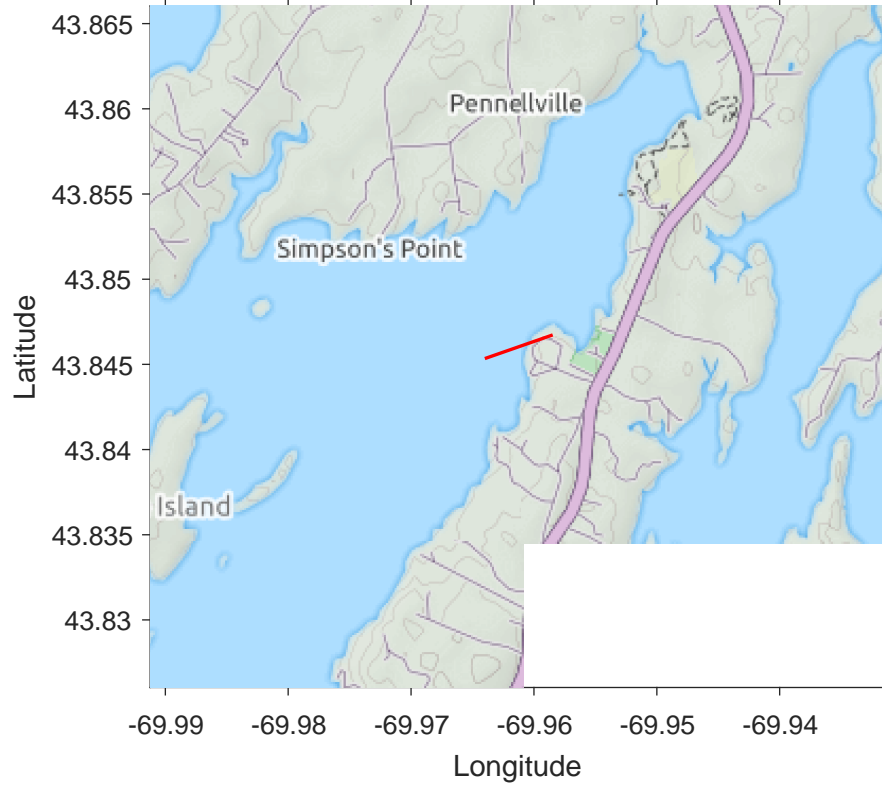
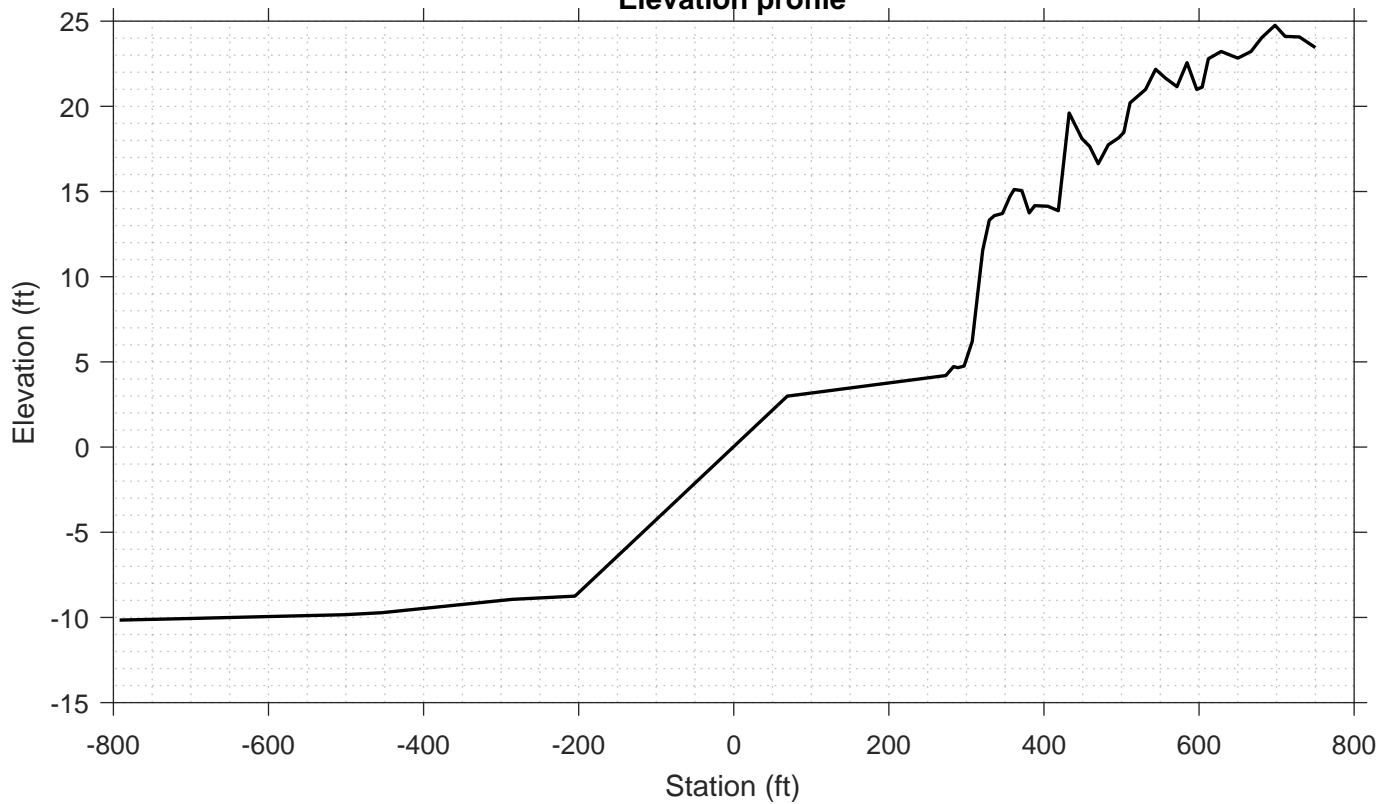


**Transect Number: CM-122-1**



**Elevation profile**



---

DATA LOG FOR TRANSECT ID: CM-122-1

---

---

PART 1: USER INPUT

SWAN 1-D / WHAFIS input

---

station: -505 ft  
LON: -69.963 deg E  
LAT: 43.8456 deg N  
Bottom ELEV: -9.8424 ft-NAVD88  
TWL: 9.0674 ft-NAVD88  
HS: 2.1211 ft  
TP: 4.9825 sec  
Wave Direction bin: 0 deg CCW from East (90 deg sector)  
Transect Direction: 14.142 deg CCW from East

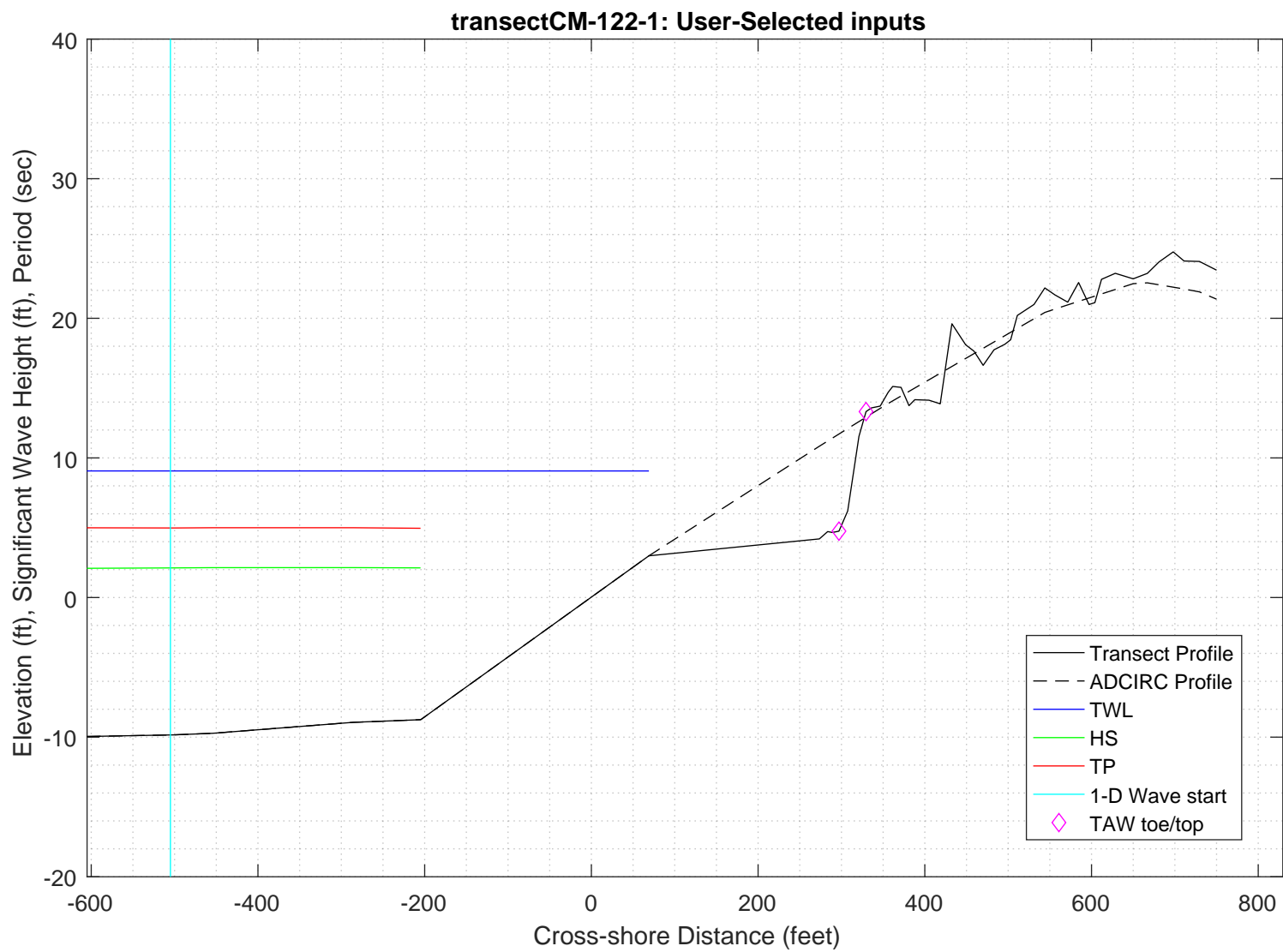
TAW/RUNUP input

---

toe sta: 297 ft  
toe elev: 4.7539 ft-NAVD88  
top sta: 329.5 ft  
top elev: 13.3169 ft-NAVD88  
\*Wave and water level conditions at toe to be calculated in SWAN 1-D\*

PART 1 COMPLETE

---



---

PART 2: SWAN 1-D

swan input grid name: 2\_swan/gridfiles/CM-122-1zmeters\_xmeters.grd  
swan file name: 2\_swan/swanfiles/CM-122-1.swn  
swan output name: 2\_swan/swanfiles/CM-122-1.dat

Boundary Conditions:  
TWL- 2.7638 meters  
HS- 0.64652 meters  
PER- 4.9825 seconds

