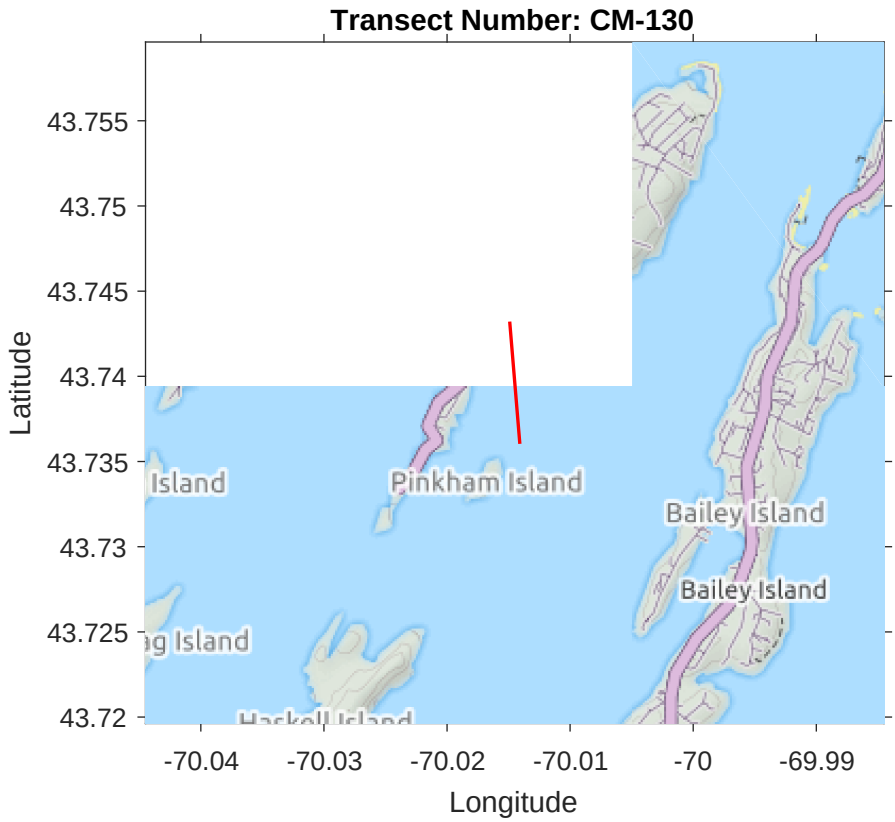
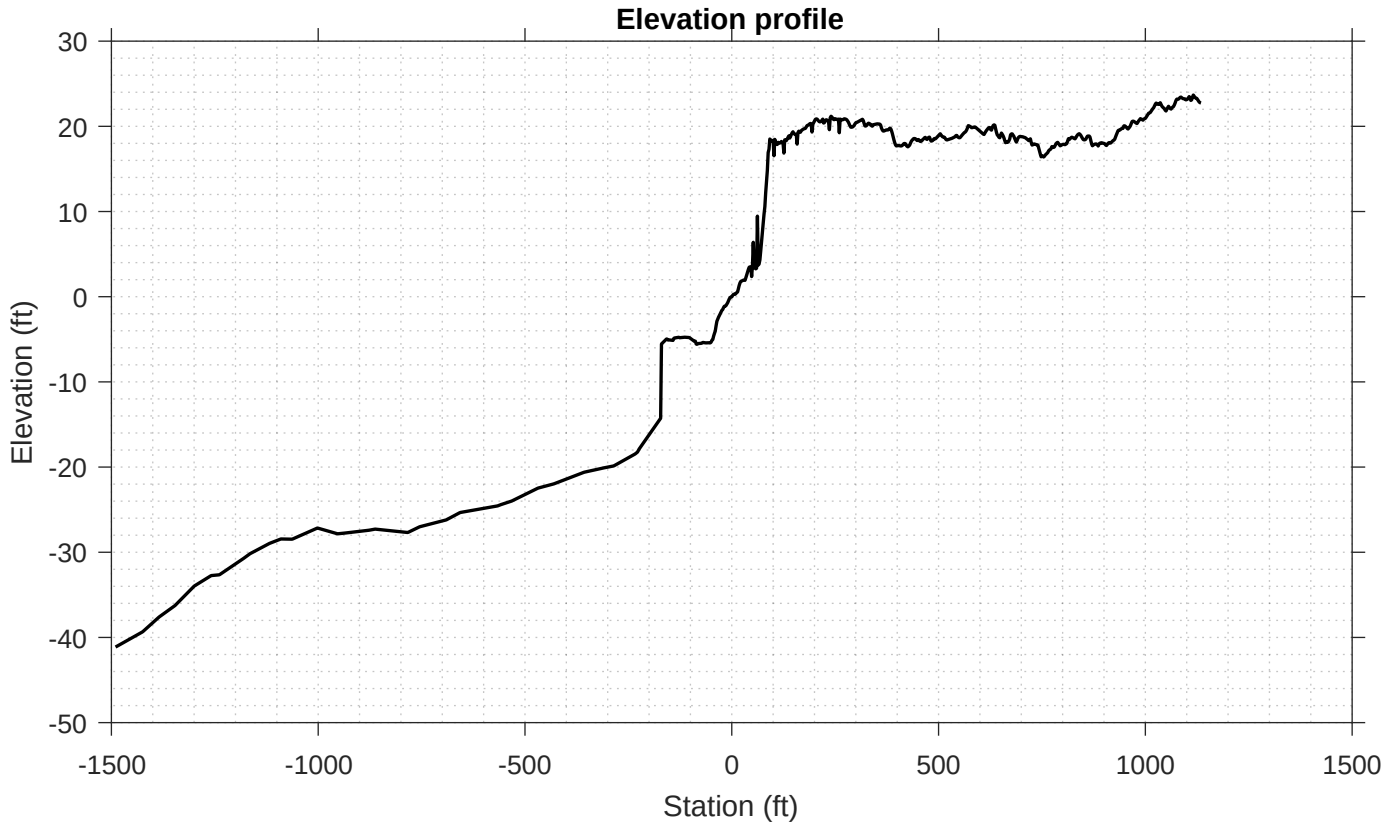

Transect Number: CM-130
Latitude
43.755
43.75
43.745
43.74
43.735
43.73
43.725
43.72
Island
Pinkham Island
Bailey Island
Bailey Island
-70.04
-70.03
-70.02
-70.01
-70
-69.99
Longitude


Elevation profile
Elevation (ft)
30
20
10
0
-10
-20
-30
-40
-50
-1500
-1000
-500
0
500
1000
1500
Station (ft)

DATA LOG FOR TRANSECT ID: CM-130

PART 1: USER INPUT

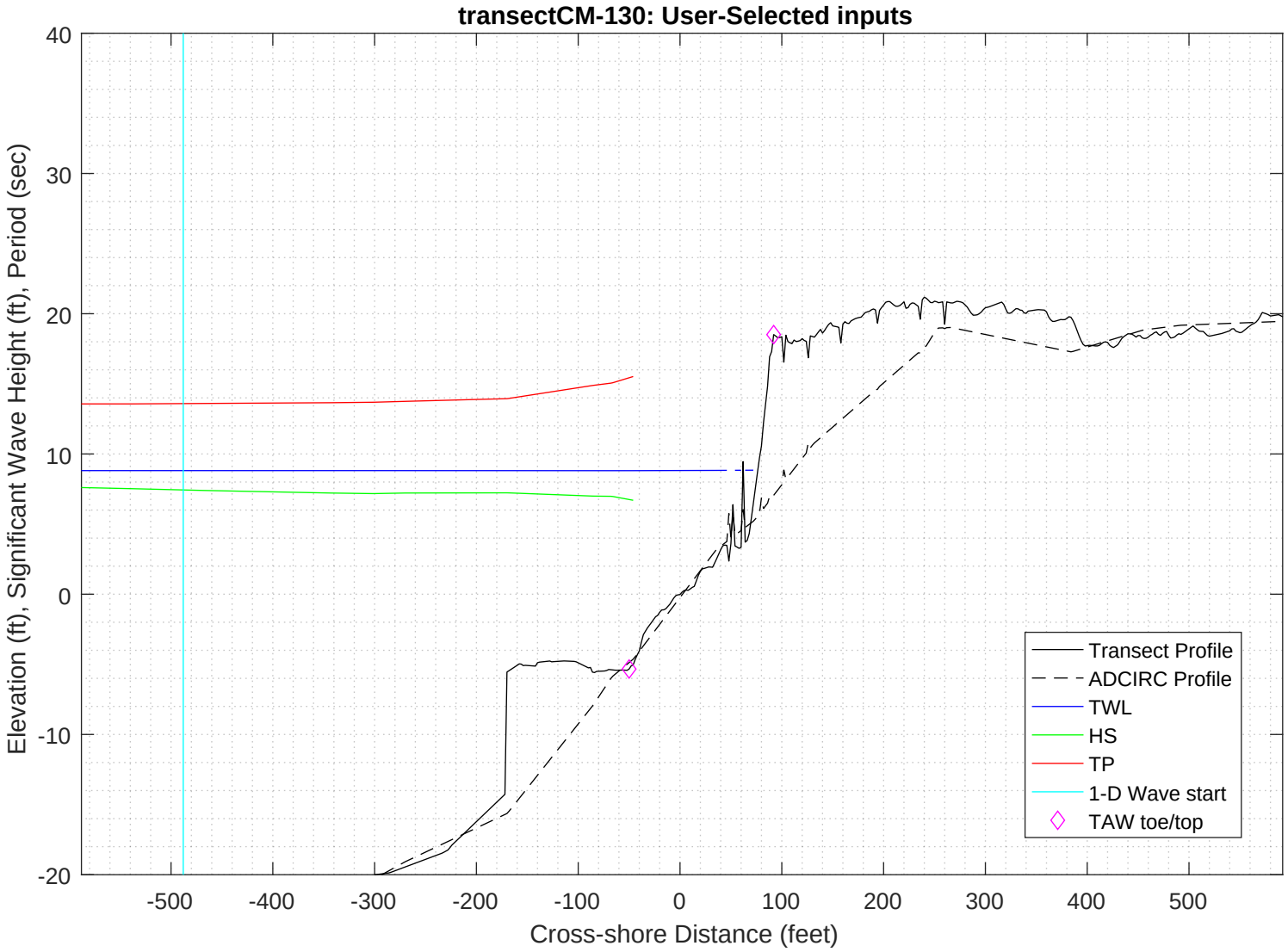
SWAN 1-D / WHAFIS input

station: -488 ft
LON: -70.0144 deg E
LAT: 43.7388 deg N
Bottom ELEV: -22.9345 ft-NAVD88
TWL: 8.8141 ft-NAVD88
HS: 7.4343 ft
TP: 13.5921 sec
Wave Direction bin: 90 deg CCW from East (90 deg sector)
Transect Direction: 96.5341 deg CCW from East

TAW/RUNUP input

toe sta: -50 ft
toe elev: -5.3348 ft-NAVD88
top sta: 92 ft
top elev: 18.5101 ft-NAVD88
Wave and water level conditions at toe to be calculated in SWAN 1-D

PART 1 COMPLETE


transectCM-130: User-Selected inputs
Elevation (ft), Significant Wave Height (ft), Period (sec)
Cross-shore Distance (feet)
40
30
20
10
0
-10
-20
-500
-400
-300
-200
-100
0
100
200
300
400
500
Transect Profile
ADCIRC Profile
TWL
HS
TP
1-D Wave start
TAW toe/top

_____
PART 2: SWAN 1-D

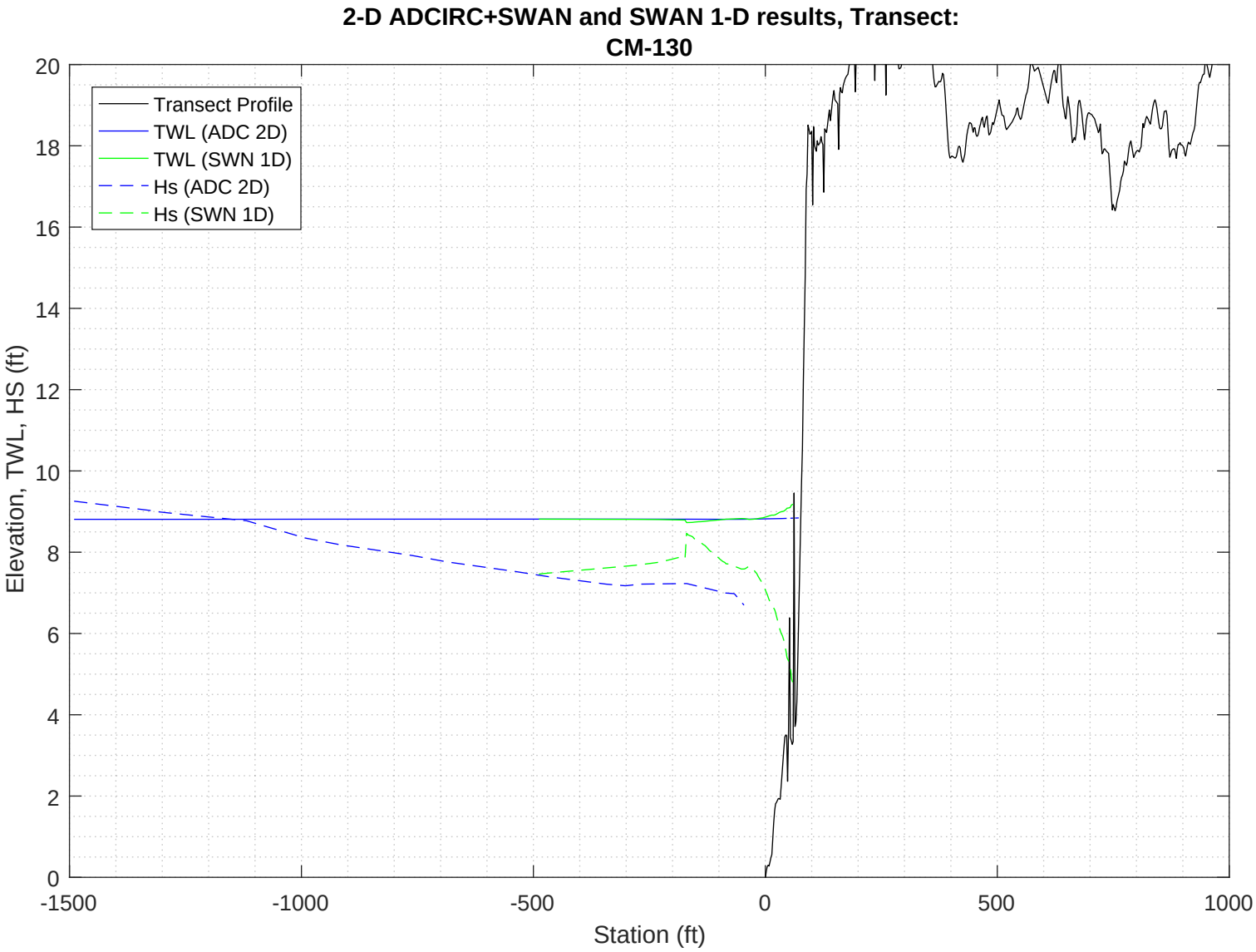
swan input grid name: 2_swan/gridfiles/CM-130zmeters_xmeters.grd
swan file name: 2_swan/swanfiles/CM-130.swn
swan output name: 2_swan/swanfiles/CM-130.dat

