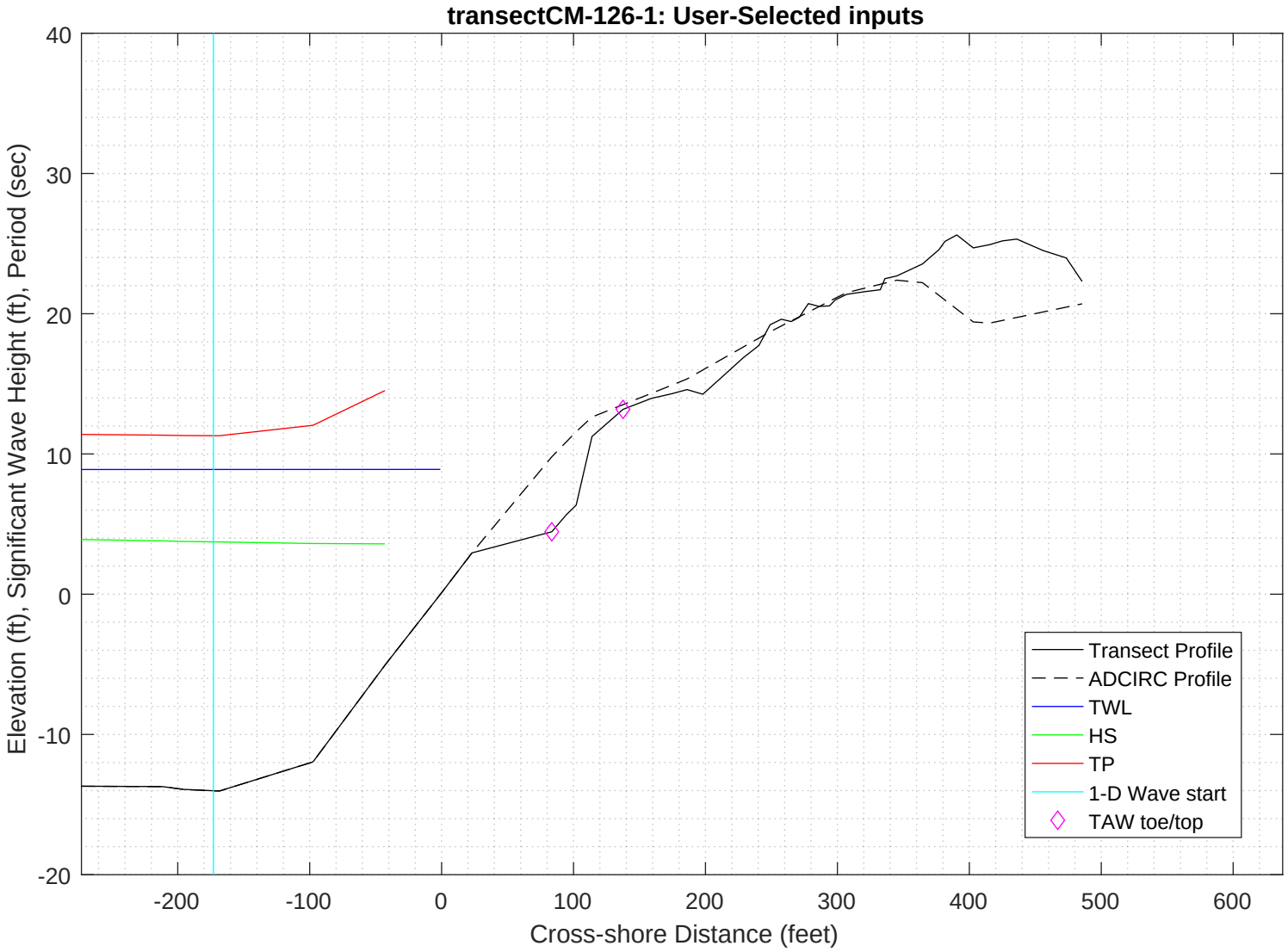
SWAN 1-D / WHAFIS input

station: -173 ft
LON: -70.0323 deg E
LAT: 43.7476 deg N
Bottom ELEV: -14.0138 ft-NAVD88
TWL: 8.8944 ft-NAVD88
HS: 3.7335 ft
TP: 11.3023 sec
Wave Direction bin: 90 deg CCW from East (90 deg sector)
Transect Direction: 83.4952 deg CCW from East

TAW/RUNUP input

toe sta: 83.5 ft
toe elev: 4.4521 ft-NAVD88
top sta: 137.5 ft
top elev: 13.1791 ft-NAVD88
Wave and water level conditions at toe to be calculated in SWAN 1-D

PART 1 COMPLETE


transectCM-126-1: User-Selected inputs
Elevation (ft), Significant Wave Height (ft), Period (sec)
Cross-shore Distance (feet)
40
30
20
10
0
-10
-20
-200
-100
0
100
200
300
400
500
600
Transect Profile
ADCIRC Profile
TWL
HS
TP
1-D Wave start
TAW toe/top

PART 2: SWAN 1-D

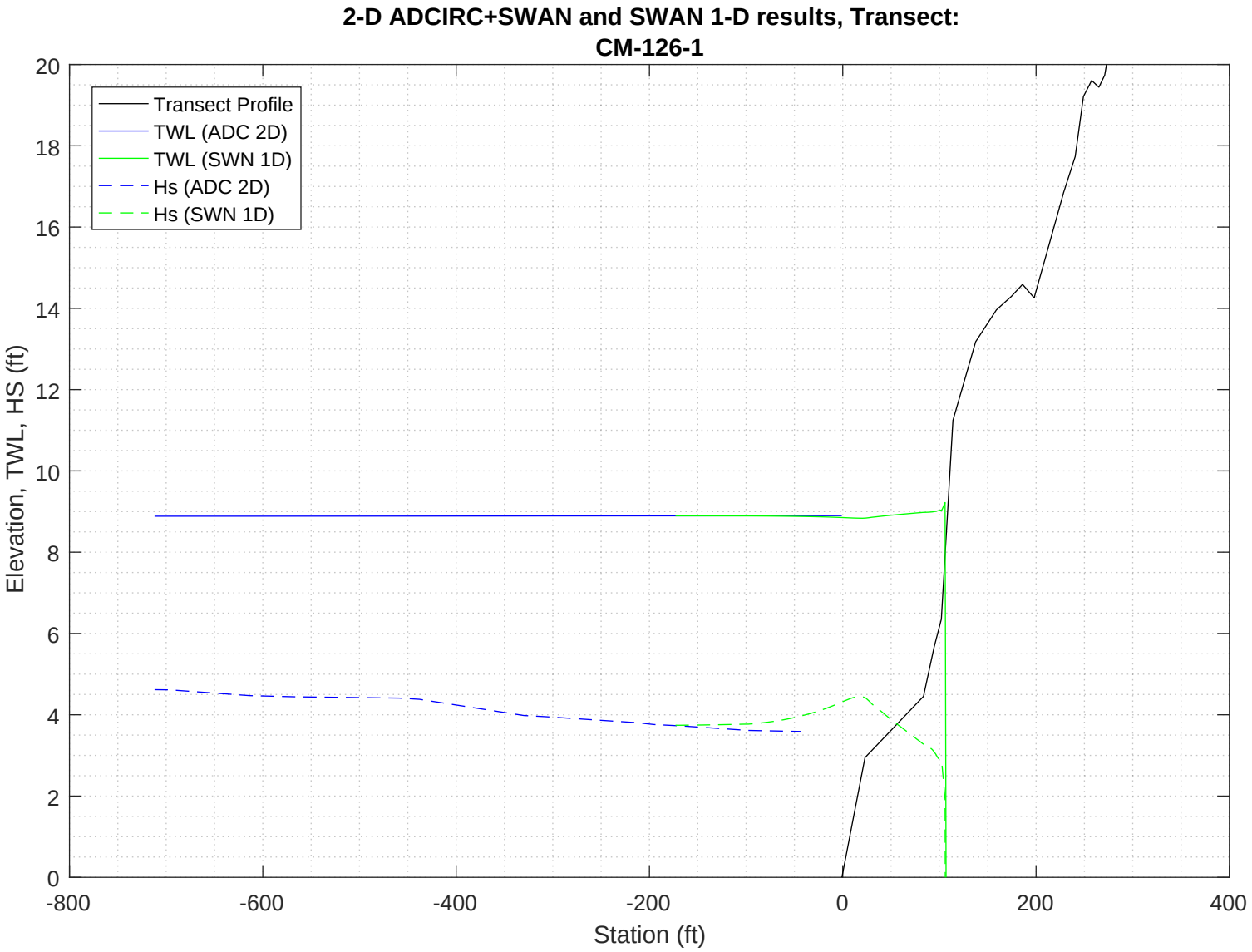
swan input grid name: 2_swan/gridfiles/CM-126-1zmeters_xmeters.grd
swan file name: 2_swan/swanfiles/CM-126-1.swn
swan output name: 2_swan/swanfiles/CM-126-1.dat

Boundary Conditions:
    TWL- 2.711 meters
    HS- 1.138 meters
    PER- 11.3023 seconds

Batch File: 2_swan/swanfiles/runswan.dat

SWAN maximum additional wave setup: 0.32708 feet
SWAN output at toe:
    SETUP- 0.084521 feet
    HS-   3.2859 feet
    PER-   11.1501 seconds

PART 2 COMPLETE


2-D ADCIRC+SWAN and SWAN 1-D results, Transect:
CM-126-1
Transect Profile
TWL (ADC 2D)
TWL (SWN 1D)
Hs (ADC 2D)
Hs (SWN 1D)
Elevation, TWL, HS (ft)
Station (ft)
20
18
16
14
12
10
8
6
4
2
0
-800
-600
-400
-200
0
200
400

1

```
                    Execution started at 20200220.141921


                    ---------------------------------------
                                    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      87       0.   87     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      87   0      1       1
 !READinp BOTtom [fac]  'fname1'  [idla]  [nhedf]  [FREe|FORmat[form]|UNFormatted]
  READ    BOTTOM   -1. '../gridfiles/CM-126-1zmeters_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   1.138     11.3023     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] [edm1pm] [cdrag] [umin] [cfpm]
!-- GEN2 [cf10] [cf20] [cf30] [cf40] [cf50] [cf60] [edm1pm] [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' [xp1] [yp1] <[int]   [xp]   [yp] >
 CURVE 'curve' 0     0      87  87    0
!TABLe 'sname' < HEADer|NOHEADer|INDexed > 'fname' <output parameters> (output time)
 Table 'curve'   HEADER 'CM-126-1.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              88 MYC              1
                     : MCGRD            89
                     : 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 EDMLPM  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  62.80 % 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   1.17 % 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  61.63 % 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  69.77 % 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  89.54 % 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 100.00 % of wet grid points ( 99.50 % required)


STOP
```