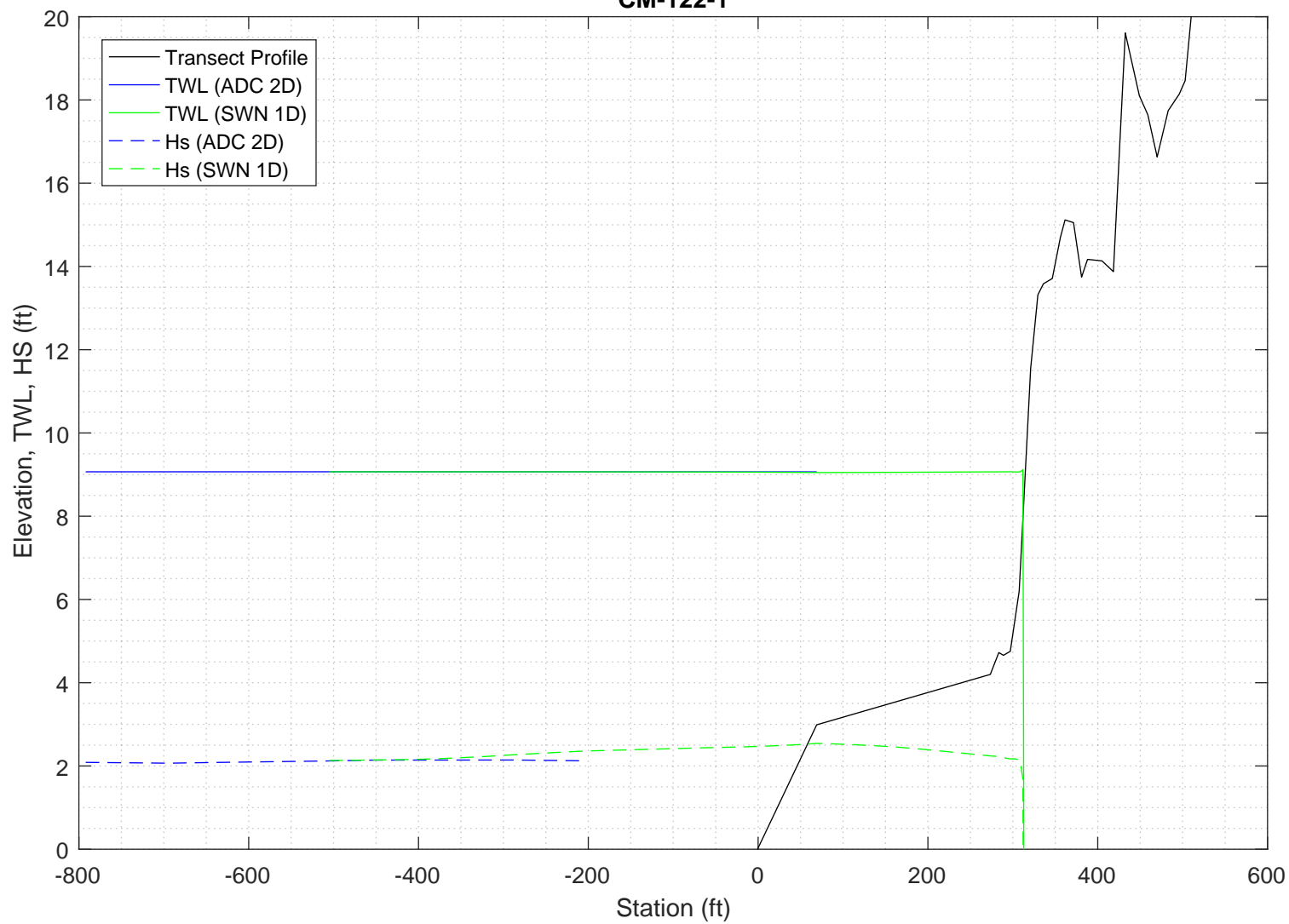
Batch File: 2\_swan/swanfiles/runswan.dat

SWAN maximum additional wave setup: 0.050741 feet  
SWAN output at toe:  
SETUP- 0.00035761 feet  
HS- 2.1741 feet  
PER- 5.0338 seconds

PART 2 COMPLETE

---

**2-D ADCIRC+SWAN and SWAN 1-D results, Transect:  
CM-122-1**



Execution started at 20200220.141914

```

-----
                        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      251      0.    251      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      251    0      1      1
!READinp BOTtom [fac] 'fname1' [idla] [nhedf] [FREe|FORmat[form]|UNFormatted]
READ    BOTTOM    -1. '../gridfiles/CM-122-1zmeters_xmeters.grd'    1      0      FREE
!-----
! -- WIND [vel] [dir]
WIND      25.1    0
! -- BOUNd SHAPespec
BOUND SHAPE JONSWAP 3.3    PEAK DSPR POWER
! -- BOUNdspec
! BOU SIDE W CCW CON FILE 'swanspec.txt' 1
BOUN SIDE W CCW CONSTANT PAR    0.64652    4.9825    0    2
!-- BOUNdnest1 - optional for boundary from parent run
!-- BOUNdnest2
!-- BOUNdnest3
!-- INITIAL -- usest to specify initial values
!

```

```

!----- P H Y S I C S -----
!-- GEN1 [cf10] [cf20] [cf30] [cf40] [edmlpm] [cdrag] [umin] [cfpm]
!-- GEN2 [cf10] [cf20] [cf30] [cf40] [cf50] [cf60] [edmlpm] [cdrag] [umin] [cfpm]
      GEN3 KOMEN
!   whitecapping ( on by default)
!-- WCAPping KOMen [cds2] [stpm] [powst] [delta] [powk]
      WCAP KOM
!   quadruplet wave interactions
!-- QUADrupl [iquad] [lambda] [Cn14] [Csh1] [Csh2]
! -- BREaking CONstant [alpha] [gamma]
      BREAK      CON      1.      0.73
!-- FRIction JONswap CONstant [cfjon]
      FRIC      JONSWAP CON      0.038
!-- TRIad [itriad] [trfac] [cutfr] [a] [b] [urcrit] [urslim]
! TRIAD      1      0.65      2.5      0.95 -0.75 0.2      0.01
      TRIAD
!-- VEGETation [height] [diamtr] [nstems] [drag]
!-- MUD [layer] [rhom] [viscm]
!- LIMiter [ursell] [qb] deactivates quadruplets with Ursell number exceeds ursell
!-- OBSTacle -- not in 1-D
!-- SETUP [supcor]
      SETUP      0
!
! ----- N U M E R I C S -----
!
!-- PROP can use BBST or GSE instead of default
! -- NUMeric -- lots of options
!   NUM ACCUR npnts=100. stat 30
      NUMeric STOPC
!
! -----O U T P U T -----
!
!OUTPut OPTIOns "comment' (TABLE [field]) (BLOck [ndec] [len]) (SPEC [ndec])
      OUTPUT OPTIONS '%' TABLE 16
      $BLOCK 9 1000 SPEC 8
!CURve 'sname' [xpl] [yp1] <[int] [xp] [yp] >
      CURVE 'curve' 0      0      251 251      0
!TABLE 'sname' < HEADER|NOHEAdER|INDEXed > 'fname' <output parameters> (output time)
      Table 'curve'      HEADER 'CM-122-1.dat' XP YP HSIGN TPS RTP TMM10 DIR &
      DSPR DEPTH SETUP
!QUANTITY XP hexp=99999
!
!-----
COMPUTE STATIONARY
-----
COMPUTATIONAL PART OF SWAN
-----

```

```

One-dimensional mode of SWAN is activated
Gridresolution      : MXC          252 MYC          1
                   : MCGRD         253
                   : MSC           31 MDC           36
                   : MTC           1
                   : NSTATC         0 ITERMX         50
Propagation flags   : ITFRE         1 IREFR          1
Source term flags   : IBOT          1 ISURF          1
                   : IWCAP         1 IWIND           3
                   : ITRIAD         1 IQUAD           2
                   : IVEG           0 ITURBV          0
                   : IMUD           0
Spatial step        : DX           0.1000E+01 DY           0.1000E+01
Spectral bin        : df/f         0.1157E+00 DDIR         0.1000E+02
Physical constants   : GRAV         0.9810E+01 RHO          0.1025E+04
Wind input          : WSPEED        0.2510E+02 DIR           0.0000E+00
Tail parameters     : E(f)          0.4000E+01 E(k)          0.2500E+01
                   : A(f)          0.5000E+01 A(k)          0.3000E+01
Accuracy parameters : DREL          0.1000E-01 NPNTS         0.9950E+02
                   : DHABS         0.0000E+00 CURVAT         0.5000E-02
                   : GRWMX         0.1000E+00
Drying/flooding     : LEVEL         0.0000E+00 DEPMIN         0.1000E-01
The Cartesian convention for wind and wave directions is used
Scheme for geographic propagation is SORDUP
Scheme geogr. space : PROPSC         2 ICMAx           7
Scheme spectral space: CSS           0.5000E+00 CDD           0.5000E+00
Current is off
Quadruplets         : IQUAD         2
                   : LAMBDA         0.2500E+00 CNL4          0.3000E+08
                   : CSH1          0.5500E+01 CSH2          0.8330E+00
                   : CSH3          -0.1250E+01
Maximum Ursell nr for Snl4 : 0.1000E+02
Triads              : ITRIAD         1 TRFAC           0.8000E+00
                   : CUTFR          0.2500E+01 URCRI          0.2000E+00
Minimum Ursell nr for Snl3 : 0.1000E-01
JONSWAP ('73)       : GAMMA         0.3800E-01
Vegetation is off
Turbulence is off
Fluid mud is off
W-cap Komen ('84)   : EMPCOF (CDS2): 0.2360E-04
W-cap Komen ('84)   : APM (STPM)    : 0.3020E-02
W-cap Komen ('84)   : POWST         : 0.2000E+01
W-cap Komen ('84)   : DELTA         : 0.1000E+01
W-cap Komen ('84)   : POWK         : 0.1000E+01
Wind drag is fit
Snyder/Komen wind input
Battjes&Janssen ('78): ALPHA         0.1000E+01 GAMMA         0.7300E+00
Set-up              : SUPCOR         0.0000E+00
Diffraction is off
Janssen ('89,'90)   : ALPHA         0.1000E-01 KAPPA         0.4100E+00
Janssen ('89,'90)   : RHOA          0.1280E+01 RHOW          0.1025E+04

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

```

-----

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

```

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

```

```

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

```

-----

Options given by user are activated for proceeding calculation:

```

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

```

```

iteration    2; sweep 1
iteration    2; sweep 2
iteration    2; sweep 3
iteration    2; sweep 4
accuracy OK in 8.00 % 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  0.40 % 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  7.60 % 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 73.60 % 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 95.60 % of wet grid points ( 99.50 % required)

iteration    7; sweep 1
iteration    7; sweep 2
iteration    7; sweep 3
iteration    7; sweep 4
accuracy OK in 99.60 % of wet grid points ( 99.50 % required)
```