Boundary Conditions:
    TWL- 2.6865 meters
    HS- 2.266 meters
    PER- 13.5921 seconds

Batch File: 2_swan/swanfiles/runswan.dat

SWAN maximum additional wave setup: 0.36725 feet
SWAN output at toe:
    SETUP- 0.01352 feet
    HS-   7.5866 feet
    PER-   13.6829 seconds

PART 2 COMPLETE_____


2-D ADCIRC+SWAN and SWAN 1-D results, Transect:
CM-130
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
-1500
-1000
-500
0
500
1000

1

```
                    Execution started at 20200220.141926


                    ---------------------------------------
                                    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      167       0.   167     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      167   0      1       1
 !READinp BOTtom [fac]  'fname1'  [idla]  [nhedf]  [FREe|FORmat[form]|UNFormatted]
  READ    BOTTOM   -1. '../gridfiles/CM-130zmeters_xmeters.grd'    1      0       FREE
 !-------------------------------------------------------------------------
 ! -- WIND [vel] [dir]
 WIND      25.1  0
 ! -- BOUnd SHAPespec
 BOUND SHAPE JONSWAP 3.3  PEAK DSPR POWER
 ! -- BOUndspec
 ! BOU SIDE W CCW CON FILE 'swanspec.txt' 1
 BOUN SIDE W CCW CONSTANT PAR   2.266     13.5921     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      167  167    0
!TABLe 'sname' < HEADer|NOHEADer|INDexed > 'fname' <output parameters> (output time)
 Table 'curve'   HEADER 'CM-130.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             168 MYC              1
                     : MCGRD           169
                     : 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  57.15 % of wet grid points ( 99.50 % required)

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

```
iteration    3; sweep 4
accuracy OK in   0.60 % 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  57.74 % 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  61.91 % of wet grid points ( 99.50 % required)

iteration    6; sweep 1
iteration    6; sweep 2
iteration    6; sweep 3
iteration    6; sweep 4
accuracy OK in  98.81 % 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 Yp Hsig TPsmoo RTpeak Tm_10 Dir Dspr Depth Setup
% [m] [m] [m] [sec] [sec] [sec] [degr] [degr] [m] [m]
%

0.	0.	2.27465	13.6168	13.8874	12.2905	0.005	31.5213	9.6800	0.000000
1.	0.	2.27596	13.6174	13.8874	12.2700	0.005	31.4469	9.6499	-0.000051
2.	0.	2.27700	13.6179	13.8874	12.2494	0.005	31.3834	9.6299	-0.000084
3.	0.	2.27796	13.6184	13.8874	12.2290	0.005	31.3133	9.6099	-0.000117
4.	0.	2.27928	13.6189	13.8874	12.2092	0.005	31.2413	9.5798	-0.000169
5.	0.	2.28033	13.6194	13.8874	12.1893	0.005	31.1794	9.5598	-0.000203
6.	0.	2.28142	13.6199	13.8874	12.1697	0.005	31.1211	9.5398	-0.000238
7.	0.	2.28265	13.6205	13.8874	12.1502	0.005	31.0830	9.5197	-0.000271
8.	0.	2.28364	13.6209	13.8874	12.1308	0.005	31.0578	9.5097	-0.000287
9.	0.	2.28455	13.6214	13.8874	12.1116	0.005	31.0285	9.4997	-0.000301
10.	0.	2.28584	13.6219	13.8874	12.0930	0.005	30.9976	9.4797	-0.000335
11.	0.	2.28683	13.6224	13.8874	12.0742	0.005	30.9742	9.4696	-0.000351
12.	0.	2.28773	13.6228	13.8874	12.0558	0.005	30.9452	9.4596	-0.000366
13.	0.	2.28899	13.6233	13.8874	12.0378	0.005	30.9147	9.4396	-0.000401
14.	0.	2.28996	13.6238	13.8874	12.0198	0.005	30.8915	9.4296	-0.000417
15.	0.	2.29083	13.6242	13.8874	12.0020	0.005	30.8632	9.4196	-0.000432
16.	0.	2.29207	13.6247	13.8874	11.9847	0.005	30.8331	9.3995	-0.000468
17.	0.	2.29302	13.6251	13.8874	11.9673	0.005	30.8101	9.3895	-0.000484
18.	0.	2.29387	13.6256	13.8874	11.9500	0.005	30.7817	9.3795	-0.000500
19.	0.	2.29496	13.6260	13.8874	11.9334	0.006	30.7439	9.3595	-0.000535
20.	0.	2.29601	13.6265	13.8874	11.9168	0.006	30.7030	9.3394	-0.000570
21.	0.	2.29703	13.6269	13.8874	11.9004	0.006	30.6609	9.3194	-0.000605
22.	0.	2.29806	13.6273	13.8874	11.8842	0.006	30.6185	9.2994	-0.000640
23.	0.	2.29907	13.6278	13.8874	11.8680	0.006	30.5759	9.2793	-0.000676
24.	0.	2.30021	13.6282	13.8874	11.8520	0.006	30.5408	9.2593	-0.000713
25.	0.	2.30097	13.6286	13.8874	11.8358	0.006	30.5082	9.2493	-0.000730
26.	0.	2.30203	13.6291	13.8874	11.8201	0.006	30.4689	9.2292	-0.000767
27.	0.	2.30306	13.6295	13.8874	11.8046	0.006	30.4272	9.2092	-0.000804
28.	0.	2.30408	13.6299	13.8874	11.7891	0.006	30.3848	9.1892	-0.000841
29.	0.	2.30509	13.6303	13.8874	11.7738	0.006	30.3420	9.1691	-0.000879
30.	0.	2.30610	13.6307	13.8874	11.7586	0.006	30.2992	9.1491	-0.000917
31.	0.	2.30722	13.6312	13.8874	11.7435	0.006	30.2638	9.1290	-0.000956
32.	0.	2.30797	13.6316	13.8874	11.7281	0.006	30.2309	9.1190	-0.000975
33.	0.	2.30903	13.6320	13.8874	11.7132	0.007	30.1913	9.0990	-0.001014
34.	0.	2.31006	13.6324	13.8874	11.6984	0.007	30.1493	9.0789	-0.001053
35.	0.	2.31109	13.6328	13.8874	11.6836	0.007	30.1063	9.0589	-0.001093
36.	0.	2.31214	13.6332	13.8874	11.6687	0.007	30.0630	9.0389	-0.001134
37.	0.	2.31320	13.6336	13.8874	11.6538	0.007	30.0195	9.0188	-0.001174
38.	0.	2.31428	13.6340	13.8874	11.6388	0.007	29.9760	8.9988	-0.001216
39.	0.	2.31547	13.6344	13.8874	11.6239	0.007	29.9399	8.9787	-0.001258
40.	0.	2.31641	13.6348	13.8874	11.6085	0.007	29.9139	8.9687	-0.001279
41.	0.	2.31739	13.6352	13.8874	11.5933	0.007	29.8910	8.9587	-0.001300
42.	0.	2.31828	13.6355	13.8874	11.5782	0.007	29.8618	8.9487	-0.001321
43.	0.	2.31954	13.6359	13.8874	11.5637	0.007	29.8304	8.9286	-0.001365
44.	0.	2.32049	13.6363	13.8874	11.5488	0.008	29.8057	8.9186	-0.001386
45.	0.	2.32149	13.6366	13.8874	11.5339	0.008	29.7834	8.9086	-0.001409
46.	0.	2.32249	13.6370	13.8874	11.5191	0.008	29.7617	8.8986	-0.001431
47.	0.	2.32350	13.6373	13.8874	11.5044	0.008	29.7403	8.8885	-0.001453
48.	0.	2.32450	13.6377	13.8874	11.4899	0.008	29.7189	8.8785	-0.001476
49.	0.	2.32550	13.6380	13.8874	11.4755	0.008	29.6977	8.8685	-0.001499
50.	0.	2.32650	13.6384	13.8874	11.4613	0.008	29.6764	8.8585	-0.001521
51.	0.	2.32749	13.6387	13.8874	11.4472	0.009	29.6553	8.8485	-0.001544
52.	0.	2.32848	13.6391	13.8874	11.4332	0.009	29.6341	8.8384	-0.001567
53.	0.	2.32948	13.6394	13.8874	11.4193	0.009	29.6131	8.8284	-0.001591
54.	0.	2.33048	13.6397	13.8874	11.4054	0.010	29.5923	8.8184	-0.001614
55.	0.	2.33149	13.6400	13.8874	11.3916	0.010	29.5715	8.8084	-0.001638
56.	0.	2.33250	13.6403	13.8874	11.3778	0.010	29.5507	8.7983	-0.001662
57.	0.	2.33353	13.6407	13.8874	11.3641	0.011	29.5300	8.7883	-0.001686
58.	0.	2.33456	13.6410	13.8874	11.3504	0.011	29.5092	8.7783	-0.001710
59.	0.	2.33559	13.6413	13.8874	11.3367	0.011	29.4886	8.7683	-0.001734