% Run:1 Table:curve SWAN version:41.20A

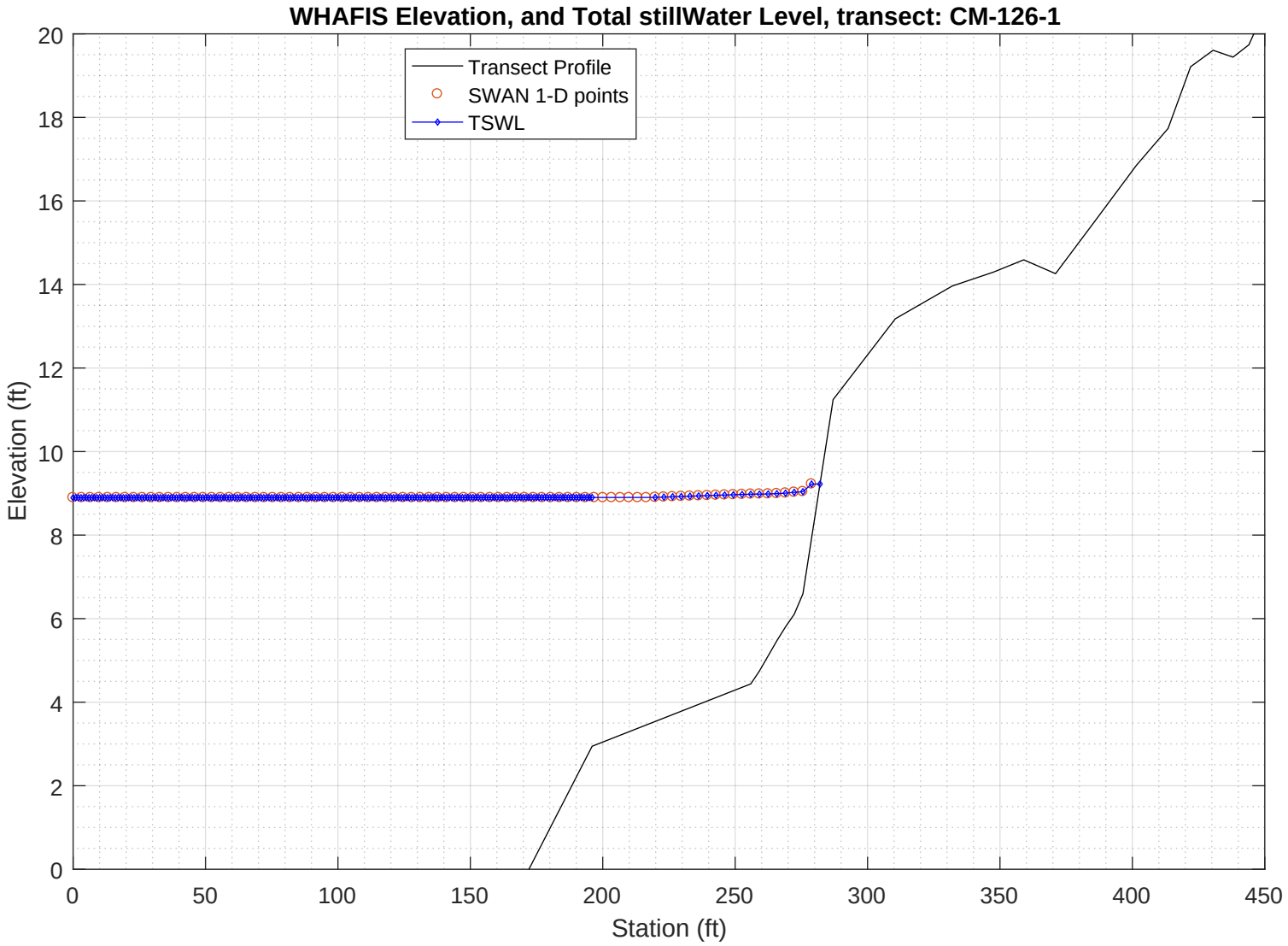
Xp [m]	Yp [m]	Hsig [m]	TPsmoo [sec]	RTpeak [sec]	Tm_10 [sec]	Dir [degr]	Dspr [degr]	Depth [m]	Setup [m]
0.	0.	1.14073	11.1152	11.1572	10.2055	0.000	31.5057	6.9800	-0.000009
1.	0.	1.14055	11.1152	11.1572	10.1983	0.000	31.4851	6.9900	0.000000
2.	0.	1.14081	11.1153	11.1572	10.1920	0.000	31.4060	6.9700	-0.000016
3.	0.	1.14113	11.1154	11.1572	10.1859	0.000	31.2939	6.9400	-0.000041
4.	0.	1.14140	11.1156	11.1572	10.1797	0.000	31.1721	6.9099	-0.000066
5.	0.	1.14167	11.1157	11.1572	10.1734	0.000	31.0516	6.8799	-0.000091
6.	0.	1.14196	11.1158	11.1572	10.1671	0.000	30.9547	6.8499	-0.000114
7.	0.	1.14235	11.1159	11.1572	10.1606	0.000	30.8700	6.8199	-0.000138
8.	0.	1.14250	11.1160	11.1572	10.1538	0.000	30.7893	6.7998	-0.000153
9.	0.	1.14288	11.1162	11.1572	10.1471	0.000	30.6998	6.7698	-0.000178
10.	0.	1.14325	11.1163	11.1572	10.1403	0.000	30.6074	6.7398	-0.000202
11.	0.	1.14363	11.1164	11.1572	10.1334	0.000	30.5140	6.7098	-0.000227
12.	0.	1.14403	11.1166	11.1572	10.1264	0.000	30.4203	6.6797	-0.000253
13.	0.	1.14445	11.1167	11.1572	10.1192	0.000	30.3265	6.6497	-0.000279
14.	0.	1.14488	11.1169	11.1572	10.1120	0.000	30.2327	6.6197	-0.000306
15.	0.	1.14533	11.1170	11.1572	10.1046	0.000	30.1390	6.5897	-0.000333
16.	0.	1.14580	11.1171	11.1572	10.0972	360.000	30.0452	6.5596	-0.000361
17.	0.	1.14629	11.1173	11.1572	10.0896	360.000	29.9516	6.5296	-0.000389
18.	0.	1.14680	11.1174	11.1572	10.0819	360.000	29.8579	6.4996	-0.000418
19.	0.	1.14732	11.1176	11.1572	10.0741	360.000	29.7644	6.4696	-0.000448
20.	0.	1.14787	11.1178	11.1572	10.0662	0.000	29.6709	6.4395	-0.000477
21.	0.	1.14850	11.1179	11.1572	10.0582	360.000	29.5879	6.4095	-0.000508
22.	0.	1.14879	11.1181	11.1572	10.0496	0.000	29.4981	6.3895	-0.000528
23.	0.	1.14903	11.1182	11.1572	10.0417	360.000	29.3015	6.3494	-0.000569
24.	0.	1.15106	11.1186	11.1572	10.0366	0.000	28.9858	6.2293	-0.000702
25.	0.	1.15300	11.1189	11.1572	10.0305	0.000	28.6207	6.1092	-0.000843
26.	0.	1.15535	11.1193	11.1572	10.0240	0.000	28.2387	5.9790	-0.001005
27.	0.	1.15796	11.1196	11.1572	10.0162	0.000	27.8991	5.8488	-0.001172
28.	0.	1.16045	11.1201	11.1572	10.0067	0.000	27.5613	5.7287	-0.001336
29.	0.	1.16346	11.1205	11.1572	9.9963	360.000	27.2108	5.5985	-0.001524
30.	0.	1.16674	11.1210	11.1572	9.9843	0.000	26.8647	5.4683	-0.001725
31.	0.	1.16988	11.1214	11.1572	9.9704	0.000	26.5175	5.3481	-0.001923
32.	0.	1.17360	11.1220	11.1572	9.9552	0.000	26.1574	5.2178	-0.002152
33.	0.	1.17762	11.1225	11.1572	9.9383	0.000	25.7991	5.0876	-0.002396
34.	0.	1.18149	11.1231	11.1572	9.9190	360.000	25.4393	4.9674	-0.002638
35.	0.	1.18603	11.1238	11.1572	9.8981	360.000	25.0662	4.8371	-0.002918
36.	0.	1.19093	11.1245	11.1572	9.8746	360.000	24.6953	4.7068	-0.003218
37.	0.	1.19569	11.1252	11.1572	9.8481	360.000	24.3480	4.5865	-0.003512
38.	0.	1.20121	11.1260	11.1572	9.8194	360.000	24.0029	4.4561	-0.003851
39.	0.	1.20708	11.1268	11.1572	9.7881	360.000	23.6607	4.3258	-0.004216
40.	0.	1.21281	11.1277	11.1572	9.7536	360.000	23.3255	4.2054	-0.004580
41.	0.	1.21890	11.1287	11.1572	9.7162	360.000	22.9906	4.0850	-0.004971
42.	0.	1.22533	11.1297	11.1572	9.6763	360.000	22.6531	3.9646	-0.005393
43.	0.	1.23210	11.1307	11.1572	9.6337	360.000	22.3098	3.8442	-0.005850
44.	0.	1.23922	11.1318	11.1572	9.5885	360.000	21.9602	3.7237	-0.006345
45.	0.	1.24677	11.1330	11.1572	9.5397	360.000	21.6032	3.6031	-0.006882
46.	0.	1.25472	11.1343	11.1572	9.4877	360.000	21.2394	3.4825	-0.007466
47.	0.	1.26310	11.1356	11.1572	9.4326	0.000	20.8684	3.3619	-0.008102
48.	0.	1.27188	11.1369	11.1572	9.3746	0.000	20.4900	3.2412	-0.008794
49.	0.	1.28101	11.1383	11.1572	9.3139	0.000	20.1275	3.1205	-0.009541
50.	0.	1.29046	11.1398	11.1572	9.2507	0.001	19.7699	2.9997	-0.010346
51.	0.	1.30013	11.1413	11.1572	9.1851	0.001	19.4053	2.8788	-0.011215
52.	0.	1.30984	11.1428	11.1572	9.1173	0.002	19.0276	2.7579	-0.012143
53.	0.	1.32040	11.1444	11.1572	9.0480	0.002	18.6403	2.6268	-0.013218
54.	0.	1.33018	11.1458	11.1572	8.9661	0.008	18.2508	2.5058	-0.014237
55.	0.	1.33954	11.1471	11.1572	8.8722	0.001	17.8458	2.3848	-0.015245
56.	0.	1.34788	11.1482	11.1572	8.7816	359.988	17.4318	2.2537	-0.016272
57.	0.	1.35263	11.1489	11.1572	8.6924	359.961	17.0119	2.1330	-0.017014
58.	0.	1.35475	11.1491	11.1572	8.6019	359.929	16.5608	2.0124	-0.017550
59.	0.	1.35461	11.1486	11.1572	8.5128	359.905	16.1302	1.8821	-0.017909