STOP

Run: 1

Table:curve

SWAN version:41.20A

Xp [m]	Yp [m]	Hsig [m]	TPsmoo [sec]	RTpeak [sec]	Tm_10 [sec]	Dir [degr]	Dspr [degr]	Depth [m]	Setup [m]
0.	0.	0.64940	4.9957	5.1860	4.4742	0.129	32.2999	5.7600	0.000000
1.	0.	0.64966	4.9957	5.1860	4.4727	0.130	32.3011	5.7600	-0.000002
2.	0.	0.64993	4.9957	5.1860	4.4713	0.130	32.3023	5.7600	-0.000003
3.	0.	0.65020	4.9956	5.1860	4.4698	0.130	32.3036	5.7600	-0.000005
4.	0.	0.65043	4.9956	5.1860	4.4683	0.131	32.2947	5.7600	-0.000007
5.	0.	0.65064	4.9956	5.1860	4.4668	0.131	32.2826	5.7500	-0.000011
6.	0.	0.65089	4.9955	5.1860	4.4653	0.131	32.2795	5.7500	-0.000013
7.	0.	0.65116	4.9955	5.1860	4.4638	0.132	32.2794	5.7500	-0.000014
8.	0.	0.65140	4.9954	5.1860	4.4622	0.132	32.2704	5.7500	-0.000016
9.	0.	0.65162	4.9955	5.1860	4.4607	0.132	32.2583	5.7400	-0.000020
10.	0.	0.65188	4.9954	5.1860	4.4591	0.133	32.2553	5.7400	-0.000022
11.	0.	0.65216	4.9954	5.1860	4.4575	0.133	32.2554	5.7400	-0.000024
12.	0.	0.65240	4.9953	5.1860	4.4558	0.133	32.2465	5.7400	-0.000025
13.	0.	0.65263	4.9953	5.1860	4.4543	0.134	32.2347	5.7300	-0.000030
14.	0.	0.65290	4.9953	5.1860	4.4526	0.134	32.2319	5.7300	-0.000032
15.	0.	0.65318	4.9953	5.1860	4.4509	0.134	32.2322	5.7300	-0.000033
16.	0.	0.65343	4.9952	5.1860	4.4492	0.135	32.2235	5.7300	-0.000035
17.	0.	0.65367	4.9952	5.1860	4.4476	0.135	32.2120	5.7200	-0.000039
18.	0.	0.65391	4.9952	5.1860	4.4458	0.135	32.1996	5.7200	-0.000041
19.	0.	0.65414	4.9952	5.1860	4.4441	0.136	32.1870	5.7100	-0.000046
20.	0.	0.65439	4.9951	5.1860	4.4423	0.136	32.1743	5.7100	-0.000047
21.	0.	0.65463	4.9952	5.1860	4.4406	0.136	32.1617	5.6999	-0.000052
22.	0.	0.65488	4.9951	5.1860	4.4387	0.137	32.1491	5.6999	-0.000054
23.	0.	0.65512	4.9951	5.1860	4.4370	0.137	32.1367	5.6899	-0.000058
24.	0.	0.65537	4.9951	5.1860	4.4350	0.137	32.1243	5.6899	-0.000060
25.	0.	0.65562	4.9951	5.1860	4.4333	0.138	32.1121	5.6799	-0.000065
26.	0.	0.65588	4.9950	5.1860	4.4313	0.138	32.0999	5.6799	-0.000066
27.	0.	0.65614	4.9950	5.1860	4.4294	0.139	32.0876	5.6699	-0.000071
28.	0.	0.65647	4.9950	5.1860	4.4268	0.139	32.0730	5.6699	-0.000073
29.	0.	0.65685	4.9950	5.1860	4.4236	0.139	32.0560	5.6599	-0.000078
30.	0.	0.65732	4.9950	5.1860	4.4198	0.140	32.0466	5.6599	-0.000080
31.	0.	0.65779	4.9949	5.1860	4.4158	0.140	32.0307	5.6599	-0.000082
32.	0.	0.65831	4.9949	5.1860	4.4112	0.140	32.0117	5.6499	-0.000088
33.	0.	0.65887	4.9949	5.1860	4.4062	0.140	31.9915	5.6499	-0.000090
34.	0.	0.65944	4.9949	5.1860	4.4011	0.141	31.9714	5.6399	-0.000095
35.	0.	0.66004	4.9949	5.1860	4.3957	0.141	31.9516	5.6399	-0.000098
36.	0.	0.66067	4.9949	5.1860	4.3900	0.141	31.9317	5.6299	-0.

60.	0.	0.68402	4.9944	5.1860	4.1829	0.206	31.6953	5.5198	-0.000220
61.	0.	0.68530	4.9944	5.1860	4.1721	0.210	31.7018	5.5198	-0.000225
62.	0.	0.68661	4.9944	5.1860	4.1612	0.213	31.7081	5.5098	-0.000232
63.	0.	0.68791	4.9943	5.1860	4.1503	0.217	31.7174	5.5098	-0.000237
64.	0.	0.68917	4.9944	5.1860	4.1400	0.224	31.7311	5.4998	-0.000245
65.	0.	0.69034	4.9943	5.1860	4.1304	0.234	31.7503	5.4998	-0.000249
66.	0.	0.69150	4.9943	5.1860	4.1212	0.248	31.7721	5.4897	-0.000257
67.	0.	0.69262	4.9943	5.1860	4.1126	0.267	31.8044	5.4897	-0.000261
68.	0.	0.69369	4.9942	5.1860	4.1043	0.284	31.8364	5.4897	-0.000266
69.	0.	0.69475	4.9943	5.1860	4.0961	0.301	31.8682	5.4797	-0.000273
70.	0.	0.69587	4.9942	5.1860	4.0878	0.317	31.9080	5.4797	-0.000278
71.	0.	0.69698	4.9942	5.1860	4.0797	0.330	31.9525	5.4797	-0.000282
72.	0.	0.69807	4.9941	5.1860	4.0715	0.341	31.9932	5.4797	-0.000287
73.	0.	0.69916	4.9942	5.1860	4.0634	0.353	32.0340	5.4697	-0.000295
74.	0.	0.70022	4.9941	5.1860	4.0559	0.368	32.0821	5.4697	-0.000299
75.	0.	0.70128	4.9941	5.1860	4.0484	0.382	32.1336	5.4697	-0.000304
76.	0.	0.70233	4.9940	5.1860	4.0408	0.396	32.1812	5.4697	-0.000308
77.	0.	0.70340	4.9941	5.1860	4.0332	0.411	32.2288	5.4597	-0.000316
78.	0.	0.70451	4.9940	5.1860	4.0254	0.425	32.2839	5.4597	-0.000321
79.	0.	0.70565	4.9940	5.1860	4.0175	0.441	32.3425	5.4597	-0.000326
80.	0.	0.70681	4.9939	5.1860	4.0095	0.456	32.4028	5.4597	-0.000331
81.	0.	0.70791	4.9939	5.1860	4.0018	0.468	32.4565	5.4597	-0.000336
82.	0.	0.70901	4.9939	5.1860	3.9942	0.478	32.5081	5.4497	-0.000344
83.	0.	0.71013	4.9939	5.1860	3.9865	0.489	32.5661	5.4497	-0.000349
84.	0.	0.71124	4.9938	5.1860	3.9792	0.495	32.6216	5.4496	-0.000354
85.	0.	0.71229	4.9938	5.1860	3.9721	0.497	32.6657	5.4496	-0.000359
86.	0.	0.71329	4.9938	5.1860	3.9654	0.503	32.7075	5.4396	-0.000366
87.	0.	0.71433	4.9938	5.1860	3.9587	0.509	32.7549	5.4396	-0.000371
88.	0.	0.71536	4.9937	5.1860	3.9522	0.514	32.8045	5.4396	-0.000376
89.	0.	0.71637	4.9937	5.1860	3.9455	0.520	32.8484	5.4396	-0.000381
90.	0.	0.71734	4.9937	5.1860	3.9393	0.530	32.8844	5.4296	-0.000389
91.	0.	0.71826	4.9936	5.1860	3.9330	0.542	32.9117	5.4296	-0.000393
92.	0.	0.71900	4.9937	5.1860	3.9269	0.553	32.9120	5.4096	-0.000404
93.	0.	0.71960	4.9939	5.1860	3.9209	0.563	32.8842	5.3696	-0.000421
94.	0.	0.72017	4.9941	5.1860	3.9150	0.572	32.8470	5.3196	-0.000441
95.	0.	0.72076	4.9943	5.1860	3.9090	0.580	32.8116	5.2795	-0.000459
96.	0.	0.72134	4.9945	5.1860	3.9034	0.582	32.7712	5.2395	-0.000477
97.	0.	0.72187	4.9947	5.1860	3.8979	0.582	32.7245	5.1995	-0.000496
98.	0.	0.72240	4.9949	5.1860	3.8927	0.581	32.6759	5.1495	-0.000518
99.	0.	0.72295	4.9951	5.1860	3.8875	0.580	32.6327	5.1095	-0.000537
100.	0.	0.72349	4.9953	5.1860	3.8823	0.579	32.5844	5.0694	-0.000557
101.	0.	0.72404	4.9956	5.1860	3.8775	0.581	32.5317	5.0194	-0.000581
102.	0.	0.72462	4.9958	5.1860	3.8725	0.583	32.4838	4.9794	-0.000602
103.	0.	0.72521	4.9960	5.1860	3.8677	0.584	32.4364	4.9394	-0.000623
104.	0.	0.72575	4.9962	5.1860	3.8631	0.584	32.3822	4.8994	-0.000644
105.	0.	0.72628	4.9965	5.1860	3.8590	0.585	32.3239	4.8493	-0.000670
106.	0.	0.72680	4.9968	5.1860	3.8550	0.587	32.2681	4.8093	-0.000693
107.	0.	0.72732	4.9970	5.1860	3.8510	0.589	32.2073	4.7693	-0.000716
108.	0.	0.72784	4.9973	5.1860	3.8474	0.587	32.1419	4.7193	-0.000743
109.	0.	0.72838	4.9975	5.1860	3.8437	0.586	32.0851	4.6792	-0.000767
110.	0.	0.72894	4.9977	5.1860	3.8400	0.585	32.0305	4.6392	-0.000792
111.	0.	0.72948	4.9980	5.1860	3.8364	0.584	31.9710	4.5992	-0.000816
112.	0.	0.73003	4.9983	5.1860	3.8332	0.583	31.9085	4.5492	-0.000846
113.	0.	0.73058	4.9985	5.1860	3.8300	0.581	31.8501	4.5091	-0.000872
114.	0.	0.73111	4.9987	5.1860	3.8267	0.578	31.7874	4.4691	-0.000899
115.	0.	0.73168	4.9990	5.1860	3.8238	0.576	31.7232	4.4191	-0.000931
116.	0.	0.73223	4.9992	5.1860	3.8208	0.574	31.6643	4.3790	-0.000959
117.	0.	0.73281	4.9995	5.1860	3.8179	0.571	31.6063	4.3390	-0.000987
118.	0.	0.73337	4.9997	5.1860	3.8149	0.568	31.5417	4.2990	-0.001016
119.	0.	0.73397	5.0000	5.1860	3.8124	0.563	31.4736	4.2489	-0.001051
120.	0.	0.73456	5.0003	5.1860	3.8097	0.558	31.4102	4.2089	-0.001082
121.	0.	0.73514	5.0005	5.1860	3.8070	0.553	31.3428	4.1689	-0.001113
122.	0.	0.73577	5.0008	5.1860	3.8047	0.547	31.2730	4.1188	-0.001152
123.	0.	0.73634	5.0011	5.1860	3.8025	0.542	31.2091	4.0788	-0.001184
124.	0.	0.73693	5.0013	5.1860	3.8004	0.538	31.1460	4.0388	-0.001218
125.	0.	0.73748	5.0016	5.1860	3.7985	0.533	31.0765	3.9987	-0.001252
126.	0.	0.73807	5.0019	5.1860	3.7972	0.530	31.0023	3.9487	-0.001294