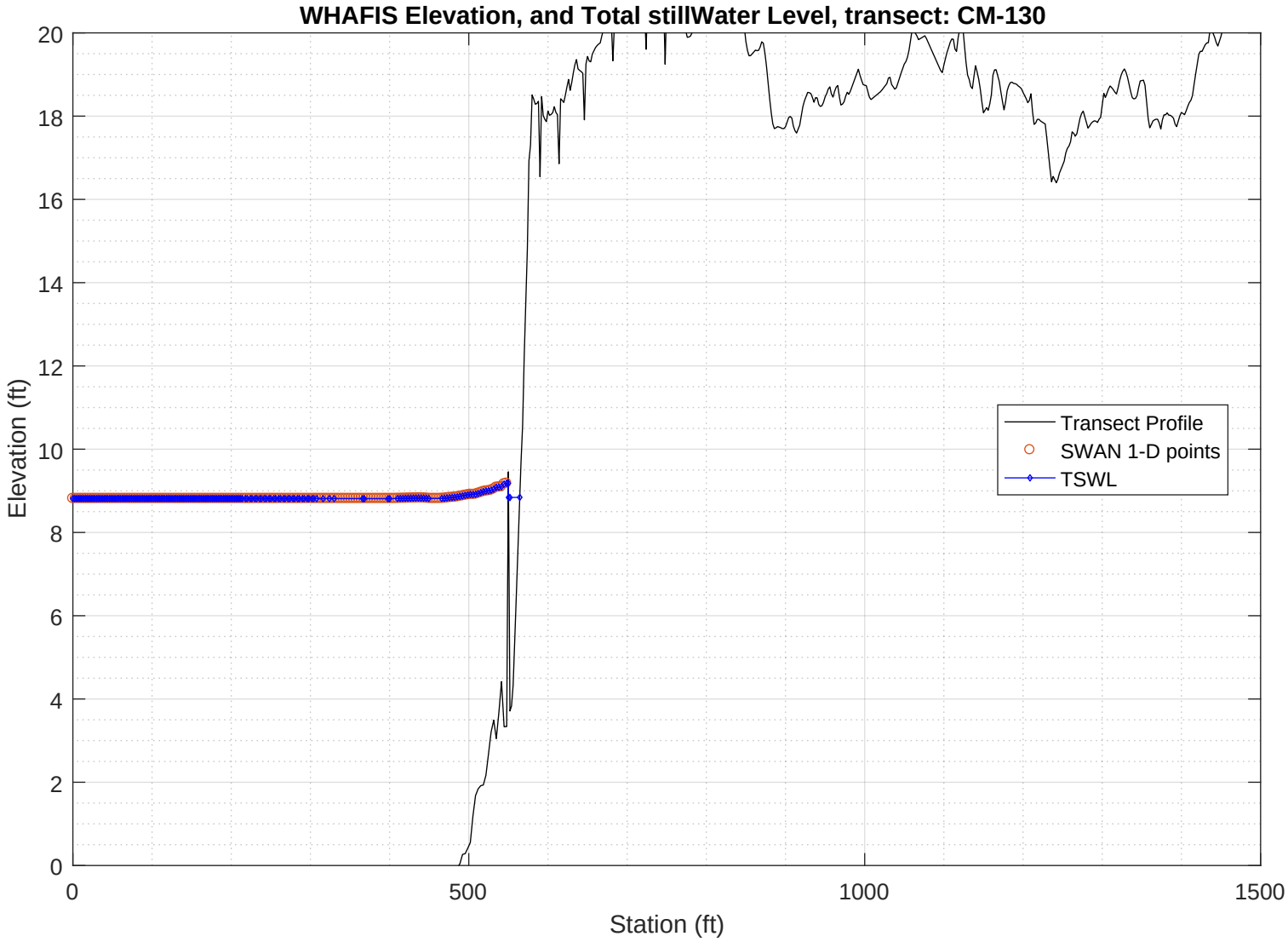
60.	0.	2.33665	13.6416	13.8874	11.3230	0.012	29.4681	8.7582	-0.001759
61.	0.	2.33762	13.6419	13.8874	11.3092	0.012	29.4404	8.7482	-0.001783
62.	0.	2.33888	13.6422	13.8874	11.2959	0.013	29.4029	8.7282	-0.001831
63.	0.	2.34004	13.6425	13.8874	11.2825	0.013	29.3555	8.7081	-0.001879
64.	0.	2.34150	13.6428	13.8874	11.2694	0.014	29.2973	8.6780	-0.001952
65.	0.	2.34305	13.6431	13.8874	11.2560	0.015	29.2432	8.6480	-0.002025
66.	0.	2.34423	13.6434	13.8874	11.2420	0.017	29.1910	8.6279	-0.002075
67.	0.	2.34566	13.6437	13.8874	11.2293	0.019	29.1334	8.5979	-0.002149
68.	0.	2.34714	13.6440	13.8874	11.2169	0.021	29.0817	8.5678	-0.002224
69.	0.	2.34824	13.6443	13.8874	11.2039	0.024	29.0329	8.5477	-0.002276
70.	0.	2.34971	13.6446	13.8874	11.1912	0.027	28.9781	8.5176	-0.002352
71.	0.	2.35122	13.6450	13.8874	11.1781	0.031	28.9223	8.4876	-0.002430
72.	0.	2.35284	13.6453	13.8874	11.1649	0.034	28.8744	8.4575	-0.002509
73.	0.	2.35406	13.6456	13.8874	11.1511	0.039	28.8299	8.4374	-0.002562
74.	0.	2.35565	13.6459	13.8874	11.1379	0.043	28.7800	8.4074	-0.002643
75.	0.	2.35734	13.6462	13.8874	11.1245	0.049	28.7364	8.3773	-0.002724
76.	0.	2.35864	13.6465	13.8874	11.1104	0.053	28.6962	8.3572	-0.002780
77.	0.	2.36028	13.6468	13.8874	11.0972	0.056	28.6517	8.3271	-0.002861
78.	0.	2.36182	13.6471	13.8874	11.0839	0.058	28.5986	8.2971	-0.002942
79.	0.	2.36335	13.6474	13.8874	11.0713	0.058	28.5100	8.2569	-0.003051
80.	0.	2.36617	13.6478	13.8874	11.0609	0.056	28.3830	8.1767	-0.003270
81.	0.	2.36899	13.6482	13.8874	11.0503	0.052	28.2497	8.0965	-0.003495
82.	0.	2.37151	13.6486	13.8874	11.0387	0.048	28.1212	8.0263	-0.003697
83.	0.	2.37409	13.6490	13.8874	11.0270	0.046	27.9930	7.9561	-0.003904
84.	0.	2.37672	13.6494	13.8874	11.0152	0.044	27.8640	7.8859	-0.004116
85.	0.	2.37940	13.6498	13.8874	11.0032	0.044	27.7348	7.8157	-0.004332
86.	0.	2.38216	13.6502	13.8874	10.9910	0.042	27.6068	7.7454	-0.004553
87.	0.	2.38494	13.6507	13.8874	10.9787	0.042	27.4763	7.6752	-0.004779
88.	0.	2.38778	13.6511	13.8874	10.9662	0.042	27.3448	7.6050	-0.005011
89.	0.	2.39069	13.6516	13.8874	10.9534	0.042	27.2123	7.5348	-0.005249
90.	0.	2.39375	13.6520	13.8874	10.9403	0.041	27.0846	7.4645	-0.005493
91.	0.	2.39640	13.6525	13.8874	10.9261	0.041	26.9584	7.4043	-0.005707
92.	0.	2.39956	13.6530	13.8874	10.9123	0.041	26.8246	7.3340	-0.005963
93.	0.	2.40275	13.6535	13.8874	10.8982	0.040	26.6877	7.2638	-0.006225
94.	0.	2.40600	13.6540	13.8874	10.8838	0.039	26.5487	7.1935	-0.006494
95.	0.	2.40933	13.6545	13.8874	10.8690	0.037	26.4078	7.1232	-0.006770
96.	0.	2.39486	13.6549	13.8874	10.8552	0.036	24.5500	7.0528	-0.007161
97.	0.	2.58035	13.6611	13.8874	10.9831	0.021	21.9856	4.3441	-0.025931
98.	0.	2.56827	13.6640	13.8874	10.8988	0.001	21.0285	4.3045	-0.025539
99.	0.	2.56319	13.6668	13.8874	10.8091	359.992	20.6464	4.2548	-0.025237
100.	0.	2.55953	13.6693	13.8874	10.7234	359.988	20.4422	4.2051	-0.024917
101.	0.	2.55384	13.6714	13.8874	10.6441	359.980	20.3683	4.1757	-0.024256
102.	0.	2.54058	13.6731	13.8874	10.5685	359.968	20.3764	4.2174	-0.022623
103.	0.	2.53211	13.6744	13.8874	10.5023	359.956	20.3648	4.2184	-0.021611
104.	0.	2.52381	13.6754	13.8874	10.4416	359.946	20.3597	4.2194	-0.020628
105.	0.	2.51407	13.6761	13.8874	10.3851	359.938	20.2988	4.2304	-0.019550
106.	0.	2.51221	13.6767	13.8874	10.3400	359.929	20.1915	4.1605	-0.019519
107.	0.	2.50476	13.6771	13.8874	10.2926	359.921	20.1209	4.1412	-0.018772
108.	0.	2.49544	13.6772	13.8874	10.2463	359.920	20.0778	4.1322	-0.017764
109.	0.	2.48913	13.6773	13.8874	10.1797	359.920	20.0578	4.1232	-0.016820
110.	0.	2.47806	13.6774	13.8874	10.1274	359.919	20.0773	4.1346	-0.015445
111.	0.	2.46520	13.6775	13.8874	10.0946	359.915	20.0902	4.1359	-0.014086
112.	0.	2.45187	13.6776	13.8874	10.0669	359.912	20.0821	4.1373	-0.012745
113.	0.	2.44353	13.6777	13.8874	10.0212	359.896	20.0698	4.1282	-0.011761
114.	0.	2.43401	13.6779	13.8874	9.9779	359.853	20.0620	4.1293	-0.010659
115.	0.	2.42476	13.6781	13.8874	9.9359	359.809	20.0575	4.1304	-0.009594
116.	0.	2.41589	13.6783	13.8874	9.8950	359.767	20.0632	4.1314	-0.008567
117.	0.	2.40632	13.6786	13.8874	9.8554	359.729	20.0932	4.1426	-0.007446
118.	0.	2.39596	13.6788	13.8874	9.8187	359.701	20.1511	4.1638	-0.006235
119.	0.	2.38539	13.6790	13.8874	9.7827	359.675	20.2397	4.1950	-0.004972
120.	0.	2.37610	13.6792	13.8874	9.7399	359.671	20.3481	4.2363	-0.003743
121.	0.	2.36757	13.6794	13.8874	9.6975	359.674	20.4322	4.2774	-0.002616
122.	0.	2.36254	13.6796	13.8874	9.6611	359.681	20.5680	4.2881	-0.001870
123.	0.	2.35117	13.6796	13.8874	9.6070	359.684	20.6851	4.3897	-0.000259
124.	0.	2.35074	13.6799	13.8874	9.5703	359.688	20.6940	4.3599	-0.000071
125.	0.	2.34768	13.6801	13.8874	9.5301	359.690	20.6958	4.3604	0.000425
126.	0.	2.34361	13.6804	13.8874	9.4955	359.690	20.6845	4.3609	0.000949

127.	0.	2.34017	13.6807	13.8874	9.4694	359.691	20.6616	4.3413	0.001300
128.	0.	2.33607	13.6810	13.8874	9.4418	359.699	20.6538	4.3318	0.001752
129.	0.	2.33064	13.6813	13.8874	9.4113	359.695	20.6622	4.3424	0.002395
130.	0.	2.32610	13.6816	13.8874	9.3830	359.688	20.6641	4.3429	0.002919
131.	0.	2.32158	13.6819	13.8874	9.3556	359.681	20.6644	4.3434	0.003432
132.	0.	2.31710	13.6822	13.8874	9.3288	359.673	20.6635	4.3439	0.003935
133.	0.	2.31212	13.6825	13.8874	9.3031	359.663	20.6002	4.3444	0.004424
134.	0.	2.31240	13.6829	13.8874	9.2909	359.655	20.4439	4.2641	0.004121
135.	0.	2.31273	13.6833	13.8874	9.2782	359.654	20.1855	4.1737	0.003694
136.	0.	2.31811	13.6839	13.8874	9.2766	359.659	19.7877	4.0024	0.002387
137.	0.	2.32597	13.6845	13.8874	9.2803	359.669	19.2778	3.7805	0.000468
138.	0.	2.33405	13.6852	13.8874	9.2829	359.681	18.8043	3.5383	-0.001678
139.	0.	2.32788	13.6857	13.8874	9.2613	359.693	18.4687	3.4183	-0.001731
140.	0.	2.31772	13.6860	13.8874	9.2342	359.708	18.1851	3.3188	-0.001202
141.	0.	2.30765	13.6864	13.8874	9.1956	359.751	17.9333	3.2194	-0.000557
142.	0.	2.29291	13.6868	13.8874	9.1489	359.805	17.6934	3.1508	0.000820
143.	0.	2.28043	13.6872	13.8874	9.1077	359.871	17.4831	3.0518	0.001782
144.	0.	2.25781	13.6875	13.8874	9.0551	359.928	17.3234	3.0244	0.004421
145.	0.	2.23853	13.6879	13.8874	9.0066	0.003	17.1271	2.9665	0.006471
146.	0.	2.22099	13.6884	13.8874	8.9665	0.090	16.8773	2.8781	0.008060
147.	0.	2.20372	13.6889	13.8874	8.9307	0.185	16.6265	2.7695	0.009495
148.	0.	2.17778	13.6895	13.8874	8.8857	0.276	16.4442	2.7125	0.012465
149.	0.	2.14749	13.6899	13.8874	8.8352	0.355	16.2862	2.6862	0.016235
150.	0.	2.12131	13.6905	13.8874	8.7926	0.441	16.1493	2.6293	0.019273
151.	0.	2.08819	13.6909	13.8874	8.7439	0.516	16.0427	2.6235	0.023546
152.	0.	2.06026	13.6914	13.8874	8.7029	0.601	15.9161	2.5869	0.026883
153.	0.	2.03199	13.6918	13.8874	8.6616	0.687	15.6480	2.5502	0.030166
154.	0.	2.02452	13.6926	13.8874	8.6447	0.827	15.2229	2.3495	0.029524
155.	0.	2.00384	13.6937	13.8874	8.6147	0.966	14.8907	2.2012	0.031214
156.	0.	1.96118	13.6946	13.8874	8.5648	1.081	14.7008	2.1672	0.037226
157.	0.	1.91705	13.6954	13.8874	8.5176	1.191	14.5897	2.1435	0.043514
158.	0.	1.86982	13.6960	13.8874	8.4714	1.286	14.4786	2.1503	0.050319
159.	0.	1.83441	13.6966	13.8874	8.4441	1.374	14.2201	2.0847	0.054691
160.	0.	1.81074	13.6973	13.8874	8.4305	1.477	13.8155	1.9267	0.056673
161.	0.	1.77359	13.6982	13.8874	8.4384	1.511	13.4269	1.7709	0.060904
162.	0.	1.71849	13.6990	13.8874	8.4344	1.562	13.3612	1.6893	0.069254
163.	0.	1.64711	13.6994	13.8874	8.3041	1.770	13.2561	1.8419	0.081939
164.	0.	1.62344	13.7001	13.8874	8.3157	1.818	12.7681	1.6437	0.083669
165.	0.	1.59592	13.7010	13.8874	8.3518	1.841	12.7636	1.4264	0.086425
166.	0.	1.48733	13.7011	13.8874	8.2038	2.038	13.3203	1.7770	0.107021
167.	0.	1.45061	13.7013	13.8874	8.1980	2.083	13.2877	1.7819	0.111938

PART 3: WHAFIS

WHAFIS input: CM-130.dat
WHAFIS output: CM-130.out

PART 3 COMPLETE


WHAFIS Elevation, and Total stillWater Level, transect: CM-130
Elevation (ft)
Station (ft)
0
2
4
6
8
10
12
14
16
18
20
0
500
1000
1500
Transect Profile
SWAN 1-D points
TSWL

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-130.dat
Output file: C:\FEMA-TransectAnalysis\LOMR-TransectAnalysis-Harpswell\3_whafis\whafis4\CM-130.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	-22.934	1.000	1.000	8.814	11.895	13.592	56.140	0.024	0.000
OF	2.000	-22.886	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
OF	4.000	-22.838	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
OF	6.000	-22.791	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
OF	8.000	-22.743	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
OF	10.000	-22.695	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
OF	12.000	-22.647	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
OF	14.000	-22.600	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
OF	16.000	-22.552	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
OF	18.000	-22.504	0.000	8.814	0.000	0.000	0.000	0.000	0.023	0.000
OF	20.000	-22.462	0.000	8.814	0.000	0.000	0.000	0.000	0.017	0.000
OF	22.000	-22.436	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	24.000	-22.410	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	26.000	-22.384	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	28.000	-22.358	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	30.000	-22.332	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	32.000	-22.306	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	34.000	-22.280	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	36.000	-22.254	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	38.000	-22.229	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	40.000	-22.203	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	42.000	-22.177	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	44.000	-22.151	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	46.000	-22.125	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	48.000	-22.099	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	50.000	-22.073	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	52.000	-22.047	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	54.000	-22.021	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	56.000	-21.995	0.000	8.814	0.000	0.000	0.000	0.000	0.014	0.000
OF	58.000	-21.967	0.000	8.814	0.000	0.000	0.000	0.000	0.016	0.000
OF	60.000	-21.930	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	62.000	-21.892	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	64.000	-21.855	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	66.000	-21.818	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	68.000	-21.780	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	70.000	-21.743	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	72.000	-21.706	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	74.000	-21.669	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	76.000	-21.631	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	78.000	-21.594	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	80.000	-21.557	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	82.000	-21.519	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	84.000	-21.482	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	86.000	-21.445	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	88.000	-21.407	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	90.000	-21.370	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	92.000	-21.333	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	94.000	-21.295	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	96.000	-21.258	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	98.000	-21.221	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	100.000	-21.183	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	102.000	-21.146	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	104.000	-21.109	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	106.000	-21.072	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	108.000	-21.034	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	110.000	-20.997	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	112.000	-20.960	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	114.000	-20.922	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	116.000	-20.885	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	118.000	-20.848	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	120.000	-20.810	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	122.000	-20.773	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	124.000	-20.736	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	126.000	-20.698	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	128.000	-20.661	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
OF	130.000	-20.624	0.000	8.814	0.000	0.000	0.000	0.000	0.016	0.000
OF	132.000	-20.595	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
OF	134.000	-20.573	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	136.000	-20.552	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	138.000	-20.530	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	140.000	-20.509	0.000	8.814	0.000	0.000	0.000	0.000	0.010	0.000
OF	142.000	-20.488	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	144.000	-20.466	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	146.000	-20.445	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	148.000	-20.423	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	150.000	-20.402	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	152.000	-20.380	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	154.000	-20.359	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	156.000	-20.337	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	158.000	-20.316	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	160.000	-20.294	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	162.000	-20.273	0.000	8.814	0.000	0.000	0.000	0.000	0.010	0.000
OF	164.000	-20.252	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	166.000	-20.230	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	168.000	-20.209	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	170.000	-20.187	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	172.000	-20.166	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	174.000	-20.144	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	176.000	-20.123	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
OF	178.000	-20.101	0.000	8.814	0.000	0.000	0.000	0.000	0.010	0.000
OF	180.000	-20.081	0.000	8.814	0.000	0.000	0.000	0.000	0.010	0.000
OF	182.000	-20.062	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
OF	184.000	-20.043	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000