60.	0.	1.34430	11.1479	11.1572	8.4004	359.884	15.8749	1.7933	-0.016658
61.	0.	1.32309	11.1473	11.1572	8.2829	359.805	15.7367	1.7662	-0.013761
62.	0.	1.29863	11.1471	11.1572	8.1857	359.725	15.6425	1.7495	-0.010531
63.	0.	1.27959	11.1471	11.1572	8.0670	359.706	15.5431	1.7221	-0.007942
64.	0.	1.26065	11.1473	11.1572	7.9380	359.707	15.4461	1.7047	-0.005271
65.	0.	1.24222	11.1476	11.1572	7.8278	359.697	15.3437	1.6772	-0.002816
66.	0.	1.22191	11.1480	11.1572	7.7310	359.697	15.2412	1.6598	-0.000180
67.	0.	1.20256	11.1484	11.1572	7.6510	359.711	15.1355	1.6322	0.002202
68.	0.	1.18290	11.1489	11.1572	7.5710	359.745	15.0212	1.6146	0.004648
69.	0.	1.16474	11.1493	11.1572	7.4999	359.793	14.9035	1.5868	0.006824
70.	0.	1.14596	11.1497	11.1572	7.4260	359.858	14.7892	1.5691	0.009137
71.	0.	1.12899	11.1501	11.1572	7.3563	359.945	14.6765	1.5412	0.011167
72.	0.	1.11066	11.1504	11.1572	7.2909	0.039	14.5683	1.5234	0.013377
73.	0.	1.09334	11.1507	11.1572	7.2363	0.137	14.4598	1.4954	0.015372
74.	0.	1.07444	11.1508	11.1572	7.1868	0.226	14.3517	1.4776	0.017573
75.	0.	1.05692	11.1508	11.1572	7.1439	0.318	14.2400	1.4495	0.019540
76.	0.	1.03801	11.1506	11.1572	7.1031	0.404	14.1293	1.4317	0.021707
77.	0.	1.02049	11.1504	11.1572	7.0679	0.492	14.0160	1.4036	0.023643
78.	0.	1.00155	11.1501	11.1572	7.0331	0.573	13.8185	1.3858	0.025762
79.	0.	0.99127	11.1496	11.1572	7.0173	0.686	13.4599	1.2864	0.026401
80.	0.	0.97735	11.1489	11.1572	7.0013	0.808	13.0159	1.1775	0.027480
81.	0.	0.95744	11.1480	11.1572	6.9767	0.943	12.5318	1.0695	0.029516
82.	0.	0.92614	11.1470	11.1572	6.9630	1.016	12.0487	0.9735	0.033531
83.	0.	0.88565	11.1461	11.1572	6.9556	1.058	11.4911	0.8894	0.039366
84.	0.	0.85112	11.1460	11.1572	6.9678	0.981	10.5097	0.7442	0.044173
85.	0.	0.58564	11.2487	11.1572	8.2758	357.904	11.8013	0.3897	0.099693
86.	0.	-9.00000	-9.0000	-9.0000	-9.0000	-999.000	-9.0000	-99.0000	-9.000000
87.	0.	-9.00000	-9.0000	-9.0000	-9.0000	-999.000	-9.0000	-99.0000	-9.000000

PART 3: WHAFIS

WHAFIS input: CM-126-1.dat
WHAFIS output: CM-126-1.out

PART 3 COMPLETE


WHAFIS Elevation, and Total stillWater Level, transect: CM-126-1
Transect Profile
SWAN 1-D points
TSWL
Elevation (ft)
Station (ft)
0
2
4
6
8
10
12
14
16
18
20
0
50
100
150
200
250
300
350
400
450

WAVE HEIGHT COMPUTATIONS FOR FLOOD INSURANCE STUDIES (WHAFIS VERSION 4.0G, 08_2007)
Executed on: Thu Feb 20 14:57:36 2020
Input file: C:\FEMA-TransectAnalysis\LOMR-TransectAnalysis-Harpswell\3_whafis\whafis4\CM-126-1.dat
Output file: C:\FEMA-TransectAnalysis\LOMR-TransectAnalysis-Harpswell\3_whafis\whafis4\CM-126-1.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	-14.013	1.000	1.000	8.894	5.973	11.302	56.140	-0.005	0.000
OF	1.000	-14.018	0.000	8.894	0.000	0.000	0.000	0.000	-0.004	0.000
OF	2.000	-14.022	0.000	8.894	0.000	0.000	0.000	0.000	-0.004	0.000
OF	3.000	-14.026	0.000	8.894	0.000	0.000	0.000	0.000	-0.004	0.000
OF	4.000	-14.030	0.000	8.894	0.000	0.000	0.000	0.000	0.002	0.000
OF	5.000	-14.021	0.000	8.894	0.000	0.000	0.000	0.000	0.019	0.000
OF	6.000	-13.992	0.000	8.894	0.000	0.000	0.000	0.000	0.030	0.000
OF	7.000	-13.962	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	8.000	-13.933	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	9.000	-13.904	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	10.000	-13.875	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	11.000	-13.845	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	12.000	-13.816	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	13.000	-13.787	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	14.000	-13.757	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	15.000	-13.728	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	16.000	-13.699	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	17.000	-13.670	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	18.000	-13.640	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	19.000	-13.611	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	20.000	-13.582	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	21.000	-13.553	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	22.000	-13.523	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	23.000	-13.494	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	24.000	-13.465	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	25.000	-13.436	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	26.000	-13.406	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	27.000	-13.377	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	28.000	-13.348	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	29.000	-13.319	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	30.000	-13.289	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	31.000	-13.260	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	32.000	-13.231	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	33.000	-13.201	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	34.000	-13.172	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	35.000	-13.143	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	36.000	-13.114	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	37.000	-13.084	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	38.000	-13.055	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	39.000	-13.026	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	40.000	-12.997	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	41.000	-12.967	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	42.000	-12.938	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	43.000	-12.909	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	44.000	-12.880	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	45.000	-12.850	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
OF	46.000	-12.821	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
OF	47.000	-12.792	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
OF	48.000	-12.763	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	49.000	-12.733	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	50.000	-12.704	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
OF	51.000	-12.675	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	52.000	-12.645	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	53.000	-12.616	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
OF	54.000	-12.587	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
OF	55.000	-12.558	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	56.000	-12.528	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	57.000	-12.499	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
OF	58.000	-12.470	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
OF	59.000	-12.441	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	60.000	-12.411	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	61.000	-12.382	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
OF	62.000	-12.353	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
OF	63.000	-12.324	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	64.000	-12.294	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	65.000	-12.265	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
OF	66.000	-12.236	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
OF	67.000	-12.207	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	68.000	-12.177	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	69.000	-12.148	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
OF	70.000	-12.119	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
OF	71.000	-12.090	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	72.000	-12.060	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	73.000	-12.031	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
OF	74.000	-12.002	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
OF	75.000	-11.972	0.000	8.896	0.000	0.000	0.000	0.000	0.053	0.000
OF	76.000	-11.896	0.000	8.896	0.000	0.000	0.000	0.000	0.101	0.000
OF	77.000	-11.770	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	78.000	-11.643	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	79.000	-11.517	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	80.000	-11.390	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	81.000	-11.264	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	82.000	-11.137	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	83.000	-11.011	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	84.000	-10.884	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	85.000	-10.758	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	86.000	-10.632	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	87.000	-10.505	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	88.000	-10.379	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	89.000	-10.252	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	90.000	-10.126	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	91.000	-10.000	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	92.000	-9.874	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000

OF	93.000	-9.747	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
OF	94.000	-9.621	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	95.000	-9.494	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	96.000	-9.368	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	97.000	-9.241	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	98.000	-9.115	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	99.000	-8.988	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	100.000	-8.862	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	101.000	-8.735	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	102.000	-8.609	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	103.000	-8.482	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	104.000	-8.356	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	105.000	-8.229	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	106.000	-8.103	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	107.000	-7.977	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	108.000	-7.850	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	109.000	-7.723	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	110.000	-7.597	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	111.000	-7.471	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	112.000	-7.344	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	113.000	-7.218	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	114.000	-7.091	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	115.000	-6.965	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	116.000	-6.839	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	117.000	-6.712	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	118.000	-6.586	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	119.000	-6.459	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	120.000	-6.333	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	121.000	-6.206	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	122.000	-6.080	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	123.000	-5.953	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	124.000	-5.827	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	125.000	-5.701	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	126.000	-5.574	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	127.000	-5.448	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	128.000	-5.321	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	129.000	-5.195	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
OF	130.000	-5.068	0.000	8.897	0.000	0.000	0.000	0.000	0.125	0.000
OF	131.000	-4.945	0.000	8.898	0.000	0.000	0.000	0.000	0.122	0.000
OF	132.000	-4.824	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	133.000	-4.704	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	134.000	-4.584	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	135.000	-4.464	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	136.000	-4.343	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	137.000	-4.223	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	138.000	-4.103	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	139.000	-3.983	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	140.000	-3.862	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	141.000	-3.742	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	142.000	-3.622	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	143.000	-3.502	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	144.000	-3.381	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	145.000	-3.261	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	146.000	-3.141	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
OF	147.000	-3.020	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	148.000	-2.900	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	149.000	-2.780	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	150.000	-2.659	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	151.000	-2.539	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	152.000	-2.419	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	153.000	-2.299	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	154.000	-2.179	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	155.000	-2.058	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	156.000	-1.938	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	157.000	-1.818	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	158.000	-1.698	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	159.000	-1.577	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	160.000	-1.457	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	161.000	-1.337	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	162.000	-1.217	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	163.000	-1.096	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	164.000	-0.976	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
OF	165.000	-0.856	0.000	8.900	0.000	0.000	0.000	0.000	0.120	0.000
OF	166.000	-0.735	0.000	8.900	0.000	0.000	0.000	0.000	0.120	0.000
OF	167.000	-0.615	0.000	8.900	0.000	0.000	0.000	0.000	0.120	0.000
OF	168.000	-0.495	0.000	8.900	0.000	0.000	0.000	0.000	0.120	0.000
OF	169.000	-0.375	0.000	8.900	0.000	0.000	0.000	0.000	0.120	0.000
OF	170.000	-0.254	0.000	8.900	0.000	0.000	0.000	0.000	0.120	0.000
OF	171.000	-0.134	0.000	8.900	0.000	0.000	0.000	0.000	0.120	0.000
OF	172.000	-0.014	0.000	8.900	0.000	0.000	0.000	0.000	0.121	0.000
IF	173.000	0.108	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	174.000	0.231	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	175.000	0.355	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	176.000	0.478	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	177.000	0.602	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	178.000	0.725	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	179.000	0.848	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	180.000	0.971	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	181.000	1.095	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	182.000	1.218	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	183.000	1.342	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	184.000	1.465	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	185.000	1.588	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	186.000	1.712	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	187.000	1.835	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	188.000	1.958	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	189.000	2.082	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	190.000	2.205	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	191.000	2.328	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	192.000	2.452	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	193.000	2.575	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
IF	194.000	2.699	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000