127.	0.	0.73861	5.0022	5.1860	3.7957	0.529	30.9308	3.9087	-0.001330
128.	0.	0.73914	5.0024	5.1860	3.7944	0.527	30.8544	3.8686	-0.001367
129.	0.	0.73973	5.0027	5.1860	3.7936	0.524	30.7747	3.8186	-0.001412
130.	0.	0.74027	5.0030	5.1860	3.7926	0.520	30.7008	3.7785	-0.001451
131.	0.	0.74083	5.0033	5.1860	3.7918	0.516	30.6279	3.7385	-0.001491
132.	0.	0.74135	5.0035	5.1860	3.7911	0.512	30.5484	3.6985	-0.001532
133.	0.	0.74194	5.0039	5.1860	3.7911	0.508	30.4638	3.6484	-0.001583
134.	0.	0.74245	5.0041	5.1860	3.7910	0.503	30.3823	3.6084	-0.001626
135.	0.	0.74292	5.0044	5.1860	3.7912	0.498	30.2949	3.5683	-0.001670
136.	0.	0.74347	5.0047	5.1860	3.7921	0.494	30.2032	3.5183	-0.001725
137.	0.	0.74395	5.0050	5.1860	3.7928	0.490	30.1152	3.4782	-0.001771
138.	0.	0.74439	5.0053	5.1860	3.7937	0.485	30.0208	3.4382	-0.001819
139.	0.	0.74493	5.0056	5.1860	3.7953	0.480	29.9231	3.3881	-0.001879
140.	0.	0.74541	5.0059	5.1860	3.7965	0.474	29.8297	3.3481	-0.001929
141.	0.	0.74589	5.0062	5.1860	3.7979	0.469	29.7364	3.3080	-0.001981
142.	0.	0.74634	5.0064	5.1860	3.7995	0.464	29.6392	3.2680	-0.002034
143.	0.	0.74692	5.0068	5.1860	3.8017	0.459	29.5377	3.2179	-0.002101
144.	0.	0.74739	5.0071	5.1860	3.8037	0.454	29.4411	3.1778	-0.002157
145.	0.	0.74784	5.0073	5.1860	3.8059	0.449	29.3387	3.1378	-0.002215
146.	0.	0.74842	5.0077	5.1860	3.8089	0.443	29.2318	3.0877	-0.002289
147.	0.	0.74889	5.0080	5.1860	3.8114	0.437	29.1322	3.0476	-0.002351
148.	0.	0.74939	5.0082	5.1860	3.8141	0.430	29.0317	3.0076	-0.002415
149.	0.	0.74987	5.0085	5.1860	3.8168	0.423	28.9232	2.9675	-0.002481
150.	0.	0.75052	5.0089	5.1860	3.8204	0.416	28.8086	2.9174	-0.002564
151.	0.	0.75108	5.0092	5.1860	3.8231	0.410	28.7039	2.8774	-0.002636
152.	0.	0.75165	5.0094	5.1860	3.8258	0.405	28.5948	2.8373	-0.002709
153.	0.	0.75240	5.0098	5.1860	3.8295	0.400	28.4808	2.7872	-0.002803
154.	0.	0.75305	5.0101	5.1860	3.8324	0.400	28.3757	2.7471	-0.002882
155.	0.	0.75371	5.0104	5.1860	3.8354	0.401	28.2708	2.7070	-0.002965
156.	0.	0.75434	5.0107	5.1860	3.8387	0.402	28.1565	2.6669	-0.003050
157.	0.	0.75520	5.0110	5.1860	3.8428	0.404	28.0316	2.6168	-0.003159
158.	0.	0.75591	5.0113	5.1860	3.8460	0.407	27.9129	2.5767	-0.003252
159.	0.	0.75663	5.0116	5.1860	3.8493	0.408	27.7839	2.5367	-0.003348
160.	0.	0.75761	5.0120	5.1860	3.8535	0.409	27.6434	2.4865	-0.003472
161.	0.	0.75840	5.0123	5.1860	3.8568	0.410	27.5093	2.4464	-0.003577
162.	0.	0.75924	5.0127	5.1860	3.8600	0.410	27.3727	2.4063	-0.003686
163.	0.	0.76008	5.0130	5.1860	3.8631	0.410	27.2230	2.3662	-0.003800
164.	0.	0.76120	5.0134	5.1860	3.8671	0.408	27.0585	2.3161	-0.003947
165.	0.	0.76213	5.0138	5.1860	3.8698	0.406	26.9001	2.2759	-0.004071
166.	0.	0.76308	5.0142	5.1860	3.8719	0.403	26.7272	2.2358	-0.004201
167.	0.	0.76439	5.0147	5.1860	3.8744	0.401	26.5401	2.1856	-0.004367
168.	0.	0.76548	5.0152	5.1860	3.8751	0.398	26.3570	2.1455	-0.004507
169.	0.	0.76664	5.0157	5.1860	3.8747	0.393	26.1663	2.1053	-0.004653
170.	0.	0.76785	5.0163	5.1860	3.8729	0.387	25.9597	2.0652	-0.004802
171.	0.	0.76943	5.0170	5.1860	3.8708	0.377	25.7295	2.0150	-0.004995
172.	0.	0.77072	5.0178	5.1860	3.8658	0.368	25.5008	1.9748	-0.005153
173.	0.	0.77195	5.0186	5.1860	3.8594	0.358	25.2487	1.9347	-0.005313
174.	0.	0.77343	5.0196	5.1860	3.8527	0.348	24.9659	1.8845	-0.005518
175.	0.	0.77457	5.0206	5.1860	3.8427	0.341	24.7265	1.8443	-0.005673
176.	0.	0.77410	5.0213	5.1860	3.8271	0.334	24.5807	1.8444	-0.005616
177.	0.	0.77391	5.0221	5.1860	3.8134	0.325	24.4398	1.8344	-0.005604
178.	0.	0.77358	5.0229	5.1860	3.8002	0.314	24.3211	1.8244	-0.005583
179.	0.	0.77273	5.0236	5.1860	3.7866	0.303	24.2294	1.8245	-0.005504
180.	0.	0.77221	5.0243	5.1860	3.7748	0.296	24.1383	1.8145	-0.005475
181.	0.	0.77121	5.0250	5.1860	3.7623	0.295	24.0693	1.8146	-0.005389
182.	0.	0.77063	5.0257	5.1860	3.7514	0.294	23.9948	1.8046	-0.005357
183.	0.	0.76968	5.0263	5.1860	3.7392	0.298	23.9349	1.8047	-0.005274
184.	0.	0.76891	5.0270	5.1860	3.7292	0.303	23.8619	1.7948	-0.005235
185.	0.	0.76816	5.0277	5.1860	3.7191	0.309	23.7988	1.7848	-0.005196
186.	0.	0.76715	5.0282	5.1860	3.7074	0.319	23.7487	1.7849	-0.005109
187.	0.	0.76647	5.0289	5.1860	3.6976	0.334	23.6978	1.7749	-0.005073
188.	0.	0.76549	5.0294	5.1860	3.6862	0.351	23.6574	1.7750	-0.004987
189.	0.	0.76476	5.0300	5.1860	3.6770	0.369	23.6002	1.7650	-0.004951
190.	0.	0.76393	5.0306	5.1860	3.6680	0.391	23.5542	1.7551	-0.004910
191.	0.	0.76283	5.0311	5.1860	3.6574	0.413	23.5177	1.7552	-0.004819
192.	0.	0.76201	5.0317	5.1860	3.6488	0.436	23.4750	1.7452	-0.004780
193.	0.	0.76085	5.0321	5.1860	3.6389	0.457	23.4416	1.7453	-0.004687