OF	186.000	-20.024	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
OF	188.000	-20.005	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
OF	190.000	-19.986	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
OF	192.000	-19.967	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
OF	194.000	-19.948	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
OF	196.000	-19.929	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
OF	198.000	-19.910	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
OF	200.000	-19.891	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
OF	202.000	-19.872	0.000	8.814	0.000	0.000	0.000	0.000	0.016	0.000
OF	204.000	-19.828	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
OF	206.000	-19.774	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
OF	208.000	-19.719	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
OF	210.000	-19.665	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
OF	212.000	-19.611	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
OF	214.000	-19.557	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
OF	218.000	-19.448	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
OF	220.000	-19.394	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
OF	224.000	-19.285	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
OF	226.000	-19.231	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
OF	230.000	-19.122	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
OF	232.000	-19.068	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
OF	236.000	-18.959	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
OF	238.000	-18.905	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
OF	242.000	-18.796	0.000	8.813	0.000	0.000	0.000	0.000	0.027	0.000
OF	244.000	-18.742	0.000	8.813	0.000	0.000	0.000	0.000	0.027	0.000
OF	248.000	-18.633	0.000	8.813	0.000	0.000	0.000	0.000	0.027	0.000
OF	250.000	-18.579	0.000	8.813	0.000	0.000	0.000	0.000	0.027	0.000
OF	254.000	-18.471	0.000	8.813	0.000	0.000	0.000	0.000	0.030	0.000
OF	256.000	-18.398	0.000	8.813	0.000	0.000	0.000	0.000	0.039	0.000
OF	260.000	-18.239	0.000	8.813	0.000	0.000	0.000	0.000	0.055	0.000
OF	262.000	-18.066	0.000	8.813	0.000	0.000	0.000	0.000	0.083	0.000
OF	266.000	-17.744	0.000	8.813	0.000	0.000	0.000	0.000	0.077	0.000
OF	268.000	-17.605	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
OF	272.000	-17.327	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
OF	274.000	-17.188	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
OF	278.000	-16.910	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
OF	280.000	-16.771	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
OF	284.000	-16.493	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
OF	286.000	-16.354	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
OF	290.000	-16.076	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
OF	292.000	-15.937	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
OF	296.000	-15.659	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
OF	298.000	-15.520	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
OF	302.000	-15.242	0.000	8.812	0.000	0.000	0.000	0.000	0.069	0.000
OF	304.000	-15.103	0.000	8.812	0.000	0.000	0.000	0.000	0.069	0.000
OF	308.000	-14.825	0.000	8.812	0.000	0.000	0.000	0.000	0.069	0.000
OF	316.000	-14.269	0.000	8.812	0.000	0.000	0.000	0.000	0.598	0.000
OF	324.000	-5.263	0.000	8.812	0.000	0.000	0.000	0.000	0.664	0.000
OF	330.000	-4.969	0.000	8.812	0.000	0.000	0.000	0.000	0.011	0.000
OF	366.000	-4.796	0.000	8.811	0.000	0.000	0.000	0.000	0.005	0.000
OF	368.000	-4.787	0.000	8.811	0.000	0.000	0.000	0.000	-0.014	0.000
OF	398.000	-5.251	0.000	8.810	0.000	0.000	0.000	0.000	-0.014	0.000
OF	400.000	-5.221	0.000	8.810	0.000	0.000	0.000	0.000	-0.020	0.000
OF	410.100	-5.487	0.000	8.816	0.000	0.000	0.000	0.000	-0.019	0.000
OF	413.400	-5.475	0.000	8.817	0.000	0.000	0.000	0.000	0.011	0.000
OF	416.700	-5.413	0.000	8.818	0.000	0.000	0.000	0.000	0.014	0.000
OF	419.900	-5.383	0.000	8.820	0.000	0.000	0.000	0.000	0.001	0.000
OF	423.200	-5.409	0.000	8.822	0.000	0.000	0.000	0.000	-0.005	0.000
OF	426.500	-5.419	0.000	8.824	0.000	0.000	0.000	0.000	-0.001	0.000
OF	429.800	-5.412	0.000	8.825	0.000	0.000	0.000	0.000	0.001	0.000
OF	433.100	-5.412	0.000	8.827	0.000	0.000	0.000	0.000	0.000	0.000
OF	436.400	-5.410	0.000	8.829	0.000	0.000	0.000	0.000	0.040	0.000
OF	439.600	-5.154	0.000	8.828	0.000	0.000	0.000	0.000	0.084	0.000
OF	442.900	-4.860	0.000	8.826	0.000	0.000	0.000	0.000	0.130	0.000
OF	446.200	-4.299	0.000	8.822	0.000	0.000	0.000	0.000	0.192	0.000
OF	449.500	-3.593	0.000	8.816	0.000	0.000	0.000	0.000	0.141	0.000
OF	465.900	-1.518	0.000	8.817	0.000	0.000	0.000	0.000	0.122	0.000
OF	469.200	-1.192	0.000	8.820	0.000	0.000	0.000	0.000	0.065	0.000
OF	472.400	-1.097	0.000	8.829	0.000	0.000	0.000	0.000	0.045	0.000
OF	475.700	-0.899	0.000	8.835	0.000	0.000	0.000	0.000	0.075	0.000
OF	479.000	-0.598	0.000	8.841	0.000	0.000	0.000	0.000	0.100	0.000
OF	482.300	-0.237	0.000	8.845	0.000	0.000	0.000	0.000	0.082	0.000
OF	485.600	-0.054	0.000	8.855	0.000	0.000	0.000	0.000	0.043	0.000
IF	488.800	0.046	0.000	8.867	0.000	0.000	0.000	0.000	0.049	0.000
IF	492.100	0.266	0.000	8.877	0.000	0.000	0.000	0.000	0.036	0.000
IF	495.400	0.284	0.000	8.891	0.000	0.000	0.000	0.000	0.022	0.000
IF	498.700	0.413	0.000	8.902	0.000	0.000	0.000	0.000	0.041	0.000
IF	502.000	0.555	0.000	8.913	0.000	0.000	0.000	0.000	0.119	0.000
IF	505.200	1.188	0.000	8.911	0.000	0.000	0.000	0.000	0.173	0.000
IF	508.500	1.679	0.000	8.917	0.000	0.000	0.000	0.000	0.099	0.000
IF	511.800	1.840	0.000	8.936	0.000	0.000	0.000	0.000	0.036	0.000
IF	515.100	1.917	0.000	8.957	0.000	0.000	0.000	0.000	0.014	0.000
IF	518.400	1.934	0.000	8.979	0.000	0.000	0.000	0.000	0.038	0.000
IF	521.700	2.168	0.000	8.994	0.000	0.000	0.000	0.000	0.115	0.000
IF	524.900	2.684	0.000	9.000	0.000	0.000	0.000	0.000	0.160	0.000
IF	528.200	3.208	0.000	9.014	0.000	0.000	0.000	0.000	0.122	0.000
IF	531.500	3.492	0.000	9.041	0.000	0.000	0.000	0.000	-0.024	0.000
IF	534.800	3.047	0.000	9.083	0.000	0.000	0.000	0.000	0.029	0.000
IF	538.100	3.682	0.000	9.089	0.000	0.000	0.000	0.000	0.211	0.000
IF	541.300	4.417	0.000	9.098	0.000	0.000	0.000	0.000	-0.054	0.000
IF	544.600	3.333	0.000	9.165	0.000	0.000	0.000	0.000	-0.163	0.000
IF	547.900	3.338	0.000	9.181	0.000	0.000	0.000	0.000	1.103	0.000
IF	549.900	9.181	0.000	9.181	0.000	0.000	0.000	0.000	2.922	0.000
AS	550.200	8.840	0.000	8.840	0.000	0.000	0.000	0.000	-2.849	0.000
IF	552.000	3.711	0.000	8.840	0.000	0.000	0.000	0.000	0.000	0.000
IF	564.400	8.844	0.000	8.844	0.000	0.000	0.000	0.000	0.414	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1

	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	-22.934	1.000	1.000	8.814	11.895	13.592	56.140	0.024	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE

	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	2.000	-22.886	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	4.000	-22.838	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	6.000	-22.791	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	8.000	-22.743	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	10.000	-22.695	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	12.000	-22.647	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	14.000	-22.600	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	16.000	-22.552	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	18.000	-22.504	0.000	8.814	0.000	0.000	0.000	0.000	0.023	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	20.000	-22.462	0.000	8.814	0.000	0.000	0.000	0.000	0.017	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	22.000	-22.436	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	24.000	-22.410	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	26.000	-22.384	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	28.000	-22.358	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	30.000	-22.332	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	32.000	-22.306	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	34.000	-22.280	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	36.000	-22.254	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	38.000	-22.229	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	40.000	-22.203	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	42.000	-22.177	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	44.000	-22.151	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	46.000	-22.125	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	48.000	-22.099	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	50.000	-22.073	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	52.000	-22.047	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	54.000	-22.021	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	56.000	-21.995	0.000	8.814	0.000	0.000	0.000	0.000	0.014	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	58.000	-21.967	0.000	8.814	0.000	0.000	0.000	0.000	0.016	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	60.000	-21.930	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	62.000	-21.892	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	64.000	-21.855	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	66.000	-21.818	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	68.000	-21.780	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE

	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	70.000	-21.743	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	72.000	-21.706	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	74.000	-21.669	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	76.000	-21.631	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	78.000	-21.594	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	80.000	-21.557	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	82.000	-21.519	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	84.000	-21.482	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	86.000	-21.445	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	88.000	-21.407	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	90.000	-21.370	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	92.000	-21.333	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	94.000	-21.295	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	96.000	-21.258	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	98.000	-21.221	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	100.000	-21.183	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	102.000	-21.146	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	104.000	-21.109	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	106.000	-21.072	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	108.000	-21.034	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	110.000	-20.997	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	112.000	-20.960	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	114.000	-20.922	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	116.000	-20.885	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	118.000	-20.848	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	120.000	-20.810	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	122.000	-20.773	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	124.000	-20.736	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	126.000	-20.698	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	128.000	-20.661	0.000	8.814	0.000	0.000	0.000	0.000	0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	130.000	-20.624	0.000	8.814	0.000	0.000	0.000	0.000	0.016	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	132.000	-20.595	0.000	8.814	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	134.000	-20.573	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	136.000	-20.552	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE

	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	138.000	-20.530	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	140.000	-20.509	0.000	8.814	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	142.000	-20.488	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	144.000	-20.466	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	146.000	-20.445	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	148.000	-20.423	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	150.000	-20.402	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	152.000	-20.380	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	154.000	-20.359	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	156.000	-20.337	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	158.000	-20.316	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	160.000	-20.294	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	162.000	-20.273	0.000	8.814	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	164.000	-20.252	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	166.000	-20.230	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	168.000	-20.209	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	170.000	-20.187	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	172.000	-20.166	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	174.000	-20.144	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	176.000	-20.123	0.000	8.814	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	178.000	-20.101	0.000	8.814	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	180.000	-20.081	0.000	8.814	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	182.000	-20.062	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	184.000	-20.043	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	186.000	-20.024	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	188.000	-20.005	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	190.000	-19.986	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	192.000	-19.967	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	194.000	-19.948	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	196.000	-19.929	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	198.000	-19.910	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	200.000	-19.891	0.000	8.814	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	202.000	-19.872	0.000	8.814	0.000	0.000	0.000	0.000	0.016	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	204.000	-19.828	0.000	8.814	0.000	0.000	0.000	0.000	0.024	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE

	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	206.000	-19.774	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	208.000	-19.719	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	210.000	-19.665	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	212.000	-19.611	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	214.000	-19.557	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	218.000	-19.448	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	220.000	-19.394	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	224.000	-19.285	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	226.000	-19.231	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	230.000	-19.122	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	232.000	-19.068	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	236.000	-18.959	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	238.000	-18.905	0.000	8.814	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	242.000	-18.796	0.000	8.813	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	244.000	-18.742	0.000	8.813	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	248.000	-18.633	0.000	8.813	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	250.000	-18.579	0.000	8.813	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	254.000	-18.471	0.000	8.813	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	256.000	-18.398	0.000	8.813	0.000	0.000	0.000	0.000	0.039	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	260.000	-18.239	0.000	8.813	0.000	0.000	0.000	0.000	0.055	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	262.000	-18.066	0.000	8.813	0.000	0.000	0.000	0.000	0.083	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	266.000	-17.744	0.000	8.813	0.000	0.000	0.000	0.000	0.077	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	268.000	-17.605	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	272.000	-17.327	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	274.000	-17.188	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	278.000	-16.910	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	280.000	-16.771	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	284.000	-16.493	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	286.000	-16.354	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	290.000	-16.076	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	292.000	-15.937	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	296.000	-15.659	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	298.000	-15.520	0.000	8.813	0.000	0.000	0.000	0.000	0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	302.000	-15.242	0.000	8.812	0.000	0.000	0.000	0.000	0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE

	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	304.000	-15.103	0.000	8.812	0.000	0.000	0.000	0.000	0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	308.000	-14.825	0.000	8.812	0.000	0.000	0.000	0.000	0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	316.000	-14.269	0.000	8.812	0.000	0.000	0.000	0.000	0.598	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	324.000	-5.263	0.000	8.812	0.000	0.000	0.000	0.000	0.664	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	330.000	-4.969	0.000	8.812	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	366.000	-4.796	0.000	8.811	0.000	0.000	0.000	0.000	0.005	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	368.000	-4.787	0.000	8.811	0.000	0.000	0.000	0.000	-0.014	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	398.000	-5.251	0.000	8.810	0.000	0.000	0.000	0.000	-0.014	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	400.000	-5.221	0.000	8.810	0.000	0.000	0.000	0.000	-0.020	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	410.100	-5.487	0.000	8.816	0.000	0.000	0.000	0.000	-0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	413.400	-5.475	0.000	8.817	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	416.700	-5.413	0.000	8.818	0.000	0.000	0.000	0.000	0.014	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	419.900	-5.383	0.000	8.820	0.000	0.000	0.000	0.000	0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	423.200	-5.409	0.000	8.822	0.000	0.000	0.000	0.000	-0.005	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	426.500	-5.419	0.000	8.824	0.000	0.000	0.000	0.000	-0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	429.800	-5.412	0.000	8.825	0.000	0.000	0.000	0.000	0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	433.100	-5.412	0.000	8.827	0.000	0.000	0.000	0.000	0.000	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	436.400	-5.410	0.000	8.829	0.000	0.000	0.000	0.000	0.040	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	439.600	-5.154	0.000	8.828	0.000	0.000	0.000	0.000	0.084	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	442.900	-4.860	0.000	8.826	0.000	0.000	0.000	0.000	0.130	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	446.200	-4.299	0.000	8.822	0.000	0.000	0.000	0.000	0.192	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	449.500	-3.593	0.000	8.816	0.000	0.000	0.000	0.000	0.141	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	465.900	-1.518	0.000	8.817	0.000	0.000	0.000	0.000	0.122	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	469.200	-1.192	0.000	8.820	0.000	0.000	0.000	0.000	0.065	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	472.400	-1.097	0.000	8.829	0.000	0.000	0.000	0.000	0.045	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	475.700	-0.899	0.000	8.835	0.000	0.000	0.000	0.000	0.075	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	479.000	-0.598	0.000	8.841	0.000	0.000	0.000	0.000	0.100	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	482.300	-0.237	0.000	8.845	0.000	0.000	0.000	0.000	0.082	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	485.600	-0.054	0.000	8.855	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	488.800	0.046	0.000	8.867	0.000	0.000	0.000	0.000	0.049	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	492.100	0.266	0.000	8.877	0.000	0.000	0.000	0.000	0.036	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	495.400	0.284	0.000	8.891	0.000	0.000	0.000	0.000	0.022	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	498.700	0.413	0.000	8.902	0.000	0.000	0.000	0.000	0.041	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	502.000	0.555	0.000	8.913	0.000	0.000	0.000	0.000	0.119	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE

	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	505.200	1.188	0.000	8.911	0.000	0.000	0.000	0.000	0.173	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	508.500	1.679	0.000	8.917	0.000	0.000	0.000	0.000	0.099	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	511.800	1.840	0.000	8.936	0.000	0.000	0.000	0.000	0.036	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	515.100	1.917	0.000	8.957	0.000	0.000	0.000	0.000	0.014	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	518.400	1.934	0.000	8.979	0.000	0.000	0.000	0.000	0.038	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	521.700	2.168	0.000	8.994	0.000	0.000	0.000	0.000	0.115	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	524.900	2.684	0.000	9.000	0.000	0.000	0.000	0.000	0.160	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	528.200	3.208	0.000	9.014	0.000	0.000	0.000	0.000	0.122	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	531.500	3.492	0.000	9.041	0.000	0.000	0.000	0.000	-0.024	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	534.800	3.047	0.000	9.083	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
IF	538.100	3.682	0.000	9.089	0.000	0.000	0.000	0.000	0.211	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	541.300	4.417	0.000	9.098	0.000	0.000	0.000	0.000	-0.054	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	544.600	3.333	0.000	9.165	0.000	0.000	0.000	0.000	-0.163	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	547.900	3.338	0.000	9.181	0.000	0.000	0.000	0.000	1.103	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	549.900	9.181	0.000	9.181	0.000	0.000	0.000	0.000	2.922	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
AS	550.200	8.840	0.000	8.840	0.000	0.000	0.000	0.000	-2.849	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	552.000	3.711	0.000	8.840	0.000	0.000	0.000	0.000	0.000	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	564.400	8.844	0.000	8.844	0.000	0.000	0.000	0.000	0.414	0.000

----------END OF TRANSECT----------

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

1

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	11.90	13.59	17.14
OF	2.00	11.90	13.59	17.14
OF	4.00	11.91	13.59	17.15
OF	6.00	11.91	13.59	17.15
OF	8.00	11.92	13.59	17.16
OF	10.00	11.92	13.59	17.16
OF	12.00	11.93	13.59	17.17
OF	14.00	11.94	13.59	17.17
OF	16.00	11.94	13.59	17.17
OF	18.00	11.95	13.59	17.18
OF	20.00	11.95	13.59	17.18
OF	22.00	11.96	13.59	17.18
OF	24.00	11.96	13.59	17.19
OF	26.00	11.96	13.59	17.19
OF	28.00	11.97	13.59	17.19
OF	30.00	11.97	13.59	17.19
OF	32.00	11.97	13.59	17.20
OF	34.00	11.98	13.59	17.20
OF	36.00	11.98	13.59	17.20
OF	38.00	11.98	13.59	17.20
OF	40.00	11.99	13.59	17.21
OF	42.00	11.99	13.59	17.21
OF	44.00	11.99	13.59	17.21
OF	46.00	12.00	13.59	17.21
OF	48.00	12.00	13.59	17.22
OF	50.00	12.01	13.59	17.22
OF	52.00	12.01	13.59	17.22
OF	54.00	12.01	13.59	17.22
OF	56.00	12.02	13.59	17.22
OF	58.00	12.02	13.59	17.23
OF	60.00	12.02	13.59	17.23
OF	62.00	12.03	13.59	17.23
OF	64.00	12.03	13.59	17.24
OF	66.00	12.04	13.59	17.24
OF	68.00	12.04	13.59	17.24
OF	70.00	12.05	13.59	17.25
OF	72.00	12.05	13.59	17.25
OF	74.00	12.06	13.59	17.26
OF	76.00	12.06	13.59	17.26
OF	78.00	12.07	13.59	17.26
OF	80.00	12.07	13.59	17.27

OF	82.00	12.08	13.59	17.27
OF	84.00	12.08	13.59	17.27
OF	86.00	12.09	13.59	17.28
OF	88.00	12.09	13.59	17.28
OF	90.00	12.10	13.59	17.28
OF	92.00	12.10	13.59	17.29
OF	94.00	12.11	13.59	17.29
OF	96.00	12.11	13.59	17.29
OF	98.00	12.12	13.59	17.30
OF	100.00	12.12	13.59	17.30
OF	102.00	12.13	13.59	17.30
OF	104.00	12.13	13.59	17.31
OF	106.00	12.14	13.59	17.31
OF	108.00	12.14	13.59	17.32
OF	110.00	12.15	13.59	17.32
OF	112.00	12.15	13.59	17.32
OF	114.00	12.16	13.59	17.33
OF	116.00	12.17	13.59	17.33
OF	118.00	12.17	13.59	17.33
OF	120.00	12.18	13.59	17.34
OF	122.00	12.18	13.59	17.34
OF	124.00	12.19	13.59	17.34
OF	126.00	12.19	13.59	17.35
OF	128.00	12.20	13.59	17.35
OF	130.00	12.20	13.59	17.36
OF	132.00	12.21	13.59	17.36
OF	134.00	12.21	13.59	17.36
OF	136.00	12.21	13.59	17.36
OF	138.00	12.22	13.59	17.36
OF	140.00	12.22	13.59	17.37
OF	142.00	12.22	13.59	17.37
OF	144.00	12.22	13.59	17.37
OF	146.00	12.23	13.59	17.37
OF	148.00	12.23	13.59	17.38
OF	150.00	12.23	13.59	17.38
OF	152.00	12.24	13.59	17.38
OF	154.00	12.24	13.59	17.38
OF	156.00	12.24	13.59	17.38
OF	158.00	12.25	13.59	17.39
OF	160.00	12.25	13.59	17.39
OF	162.00	12.25	13.59	17.39
OF	164.00	12.26	13.59	17.39
OF	166.00	12.26	13.59	17.40
OF	168.00	12.26	13.59	17.40
OF	170.00	12.27	13.59	17.40
OF	172.00	12.27	13.59	17.40
OF	174.00	12.27	13.59	17.40
OF	176.00	12.27	13.59	17.41
OF	178.00	12.28	13.59	17.41
OF	180.00	12.28	13.59	17.41
OF	182.00	12.28	13.59	17.41
OF	184.00	12.29	13.59	17.41
OF	186.00	12.29	13.59	17.42
OF	188.00	12.29	13.59	17.42
OF	190.00	12.29	13.59	17.42
OF	192.00	12.30	13.59	17.42
OF	194.00	12.30	13.59	17.42
OF	196.00	12.30	13.59	17.43
OF	198.00	12.31	13.59	17.43
OF	200.00	12.31	13.59	17.43
OF	202.00	12.31	13.59	17.43
OF	204.00	12.32	13.59	17.44
OF	206.00	12.33	13.59	17.44
OF	208.00	12.33	13.59	17.45
OF	210.00	12.34	13.59	17.45
OF	212.00	12.35	13.59	17.46
OF	214.00	12.36	13.59	17.46
OF	218.00	12.37	13.59	17.48
OF	220.00	12.38	13.59	17.48
OF	224.00	12.40	13.59	17.49
OF	226.00	12.41	13.59	17.50
OF	230.00	12.42	13.59	17.51
OF	232.00	12.43	13.59	17.52
OF	236.00	12.45	13.59	17.53
OF	238.00	12.46	13.59	17.53
OF	242.00	12.47	13.59	17.54
OF	244.00	12.48	13.59	17.55
OF	248.00	12.50	13.59	17.56
OF	250.00	12.51	13.59	17.57
OF	254.00	12.52	13.59	17.58
OF	256.00	12.54	13.59	17.59
OF	260.00	12.56	13.59	17.61
OF	262.00	12.59	13.59	17.63
OF	266.00	12.64	13.59	17.66
OF	268.00	12.66	13.59	17.68
OF	272.00	12.71	13.59	17.71
OF	274.00	12.73	13.59	17.73
OF	278.00	12.78	13.59	17.76
OF	280.00	12.81	13.59	17.78
OF	284.00	12.86	13.59	17.81
OF	286.00	12.88	13.59	17.83
OF	290.00	12.93	13.59	17.86
OF	292.00	12.96	13.59	17.88
OF	296.00	13.01	13.59	17.92
OF	298.00	13.03	13.59	17.94
OF	302.00	13.09	13.59	17.97
OF	304.00	13.12	13.59	17.99
OF	308.00	13.17	13.59	18.03
OF	316.00	13.24	13.59	18.08
OF	324.00	10.73	13.59	16.32
OF	330.00	10.51	13.59	16.17
OF	366.00	10.38	13.59	16.08

OF	368.00	10.37	13.59	16.07
OF	398.00	10.46	13.59	16.13
OF	400.00	10.46	13.59	16.13
OF	410.10	10.51	13.59	16.18
OF	413.40	10.51	13.59	16.18
OF	416.70	10.50	13.59	16.17
OF	419.90	10.50	13.59	16.17
OF	423.20	10.51	13.59	16.18
OF	426.50	10.51	13.59	16.18
OF	429.80	10.51	13.59	16.18
OF	433.10	10.52	13.59	16.19
OF	436.40	10.52	13.59	16.19
OF	439.60	10.47	13.59	16.16
OF	442.90	10.41	13.59	16.12
OF	446.20	10.02	13.59	15.83
OF	449.50	9.48	13.59	15.45
OF	465.90	7.92	13.59	14.36
OF	469.20	7.68	13.59	14.20
OF	472.40	7.62	13.59	14.16
OF	475.70	7.47	13.59	14.06
OF	479.00	7.25	13.59	13.91
OF	482.30	6.98	13.59	13.73
OF	485.60	6.85	13.59	13.65
IF	488.80	6.78	13.59	13.61
IF	492.10	6.62	13.59	13.51
IF	495.40	6.62	13.59	13.52
IF	498.70	6.53	13.59	13.47
IF	502.00	6.43	13.59	13.41
IF	505.20	5.95	13.59	13.07
IF	508.50	5.58	13.59	12.82
IF	511.80	5.47	13.59	12.77
IF	515.10	5.43	13.59	12.76
IF	518.40	5.43	13.59	12.78
IF	521.70	5.26	13.59	12.68
IF	524.90	4.88	13.59	12.41
IF	528.20	4.49	13.59	12.15
IF	531.50	4.29	13.59	12.04
IF	534.80	4.41	13.59	12.17
IF	538.10	4.18	13.59	12.01
IF	541.30	3.62	13.59	11.63
IF	544.60	3.86	13.59	11.86
IF	547.90	3.86	13.59	11.88
IF	549.90	0.01	13.59	9.19
AS	550.20	0.00	0.00	8.84
IF	552.00	0.02	0.18	8.86
IF	564.40	0.01	0.34	8.85

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE

BETWEEN 549.90 AND 550.20

PART4 LOCATION OF SURGE CHANGES

STATION	10-YEAR SURGE	100-YEAR SURGE
242.00	1.00	8.81
302.00	1.00	8.81
366.00	1.00	8.81
398.00	1.00	8.81
410.10	1.00	8.82
413.40	1.00	8.82
416.70	1.00	8.82
419.90	1.00	8.82
423.20	1.00	8.82
426.50	1.00	8.82
429.80	1.00	8.82
433.10	1.00	8.83
436.40	1.00	8.83
439.60	1.00	8.83
442.90	1.00	8.83
446.20	1.00	8.82
449.50	1.00	8.82
465.90	1.00	8.82
469.20	1.00	8.82
472.40	1.00	8.83
475.70	1.00	8.84
479.00	1.00	8.84
482.30	1.00	8.85
485.60	1.00	8.85
488.80	1.00	8.87
492.10	1.00	8.88
495.40	1.00	8.89
498.70	1.00	8.90
502.00	1.00	8.91
505.20	1.00	8.91
508.50	1.00	8.92
511.80	1.00	8.94
515.10	1.00	8.96
518.40	1.00	8.98
521.70	1.00	8.99
524.90	1.00	9.00
528.20	1.00	9.01
531.50	1.00	9.04
534.80	1.00	9.08
538.10	1.00	9.09
541.30	1.00	9.10
544.60	1.00	9.16
547.90	1.00	9.18
550.20	1.00	8.84
564.40	1.00	8.84