	IF	195.000	2.822	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	IF	196.000	2.945	0.000	8.900	0.000	0.000	0.000	0.000	0.029	0.000
	IF	219.800	3.539	0.000	8.902	0.000	0.000	0.000	0.000	0.025	0.000
	IF	223.100	3.620	0.000	8.910	0.000	0.000	0.000	0.000	0.025	0.000
	IF	226.400	3.702	0.000	8.917	0.000	0.000	0.000	0.000	0.025	0.000
	IF	229.700	3.784	0.000	8.924	0.000	0.000	0.000	0.000	0.025	0.000
	IF	232.900	3.865	0.000	8.931	0.000	0.000	0.000	0.000	0.025	0.000
	IF	236.200	3.947	0.000	8.938	0.000	0.000	0.000	0.000	0.025	0.000
	IF	239.500	4.029	0.000	8.945	0.000	0.000	0.000	0.000	0.025	0.000
	IF	242.800	4.110	0.000	8.952	0.000	0.000	0.000	0.000	0.025	0.000
	IF	246.100	4.192	0.000	8.958	0.000	0.000	0.000	0.000	0.025	0.000
	IF	249.300	4.274	0.000	8.966	0.000	0.000	0.000	0.000	0.025	0.000
	IF	252.600	4.356	0.000	8.972	0.000	0.000	0.000	0.000	0.025	0.000
	IF	255.900	4.437	0.000	8.979	0.000	0.000	0.000	0.000	0.059	0.000
	IF	259.200	4.748	0.000	8.981	0.000	0.000	0.000	0.000	0.102	0.000
	IF	262.500	5.109	0.000	8.985	0.000	0.000	0.000	0.000	0.111	0.000
	IF	265.700	5.470	0.000	8.991	0.000	0.000	0.000	0.000	0.107	0.000
	IF	269.000	5.803	0.000	9.004	0.000	0.000	0.000	0.000	0.096	0.000
	IF	272.300	6.104	0.000	9.024	0.000	0.000	0.000	0.000	0.120	0.000
	IF	275.600	6.592	0.000	9.039	0.000	0.000	0.000	0.000	0.276	0.000
	IF	278.900	7.930	0.000	9.222	0.000	0.000	0.000	0.000	0.411	0.000
	IF	282.000	9.222	0.000	9.222	0.000	0.000	0.000	0.000	0.417	0.000
	ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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	END STATION	END ELEVATION	FETCH LENGTH	SURGE ELEV 10-YEAR	SURGE ELEV 100-YEAR	INITIAL WAVE HEIGHT	INITIAL W. PERIOD		BOTTOM SLOPE	AVERAGE A-ZONES
IE	0.000	-14.013	1.000	1.000	8.894	5.973	11.302	56.140	-0.005	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	1.000	-14.018	0.000	8.894	0.000	0.000	0.000	0.000	-0.004	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	2.000	-14.022	0.000	8.894	0.000	0.000	0.000	0.000	-0.004	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	3.000	-14.026	0.000	8.894	0.000	0.000	0.000	0.000	-0.004	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	4.000	-14.030	0.000	8.894	0.000	0.000	0.000	0.000	0.002	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	5.000	-14.021	0.000	8.894	0.000	0.000	0.000	0.000	0.019	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	6.000	-13.992	0.000	8.894	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	7.000	-13.962	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	8.000	-13.933	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	9.000	-13.904	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	10.000	-13.875	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	11.000	-13.845	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	12.000	-13.816	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	13.000	-13.787	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	14.000	-13.757	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	15.000	-13.728	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	16.000	-13.699	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	17.000	-13.670	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	18.000	-13.640	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	19.000	-13.611	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	20.000	-13.582	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	21.000	-13.553	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	22.000	-13.523	0.000	8.895	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	23.000	-13.494	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	24.000	-13.465	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	25.000	-13.436	0.000	8.895	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	26.000	-13.406	0.000	8.895	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	27.000	-13.377	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	28.000	-13.348	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	29.000	-13.319	0.000	8.895	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	30.000	-13.289	0.000	8.895	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	31.000	-13.260	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	32.000	-13.231	0.000	8.895	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	33.000	-13.201	0.000	8.895	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	34.000	-13.172	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	35.000	-13.143	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	36.000	-13.114	0.000	8.895	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	37.000	-13.084	0.000	8.895	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	38.000	-13.055	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	39.000	-13.026	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	40.000	-12.997	0.000	8.895	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	41.000	-12.967	0.000	8.895	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	42.000	-12.938	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	43.000	-12.909	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	44.000	-12.880	0.000	8.895	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	45.000	-12.850	0.000	8.895	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	46.000	-12.821	0.000	8.895	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	47.000	-12.792	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	48.000	-12.763	0.000	8.896	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	49.000	-12.733	0.000	8.896	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	50.000	-12.704	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	51.000	-12.675	0.000	8.896	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	52.000	-12.645	0.000	8.896	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	53.000	-12.616	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	54.000	-12.587	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	55.000	-12.558	0.000	8.896	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	56.000	-12.528	0.000	8.896	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	57.000	-12.499	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	58.000	-12.470	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	59.000	-12.441	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	60.000	-12.411	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	61.000	-12.382	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	62.000	-12.353	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	63.000	-12.324	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	64.000	-12.294	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	65.000	-12.265	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	66.000	-12.236	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	67.000	-12.207	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	68.000	-12.177	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	69.000	-12.148	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	70.000	-12.119	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	71.000	-12.090	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	72.000	-12.060	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	73.000	-12.031	0.000	8.896	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	74.000	-12.002	0.000	8.896	0.000	0.000	0.000	0.000	0.030	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	75.000	-11.972	0.000	8.896	0.000	0.000	0.000	0.000	0.053	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	76.000	-11.896	0.000	8.896	0.000	0.000	0.000	0.000	0.101	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	77.000	-11.770	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	78.000	-11.643	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	79.000	-11.517	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	80.000	-11.390	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	81.000	-11.264	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	82.000	-11.137	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	83.000	-11.011	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	84.000	-10.884	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	85.000	-10.758	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	86.000	-10.632	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	87.000	-10.505	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	88.000	-10.379	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	89.000	-10.252	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	90.000	-10.126	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	91.000	-10.000	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	92.000	-9.874	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	93.000	-9.747	0.000	8.896	0.000	0.000	0.000	0.000	0.126	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	94.000	-9.621	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	95.000	-9.494	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	96.000	-9.368	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	97.000	-9.241	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	98.000	-9.115	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	99.000	-8.988	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	100.000	-8.862	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	101.000	-8.735	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	102.000	-8.609	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	103.000	-8.482	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	104.000	-8.356	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	105.000	-8.229	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	106.000	-8.103	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	107.000	-7.977	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	108.000	-7.850	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	109.000	-7.723	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	110.000	-7.597	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	111.000	-7.471	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	112.000	-7.344	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	113.000	-7.218	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	114.000	-7.091	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	115.000	-6.965	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	116.000	-6.839	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	117.000	-6.712	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	118.000	-6.586	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	119.000	-6.459	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	120.000	-6.333	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	121.000	-6.206	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	122.000	-6.080	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	123.000	-5.953	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	124.000	-5.827	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	125.000	-5.701	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	126.000	-5.574	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	127.000	-5.448	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	128.000	-5.321	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	129.000	-5.195	0.000	8.897	0.000	0.000	0.000	0.000	0.126	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	130.000	-5.068	0.000	8.897	0.000	0.000	0.000	0.000	0.125	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	131.000	-4.945	0.000	8.898	0.000	0.000	0.000	0.000	0.122	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	132.000	-4.824	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	133.000	-4.704	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	134.000	-4.584	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	135.000	-4.464	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	136.000	-4.343	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	137.000	-4.223	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	138.000	-4.103	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	139.000	-3.983	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	140.000	-3.862	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	141.000	-3.742	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	142.000	-3.622	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	143.000	-3.502	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	144.000	-3.381	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	145.000	-3.261	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	146.000	-3.141	0.000	8.898	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	147.000	-3.020	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	148.000	-2.900	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	149.000	-2.780	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	150.000	-2.659	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	151.000	-2.539	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	152.000	-2.419	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	153.000	-2.299	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	154.000	-2.179	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	155.000	-2.058	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	156.000	-1.938	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	157.000	-1.818	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	158.000	-1.698	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	159.000	-1.577	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	160.000	-1.457	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	161.000	-1.337	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	162.000	-1.217	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	163.000	-1.096	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	164.000	-0.976	0.000	8.899	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	165.000	-0.856	0.000	8.900	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	166.000	-0.735	0.000	8.900	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	167.000	-0.615	0.000	8.900	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	168.000	-0.495	0.000	8.900	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	169.000	-0.375	0.000	8.900	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	170.000	-0.254	0.000	8.900	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	171.000	-0.134	0.000	8.900	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
OF	172.000	-0.014	0.000	8.900	0.000	0.000	0.000	0.000	0.121	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	173.000	0.108	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	174.000	0.231	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	175.000	0.355	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	176.000	0.478	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	177.000	0.602	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	178.000	0.725	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	179.000	0.848	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	180.000	0.971	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	181.000	1.095	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	182.000	1.218	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	183.000	1.342	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	184.000	1.465	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	185.000	1.588	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	186.000	1.712	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	187.000	1.835	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	188.000	1.958	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	189.000	2.082	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	190.000	2.205	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	191.000	2.328	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	192.000	2.452	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	193.000	2.575	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	194.000	2.699	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	195.000	2.822	0.000	8.900	0.000	0.000	0.000	0.000	0.123	0.000

	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	196.000	2.945	0.000	8.900	0.000	0.000	0.000	0.000	0.029	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	219.800	3.539	0.000	8.902	0.000	0.000	0.000	0.000	0.025	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	223.100	3.620	0.000	8.910	0.000	0.000	0.000	0.000	0.025	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	226.400	3.702	0.000	8.917	0.000	0.000	0.000	0.000	0.025	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	229.700	3.784	0.000	8.924	0.000	0.000	0.000	0.000	0.025	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	232.900	3.865	0.000	8.931	0.000	0.000	0.000	0.000	0.025	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	236.200	3.947	0.000	8.938	0.000	0.000	0.000	0.000	0.025	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	239.500	4.029	0.000	8.945	0.000	0.000	0.000	0.000	0.025	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	242.800	4.110	0.000	8.952	0.000	0.000	0.000	0.000	0.025	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	246.100	4.192	0.000	8.958	0.000	0.000	0.000	0.000	0.025	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	249.300	4.274	0.000	8.966	0.000	0.000	0.000	0.000	0.025	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	252.600	4.356	0.000	8.972	0.000	0.000	0.000	0.000	0.025	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	255.900	4.437	0.000	8.979	0.000	0.000	0.000	0.000	0.059	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	259.200	4.748	0.000	8.981	0.000	0.000	0.000	0.000	0.102	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	262.500	5.109	0.000	8.985	0.000	0.000	0.000	0.000	0.111	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	265.700	5.470	0.000	8.991	0.000	0.000	0.000	0.000	0.107	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	269.000	5.803	0.000	9.004	0.000	0.000	0.000	0.000	0.096	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	272.300	6.104	0.000	9.024	0.000	0.000	0.000	0.000	0.120	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	275.600	6.592	0.000	9.039	0.000	0.000	0.000	0.000	0.276	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	278.900	7.930	0.000	9.222	0.000	0.000	0.000	0.000	0.411	0.000
	END STATION	END ELEVATION	NEW SURGE 10-YEAR	NEW SURGE 100-YEAR					BOTTOM SLOPE	AVERAGE A-ZONES
IF	282.000	9.222	0.000	9.222	0.000	0.000	0.000	0.000	0.417	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 HEIGHT	SPECTRAL PEAK WAVE PERIOD	WAVE CREST ELEVATION
IE	0.00	5.97	11.30	13.08
OF	1.00	5.97	11.30	13.07
OF	2.00	5.97	11.30	13.07
OF	3.00	5.97	11.30	13.07
OF	4.00	5.97	11.30	13.07
OF	5.00	5.97	11.30	13.08
OF	6.00	5.98	11.30	13.08
OF	7.00	5.98	11.30	13.08
OF	8.00	5.98	11.30	13.08
OF	9.00	5.98	11.30	13.08
OF	10.00	5.99	11.30	13.09
OF	11.00	5.99	11.30	13.09
OF	12.00	5.99	11.30	13.09
OF	13.00	6.00	11.30	13.09
OF	14.00	6.00	11.30	13.09
OF	15.00	6.00	11.30	13.10
OF	16.00	6.00	11.30	13.10
OF	17.00	6.01	11.30	13.10
OF	18.00	6.01	11.30	13.10
OF	19.00	6.01	11.30	13.10
OF	20.00	6.01	11.30	13.10
OF	21.00	6.02	11.30	13.11
OF	22.00	6.02	11.30	13.11
OF	23.00	6.02	11.30	13.11
OF	24.00	6.03	11.30	13.11
OF	25.00	6.03	11.30	13.11
OF	26.00	6.03	11.30	13.12
OF	27.00	6.03	11.30	13.12
OF	28.00	6.04	11.30	13.12
OF	29.00	6.04	11.30	13.12
OF	30.00	6.04	11.30	13.12