194.	0.	0.75988	5.0326	5.1860	3.6311	0.478	23.3912	1.7354	-0.004644
195.	0.	0.75887	5.0331	5.1860	3.6234	0.500	23.3477	1.7254	-0.004599
196.	0.	0.75755	5.0335	5.1860	3.6142	0.521	23.3144	1.7255	-0.004500
197.	0.	0.75649	5.0340	5.1860	3.6070	0.542	23.2760	1.7155	-0.004453
198.	0.	0.75512	5.0344	5.1860	3.5983	0.563	23.2462	1.7156	-0.004353
199.	0.	0.75396	5.0348	5.1860	3.5916	0.584	23.1987	1.7057	-0.004304
200.	0.	0.75276	5.0352	5.1860	3.5850	0.605	23.1588	1.6957	-0.004252
201.	0.	0.75124	5.0355	5.1860	3.5769	0.627	23.1299	1.6959	-0.004146
202.	0.	0.74998	5.0359	5.1860	3.5707	0.648	23.0955	1.6859	-0.004091
203.	0.	0.74840	5.0362	5.1860	3.5631	0.669	23.0699	1.6860	-0.003982
204.	0.	0.74704	5.0365	5.1860	3.5574	0.690	23.0258	1.6761	-0.003925
205.	0.	0.74560	5.0369	5.1860	3.5518	0.709	22.9884	1.6661	-0.003864
206.	0.	0.74385	5.0371	5.1860	3.5447	0.729	22.9616	1.6663	-0.003747
207.	0.	0.74236	5.0374	5.1860	3.5396	0.748	22.9288	1.6563	-0.003684
208.	0.	0.74054	5.0376	5.1860	3.5329	0.768	22.9045	1.6564	-0.003565
209.	0.	0.73900	5.0378	5.1860	3.5281	0.787	22.8733	1.6465	-0.003499
210.	0.	0.73714	5.0380	5.1860	3.5217	0.806	22.8506	1.6466	-0.003378
211.	0.	0.73549	5.0382	5.1860	3.5174	0.823	22.8082	1.6367	-0.003311
212.	0.	0.73378	5.0384	5.1860	3.5132	0.840	22.7722	1.6268	-0.003240
213.	0.	0.73177	5.0385	5.1860	3.5072	0.858	22.7473	1.6269	-0.003112
214.	0.	0.73003	5.0386	5.1860	3.5033	0.876	22.7161	1.6170	-0.003039
215.	0.	0.72799	5.0387	5.1860	3.4975	0.895	22.6937	1.6171	-0.002910
216.	0.	0.72619	5.0388	5.1860	3.4938	0.913	22.6520	1.6072	-0.002836
217.	0.	0.72434	5.0389	5.1860	3.4901	0.933	22.6172	1.5972	-0.002758
218.	0.	0.72220	5.0389	5.1860	3.4846	0.954	22.5942	1.5974	-0.002624
219.	0.	0.72034	5.0390	5.1860	3.4811	0.976	22.5650	1.5875	-0.002545
220.	0.	0.71818	5.0390	5.1860	3.4758	0.999	22.5448	1.5876	-0.002410
221.	0.	0.71626	5.0390	5.1860	3.4725	1.022	22.5053	1.5777	-0.002330
222.	0.	0.71432	5.0390	5.1860	3.4691	1.047	22.4725	1.5678	-0.002247
223.	0.	0.71209	5.0390	5.1860	3.4639	1.075	22.4506	1.5679	-0.002108
224.	0.	0.71016	5.0390	5.1860	3.4606	1.103	22.4227	1.5580	-0.002025
225.	0.	0.70795	5.0389	5.1860	3.4554	1.134	22.4035	1.5581	-0.001887
226.	0.	0.70603	5.0389	5.1860	3.4520	1.166	22.3640	1.5482	-0.001806
227.	0.	0.70411	5.0388	5.1860	3.4486	1.202	22.3316	1.5383	-0.001723
228.	0.	0.70190	5.0387	5.1860	3.4432	1.240	22.3111	1.5384	-0.001583
229.	0.	0.69999	5.0386	5.1860	3.4397	1.279	22.2840	1.5285	-0.001500
230.	0.	0.69781	5.0384	5.1860	3.4342	1.321	22.2663	1.5286	-0.001360
231.	0.	0.69594	5.0384	5.1860	3.4306	1.364	22.2410	1.5187	-0.001277
232.	0.	0.69379	5.0382	5.1860	3.4250	1.410	22.2249	1.5189	-0.001138
233.	0.	0.69192	5.0381	5.1860	3.4213	1.456	22.1877	1.5089	-0.001056
234.	0.	0.69001	5.0379	5.1860	3.4176	1.505	22.1575	1.4990	-0.000970
235.	0.	0.68779	5.0378	5.1860	3.4119	1.555	22.1388	1.4992	-0.000825
236.	0.	0.68590	5.0376	5.1860	3.4081	1.606	22.1115	1.4893	-0.000739
237.	0.	0.68361	5.0374	5.1860	3.4022	1.656	22.0529	1.4894	-0.000596
238.	0.	0.68226	5.0370	5.1860	3.4042	1.706	21.8540	1.4493	-0.000687
239.	0.	0.68102	5.0355	5.1860	3.4098	1.766	21.5513	1.3891	-0.000885
240.	0.	0.67904	5.0347	5.1860	3.4129	1.851	21.2627	1.3390	-0.000994
241.	0.	0.67493	5.0343	5.1860	3.4043	1.946	21.1232	1.3293	-0.000745
242.	0.	0.67019	5.0339	5.1860	3.3908	2.045	21.0611	1.3396	-0.000351
243.	0.	0.66650	5.0338	5.1860	3.3807	2.150	20.9771	1.3299	-0.000117
244.	0.	0.66268	5.0338	5.1860	3.3701	2.247	20.7846	1.3201	0.000109
245.	0.	0.66142	5.0345	5.1860	3.3738	2.377	20.2374	1.2398	-0.000202
246.	0.	0.66217	5.0347	5.1860	3.3849	2.591	19.2697	1.0990	-0.001036
247.	0.	0.65773	5.0351	5.1860	3.3624	2.890	17.9763	0.9586	-0.001371
248.	0.	0.64836	5.0350	5.1860	3.2573	3.529	16.0123	0.7389	-0.001110
249.	0.	0.51094	5.0571	5.1860	3.3039	1.550	16.1751	0.3555	0.015466
250.	0.	-9.00000	-9.0000	-9.0000	-9.0000	-999.000	-9.0000	-99.0000	-9.000000
251.	0.	-9.00000	-9.0000	-9.0000	-9.0000	-999.000	-9.0000	-99.0000	-9.000000

---

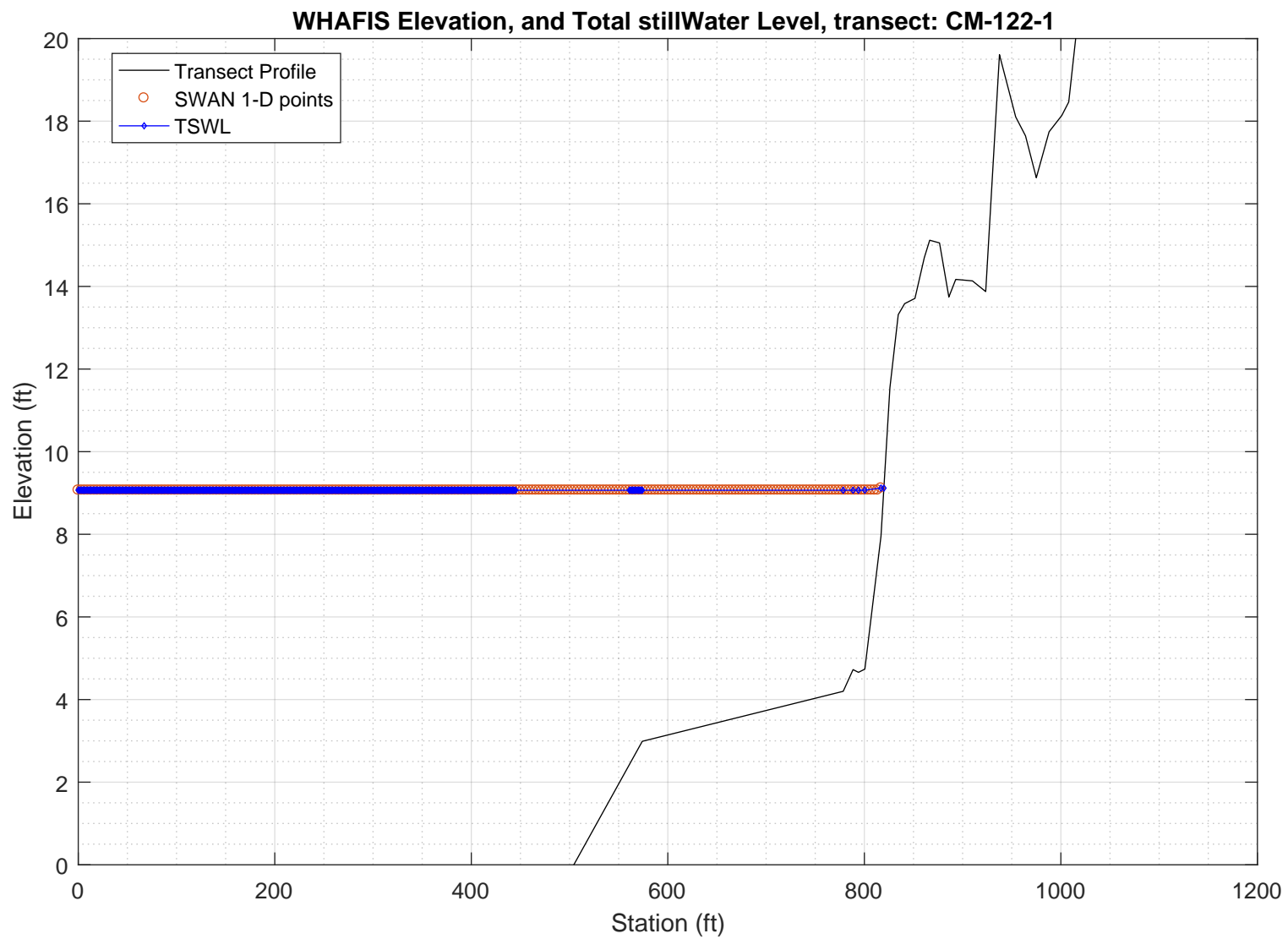
PART 3: WHAFIS

WHAFIS input: CM-122-1.dat

WHAFIS output: CM-122-1.out

PART 3 COMPLETE

---



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

Executed on: Thu Feb 20 14:57:35 2020

Input file: C:\FEMA-TransectAnalysis\LOMR-TransectAnalysis-Harpswell\3\_whafis\whafis4\CM-122-1.dat

Output file: C:\FEMA-TransectAnalysis\LOMR-TransectAnalysis-Harpswell\3\_whafis\whafis4\CM-122-1.out

header

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

PART1 INPUT

IE	0.000	-9.842	1.000	1.000	9.067	3.394	4.983	56.140	0.001	0.000
OF	1.000	-9.841	0.000	9.067	0.000	0.000	0.000	0.000	0.001	0.000
OF	2.000	-9.840	0.000	9.067	0.000	0.000	0.000	0.000	0.001	0.000
OF	3.000	-9.839	0.000	9.067	0.000	0.000	0.000	0.000	0.001	0.000
OF	4.000	-9.838	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	5.000	-9.835	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	6.000	-9.833	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	7.000	-9.830	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	8.000	-9.828	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	9.000	-9.825	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	10.000	-9.823	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	11.000	-9.821	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	12.000	-9.818	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	13.000	-9.816	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	14.000	-9.813	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	15.000	-9.811	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	16.000	-9.808	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	17.000	-9.806	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	18.000	-9.803	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	19.000	-9.801	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	20.000	-9.799	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	21.000	-9.796	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	22.000	-9.794	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	23.000	-9.791	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	24.000	-9.789	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	25.000	-9.786	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	26.000	-9.784	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	27.000	-9.781	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	28.000	-9.779	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	29.000	-9.776	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	30.000	-9.774	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	31.000	-9.772	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	32.000	-9.769	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	33.000	-9.767	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	34.000	-9.764	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	35.000	-9.762	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	36.000	-9.759	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	37.000	-9.757	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
OF	38.000	-9.755	0.000	9.068	0.000	0.000	0.000	0.000	0.002	0.000
OF	39.000	-9.752	0.000	9.068	0.000	0.000	0.000	0.000	0.002	0.000
OF	40.000	-9.750	0.000	9.068	0.000	0.000	0.000	0.000	0.002	0.000
OF	41.000	-9.747	0.000	9.068	0.000	0.000	0.000	0.000	0.002	0.000
OF	42.000	-9.745	0.000	9.068	0.000	0.000	0.000	0.000	0.002	0.000
OF	43.000	-9.742	0.000	9.068	0.000	0.000	0.000	0.000	0.002	0.000
OF	44.000	-9.740	0.000	9.068	0.000	0.000	0.000	0.000	0.002	0.000
OF	45.000	-9.737	0.000	9.068	0.000	0.000	0.000	0.000	0.002	0.000
OF	46.000	-9.735	0.000	9.068	0.000	0.000	0.000	0.000	0.002	0.000
OF	47.000	-9.733	0.000	9.068	0.000	0.000	0.000	0.000	0.002	0.000
OF	48.000	-9.730	0.000	9.068	0.000	0.000	0.000	0.000	0.002	0.000
OF	49.000	-9.728	0.000	9.068	0.000	0.000	0.000	0.000	0.002	0.000
OF	50.000	-9.725	0.000	9.068	0.000	0.000	0.000	0.000	0.003	0.000
OF	51.000	-9.722	0.000	9.068	0.000	0.000	0.000	0.000	0.004	0.000
OF	52.000	-9.718	0.000	9.068	0.000	0.000	0.000	0.000	0.005	0.000
OF	53.000	-9.713	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	54.000	-9.708	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	55.000	-9.704	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	56.000	-9.699	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	57.000	-9.694	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	58.000	-9.690	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	59.000	-9.685	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	60.000	-9.681	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	61.000	-9.676	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	62.000	-9.671	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	63.000	-9.667	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	64.000	-9.662	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	65.000	-9.657	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	66.000	-9.653	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	67.000	-9.648	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	68.000	-9.643	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	69.000	-9.639	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	70.000	-9.634	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	71.000	-9.629	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	72.000	-9.625	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	73.000	-9.620	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	74.000	-9.615	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	75.000	-9.611	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	76.000	-9.606	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	77.000	-9.601	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	78.000	-9.597	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	79.000	-9.592	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	80.000	-9.587	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	81.000	-9.583	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	82.000	-9.578	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	83.000	-9.573	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	84.000	-9.569	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	85.000	-9.564	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	86.000	-9.559	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	87.000	-9.555	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	88.000	-9.550	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	89.000	-9.545	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	90.000	-9.541	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	91.000	-9.536	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	92.000	-9.531	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000