PART5 LOCATION OF V ZONES

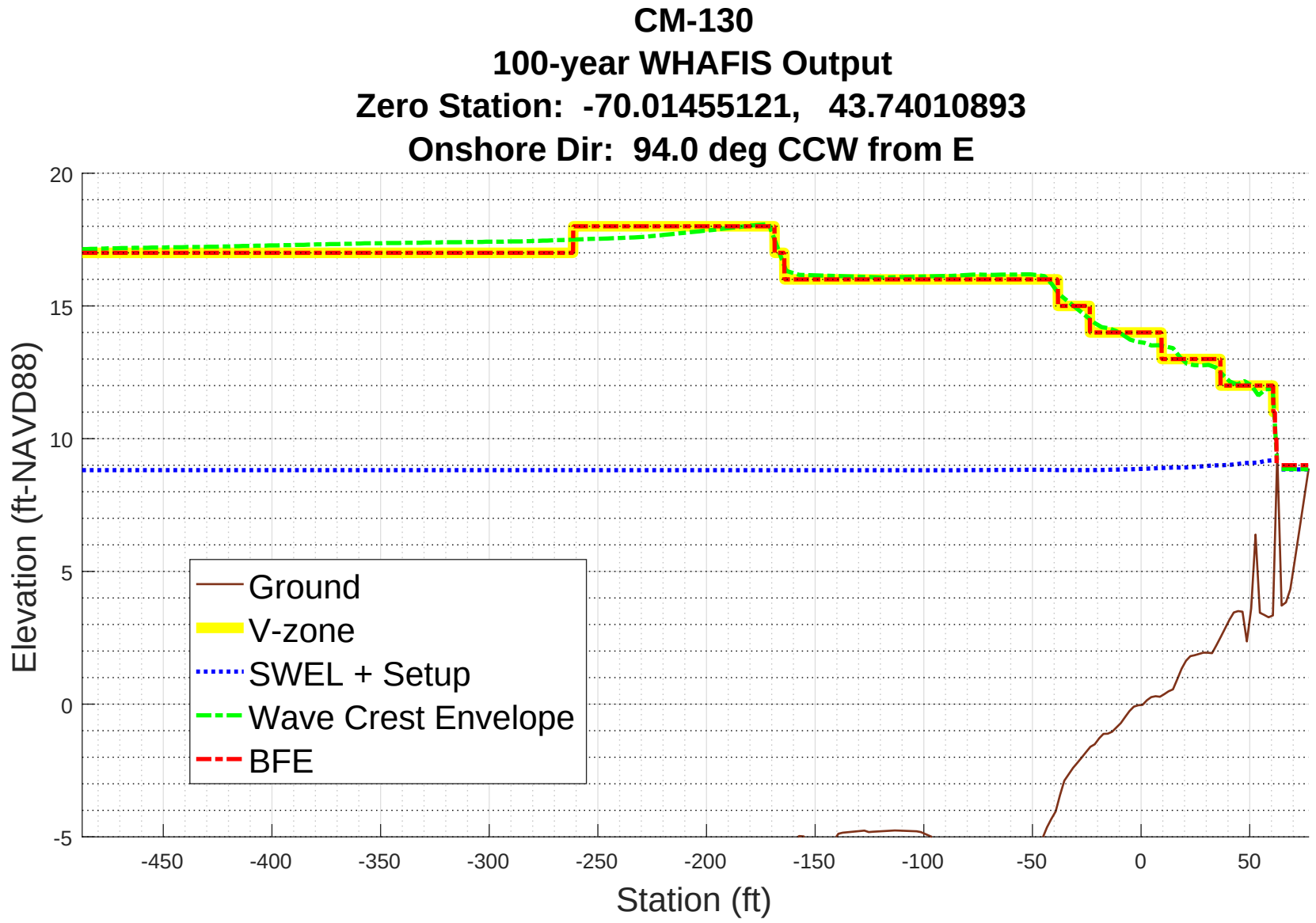
STATION OF GUTTER	LOCATION OF ZONE
548.35	WINDWARD

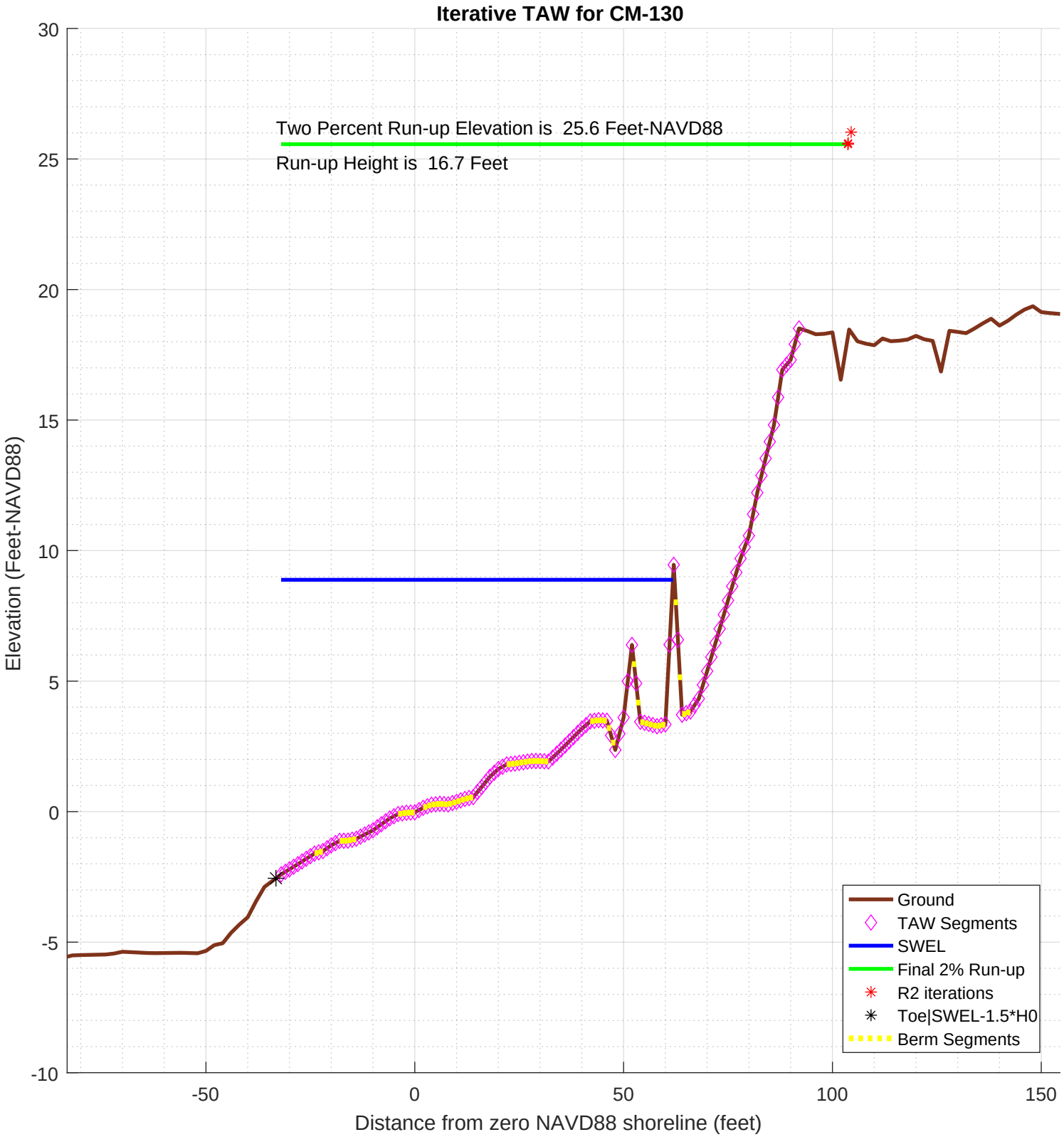
PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	17.14		
		V22 EL=17	120

226.33	17.50			
238.00	17.53	V22	EL=18	120
242.00	17.54	V22	EL=18	120
298.00	17.94	V22	EL=18	120
302.00	17.97	V22	EL=18	120
318.64	17.50	V22	EL=18	120
323.18	16.50	V22	EL=17	120
330.00	16.17	V22	EL=16	120
366.00	16.08	V22	EL=16	120
368.00	16.07	V22	EL=16	120
398.00	16.13	V22	EL=16	120
400.00	16.13	V22	EL=16	120
410.10	16.18	V22	EL=16	120
413.40	16.18	V22	EL=16	120
416.70	16.17	V22	EL=16	120
419.90	16.17	V22	EL=16	120
423.20	16.18	V22	EL=16	120
426.50	16.18	V22	EL=16	120
429.80	16.18	V22	EL=16	120
433.10	16.19	V22	EL=16	120
436.40	16.19	V22	EL=16	120
439.60	16.16	V22	EL=16	120
442.90	16.12	V22	EL=16	120
446.20	15.83	V22	EL=16	120
449.10	15.50	V22	EL=15	120
449.50	15.45	V22	EL=15	120
463.86	14.50	V22	EL=14	120
465.90	14.36	V22	EL=14	120
469.20	14.20	V22	EL=14	120
472.40	14.16	V22	EL=14	120
475.70	14.06	V22	EL=14	120
479.00	13.91	V22	EL=14	120
482.30	13.73	V22	EL=14	120
485.60	13.65	V22	EL=14	120
488.80	13.61	V22	EL=14	120
492.10	13.51	V22	EL=14	120
495.40	13.52	V22	EL=14	120
496.93	13.50	V22	EL=13	120
498.70	13.47	V22	EL=13	120
502.00	13.41	V22	EL=13	120
505.20	13.07	V22	EL=13	120
508.50	12.82	V22	EL=13	120
511.80	12.77	V22	EL=13	120
515.10	12.76	V22	EL=13	120
518.40	12.78	V22	EL=13	120
521.70	12.68	V22	EL=13	120
523.85	12.50	V22	EL=12	120
524.90	12.41	V22	EL=12	120
528.20	12.15	V22	EL=12	120
531.50	12.04	V23	EL=12	130
534.80	12.17	V23	EL=12	130

```
                              538.10          12.01
                                                        V23  EL=12     130
                              541.30          11.63
                                                        V23  EL=12     130
                              544.60          11.86
                                                        V23  EL=12     130
                              547.90          11.88
                                                        V23  EL=12     130
                              548.18          11.50
                                                        V23  EL=11     130
                              548.35          11.28
                                                        A16  EL=11      80
                              548.93          10.50
                                                        A16  EL=10      80
                              549.67           9.50
                                                        A16  EL= 9      80
                              549.90           9.19
                              550.20           8.84
                                                        A16  EL= 9      80
                              552.00           8.86
                                                        A16  EL= 9      80
                              564.40           8.85
                                   ZONE TERMINATED AT END OF TRANSECT
                                   PART 7   POSTSCRIPT NOTES
                         PS#  1   START(418315.3249,4843359.896)
                         PS#  2   END(418280.4554,4843852.9094)
-1.000000e+00
```


CM-130
100-year WHAFIS Output
Zero Station: -70.01455121, 43.74010893
Onshore Dir: 94.0 deg CCW from E
Elevation (ft-NAVD88)
Station (ft)
Ground
V-zone
SWEL + Setup
Wave Crest Envelope
BFE
20
15
10
5
0
-5
-450
-400
-350
-300
-250
-200
-150
-100
-50
0
50


Iterative TAW for CM-130
Two Percent Run-up Elevation is 25.6 Feet-NAVD88
Run-up Height is 16.7 Feet
Elevation (Feet-NAVD88)
Distance from zero NAVD88 shoreline (feet)
30
25
20
15
10
5
0
-5
-10
-50
0
50
100
150
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-130
% 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-130sta_ele_include.csv';   % file with station, elevation, include
                                    % third colunm is 0 for excluded points
imgname='logfiles/CM-130-runup';
SWEL=8.8141;  % 100-yr still water level including wave setup.
H0=7.5866;    % significant wave height at toe of structure
Tp=13.6829;    % peak period, 1/fma,
T0=Tp/1.1;

gamma_berm=0.804;   % this may get changed automatically below
gamma_rough=0.8;
gamma_beta=1;
gamma_perm=1;

setupAtToe=0.01352;
maxSetup=0.36725;   % only used in case of berm/shallow foreshore weighted average

plotTitle='Iterative TAW for CM-130'

plotTitle =

Iterative TAW for CM-130



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

SWEL=SWEL+setupAtToe

SWEL =

                   8.82762

SWEL_fore=SWEL+maxSetup

SWEL_fore =

                   9.19487



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

L0 =

          791.720781251791


% 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 =

                  -2.55228


% 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 =

                  20.20752


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

toe_sta =

          -33.240149937526

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

top_sta =

          94.8165933792417


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

top_sta =

          94.8165933792417

toe_sta

toe_sta =

          -33.240149937526




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

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

ans =

-!!- Location of SWEL-1.5*H0 is 111.9 ft landward of toe of slope


ans =

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


ans =

-!!-       setup is adjusted to 0.07 feet


ans =

-!!-       SWEL is adjusted to 8.88 feet


k =

     1
     2
     3
     4
     5
     6
     7
     8
     9
    10
    11
    12
    13
    14
    15
    16
    17
    18



% 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 =
                  -2.55228
toe_sta =
          -33.240149937526
top_sta =
          94.8165933792417
Z2 =
                  20.20752
H0 =
                    7.5866
Tp =
                   13.6829
T0 =
                    12.439
R2 =
                   22.7598
Z2 =
          31.6403931983369
top_sta =
          113.787593459449
Lslope =
          147.027743396975
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 9
dh =
          10.4638181983369
```