OF	31.00	6.04	11.30	13.13
OF	32.00	6.05	11.30	13.13
OF	33.00	6.05	11.30	13.13
OF	34.00	6.05	11.30	13.13
OF	35.00	6.06	11.30	13.13
OF	36.00	6.06	11.30	13.14
OF	37.00	6.06	11.30	13.14
OF	38.00	6.06	11.30	13.14
OF	39.00	6.07	11.30	13.14
OF	40.00	6.07	11.30	13.14
OF	41.00	6.07	11.30	13.15
OF	42.00	6.08	11.30	13.15
OF	43.00	6.08	11.30	13.15
OF	44.00	6.08	11.30	13.15
OF	45.00	6.08	11.30	13.15
OF	46.00	6.09	11.30	13.16
OF	47.00	6.09	11.30	13.16
OF	48.00	6.09	11.30	13.16
OF	49.00	6.10	11.30	13.16
OF	50.00	6.10	11.30	13.17
OF	51.00	6.10	11.30	13.17
OF	52.00	6.11	11.30	13.17
OF	53.00	6.11	11.30	13.17
OF	54.00	6.11	11.30	13.17
OF	55.00	6.11	11.30	13.18
OF	56.00	6.12	11.30	13.18
OF	57.00	6.12	11.30	13.18
OF	58.00	6.12	11.30	13.18
OF	59.00	6.13	11.30	13.18
OF	60.00	6.13	11.30	13.19
OF	61.00	6.13	11.30	13.19
OF	62.00	6.13	11.30	13.19
OF	63.00	6.14	11.30	13.19
OF	64.00	6.14	11.30	13.19
OF	65.00	6.14	11.30	13.20
OF	66.00	6.15	11.30	13.20
OF	67.00	6.15	11.30	13.20
OF	68.00	6.15	11.30	13.20
OF	69.00	6.16	11.30	13.21
OF	70.00	6.16	11.30	13.21
OF	71.00	6.16	11.30	13.21
OF	72.00	6.17	11.30	13.21
OF	73.00	6.17	11.30	13.21
OF	74.00	6.17	11.30	13.22
OF	75.00	6.17	11.30	13.22
OF	76.00	6.18	11.30	13.22
OF	77.00	6.19	11.30	13.23
OF	78.00	6.21	11.30	13.24
OF	79.00	6.22	11.30	13.25
OF	80.00	6.23	11.30	13.26
OF	81.00	6.25	11.30	13.27
OF	82.00	6.26	11.30	13.28
OF	83.00	6.27	11.30	13.29
OF	84.00	6.29	11.30	13.30
OF	85.00	6.30	11.30	13.31
OF	86.00	6.31	11.30	13.32
OF	87.00	6.33	11.30	13.33
OF	88.00	6.34	11.30	13.34
OF	89.00	6.36	11.30	13.35
OF	90.00	6.37	11.30	13.36
OF	91.00	6.39	11.30	13.37
OF	92.00	6.40	11.30	13.38
OF	93.00	6.42	11.30	13.39
OF	94.00	6.43	11.30	13.40
OF	95.00	6.45	11.30	13.41
OF	96.00	6.46	11.30	13.42
OF	97.00	6.48	11.30	13.43
OF	98.00	6.49	11.30	13.44
OF	99.00	6.51	11.30	13.45
OF	100.00	6.53	11.30	13.46
OF	101.00	6.54	11.30	13.48
OF	102.00	6.56	11.30	13.49
OF	103.00	6.58	11.30	13.50
OF	104.00	6.59	11.30	13.51
OF	105.00	6.61	11.30	13.52
OF	106.00	6.63	11.30	13.54
OF	107.00	6.65	11.30	13.55
OF	108.00	6.66	11.30	13.56
OF	109.00	6.68	11.30	13.57
OF	110.00	6.70	11.30	13.59
OF	111.00	6.72	11.30	13.60
OF	112.00	6.74	11.30	13.61
OF	113.00	6.76	11.30	13.63
OF	114.00	6.78	11.30	13.64
OF	115.00	6.80	11.30	13.65
OF	116.00	6.82	11.30	13.67
OF	117.00	6.84	11.30	13.68
OF	118.00	6.86	11.30	13.70
OF	119.00	6.88	11.30	13.71
OF	120.00	6.90	11.30	13.73
OF	121.00	6.92	11.30	13.74
OF	122.00	6.94	11.30	13.76
OF	123.00	6.96	11.30	13.77
OF	124.00	6.99	11.30	13.79
OF	125.00	7.01	11.30	13.80
OF	126.00	7.03	11.30	13.82
OF	127.00	7.05	11.30	13.84
OF	128.00	7.08	11.30	13.85
OF	129.00	7.10	11.30	13.87
OF	130.00	7.13	11.30	13.89
OF	131.00	7.15	11.30	13.90
OF	132.00	7.17	11.30	13.92

OF	133.00	7.20	11.30	13.94
OF	134.00	7.22	11.30	13.95
OF	135.00	7.25	11.30	13.97
OF	136.00	7.27	11.30	13.99
OF	137.00	7.28	11.30	13.99
OF	138.00	7.26	11.30	13.98
OF	139.00	7.25	11.30	13.98
OF	140.00	7.24	11.30	13.97
OF	141.00	7.23	11.30	13.96
OF	142.00	7.22	11.30	13.95
OF	143.00	7.21	11.30	13.94
OF	144.00	7.19	11.30	13.93
OF	145.00	7.18	11.30	13.93
OF	146.00	7.17	11.30	13.92
OF	147.00	7.16	11.30	13.91
OF	148.00	7.14	11.30	13.90
OF	149.00	7.13	11.30	13.89
OF	150.00	7.12	11.30	13.88
OF	151.00	7.10	11.30	13.87
OF	152.00	7.09	11.30	13.86
OF	153.00	7.07	11.30	13.85
OF	154.00	7.06	11.30	13.84
OF	155.00	7.04	11.30	13.83
OF	156.00	7.03	11.30	13.82
OF	157.00	7.01	11.30	13.81
OF	158.00	7.00	11.30	13.80
OF	159.00	6.98	11.30	13.78
OF	160.00	6.96	11.30	13.77
OF	161.00	6.94	11.30	13.76
OF	162.00	6.93	11.30	13.75
OF	163.00	6.91	11.30	13.74
OF	164.00	6.89	11.30	13.72
OF	165.00	6.87	11.30	13.71
OF	166.00	6.85	11.30	13.70
OF	167.00	6.83	11.30	13.68
OF	168.00	6.81	11.30	13.67
OF	169.00	6.79	11.30	13.65
OF	170.00	6.77	11.30	13.64
OF	171.00	6.75	11.30	13.62
OF	172.00	6.73	11.30	13.61
IF	173.00	6.70	11.30	13.59
IF	174.00	6.62	11.30	13.54
IF	175.00	6.53	11.30	13.47
IF	176.00	6.44	11.30	13.41
IF	177.00	6.35	11.30	13.34
IF	178.00	6.25	11.30	13.28
IF	179.00	6.16	11.30	13.21
IF	180.00	6.07	11.30	13.15
IF	181.00	5.98	11.30	13.08
IF	182.00	5.88	11.30	13.02
IF	183.00	5.79	11.30	12.95
IF	184.00	5.70	11.30	12.89
IF	185.00	5.60	11.30	12.82
IF	186.00	5.51	11.30	12.76
IF	187.00	5.42	11.30	12.69
IF	188.00	5.33	11.30	12.63
IF	189.00	5.23	11.30	12.56
IF	190.00	5.14	11.30	12.50
IF	191.00	5.05	11.30	12.43
IF	192.00	4.95	11.30	12.37
IF	193.00	4.86	11.30	12.30
IF	194.00	4.77	11.30	12.24
IF	195.00	4.67	11.30	12.17
IF	196.00	4.58	11.30	12.11
IF	219.80	4.13	11.30	11.79
IF	223.10	4.07	11.30	11.76
IF	226.40	4.02	11.30	11.73
IF	229.70	3.96	11.30	11.70
IF	232.90	3.90	11.30	11.66
IF	236.20	3.85	11.30	11.63
IF	239.50	3.79	11.30	11.60
IF	242.80	3.73	11.30	11.57
IF	246.10	3.68	11.30	11.53
IF	249.30	3.62	11.30	11.50
IF	252.60	3.56	11.30	11.46
IF	255.90	3.50	11.30	11.43
IF	259.20	3.27	11.30	11.27
IF	262.50	3.00	11.30	11.08
IF	265.70	2.72	11.30	10.90
IF	269.00	2.48	11.30	10.74
IF	272.30	2.26	11.30	10.61
IF	275.60	1.90	11.30	10.37
IF	278.90	1.00	11.30	9.93
IF	282.00	0.01	11.30	9.23

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
7.00	1.00	8.90
47.00	1.00	8.90
94.00	1.00	8.90
131.00	1.00	8.90
147.00	1.00	8.90
165.00	1.00	8.90
219.80	1.00	8.90
223.10	1.00	8.91
226.40	1.00	8.92
229.70	1.00	8.92
232.90	1.00	8.93
236.20	1.00	8.94
239.50	1.00	8.94
242.80	1.00	8.95

246.10	1.00	8.96
249.30	1.00	8.97
252.60	1.00	8.97
255.90	1.00	8.98
259.20	1.00	8.98
262.50	1.00	8.98
265.70	1.00	8.99
269.00	1.00	9.00
272.30	1.00	9.02
275.60	1.00	9.04
278.90	1.00	9.22

PART5 LOCATION OF V ZONES

STATION OF GUTTER 262.44 LOCATION OF ZONE WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION		FHF
0.00	13.08	V22	EL=13	120
6.00	13.08	V22	EL=13	120
7.00	13.08	V22	EL=13	120
46.00	13.16	V22	EL=13	120
47.00	13.16	V22	EL=13	120
93.00	13.39	V22	EL=13	120
94.00	13.40	V22	EL=13	120
103.00	13.50	V22	EL=14	120
130.00	13.89	V22	EL=14	120
131.00	13.90	V22	EL=14	120
146.00	13.92	V22	EL=14	120
147.00	13.91	V22	EL=14	120
164.00	13.72	V22	EL=14	120
165.00	13.71	V22	EL=14	120
174.56	13.50	V22	EL=13	120
189.96	12.50	V22	EL=12	120
196.00	12.11	V22	EL=12	120
219.80	11.79	V22	EL=12	120
223.10	11.76	V22	EL=12	120
226.40	11.73	V22	EL=12	120
229.70	11.70	V22	EL=12	120
232.90	11.66	V22	EL=12	120
236.20	11.63	V22	EL=12	120
239.50	11.60	V22	EL=12	120
242.80	11.57	V22	EL=12	120
246.10	11.53	V22	EL=12	120
249.22	11.50	V22	EL=11	120
249.30	11.50	V22	EL=11	120
252.60	11.46	V22	EL=11	120
255.90	11.43	V22	EL=11	120
259.20	11.27	V22	EL=11	120
262.44	11.08	A19	EL=11	95
262.50	11.08	A19	EL=11	95
265.70	10.90	A19	EL=11	95
269.00	10.74	A19	EL=11	95
272.30	10.61	A19	EL=11	95
273.77	10.50	A19	EL=10	95
275.60	10.37	A19	EL=10	95
278.90	9.93	A19	EL=10	95
280.79	9.50	A19	EL= 9	95
282.00	9.23			