OF	93.000	-9.527	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	94.000	-9.522	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	95.000	-9.517	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	96.000	-9.513	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	97.000	-9.508	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	98.000	-9.504	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	99.000	-9.499	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	100.000	-9.494	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	101.000	-9.490	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	102.000	-9.485	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	103.000	-9.480	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	104.000	-9.476	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	105.000	-9.471	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	106.000	-9.466	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	107.000	-9.462	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	108.000	-9.457	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	109.000	-9.452	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	110.000	-9.448	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	111.000	-9.443	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	112.000	-9.438	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	113.000	-9.434	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	114.000	-9.429	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	115.000	-9.424	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	116.000	-9.420	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	117.000	-9.415	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	118.000	-9.410	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	119.000	-9.406	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	120.000	-9.401	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	121.000	-9.396	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	122.000	-9.392	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	123.000	-9.387	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	124.000	-9.382	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	125.000	-9.378	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	126.000	-9.373	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	127.000	-9.368	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	128.000	-9.364	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	129.000	-9.359	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	130.000	-9.355	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	131.000	-9.350	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	132.000	-9.345	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	133.000	-9.341	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	134.000	-9.336	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	135.000	-9.331	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	136.000	-9.327	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	137.000	-9.322	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	138.000	-9.317	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	139.000	-9.313	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	140.000	-9.308	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	141.000	-9.303	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	142.000	-9.299	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	143.000	-9.294	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	144.000	-9.289	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	145.000	-9.285	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	146.000	-9.280	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	147.000	-9.275	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	148.000	-9.271	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	149.000	-9.266	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	150.000	-9.261	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	151.000	-9.257	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	152.000	-9.252	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	153.000	-9.248	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	154.000	-9.243	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	155.000	-9.238	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	156.000	-9.233	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	157.000	-9.229	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	158.000	-9.224	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	159.000	-9.219	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	160.000	-9.215	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	161.000	-9.210	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	162.000	-9.205	0.000	9.067	0.000	0.000	0.000	0.000	0.005	0.000
OF	163.000	-9.201	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	164.000	-9.196	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	165.000	-9.192	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	166.000	-9.187	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	167.000	-9.182	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	168.000	-9.178	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	169.000	-9.173	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	170.000	-9.168	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	171.000	-9.164	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	172.000	-9.159	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	173.000	-9.154	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	174.000	-9.150	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	175.000	-9.145	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	176.000	-9.140	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	177.000	-9.136	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	178.000	-9.131	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	179.000	-9.126	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	180.000	-9.122	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	181.000	-9.117	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	182.000	-9.112	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	183.000	-9.108	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	184.000	-9.103	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	185.000	-9.098	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	186.000	-9.094	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	187.000	-9.089	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	188.000	-9.085	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	189.000	-9.080	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	190.000	-9.075	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	191.000	-9.071	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	192.000	-9.066	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	193.000	-9.061	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	194.000	-9.057	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000

OF	195.000	-9.052	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	196.000	-9.047	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	197.000	-9.043	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	198.000	-9.038	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	199.000	-9.033	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	200.000	-9.029	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	201.000	-9.024	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	202.000	-9.019	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	203.000	-9.015	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	204.000	-9.010	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	205.000	-9.005	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	206.000	-9.001	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	207.000	-8.996	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	208.000	-8.991	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	209.000	-8.987	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	210.000	-8.982	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	211.000	-8.977	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	212.000	-8.973	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	213.000	-8.968	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	214.000	-8.963	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	215.000	-8.959	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	216.000	-8.954	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	217.000	-8.949	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	218.000	-8.945	0.000	9.066	0.000	0.000	0.000	0.000	0.005	0.000
OF	219.000	-8.940	0.000	9.066	0.000	0.000	0.000	0.000	0.004	0.000
OF	220.000	-8.937	0.000	9.066	0.000	0.000	0.000	0.000	0.003	0.000
OF	221.000	-8.934	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	222.000	-8.932	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	223.000	-8.930	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	224.000	-8.927	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	225.000	-8.925	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	226.000	-8.923	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	227.000	-8.920	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	228.000	-8.918	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	229.000	-8.916	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	230.000	-8.913	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	231.000	-8.911	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	232.000	-8.909	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	233.000	-8.906	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	234.000	-8.904	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	235.000	-8.902	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	236.000	-8.899	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	237.000	-8.897	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	238.000	-8.895	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	239.000	-8.892	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	240.000	-8.890	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	241.000	-8.888	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	242.000	-8.885	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	243.000	-8.883	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	244.000	-8.881	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	245.000	-8.878	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	246.000	-8.876	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	247.000	-8.874	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	248.000	-8.871	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	249.000	-8.869	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	250.000	-8.867	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	251.000	-8.864	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	252.000	-8.862	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	253.000	-8.860	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	254.000	-8.857	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	255.000	-8.855	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	256.000	-8.853	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	257.000	-8.850	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	258.000	-8.848	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	259.000	-8.846	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	260.000	-8.843	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	261.000	-8.841	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	262.000	-8.839	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	263.000	-8.836	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	264.000	-8.834	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	265.000	-8.832	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	266.000	-8.829	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	267.000	-8.827	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	268.000	-8.825	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	269.000	-8.822	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	270.000	-8.820	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	271.000	-8.818	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	272.000	-8.815	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	273.000	-8.813	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	274.000	-8.811	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	275.000	-8.808	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	276.000	-8.806	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	277.000	-8.804	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	278.000	-8.801	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	279.000	-8.799	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	280.000	-8.797	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	281.000	-8.794	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	282.000	-8.792	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	283.000	-8.790	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	284.000	-8.787	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	285.000	-8.785	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	286.000	-8.783	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	287.000	-8.780	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	288.000	-8.778	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	289.000	-8.776	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	290.000	-8.773	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	291.000	-8.771	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	292.000	-8.769	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	293.000	-8.766	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	294.000	-8.764	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	295.000	-8.762	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	296.000	-8.759	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000

OF	297.000	-8.757	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	298.000	-8.755	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	299.000	-8.752	0.000	9.066	0.000	0.000	0.000	0.000	0.002	0.000
OF	300.000	-8.750	0.000	9.066	0.000	0.000	0.000	0.000	0.017	0.000
OF	301.000	-8.718	0.000	9.066	0.000	0.000	0.000	0.000	0.038	0.000
OF	302.000	-8.675	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	303.000	-8.632	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	304.000	-8.589	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	305.000	-8.546	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	306.000	-8.503	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	307.000	-8.461	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	308.000	-8.418	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	309.000	-8.375	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	310.000	-8.332	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	311.000	-8.289	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	312.000	-8.246	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	313.000	-8.203	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	314.000	-8.160	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	315.000	-8.118	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	316.000	-8.075	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	317.000	-8.032	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	318.000	-7.989	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	319.000	-7.946	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	320.000	-7.903	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	321.000	-7.860	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	322.000	-7.818	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	323.000	-7.775	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	324.000	-7.732	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	325.000	-7.689	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	326.000	-7.646	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	327.000	-7.603	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	328.000	-7.560	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	329.000	-7.517	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	330.000	-7.475	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	331.000	-7.432	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	332.000	-7.389	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	333.000	-7.346	0.000	9.066	0.000					

OF	399.000	-4.516	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	400.000	-4.474	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	401.000	-4.431	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	402.000	-4.388	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	403.000	-4.345	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	404.000	-4.302	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	405.000	-4.259	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	406.000	-4.216	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	407.000	-4.174	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	408.000	-4.130	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	409.000	-4.088	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	410.000	-4.045	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	411.000	-4.002	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	412.000	-3.959	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	413.000	-3.916	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	414.000	-3.873	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	415.000	-3.830	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	416.000	-3.787	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	417.000	-3.745	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	418.000	-3.702	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	419.000	-3.659	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	420.000	-3.616	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	421.000	-3.573	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	422.000	-3.530	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	423.000	-3.487	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	424.000	-3.444	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	425.000	-3.401	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	426.000	-3.359	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	427.000	-3.316	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	428.000	-3.273	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	429.000	-3.230	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	430.000	-3.187	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	431.000	-3.144	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	432.000	-3.101	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	433.000	-3.058	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	434.000	-3.016	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	435.000	-2.973	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	436.000	-2.930	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	437.000	-2.887	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	438.000	-2.844	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	439.000	-2.801	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	440.000	-2.758	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	441.000	-2.715	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	442.000	-2.672	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	443.000	-2.629	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	444.000	-2.587	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
OF	445.000	-2.544	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
IF	561.000	2.431	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
IF	562.000	2.474	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
IF	563.000	2.517	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
IF	564.000	2.560	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
IF	565.000	2.603	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
IF	566.000	2.646	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
IF	567.000	2.688	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
IF	568.000	2.731	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
IF	569.000	2.774	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
IF	570.000	2.817	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
IF	571.000	2.860	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
IF	572.000	2.903	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
IF	573.000	2.946	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
IF	574.000	2.989	0.000	9.066	0.000	0.000	0.000	0.000	0.006	0.000
IF	778.500	4.200	0.000	9.066	0.000	0.000	0.000	0.000	0.008	0.000
IF	788.500	4.724	0.000	9.066	0.000	0.000	0.000	0.000	0.030	0.000
IF	794.000	4.659	0.000	9.066	0.000	0.000	0.000	0.000	0.001	0.000
IF	800.500	4.736	0.000	9.068	0.000	0.000	0.000	0.000	0.144	0.000
IF	816.900	7.954	0.000	9.118	0.000	0.000	0.000	0.000	0.226	0.000
IF	819.900	9.118	0.000	9.118	0.000	0.000	0.000	0.000	0.388	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