```
rdh_sum =
        0.780553558669201
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 10
dh =
          10.4164681983369
rdh_sum =
          1.55703620551544
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 15
dh =
           9.9994431983369
rdh_sum =
          2.29656225114538
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 16
dh =
           9.9955431983369
rdh_sum =
          3.03573381700501
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 17
dh =
           9.9750181983369
rdh_sum =
          3.77303725482285
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 18
dh =
           9.9378681983369
rdh_sum =
          4.50694852841179
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 29
dh =
           8.9619181983369
rdh_sum =
          5.14741036178807
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 30
dh =
           8.9367681983369
rdh_sum =
          5.78537151393999
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 31
dh =
           8.9202181983369
rdh_sum =
          6.42168504354656
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 32
dh =
           8.9122681983369
rdh_sum =
          7.05720654671662
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 35
dh =
           8.7052181983369
rdh_sum =
          7.67197751094222
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 36
dh =
           8.6460681983369
rdh_sum =
          8.28078005843578
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 37
dh =
           8.6078431983369
rdh_sum =
          8.88571684926343
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 38
dh =
           8.5905431983369
rdh_sum =
          9.48890188770133
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 39
dh =
           8.5871181983369
rdh_sum =
          10.0917399619611
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 40
dh =
           8.5975681983369
```

```
rdh_sum =
          10.6956364942951
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 41
dh =
           8.5782931983369
rdh_sum =
          11.2975803280897
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 42
dh =
           8.5292931983369
rdh_sum =
          11.8945528651283
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 43
dh =
           8.4775681983369
rdh_sum =
          12.4862668215186
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 44
dh =
           8.4231181983369
rdh_sum =
          13.0724338088691
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 45
dh =
           8.3779431983369
rdh_sum =
          13.6539903539078
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 46
dh =
           8.3420431983369
rdh_sum =
          14.2318779311088
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 55
dh =
           7.0645431983369
rdh_sum =
          14.6779368840052
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 56
dh =
           7.0462431983369
rdh_sum =
          15.1221127906567
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 57
dh =
           7.0251431983369
rdh_sum =
          15.5641185311599
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 58
dh =
           7.0012431983369
rdh_sum =
          16.0036674605257
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 59
dh =
           6.9773431983369
rdh_sum =
          16.4407610590331
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 60
dh =
           6.9534431983369
rdh_sum =
          16.8754008670852
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 61
dh =
           6.9421431983369
rdh_sum =
          17.3088810683691
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 62
dh =
           6.9434431983369
rdh_sum =
          17.7424946573258
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 63
dh =
           6.9481931983369
```

```
rdh_sum =
          18.1765956651373
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 64
dh =
           6.9563931983369
rdh_sum =
          18.6115382615405
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 75
dh =
           5.4143681983369
rdh_sum =
          18.8941640468532
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 76
dh =
           5.3887181983369
rdh_sum =
          19.1744015846377
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 77
dh =
           5.3816431983369
rdh_sum =
           19.453981463547
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 78
dh =
           5.3931431983369
rdh_sum =
          19.7346305684097
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 79
dh =
           5.6787431983369
rdh_sum =
          20.0422170458552
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 80
dh =
           6.2384431983369
rdh_sum =
          20.4044547752253
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 85
dh =
           3.2302181983369
rdh_sum =
          20.5121754135587
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 86
dh =
           4.7024681983369
rdh_sum =
          20.7310286080316
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 87
dh =
           5.4587181983369
rdh_sum =
          21.0177982065128
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 88
dh =
           5.4989681983369
rdh_sum =
          21.3083441098315
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 89
dh =
           5.5417181983369
rdh_sum =
          21.6029167950983
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 90
dh =
           5.5869681983369
rdh_sum =
          21.9017692735243
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 91
dh =
           5.5918931983369
rdh_sum =
           22.201088635858
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 92
dh =
           5.5564931983369
```

```
rdh_sum =
         22.4970567919556
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 95
dh =
        0.860243198336903
rdh_sum =
         22.5049668326762
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 96
dh =
          3.7329431983369
rdh_sum =
         22.6470226491222
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 97
dh =
          5.1387681983369
rdh_sum =
         22.9043222638872
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 98
dh =
          5.0777181983369
rdh_sum =
         23.1561157517155
ans =
!------- End Berm Factor Calculation, Iter: 1 ---------!
berm_width =
    50
rB =
         0.340071872456071
rdh_mean =
          0.46312231503431
gamma_berm =
         0.817423000393837
slope =
         0.352400993790431
Irb =
          3.59997556846645
gamma_berm =
         0.817423000393837
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                        0.8
gamma =
         0.65393840031507
ans =
!!! - - Iribaren number:   2.94 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:2.8 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
         17.1493876990298
R2del =
         5.61041230097024
Z2 =
         26.0299808973667
ans =
!----------------- STARTING ITERATION 2 -----------------!
Ztoe =
                -2.55228
toe_sta =
         -33.240149937526
top_sta =
         104.478023558229
Z2 =
         26.0299808973667
H0 =
                   7.5866
Tp =
                  13.6829
T0 =
                   12.439
R2 =
         17.1493876990298
Z2 =
         26.0299808973667
top_sta =
         104.478023558229
Lslope =
         137.718173495755
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 9
dh =
          10.4638181983369
rdh_sum =
         0.780553558669201
```

```
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 10
dh =
          10.4164681983369
rdh_sum =
          1.55703620551544
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 15
dh =
           9.9994431983369
rdh_sum =
          2.29656225114538
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 16
dh =
           9.9955431983369
rdh_sum =
          3.03573381700501
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 17
dh =
           9.9750181983369
rdh_sum =
          3.77303725482285
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 18
dh =
           9.9378681983369
rdh_sum =
          4.50694852841179
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 29
dh =
           8.9619181983369
rdh_sum =
          5.14741036178807
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 30
dh =
           8.9367681983369
rdh_sum =
          5.78537151393999
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 31
dh =
           8.9202181983369
rdh_sum =
          6.42168504354656
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 32
dh =
           8.9122681983369
rdh_sum =
          7.05720654671662
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 35
dh =
           8.7052181983369
rdh_sum =
          7.67197751094222
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 36
dh =
           8.6460681983369
rdh_sum =
          8.28078005843578
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 37
dh =
           8.6078431983369
rdh_sum =
          8.88571684926343
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 38
dh =
           8.5905431983369
rdh_sum =
          9.48890188770133
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 39
dh =
           8.5871181983369
rdh_sum =
          10.0917399619611
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 40
dh =
           8.5975681983369
rdh_sum =
          10.6956364942951
```

```
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 41
dh =
           8.5782931983369
rdh_sum =
          11.2975803280897
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 42
dh =
           8.5292931983369
rdh_sum =
          11.8945528651283
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 43
dh =
           8.4775681983369
rdh_sum =
          12.4862668215186
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 44
dh =
           8.4231181983369
rdh_sum =
          13.0724338088691
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 45
dh =
           8.3779431983369
rdh_sum =
          13.6539903539078
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 46
dh =
           8.3420431983369
rdh_sum =
          14.2318779311088
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 55
dh =
           7.0645431983369
rdh_sum =
          14.6779368840052
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 56
dh =
           7.0462431983369
rdh_sum =
          15.1221127906567
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 57
dh =
           7.0251431983369
rdh_sum =
          15.5641185311599
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 58
dh =
           7.0012431983369
rdh_sum =
          16.0036674605257
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 59
dh =
           6.9773431983369
rdh_sum =
          16.4407610590331
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 60
dh =
           6.9534431983369
rdh_sum =
          16.8754008670852
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 61
dh =
           6.9421431983369
rdh_sum =
          17.3088810683691
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 62
dh =
           6.9434431983369
rdh_sum =
          17.7424946573258
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 63
dh =
           6.9481931983369
rdh_sum =
          18.1765956651373
```

```
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 64
dh =
          6.9563931983369
rdh_sum =
         18.6115382615405
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 75
dh =
          5.4143681983369
rdh_sum =
         18.8941640468532
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 76
dh =
          5.3887181983369
rdh_sum =
         19.1744015846377
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 77
dh =
          5.3816431983369
rdh_sum =
          19.453981463547
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 78
dh =
          5.3931431983369
rdh_sum =
         19.7346305684097
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 79
dh =
          5.6787431983369
rdh_sum =
         20.0422170458552
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 80
dh =
          6.2384431983369
rdh_sum =
         20.4044547752253
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 85
dh =
          3.2302181983369
rdh_sum =
         20.5121754135587
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 86
dh =
          4.7024681983369
rdh_sum =
         20.7310286080316
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 87
dh =
          5.4587181983369
rdh_sum =
         21.0177982065128
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 88
dh =
          5.4989681983369
rdh_sum =
         21.3083441098315
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 89
dh =
          5.5417181983369
rdh_sum =
         21.6029167950983
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 90
dh =
          5.5869681983369
rdh_sum =
         21.9017692735243
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 91
dh =
          5.5918931983369
rdh_sum =
          22.201088635858
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 92
dh =
          5.5564931983369
rdh_sum =
         22.4970567919556
```

```
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 95
dh =
         0.860243198336903
rdh_sum =
          22.5049668326762
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 96
dh =
           3.7329431983369
rdh_sum =
          22.6470226491222
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 97
dh =
           5.1387681983369
rdh_sum =
          22.9043222638872
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 98
dh =
           5.0777181983369
rdh_sum =
          23.1561157517155
ans =
!------- End Berm Factor Calculation, Iter: 2 ---------!
berm_width =
    50
rB =
         0.363060289944531
rdh_mean =
          0.46312231503431
gamma_berm =
         0.805081032031608
slope =
         0.325841952223844
Irb =
          3.32865992961653
gamma_berm =
         0.805081032031608
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                       0.8
gamma =
         0.644064825625287
ans =
!!! - - Iribaren number:   2.68 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.1 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
          16.7258168733221
R2del =
         0.423570825707621
Z2 =
           25.606410071659
ans =
!----------------- STARTING ITERATION 3 -----------------!
Ztoe =
                    -2.55228
toe_sta =
          -33.240149937526
top_sta =
          103.775176423561
Z2 =
           25.606410071659
H0 =
                     7.5866
Tp =
                    13.6829
T0 =
                     12.439
R2 =
          16.7258168733221
Z2 =
           25.606410071659
top_sta =
          103.775176423561
Lslope =
          137.015326361087
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 9
dh =
          10.4638181983369
rdh_sum =
         0.780553558669201
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 10
```

```
dh =
          10.4164681983369
rdh_sum =
          1.55703620551544
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 15
dh =
           9.9994431983369
rdh_sum =
          2.29656225114538
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 16
dh =
           9.9955431983369
rdh_sum =
          3.03573381700501
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 17
dh =
           9.9750181983369
rdh_sum =
          3.77303725482285
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 18
dh =
           9.9378681983369
rdh_sum =
          4.50694852841179
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 29
dh =
           8.9619181983369
rdh_sum =
          5.14741036178807
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 30
dh =
           8.9367681983369
rdh_sum =
          5.78537151393999
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 31
dh =
           8.9202181983369
rdh_sum =
          6.42168504354656
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 32
dh =
           8.9122681983369
rdh_sum =
          7.05720654671662
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 35
dh =
           8.7052181983369
rdh_sum =
          7.67197751094222
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 36
dh =
           8.6460681983369
rdh_sum =
          8.28078005843578
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 37
dh =
           8.6078431983369
rdh_sum =
          8.88571684926343
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 38
dh =
           8.5905431983369
rdh_sum =
          9.48890188770133
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 39
dh =
           8.5871181983369
rdh_sum =
          10.0917399619611
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 40
dh =
           8.5975681983369
rdh_sum =
          10.6956364942951
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 41
```

```
dh =
           8.5782931983369
rdh_sum =
          11.2975803280897
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 42
dh =
           8.5292931983369
rdh_sum =
          11.8945528651283
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 43
dh =
           8.4775681983369
rdh_sum =
          12.4862668215186
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 44
dh =
           8.4231181983369
rdh_sum =
          13.0724338088691
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 45
dh =
           8.3779431983369
rdh_sum =
          13.6539903539078
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 46
dh =
           8.3420431983369
rdh_sum =
          14.2318779311088
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 55
dh =
           7.0645431983369
rdh_sum =
          14.6779368840052
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 56
dh =
           7.0462431983369
rdh_sum =
          15.1221127906567
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 57
dh =
           7.0251431983369
rdh_sum =
          15.5641185311599
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 58
dh =
           7.0012431983369
rdh_sum =
          16.0036674605257
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 59
dh =
           6.9773431983369
rdh_sum =
          16.4407610590331
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 60
dh =
           6.9534431983369
rdh_sum =
          16.8754008670852
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 61
dh =
           6.9421431983369
rdh_sum =
          17.3088810683691
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 62
dh =
           6.9434431983369
rdh_sum =
          17.7424946573258
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 63
dh =
           6.9481931983369
rdh_sum =
          18.1765956651373
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 64
```

```
dh =
           6.9563931983369
rdh_sum =
          18.6115382615405
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 75
dh =
           5.4143681983369
rdh_sum =
          18.8941640468532
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 76
dh =
           5.3887181983369
rdh_sum =
          19.1744015846377
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 77
dh =
           5.3816431983369
rdh_sum =
           19.453981463547
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 78
dh =
           5.3931431983369
rdh_sum =
          19.7346305684097
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 79
dh =
           5.6787431983369
rdh_sum =
          20.0422170458552
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 80
dh =
           6.2384431983369
rdh_sum =
          20.4044547752253
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 85
dh =
           3.2302181983369
rdh_sum =
          20.5121754135587
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 86
dh =
           4.7024681983369
rdh_sum =
          20.7310286080316
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 87
dh =
           5.4587181983369
rdh_sum =
          21.0177982065128
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 88
dh =
           5.4989681983369
rdh_sum =
          21.3083441098315
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 89
dh =
           5.5417181983369
rdh_sum =
          21.6029167950983
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 90
dh =
           5.5869681983369
rdh_sum =
          21.9017692735243
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 91
dh =
           5.5918931983369
rdh_sum =
           22.201088635858
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 92
dh =
           5.5564931983369
rdh_sum =
          22.4970567919556
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 95
```