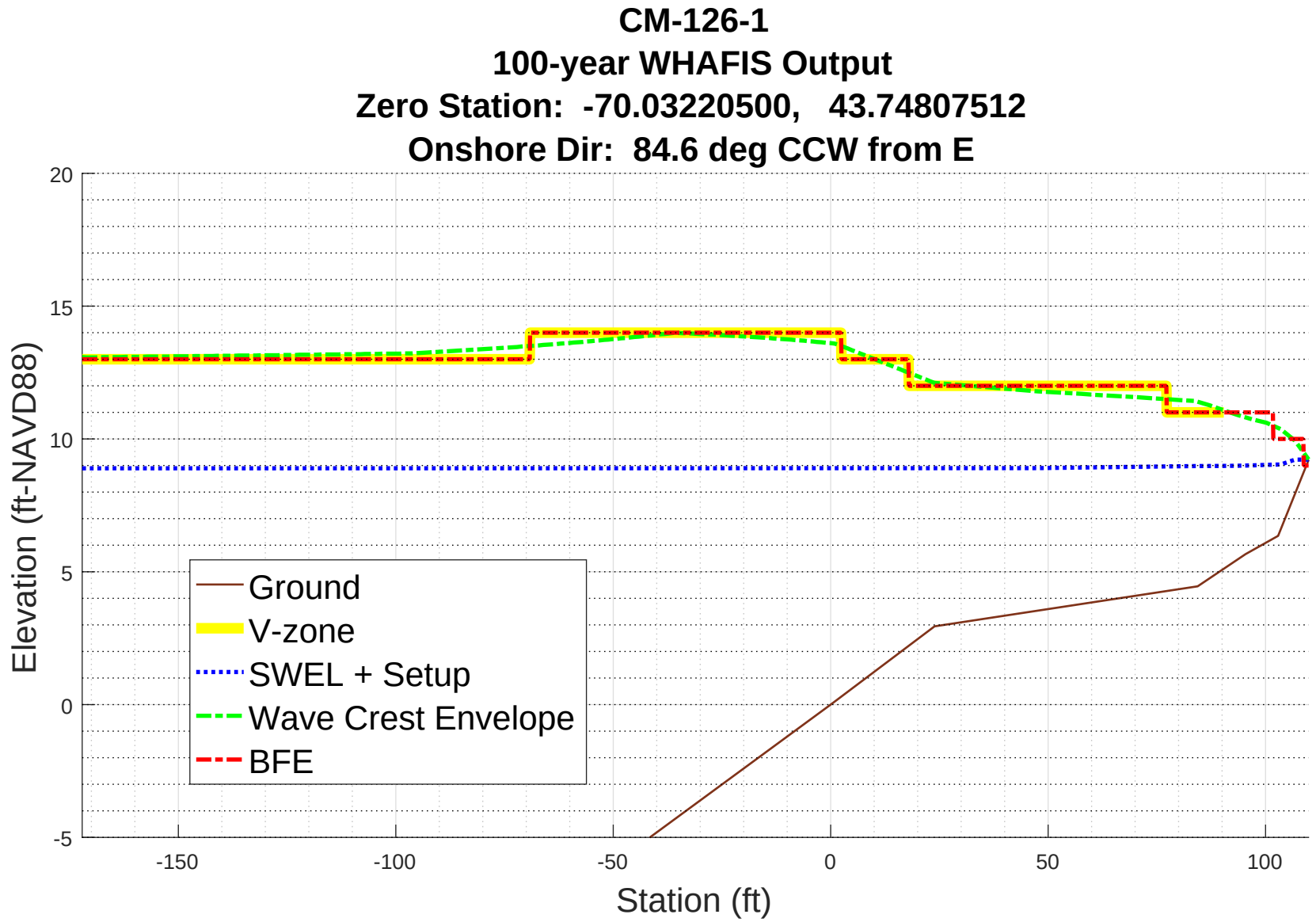
ZONE TERMINATED AT END OF TRANSECT

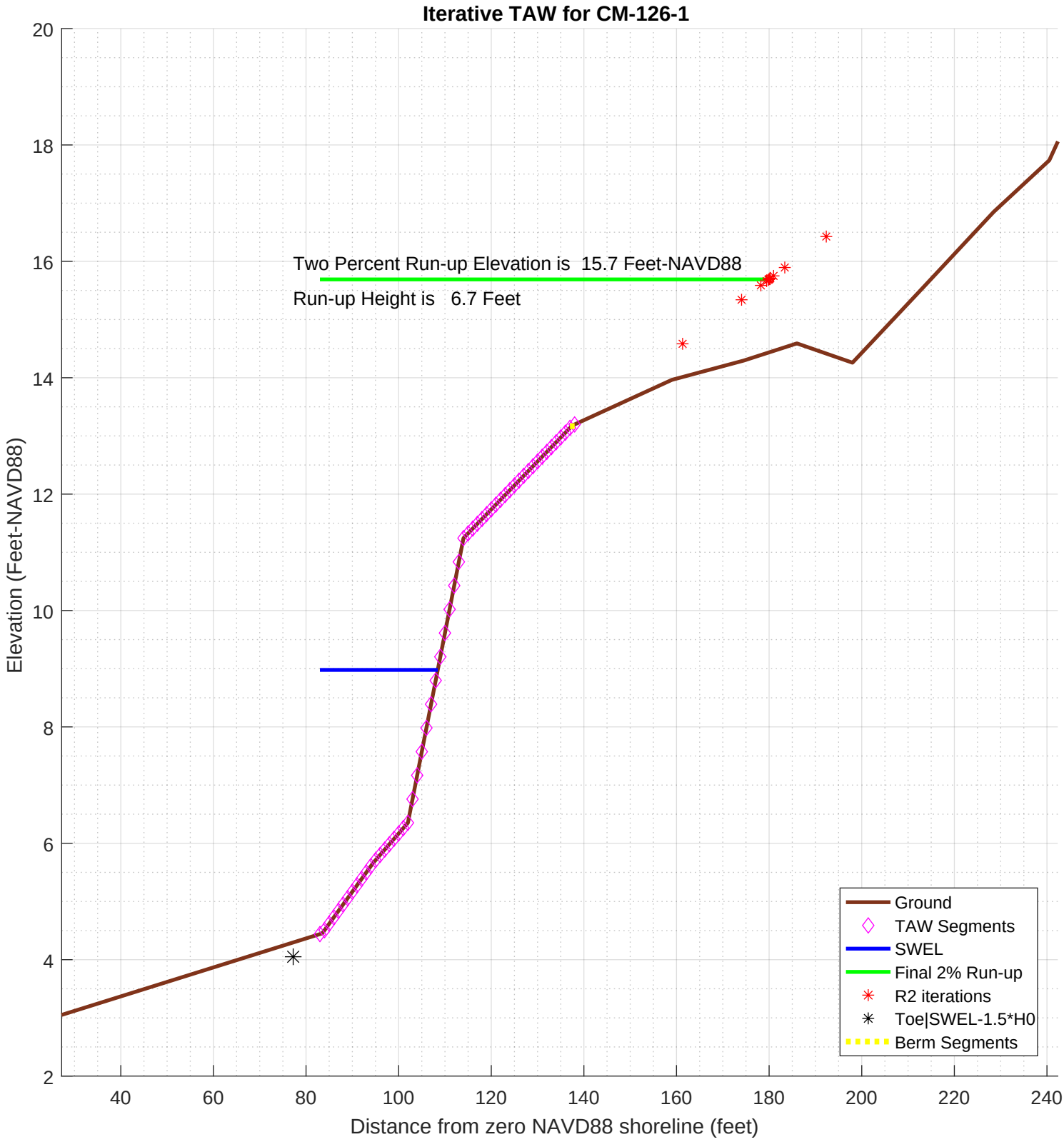
PART 7 POSTSCRIPT NOTES

PS# 1 START(416889.3446,4844358.1503)

PS# 2 END(416908.0227,4844554.317)

-1.000000e+00


CM-126-1
100-year WHAFIS Output
Zero Station: -70.03220500, 43.74807512
Onshore Dir: 84.6 deg CCW from E
Elevation (ft-NAVD88)
Station (ft)
20
15
10
5
0
-5
-150
-100
-50
0
50
100
Ground
V-zone
SWEL + Setup
Wave Crest Envelope
BFE