	END	END	FETCH	SURGE ELEV	SURGE ELEV	INITIAL	INITIAL		BOTTOM	AVERAGE
IE	STATION	ELEVATION	LENGTH	10-YEAR	100-YEAR	WAVE HEIGHT	W. PERIOD		SLOPE	A-ZONES
	0.000	-9.842	1.000	1.000	9.067	3.394	4.983	56.140	0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	1.000	-9.841	0.000	9.067	0.000	0.000	0.000	0.000	0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	2.000	-9.840	0.000	9.067	0.000	0.000	0.000	0.000	0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	3.000	-9.839	0.000	9.067	0.000	0.000	0.000	0.000	0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	4.000	-9.838	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	5.000	-9.835	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	6.000	-9.833	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	7.000	-9.830	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	8.000	-9.828	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	9.000	-9.825	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	10.000	-9.823	0.000	9.067	0.000	0.000	0.000	0.000	0.002	0.000

	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	11.000	-9.821	0.000	9.067	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	12.000	-9.818	0.000	9.067	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	13.000	-9.816	0.000	9.067	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	14.000	-9.813	0.000	9.067	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	15.000	-9.811	0.000	9.067	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	16.000	-9.808	0.000	9.067	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	17.000	-9.806	0.000	9.067	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	18.000	-9.803	0.000	9.067	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	19.000	-9.801	0.000	9.067	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	20.000	-9.799	0.000	9.067	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	21.000	-9.796	0.000	9.067	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	22.000	-9.794	0.000	9.067	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	23.000	-9.791	0.000	9.067	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE</

	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	45.000	-9.737	0.000	9.068	0.000	0.000	0.000	0.000		0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	46.000	-9.735	0.000	9.068	0.000	0.000	0.000	0.000		0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	47.000	-9.733	0.000	9.068	0.000	0.000	0.000	0.000		0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	48.000	-9.730	0.000	9.068	0.000	0.000	0.000	0.000		0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	49.000	-9.728	0.000	9.068	0.000	0.000	0.000	0.000		0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	50.000	-9.725	0.000	9.068	0.000	0.000	0.000	0.000		0.003	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	51.000	-9.722	0.000	9.068	0.000	0.000	0.000	0.000		0.004	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	52.000	-9.718	0.000	9.068	0.000	0.000	0.000	0.000		0.005	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	53.000	-9.713	0.000	9.067	0.000	0.000	0.000	0.000		0.005	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	54.000	-9.708	0.000	9.067	0.000	0.000	0.000	0.000		0.005	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	55.000	-9.704	0.000	9.067	0.000	0.000	0.000	0.000		0.005	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	56.000	-9.699	0.000	9.067	0.000	0.000	0.000	0.000		0.005	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	57.000	-9.694	0.000	9.067	0.000	0.000	0.000	0.000		0.005	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR							

[illegible]

[illegible]



[illegible]

[illegible]

[illegible]

[illegible]

	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	283.000	-8.790	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	284.000	-8.787	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	285.000	-8.785	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	286.000	-8.783	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	287.000	-8.780	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	288.000	-8.778	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	289.000	-8.776	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	290.000	-8.773	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	291.000	-8.771	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	292.000	-8.769	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	293.000	-8.766	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	294.000	-8.764	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	295.000	-8.762	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE							

	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	317.000	-8.032	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	318.000	-7.989	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	319.000	-7.946	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	320.000	-7.903	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	321.000	-7.860	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	322.000	-7.818	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	323.000	-7.775	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	324.000	-7.732	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	325.000	-7.689	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	326.000	-7.646	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	327.000	-7.603	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	328.000	-7.560	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	329.000	-7.517	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR							

	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	351.000	-6.574	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	352.000	-6.531	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	353.000	-6.489	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	354.000	-6.446	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	355.000	-6.403	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	356.000	-6.360	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	357.000	-6.317	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	358.000	-6.274	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	359.000	-6.232	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	360.000	-6.189	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	361.000	-6.146	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	362.000	-6.103	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	363.000	-6.060	0.000	9.066	0.000	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE							

	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	385.000	-5.117	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	386.000	-5.074	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	387.000	-5.031	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	388.000	-4.988	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	389.000	-4.945	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	390.000	-4.903	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	391.000	-4.860	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	392.000	-4.817	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	393.000	-4.774	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	394.000	-4.731	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	395.000	-4.688	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	396.000	-4.645	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	397.000	-4.602	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	398.000	-4.559	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	399.000	-4.516	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	400.000</										



	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	419.000	-3.659	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	420.000	-3.616	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	421.000	-3.573	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	422.000	-3.530	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	423.000	-3.487	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	424.000	-3.444	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	425.000	-3.401	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	426.000	-3.359	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	427.000	-3.316	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	428.000	-3.273	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	429.000	-3.230	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	430.000	-3.187	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	431.000	-3.144	0.000	9.066	0.000	0.000	0.000	0.000		0.043	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR							

	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	568.000	2.731	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	569.000	2.774	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	570.000	2.817	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	571.000	2.860	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	572.000	2.903	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	573.000	2.946	0.000	9.066	0.000	0.000	0.000	0.000	0.043	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	574.000	2.989	0.000	9.066	0.000	0.000	0.000	0.000	0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	778.500	4.200	0.000	9.066	0.000	0.000	0.000	0.000	0.008	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	788.500	4.724	0.000	9.066	0.000	0.000	0.000	0.000	0.030	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	794.000	4.659	0.000	9.066	0.000	0.000	0.000	0.000	0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	800.500	4.736	0.000	9.068	0.000	0.000	0.000	0.000	0.144	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	816.900	7.954	0.000	9.118	0.000	0.000	0.000	0.000	0.226	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	819.900	9.118	0.000	9.118	0.000	0.000	0.000	0.000	0.388	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	3.39	4.98	11.44
OF 1.00	3.39	4.98	11.44
OF 2.00	3.39	4.98	11.44
OF 3.00	3.40	4.98	11.44
OF 4.00	3.40	4.98	11.44
OF 5.00	3.40	4.98	11.44
OF 6.00	3.40	4.98	11.44
OF 7.00	3.40	4.98	11.45
OF 8.00	3.40	4.98	11.45
OF 9.00	3.40	4.98	11.45
OF 10.00	3.40	4.98	11.45
OF 11.00	3.40	4.98	11.45
OF 12.00	3.40	4.98	11.45
OF 13.00	3.40	4.98	11.45
OF 14.00	3.40	4.98	11.45
OF 15.00	3.40	4.98	11.45
OF 16.00	3.40	4.98	11.45
OF 17.00	3.40	4.98	11.45
OF 18.00	3.40	4.98	11.45
OF 19.00	3.40	4.98	11.45
OF 20.00	3.40	4.98	11.45
OF 21.00	3.40	4.98	11.45
OF 22.00	3.40	4.98	11.45
OF 23.00	3.40	4.98	11.45
OF 24.00	3.40	4.98	11.45
OF 25.00	3.41	4.98	11.45
OF 26.00	3.41	4.98	11.45
OF 27.00	3.41	4.98	11.45
OF 28.00	3.41	4.98	11.45
OF 29.00	3.41	4.98	11.45
OF 30.00	3.41	4.98	11.45
OF 31.00	3.41	4.98	11.45
OF 32.00	3.41	4.98	11.45
OF 33.00	3.41	4.98	11.45
OF 34.00	3.41	4.98	11.45
OF 35.00	3.41	4.98	11.45
OF 36.00	3.41	4.98	11.45
OF 37.00	3.41	4.98	11.45
OF 38.00	3.41	4.98	11.46
OF 39.00	3.41	4.98	11.46
OF 40.00	3.41	4.98	11.46
OF 41.00	3.41	4.98	11.46
OF 42.00	3.41	4.98	11.46
OF 43.00	3.41	4.98	11.46
OF 44.00	3.41	4.98	11.46
OF 45.00	3.41	4.98	11.46
OF 46.00	3.41	4.98	11.46
OF 47.00	3.42	4.98	11.46
OF 48.00	3.42	4.98	11.46
OF 49.00	3.42	4.98	11.46
OF 50.00	3.42	4.98	11.46
OF 51.00	3.42	4.98	11.46
OF 52.00	3.42	4.98	11.46
OF 53.00	3.42	4.98	11.46
OF 54.00	3.42	4.98	11.46

OF	55.00	3.42	4.99	11.46
OF	56.00	3.42	4.99	11.46
OF	57.00	3.42	4.99	11.46
OF	58.00	3.42	4.99	11.46
OF	59.00	3.42	4.99	11.46
OF	60.00	3.42	4.99	11.46
OF	61.00	3.42	4.99	11.46
OF	62.00	3.42	4.99	11.46
OF	63.00	3.42	4.99	11.46
OF	64.00	3.42	4.99	11.46
OF	65.00	3.42	4.99	11.46
OF	66.00	3.42	4.99	11.46
OF	67.00	3.42	4.99	11.46
OF	68.00	3.42	4.99	11.46
OF	69.00	3.43	4.99	11.46
OF	70.00	3.43	4.99	11.47
OF	71.00	3.43	4.99	11.47
OF	72.00	3.43	4.99	11.47
OF	73.00	3.43	4.99	11.47
OF	74.00	3.43	4.99	11.47
OF	75.00	3.43	4.99	11.47
OF	76.00	3.43	4.99	11.47
OF	77.00	3.43	4.99	11.47
OF	78.00	3.43	4.99	11.47
OF	79.00	3.43	4.99	11.47
OF	80.00	3.43	4.99	11.47
OF	81.00	3.43	4.99	11.47
OF	82.00	3.43	4.99	11.47
OF	83.00	3.43	4.99	11.47
OF	84.00	3.43	4.99	11.47
OF	85.00	3.43	4.99	11.47
OF	86.00	3.43	4.99	11.47
OF	87.00	3.43	4.99	11.47
OF	88.00	3.43	4.99	11.47
OF	89.00	3.43	4.99	11.47
OF	90.00	3.44	4.99	11.47
OF	91.00	3.44	4.99	11.47
OF	92.00	3.44	4.99	11.47
OF	93.00	3.44	4.99	11.47
OF	94.00	3.44	4.99	11.47
OF	95.00	3.44	4.99	11.47
OF	96.00	3.44	4.99	11.47
OF	97.00	3.44	4.99	11.47
OF	98.00	3.44	4.99	11.47
OF	99.00	3.44	4.99	11.47
OF	100.00	3.44	4.99	11.47
OF	101.00	3.44	4.99	11.48
OF	102.00	3.44	4.99	11.48
OF	103.00	3.44	4.99	11.48
OF	104.00	3.44	4.99	11.48
OF	105.00	3.44	4.99	11.48
OF	106.00	3.44	4.99	11.48
OF	107.00	3.44	4.99	11.48
OF	108.00	3.44	4.99	11.48
OF	109.00	3.44	4.99	11.48
OF	110.00	3.44	4.99	11.48
OF	111.00	3.45	4.99	11.48
OF	112.00	3.45	4.99	11.48
OF	113.00	3.45	4.99	11.48
OF	114.00	3.45	4.99	11.48
OF	115.00	3.45	4.99	11.48
OF	116.00	3.45	4.99	11.48
OF	117.00	3.45	4.99	11.48
OF	118.00	3.45	4.99	11.48
OF	119.00	3.45	4.99	11.48
OF	120.00	3.45	4.99	11.48
OF	121.00	3.45	4.99	11.48
OF	122.00	3.45	4.99	11.48
OF	123.00	3.45	4.99	11.48
OF	124.00	3.45	4.99	11.48
OF	125.00	3.45	4.99	11.48
OF	126.00	3.45	4.99	11.48
OF	127.00	3.45	4.99	11.48
OF	128.00	3.45	4.99	11.48
OF	129.00	3.45	4.99	11.48
OF	130.00	3.45	4.99	11.48
OF	131.00	3.45	4.99	11.49
OF	132.00	3.45	4.99	11.49
OF	133.00	3.46	4.99	11.49
OF	134.00	3.46	4.99	11.49
OF	135.00	3.46	4.99	11.49
OF	136.00	3.46	4.99	11.49
OF	137.00	3.46	4.99	11.49
OF	138.00	3.46	4.99	11.49
OF	139.00	3.46	4.99	11.49
OF	140.00	3.46	4.99	11.49
OF	141.00	3.46	4.99	11.49
OF	142.00	3.46	4.99	11.49
OF	143.00	3.46	4.99	11.49
OF	144.00	3.46	4.99	11.49
OF	145.00	3.46	4.99	11.49
OF	146.00	3.46	4.99	11.49
OF	147.00	3.46	4.99	11.49
OF	148.00	3.46	4.99	11.49
OF	149.00	3.46	4.99	11.49
OF	150.00	3.46	4.99	11.49
OF	151.00	3.46	4.99	11.49
OF	152.00	3.46	4.99	11.49
OF	153.00	3.46	4.99	11.49
OF	154.00	3.47	4.99	11.49
OF	155.00	3.47	4.99	11.49
OF	156.00	3.47	4.99	11.49