```
dh =
        0.860243198336903
rdh_sum =
         22.5049668326762
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 96
dh =
          3.7329431983369
rdh_sum =
         22.6470226491222
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 97
dh =
          5.1387681983369
rdh_sum =
         22.9043222638872
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 98
dh =
          5.0777181983369
rdh_sum =
         23.1561157517155
ans =
!------- End Berm Factor Calculation, Iter: 3 ---------!
berm_width =
    50
rB =
        0.364922679293783
rdh_mean =
         0.46312231503431
gamma_berm =
        0.804081156749277
slope =
        0.323606096181368
Irb =
           3.305819394915
gamma_berm =
        0.804081156749277
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                      0.8
gamma =
        0.643264925399421
ans =
!!! - - Iribaren number:   2.66 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.1 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
         16.6902846566313
R2del =
       0.0355322166908394
Z2 =
         25.5708778549682
ans =
!----------------- STARTING ITERATION 4 -----------------!
Ztoe =
                  -2.55228
toe_sta =
         -33.240149937526
top_sta =
         103.716216468876
Z2 =
         25.5708778549682
H0 =
                   7.5866
Tp =
                  13.6829
T0 =
                   12.439
R2 =
         16.6902846566313
Z2 =
         25.5708778549682
top_sta =
         103.716216468876
Lslope =
         136.956366406402
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 9
dh =
         10.4638181983369
rdh_sum =
        0.780553558669201
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 10
dh =
         10.4164681983369
```

```
rdh_sum =
          1.55703620551544
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 15
dh =
           9.9994431983369
rdh_sum =
          2.29656225114538
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 16
dh =
           9.9955431983369
rdh_sum =
          3.03573381700501
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 17
dh =
           9.9750181983369
rdh_sum =
          3.77303725482285
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 18
dh =
           9.9378681983369
rdh_sum =
          4.50694852841179
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 29
dh =
           8.9619181983369
rdh_sum =
          5.14741036178807
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 30
dh =
           8.9367681983369
rdh_sum =
          5.78537151393999
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 31
dh =
           8.9202181983369
rdh_sum =
          6.42168504354656
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 32
dh =
           8.9122681983369
rdh_sum =
          7.05720654671662
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 35
dh =
           8.7052181983369
rdh_sum =
          7.67197751094222
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 36
dh =
           8.6460681983369
rdh_sum =
          8.28078005843578
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 37
dh =
           8.6078431983369
rdh_sum =
          8.88571684926343
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 38
dh =
           8.5905431983369
rdh_sum =
          9.48890188770133
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 39
dh =
           8.5871181983369
rdh_sum =
         10.0917399619611
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 40
dh =
           8.5975681983369
rdh_sum =
         10.6956364942951
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 41
dh =
           8.5782931983369
```

```
rdh_sum =
          11.2975803280897
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 42
dh =
           8.5292931983369
rdh_sum =
          11.8945528651283
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 43
dh =
           8.4775681983369
rdh_sum =
          12.4862668215186
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 44
dh =
           8.4231181983369
rdh_sum =
          13.0724338088691
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 45
dh =
           8.3779431983369
rdh_sum =
          13.6539903539078
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 46
dh =
           8.3420431983369
rdh_sum =
          14.2318779311088
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 55
dh =
           7.0645431983369
rdh_sum =
          14.6779368840052
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 56
dh =
           7.0462431983369
rdh_sum =
          15.1221127906567
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 57
dh =
           7.0251431983369
rdh_sum =
          15.5641185311599
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 58
dh =
           7.0012431983369
rdh_sum =
          16.0036674605257
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 59
dh =
           6.9773431983369
rdh_sum =
          16.4407610590331
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 60
dh =
           6.9534431983369
rdh_sum =
          16.8754008670852
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 61
dh =
           6.9421431983369
rdh_sum =
          17.3088810683691
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 62
dh =
           6.9434431983369
rdh_sum =
          17.7424946573258
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 63
dh =
           6.9481931983369
rdh_sum =
          18.1765956651373
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 64
dh =
           6.9563931983369
```

```
rdh_sum =
          18.6115382615405
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 75
dh =
           5.4143681983369
rdh_sum =
          18.8941640468532
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 76
dh =
           5.3887181983369
rdh_sum =
          19.1744015846377
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 77
dh =
           5.3816431983369
rdh_sum =
           19.453981463547
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 78
dh =
           5.3931431983369
rdh_sum =
          19.7346305684097
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 79
dh =
           5.6787431983369
rdh_sum =
          20.0422170458552
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 80
dh =
           6.2384431983369
rdh_sum =
          20.4044547752253
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 85
dh =
           3.2302181983369
rdh_sum =
          20.5121754135587
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 86
dh =
           4.7024681983369
rdh_sum =
          20.7310286080316
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 87
dh =
           5.4587181983369
rdh_sum =
          21.0177982065128
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 88
dh =
           5.4989681983369
rdh_sum =
          21.3083441098315
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 89
dh =
           5.5417181983369
rdh_sum =
          21.6029167950983
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 90
dh =
           5.5869681983369
rdh_sum =
          21.9017692735243
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 91
dh =
           5.5918931983369
rdh_sum =
           22.201088635858
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 92
dh =
           5.5564931983369
rdh_sum =
          22.4970567919556
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 95
dh =
         0.860243198336903
```

```
rdh_sum =
          22.5049668326762
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 96
dh =
           3.7329431983369
rdh_sum =
          22.6470226491222
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 97
dh =
           5.1387681983369
rdh_sum =
          22.9043222638872
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 98
dh =
           5.0777181983369
rdh_sum =
          23.1561157517155
ans =
!------- End Berm Factor Calculation, Iter: 4 ---------!
berm_width =
    50
rB =
         0.365079779143898
rdh_mean =
          0.46312231503431
gamma_berm =
         0.803996813345439
slope =
         0.323416893060261
Irb =
          3.30388657796651
gamma_berm =
         0.803996813345439
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                       0.8
gamma =
         0.643197450676351
ans =
!!! - - Iribaren number:   2.66 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.1 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
          16.6872780754554
R2del =
       0.00300658117590658
Z2 =
          25.5678712737923
% final 2% runup elevation
Z2=R2_new+SWEL
Z2 =
          25.5678712737923
diary off
-1.000000e+00
-1.000000e+00
-1.000000e+00
```

PART 5: RUNUP2

for transect: CM-130

Station locations shifted by: 0.32 feet from their
original location to set the shoreline to
elevation 0 for RUNUP2 input

RUNUP2 INPUT CONVERSIONS
for transect: CM-130

Incident significant wave height: 7.43 feet

Peak wave period: 13.59 seconds

Mean wave height: 4.65 feet

Local Depth below SWEL: 31.75 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 = 31.75
Period, T = 11.55
Waveheight, H = 4.65
Deep water wavelength, L0 (ft)
L0 = g*T*T/twopi
L0 = 32.17*11.55*11.55/6.28 = 683.49
Deep water wave celerity, C0 (ft/s)
C0 = L0/T
C0 = 683.49/11.55 = 59.16
Angular frequency, sigma (rad/s)
sigma = twopi/T
sigma = 6.28/11.55 = 0.54
Hunts (1979) approximation for Celerity C1H (ft/s) at Depth D (ft)
y = sigma.*sigma.*D./g
y = 0.54*0.54*31.75/32.17 = 0.29
C1H = sqrt(g.*D./(y+1./(1 + 0.6522.*y + 0.4622.*y.^2 + 0.0864.*y.^4 +0.0675.*y.^5)))
C1H = 30.41
Shoaling Coefficient KsH
KsH = sqrt(C0/C1H)
KsH = sqrt(59.16/30.41) = 1.39
Deepwater Wave Height H0_H (ft)
H0_H = H/KsH
H0_H = 4.65/1.39 = 3.34

Deepwater mean wave height: 3.34 feet

END RUNUP2 CONVERSIONS

RUNUP2 RESULTS
for transect: CM-130

RUNUP2 SWEL:
8.81

RUNUP2 deepwater mean wave heights:
-9999.00

RUNUP2 mean wave periods:
-9999.00

RUNUP2 runup above SWEL:
-9999.00

RUNUP2 Mean runup height above SWEL: -9999.00 feet

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

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

RUNUP2 Messages:
RUNUP2 Failed

_____END RUNUP2 RESULTS_____

_____ACES BEACH RUNUP_____

Incident significant wave height: 7.43 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 4.67 feet

Peak wave period: 13.59 seconds

Average beach Slope: 1:13.99 (H:V)

ACES RUNUP CALCULATED USING 'Aces_Beach_Runup.m'

ACES Beach 2-percent runup height above SWEL: 8.79 feet

ACES Beach 2-percent runup elevation: 17.61 feet-NAVD88

ACES BEACH RUNUP is valid

_____END ACES BEACH RESULTS_____

PART 5 COMPLETE_____

```
  FEMA                                                  sjh           job 2
  RUNUP2 transect: CM-130                                               1
3.00
  -22.93 -488.3 0.8
  -20.62 -358.3 0.8
  -19.87 -286.3 0.8
  -18.47 -234.3 0.8
  -14.27 -172.3 0.8
  -5.55 -170.3 0.8
  -4.97 -158.3 0.8
  -4.76 -128.3 0.8
  -4.76 -46.3  0.8
  -2.88 -36.3  0.8
  -0.09 -4.3   0.8
  0.56  13.7   0.8
  3.60  49.7   0.8
  6.39  51.7   0.8
  6.39  59.7   0.8
  9.46  61.7   0.8
  9.46  75.7   0.8
  10.57 79.7   0.8
  16.93 87.7   0.8
1 18.51 91.7   0.8
 8.8   3.17  10.98
 8.8   3.17  11.55
 8.8   3.17  12.13
 8.8   3.34  10.98
 8.8   3.34  11.55
 8.8   3.34  12.13
 8.8   3.50  10.98
 8.8   3.50  11.55
 8.8   3.50  12.13
```

****

CROSS SECTION PROFILE

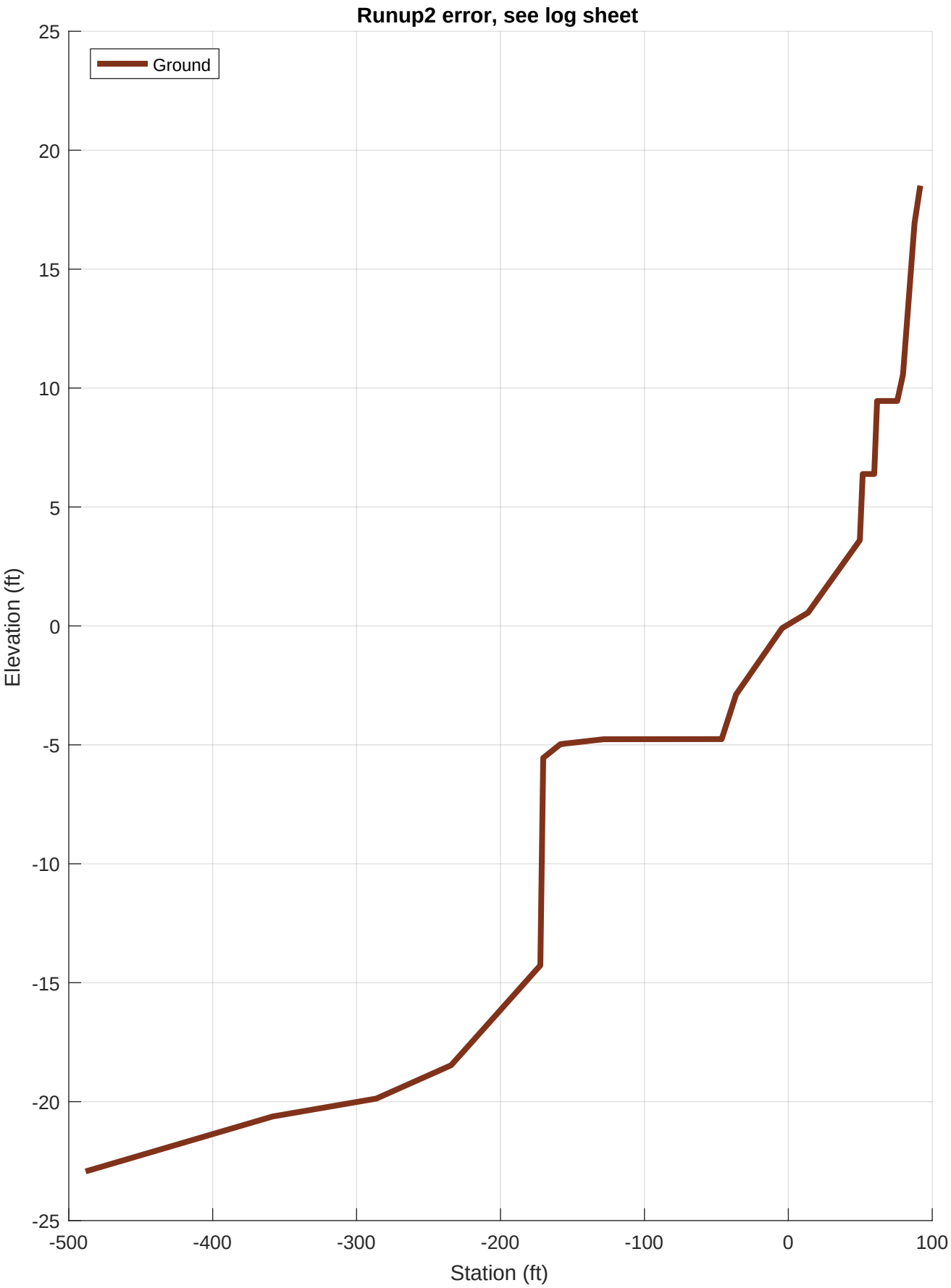
	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-488.0	-22.9		
			.00	.80
2	-358.0	-20.6		
			90.00	.80
3	-286.0	-19.8		
			37.14	.80
4	-234.0	-18.4		
			14.76	.80
5	-172.0	-14.2		
			.20	.80
6	-170.3	-5.5		
			20.69	.80
7	-158.3	-5.0		
			142.86	.80
8	-128.3	-4.8		
			FLAT	.80
9	-46.3	-4.8		
			5.32	.80
10	-36.3	-2.9		
			11.47	.80
11	-4.3	-.1		
			27.69	.80
12	13.7	.6		
			11.84	.80
13	49.7	3.6		
			.72	.80
14	51.7	6.4		
			FLAT	.80
15	59.7	6.4		
			.65	.80
16	61.7	9.5		
			FLAT	.80
17	75.7	9.5		
			3.60	.80
18	79.7	10.6		
			1.26	.80
19	87.7	16.9		
			2.53	.80
20	91.7	18.5		

LAST SLOPE 3.00 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.)


Runup2 error, see log sheet
Ground
25
20
15
10
5
0
-5
-10
-15
-20
-25
Elevation (ft)
-500
-400
-300
-200
-100
0
100
Station (ft)