Iterative TAW for CM-126-1
Two Percent Run-up Elevation is 15.7 Feet-NAVD88
Run-up Height is 6.7 Feet
Elevation (Feet-NAVD88)
Distance from zero NAVD88 shoreline (feet)
20
18
16
14
12
10
8
6
4
2
40
60
80
100
120
140
160
180
200
220
240
Ground
TAW Segments
SWEL
Final 2% Run-up
R2 iterations
Toe|SWEL-1.5*H0
Berm Segments

```
diary on         % begin recording

% FEMA appeal for The Town of Harpswell, Cumberland county, Maine
% TRANSECT ID: CM-126-1
% 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-126-1sta_ele_include.csv';   % file with station, elevation, include
                                        % third colunm is 0 for excluded points
imgname='logfiles/CM-126-1-runup';
SWEL=8.8944;  % 100-yr still water level including wave setup.
H0=3.2859;    % significant wave height at toe of structure
Tp=11.1501;    % peak period, 1/fma,
T0=Tp/1.1;

gamma_berm=0.99698;   % this may get changed automatically below
gamma_rough=0.8;
gamma_beta=1;
gamma_perm=1;

setupAtToe=0.084521;
maxSetup=0.32708;   % only used in case of berm/shallow foreshore weighted average

plotTitle='Iterative TAW for CM-126-1'

plotTitle =

Iterative TAW for CM-126-1



% END CONFIG
%------------------------------

SWEL=SWEL+setupAtToe

SWEL =

                  8.978921

SWEL_fore=SWEL+maxSetup

SWEL_fore =

                  9.306001



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

L0 =

          525.742714750798


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

Ztoe =

                  4.050071


% 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 =

                 13.907771


% 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
% 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

toe_sta =

          77.2269642274977

if top_sta==-999
   dy=Z2-dep(end);
   top_sta=sta(end)+dy/S(end)
end

top_sta =

          149.955386142946


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

top_sta =

          149.955386142946

toe_sta

toe_sta =

          77.2269642274977




% 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 =

-!!- The User has selected a starting point that is 0.39 feet above the elevation of SWEL-1.5H0



ans =

-!!- This may be reasonable for some cases.  However the user may want to consider:



ans =

-!!-   1) Selecting a starting point that is at or below 4.05 feet elevation, or



ans =

-!!-   2) Reducing the incident wave height to a depth limited condition.




% 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('!!! - - Iribaren 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 ber
   % 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 =
                  4.050071
toe_sta =
          77.2269642274977
top_sta =
          149.955386142946
Z2 =
                13.907771
H0 =
                   3.2859
Tp =
                  11.1501
T0 =
          10.1364545454545
R2 =
                   9.8577
Z2 =
                18.836621
top_sta =
          232.903333838208
Lslope =
           155.67636961071
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 55
dh =
               -4.1887385
rdh_sum =
         0.383155297159985
ans =
!------- End Berm Factor Calculation, Iter: 1 ---------!
berm_width =
     1
rB =
        0.0064235824775503
rdh_mean =
         0.383155297159985
gamma_berm =
         0.996037647175467
slope =
        0.0955966967495737
Irb =
          1.20921171602835
```

```
gamma_berm =
         0.996037647175467
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                       0.8
gamma =
         0.796830117740374
ans =
!!! - - Iribaren number:   1.20 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:10.5 V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!
R2_new =
          5.60396863461067
R2del =
          4.25373136538933
Z2 =
          14.5828896346107
ans =
!----------------- STARTING ITERATION 2 -----------------!
Ztoe =
                  4.050071
toe_sta =
          77.2269642274977
top_sta =
          161.317002989022
Z2 =
          14.5828896346107
H0 =
                    3.2859
Tp =
                   11.1501
T0 =
          10.1364545454545
R2 =
          5.60396863461067
Z2 =
          14.5828896346107
top_sta =
          161.317002989022
Lslope =
          84.0900387615248
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 55
dh =
                -4.1887385
rdh_sum =
         0.850719448625709
ans =
!------- End Berm Factor Calculation, Iter: 2 ---------!
berm_width =
     1
rB =
         0.011892014972617
rdh_mean =
         0.850719448625709
gamma_berm =
         0.998224753447936
slope =
         0.126763915285209
Irb =
          1.60344882976496
gamma_berm =
         0.998224753447936
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                       0.8
gamma =
         0.798579802758349
ans =
!!! - - Iribaren number:   1.60 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:7.9 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
          7.44733750152237
R2del =
           1.8433688669117
Z2 =
          16.4262585015224
ans =
!----------------- STARTING ITERATION 3 -----------------!
Ztoe =
                  4.050071
toe_sta =
          77.2269642274977
```

```
top_sta =
          192.339181459794
Z2 =
          16.4262585015224
H0 =
                    3.2859
Tp =
                   11.1501
T0 =
          10.1364545454545
R2 =
          7.44733750152237
Z2 =
          16.4262585015224
top_sta =
          192.339181459794
Lslope =
          115.112217232297
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 55
dh =
                -4.1887385
rdh_sum =
          0.597463988351453
ans =
!------- End Berm Factor Calculation, Iter: 3 ---------!
berm_width =
     1
rB =
         0.0086871752107945
rdh_mean =
          0.597463988351453
gamma_berm =
          0.996503099138155
slope =
          0.108456288044323
Irb =
          1.37187391028473
gamma_berm =
          0.996503099138155
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                       0.8
gamma =
          0.797202479310524
ans =
!!! - - Iribaren number:   1.37 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:9.2 V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!
R2_new =
          6.36078104692281
R2del =
          1.08655645459956
Z2 =
          15.3397020469228
ans =
!----------------- STARTING ITERATION 4 -----------------!
Ztoe =
                  4.050071
toe_sta =
          77.2269642274977
top_sta =
          174.053449906983
Z2 =
          15.3397020469228
H0 =
                    3.2859
Tp =
                   11.1501
T0 =
          10.1364545454545
R2 =
          6.36078104692281
Z2 =
          15.3397020469228
top_sta =
          174.053449906983
Lslope =
          96.8264856794857
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 55
dh =
                -4.1887385
rdh_sum =
          0.738844273826844
ans =
!------- End Berm Factor Calculation, Iter: 4 ---------!
```

```
berm_width =
     1
rB =
        0.0103277527112798
rdh_mean =
         0.738844273826844
gamma_berm =
         0.997302848240949
slope =
         0.117813263909976
Irb =
          1.49023118860138
gamma_berm =
         0.997302848240949
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                       0.8
gamma =
         0.797842278592759
ans =
!!! - - Iribaren number:   1.49 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:8.5 V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!
R2_new =
          6.91509743027412
R2del =
         0.554316383351312
Z2 =
          15.8940184302741
ans =
!----------------- STARTING ITERATION 5 -----------------!
Ztoe =
                  4.050071
toe_sta =
          77.2269642274977
top_sta =
          183.382077552956
Z2 =
          15.8940184302741
H0 =
                    3.2859
Tp =
                   11.1501
T0 =
         10.1364545454545
R2 =
          6.91509743027412
Z2 =
          15.8940184302741
top_sta =
          183.382077552956
Lslope =
          106.155113325458
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 55
dh =
                -4.1887385
rdh_sum =
         0.663054520758695
ans =
!------- End Berm Factor Calculation, Iter: 5 ---------!
berm_width =
     1
rB =
        0.0094201774052478
rdh_mean =
         0.663054520758695
gamma_berm =
         0.996825913809651
slope =
         0.112633109848085
Irb =
          1.4247069268282
gamma_berm =
         0.996825913809651
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                       0.8
gamma =
         0.797460731047721
ans =
!!! - - Iribaren number:   1.42 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:8.9 V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!
```

```
R2_new =
          6.60788461849849
R2del =
         0.307212811775632
Z2 =
          15.5868056184985
ans =
!----------------- STARTING ITERATION 6 -----------------!
Ztoe =
                   4.050071
toe_sta =
          77.2269642274977
top_sta =
          178.211972509694
Z2 =
          15.5868056184985
H0 =
                    3.2859
Tp =
                   11.1501
T0 =
          10.1364545454545
R2 =
          6.60788461849849
Z2 =
          15.5868056184985
top_sta =
          178.211972509694
Lslope =
          100.985008282197
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 55
dh =
                -4.1887385
rdh_sum =
         0.704180489844552
ans =
!------- End Berm Factor Calculation, Iter: 6 ---------!
berm_width =
     1
rB =
       0.00990245994935762
rdh_mean =
          0.704180489844552
gamma_berm =
          0.997070659148447
slope =
          0.115384644325251
Irb =
           1.45951134831946
gamma_berm =
          0.997070659148447
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                       0.8
gamma =
          0.797656527318758
ans =
!!! - - Iribaren number:   1.46 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:8.7 V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!
R2_new =
          6.77097185153569
R2del =
          0.163087233037195
Z2 =
          15.7498928515357
ans =
!----------------- STARTING ITERATION 7 -----------------!
Ztoe =
                   4.050071
toe_sta =
          77.2269642274977
top_sta =
            180.9565785082
Z2 =
          15.7498928515357
H0 =
                    3.2859
Tp =
                   11.1501
T0 =
          10.1364545454545
R2 =
          6.77097185153569
Z2 =
          15.7498928515357
```

```
top_sta =
          180.9565785082
Lslope =
          103.729614280702
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 55
dh =
              -4.1887385
rdh_sum =
         0.682061575075939
ans =
!------- End Berm Factor Calculation, Iter: 7 ---------!
berm_width =
     1
rB =
       0.00964044845760156
rdh_mean =
         0.682061575075939
gamma_berm =
         0.996934931001829
slope =
         0.113889475137779
Irb =
          1.44059881095773
gamma_berm =
         0.996934931001829
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                      0.8
gamma =
         0.797547944801463
ans =
!!! - - Iribaren number:   1.44 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:8.8 V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!
R2_new =
          6.68232295222414
R2del =
        0.0886488993115444
Z2 =
          15.6612439522241
ans =
!----------------- STARTING ITERATION 8 -----------------!
Ztoe =
                 4.050071
toe_sta =
          77.2269642274977
top_sta =
            179.4647002276
Z2 =
          15.6612439522241
H0 =
                   3.2859
Tp =
                  11.1501
T0 =
          10.1364545454545
R2 =
          6.68232295222414
Z2 =
          15.6612439522241
top_sta =
            179.4647002276
Lslope =
          102.237736000102
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 55
dh =
              -4.1887385
rdh_sum =
         0.694006084174838
ans =
!------- End Berm Factor Calculation, Iter: 8 ---------!
berm_width =
     1
rB =
       0.00978112426119259
rdh_mean =
         0.694006084174838
gamma_berm =
         0.997007035486145
slope =
         0.114692143571963
Irb =
          1.45075184037927
gamma_berm =
         0.997007035486145
```

```
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                      0.8
gamma =
         0.797605628388916
ans =
!!! - - Iribaren number:   1.45 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:8.7 V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!
R2_new =
         6.72990523486542
R2del =
        0.0475822826412786
Z2 =
         15.7088262348654
ans =
!----------------- STARTING ITERATION 9 -----------------!
Ztoe =
                 4.050071
toe_sta =
         77.2269642274977
top_sta =
         180.265465658025
Z2 =
         15.7088262348654
H0 =
                  3.2859
Tp =
                 11.1501
T0 =
         10.1364545454545
R2 =
         6.72990523486542
Z2 =
         15.7088262348654
top_sta =
         180.265465658025
Lslope =
         103.038501430527
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 55
dh =
               -4.1887385
rdh_sum =
         0.687571261007195
ans =
!------- End Berm Factor Calculation, Iter: 9 ---------!
berm_width =
     1
rB =
       0.00970511009104926
rdh_mean =
         0.687571261007195
gamma_berm =
         0.996967844692467
slope =
         0.114258393365403
Irb =
          1.44526529273239
gamma_berm =
         0.996967844692467
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                      0.8
gamma =
         0.797574275753974
ans =
!!! - - Iribaren number:   1.44 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:8.8 V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!
R2_new =
         6.70419009999764
R2del =
         0.02571513486778
Z2 =
         15.6831110999976
ans =
!----------------- STARTING ITERATION 10 -----------------!
Ztoe =
                 4.050071
toe_sta =
         77.2269642274977
top_sta =
         179.832703926183
```

```
Z2 =
        15.6831110999976
H0 =
                  3.2859
Tp =
                 11.1501
T0 =
        10.1364545454545
R2 =
        6.70419009999764
Z2 =
        15.6831110999976
top_sta =
        179.832703926183
Lslope =
        102.605739698685
ans =
Berm Factor Calculation: Iteration 10, Profile Segment: 55
dh =
               -4.1887385
rdh_sum =
        0.691042119918211
ans =
!------- End Berm Factor Calculation, Iter: 10 ---------!
berm_width =
     1
rB =
       0.00974604347609237
rdh_mean =
        0.691042119918211
gamma_berm =
        0.996988883068442
slope =
        0.114491958175747
Irb =
         1.44821967624899
gamma_berm =
        0.996988883068442
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                      0.8
gamma =
        0.797591106454753
ans =
!!! - - Iribaren number:   1.44 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:8.7 V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!
R2_new =
        6.71803643991034
R2del =
        0.0138463399126989
Z2 =
        15.6969574399103
ans =
!----------------- STARTING ITERATION 11 -----------------!
Ztoe =
                4.050071
toe_sta =
        77.2269642274977
top_sta =
         180.06572491056
Z2 =
        15.6969574399103
H0 =
                  3.2859
Tp =
                 11.1501
T0 =
        10.1364545454545
R2 =
        6.71803643991034
Z2 =
        15.6969574399103
top_sta =
         180.06572491056
Lslope =
        102.838760683062
ans =
Berm Factor Calculation: Iteration 11, Profile Segment: 55
dh =
               -4.1887385
rdh_sum =
        0.689171253231771
ans =
!------- End Berm Factor Calculation, Iter: 11 ---------!
berm_width =
     1
```

```
rB =
       0.00972396004539463
rdh_mean =
         0.689171253231771
gamma_berm =
         0.996977513685466
slope =
         0.114365948306826
Irb =
          1.44662576542346
gamma_berm =
         0.996977513685466
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                       0.8
gamma =
         0.797582010948373
ans =
!!! - - Iribaren number:   1.44 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:8.7 V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!
R2_new =
          6.71056604155056
R2del =
        0.0074703983597777
Z2 =
          15.6894870415506
% final 2% runup elevation
Z2=R2_new+SWEL
Z2 =
          15.6894870415506
diary off
-1.000000e+00
-1.000000e+00
```

PART 5: RUNUP2

for transect: CM-126-1

Station locations shifted by: -0.89 feet from their
original location to set the shoreline to
elevation 0 for RUNUP2 input

RUNUP2 INPUT CONVERSIONS
for transect: CM-126-1

Incident significant wave height: 3.73 feet

Peak wave period: 11.30 seconds

Mean wave height: 2.34 feet

Local Depth below SWEL: 22.91 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 Jersy

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

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

Depth, D = 22.91
Period, T = 9.61
Waveheight, H = 2.34
Deep water wavelength, L0 (ft)
L0 = g*T*T/twopi
L0 = 32.17*9.61*9.61/6.28 = 472.61
Deep water wave celerity, C0 (ft/s)
C0 = L0/T
C0 = 472.61/9.61 = 49.19
Angular frequency, sigma (rad/s)
sigma = twopi/T
sigma = 6.28/9.61 = 0.65
Hunts (1979) approximation for Celerity C1H (ft/s) at Depth D (ft)
y = sigma.*sigma.*D./g
y = 0.65*0.65*22.91/32.17 = 0.30
C1H = sqrt(g.*D./(y+1./(1 + 0.6522.*y + 0.4622.*y.^2 + 0.0864.*y.^4 +0.0675.*y.^5)))
C1H = 25.77
Shoaling Coefficient KsH
KsH = sqrt(C0/C1H)
KsH = sqrt(49.19/25.77) = 1.38
Deepwater Wave Height H0_H (ft)
H0_H = H/KsH
H0_H = 2.34/1.38 = 1.69

Deepwater mean wave height: 1.69 feet

END RUNUP2 CONVERSIONS

RUNUP2 RESULTS
for transect: CM-126-1

RUNUP2 SWEL:
8.90
8.90
8.90
8.90

8.90
8.90
8.90
8.90
8.90

RUNUP2 deepwater mean wave heights:
1.61
1.61
1.61
1.69
1.69
1.69
1.78
1.78
1.78

RUNUP2 mean wave periods:
9.13
9.61
10.09
9.13
9.61
10.09
9.13
9.61
10.09

RUNUP2 runup above SWEL:
1.28
1.40
1.49
1.34
1.45
1.56
1.43
1.52
1.65

RUNUP2 Mean runup height above SWEL: 1.46 feet

RUNUP2 2-percent runup height above SWEL: 3.21 feet

RUNUP2 2-percent runup elevation: 12.11 feet-NAVD88

RUNUP2 Messages:
No Messages

_____END RUNUP2 RESULTS_____

_____ACES BEACH RUNUP_____

Incident significant wave height: 3.73 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 2.37 feet

Peak wave period: 11.30 seconds

Average beach Slope: 1:11.42 (H:V)

ACES RUNUP CALCULATED USING 'Aces_Beach_Runup.m'

ACES Beach 2-percent runup height above SWEL: 5.75 feet

ACES Beach 2-percent runup elevation: 14.65 feet-NAVD88

ACES BEACH RUNUP is valid

_____END ACES BEACH RESULTS_____

PART 5 COMPLETE_____

```
  FEMA                                                  sjh            job 2
  RUNUP2 transect: CM-126-1                                               1
12.0
  -14.01 -172.1 0.8
  -14.01 -167.1 0.8
  -13.99 -166.1 0.8
  -11.97 -97.1  0.8
  -11.90 -96.1  0.8
  -9.87 -80.1  0.8
  -7.98 -65.1  0.8
  -5.07 -42.1  0.8
  -4.94 -41.1  0.8
  -2.42 -20.1  0.8
  -2.18 -18.1  0.8
  -0.01 -0.1   0.8
  0.11  0.9    0.8
  1.59  12.9   0.8
  2.95  23.9   0.8
  4.45  84.4   0.8
  5.66  95.4   0.8
  6.35  102.9  0.8
  11.24 114.9  0.8
1 13.18 138.4  0.8
 8.9   1.61  9.13
 8.9   1.61  9.61
 8.9   1.61  10.09
 8.9   1.69  9.13
 8.9   1.69  9.61
 8.9   1.69  10.09
 8.9   1.78  9.13
 8.9   1.78  9.61
 8.9   1.78  10.09
```

****

CROSS SECTION PROFILE

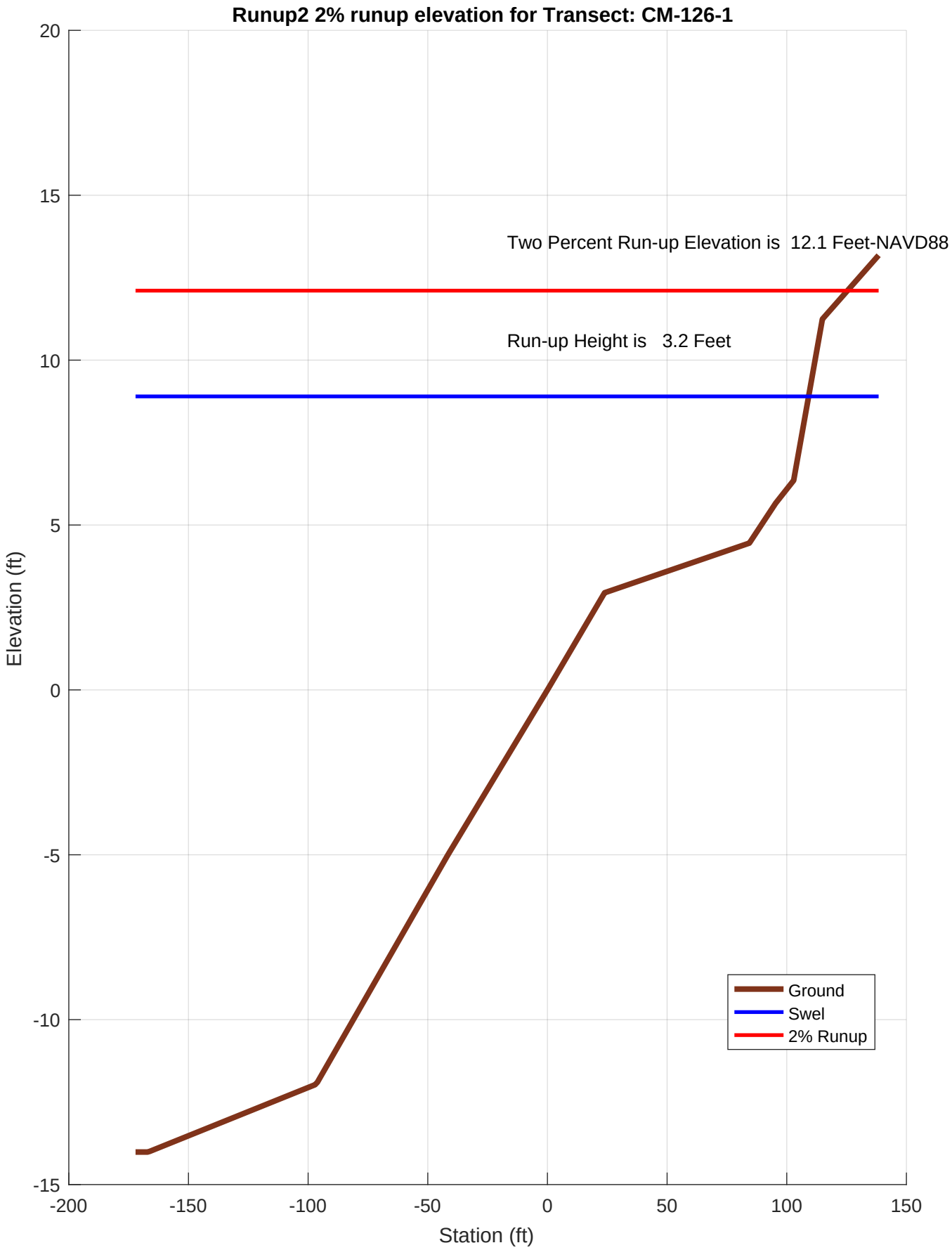
	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-172.0	-14.0		
			.00	.80
2	-167.0	-14.0		
			10.00	.80
3	-166.0	-13.9		
			34.45	.80
4	-97.1	-11.9		
			FLAT	.80
5	-96.1	-11.9		
			7.88	.80
6	-80.1	-9.9		
			7.94	.80
7	-65.1	-8.0		
			7.90	.80
8	-42.1	-5.1		
			7.69	.80
9	-41.1	-4.9		
			8.33	.80
10	-20.1	-2.4		
			8.33	.80
11	-18.1	-2.2		
			8.29	.80
12	-.1	.0		
			8.33	.80
13	.9	.1		
			8.11	.80
14	12.9	1.6		
			8.09	.80
15	23.9	3.0		
			40.33	.80
16	84.4	4.5		
			9.09	.80
17	95.4	5.7		
			10.87	.80
18	102.9	6.4		
			2.45	.80
19	114.9	11.3		
			12.11	.80
20	138.4	13.2		

LAST SLOPE 12.00 LAST ROUGHNESS .80

****

OUTPUT TABLE

INPUT PARAMETERS			RUNUP RESULTS			
WATER LEVEL ABOVE DATUM (FT.)	DEEP WATER WAVE HEIGHT (FT.)	WAVE PERIOD (SEC.)	BREAKING SLOPE NUMBER	RUNUP SLOPE NUMBER	RUNUP ABOVE WATER LEVEL (FT.)	BREAKER DEPTH (FT.)
8.90	1.61	9.13	11	18	1.28	2.85
8.90	1.61	9.61	11	18	1.40	2.93
8.90	1.61	10.09	11	18	1.49	3.01
8.90	1.69	9.13	11	18	1.34	2.96
8.90	1.69	9.61	11	18	1.45	3.04
8.90	1.69	10.09	11	18	1.56	3.12
8.90	1.78	9.13	11	18	1.43	3.07
8.90	1.78	9.61	11	18	1.52	3.15
8.90	1.78	10.09	11	18	1.65	3.24


Runup2 2% runup elevation for Transect: CM-126-1
Two Percent Run-up Elevation is 12.1 Feet-NAVD88
Run-up Height is 3.2 Feet
Ground
Swel
2% Runup
Elevation (ft)
Station (ft)
20
15
10
5
0
-5
-10
-15
-200
-150
-100
-50
0
50
100
150