OF	157.00	3.47	4.99	11.49
OF	158.00	3.47	4.99	11.49
OF	159.00	3.47	4.99	11.49
OF	160.00	3.47	4.99	11.49
OF	161.00	3.47	4.99	11.49
OF	162.00	3.47	4.99	11.50
OF	163.00	3.47	4.99	11.49
OF	164.00	3.47	4.99	11.49
OF	165.00	3.47	4.99	11.50
OF	166.00	3.47	4.99	11.50
OF	167.00	3.47	4.99	11.50
OF	168.00	3.47	4.99	11.50
OF	169.00	3.47	4.99	11.50
OF	170.00	3.47	4.99	11.50
OF	171.00	3.47	4.99	11.50
OF	172.00	3.47	4.99	11.50
OF	173.00	3.47	4.99	11.50
OF	174.00	3.47	4.99	11.50
OF	175.00	3.47	4.99	11.50
OF	176.00	3.48	4.99	11.50
OF	177.00	3.48	4.99	11.50
OF	178.00	3.48	4.99	11.50
OF	179.00	3.48	4.99	11.50
OF	180.00	3.48	4.99	11.50
OF	181.00	3.48	4.99	11.50
OF	182.00	3.48	4.99	11.50
OF	183.00	3.48	4.99	11.50
OF	184.00	3.48	4.99	11.50
OF	185.00	3.48	4.99	11.50
OF	186.00	3.48	4.99	11.50
OF	187.00	3.48	4.99	11.50
OF	188.00	3.48	4.99	11.50
OF	189.00	3.48	4.99	11.50
OF	190.00	3.48	4.99	11.50
OF	191.00	3.48	4.99	11.50
OF	192.00	3.48	4.99	11.50
OF	193.00	3.48	4.99	11.50
OF	194.00	3.48	4.99	11.50
OF	195.00	3.48	4.99	11.51
OF	196.00	3.48	4.99	11.51
OF	197.00	3.49	4.99	11.51
OF	198.00	3.49	4.99	11.51
OF	199.00	3.49	4.99	11.51
OF	200.00	3.49	4.99	11.51
OF	201.00	3.49	4.99	11.51
OF	202.00	3.49	4.99	11.51
OF	203.00	3.49	4.99	11.51
OF	204.00	3.49	4.99	11.51
OF	205.00	3.49	4.99	11.51
OF	206.00	3.49	4.99	11.51
OF	207.00	3.49	4.99	11.51
OF	208.00	3.49	4.99	11.51
OF	209.00	3.49	4.99	11.51
OF	210.00	3.49	4.99	11.51
OF	211.00	3.49	4.99	11.51
OF	212.00	3.49	4.99	11.51
OF	213.00	3.49	4.99	11.51
OF	214.00	3.49	4.99	11.51
OF	215.00	3.49	4.99	11.51
OF	216.00	3.49	4.99	11.51
OF	217.00	3.49	4.99	11.51
OF	218.00	3.50	4.99	11.51
OF	219.00	3.50	4.99	11.51
OF	220.00	3.50	4.99	11.51
OF	221.00	3.50	4.99	11.51
OF	222.00	3.50	4.99	11.51
OF	223.00	3.50	4.99	11.51
OF	224.00	3.50	4.99	11.51
OF	225.00	3.50	4.99	11.51
OF	226.00	3.50	4.99	11.52
OF	227.00	3.50	4.99	11.52
OF	228.00	3.50	4.99	11.52
OF	229.00	3.50	4.99	11.52
OF	230.00	3.50	4.99	11.52
OF	231.00	3.50	4.99	11.52
OF	232.00	3.50	4.99	11.52
OF	233.00	3.50	4.99	11.52
OF	234.00	3.50	4.99	11.52
OF	235.00	3.50	4.99	11.52
OF	236.00	3.50	4.99	11.52
OF	237.00	3.50	4.99	11.52
OF	238.00	3.50	4.99	11.52
OF	239.00	3.50	4.99	11.52
OF	240.00	3.50	4.99	11.52
OF	241.00	3.51	4.99	11.52
OF	242.00	3.51	4.99	11.52
OF	243.00	3.51	4.99	11.52
OF	244.00	3.51	4.99	11.52
OF	245.00	3.51	4.99	11.52
OF	246.00	3.51	4.99	11.52
OF	247.00	3.51	4.99	11.52
OF	248.00	3.51	4.99	11.52
OF	249.00	3.51	4.99	11.52
OF	250.00	3.51	4.99	11.52
OF	251.00	3.51	4.99	11.52
OF	252.00	3.51	4.99	11.52
OF	253.00	3.51	4.99	11.52
OF	254.00	3.51	4.99	11.52
OF	255.00	3.51	4.99	11.52
OF	256.00	3.51	4.99	11.52
OF	257.00	3.51	4.99	11.52
OF	258.00	3.51	4.99	11.52

OF	259.00	3.51	4.99	11.53
OF	260.00	3.51	4.99	11.53
OF	261.00	3.51	4.99	11.53
OF	262.00	3.51	4.99	11.53
OF	263.00	3.52	4.99	11.53
OF	264.00	3.52	4.99	11.53
OF	265.00	3.52	4.99	11.53
OF	266.00	3.52	4.99	11.53
OF	267.00	3.52	4.99	11.53
OF	268.00	3.52	4.99	11.53
OF	269.00	3.52	4.99	11.53
OF	270.00	3.52	4.99	11.53
OF	271.00	3.52	4.99	11.53
OF	272.00	3.52	4.99	11.53
OF	273.00	3.52	4.99	11.53
OF	274.00	3.52	4.99	11.53
OF	275.00	3.52	4.99	11.53
OF	276.00	3.52	4.99	11.53
OF	277.00	3.52	4.99	11.53
OF	278.00	3.52	4.99	11.53
OF	279.00	3.52	4.99	11.53
OF	280.00	3.52	4.99	11.53
OF	281.00	3.52	4.99	11.53
OF	282.00	3.52	4.99	11.53
OF	283.00	3.52	4.99	11.53
OF	284.00	3.52	4.99	11.53
OF	285.00	3.52	4.99	11.53
OF	286.00	3.53	4.99	11.53
OF	287.00	3.53	4.99	11.53
OF	288.00	3.53	4.99	11.53
OF	289.00	3.53	4.99	11.53
OF	290.00	3.53	4.99	11.53
OF	291.00	3.53	4.99	11.54
OF	292.00	3.53	4.99	11.54
OF	293.00	3.53	4.99	11.54
OF	294.00	3.53	4.99	11.54
OF	295.00	3.53	4.99	11.54
OF	296.00	3.53	4.99	11.54
OF	297.00	3.53	4.99	11.54
OF	298.00	3.53	4.99	11.54
OF	299.00	3.53	4.99	11.54
OF	300.00	3.53	4.99	11.54
OF	301.00	3.53	4.99	11.54
OF	302.00	3.53	4.99	11.54
OF	303.00	3.53	4.99	11.54
OF	304.00	3.53	4.99	11.54
OF	305.00	3.54	4.99	11.54
OF	306.00	3.54	4.99	11.54
OF	307.00	3.54	4.99	11.54
OF	308.00	3.54	4.99	11.54
OF	309.00	3.54	4.99	11.54
OF	310.00	3.54	4.99	11.54
OF	311.00	3.54	4.99	11.55
OF	312.00	3.54	4.99	11.55
OF	313.00	3.54	4.99	11.55
OF	314.00	3.54	4.99	11.55
OF	315.00	3.55	4.99	11.55
OF	316.00	3.55	4.99	11.55
OF	317.00	3.55	4.99	11.55
OF	318.00	3.55	4.99	11.55
OF	319.00	3.55	4.99	11.55
OF	320.00	3.55	4.99	11.55
OF	321.00	3.55	4.99	11.55
OF	322.00	3.55	4.99	11.55
OF	323.00	3.55	4.99	11.55
OF	324.00	3.55	4.99	11.55
OF	325.00	3.56	4.99	11.56
OF	326.00	3.56	4.99	11.56
OF	327.00	3.56	5.00	11.56
OF	328.00	3.56	5.00	11.56
OF	329.00	3.56	5.00	11.56
OF	330.00	3.56	5.00	11.56
OF	331.00	3.56	5.00	11.56
OF	332.00	3.56	5.00	11.56
OF	333.00	3.56	5.00	11.56
OF	334.00	3.57	5.00	11.56
OF	335.00	3.57	5.00	11.56
OF	336.00	3.57	5.00	11.56
OF	337.00	3.57	5.00	11.56
OF	338.00	3.57	5.00	11.57
OF	339.00	3.57	5.00	11.57
OF	340.00	3.57	5.00	11.57
OF	341.00	3.57	5.00	11.57
OF	342.00	3.58	5.00	11.57
OF	343.00	3.58	5.00	11.57
OF	344.00	3.58	5.00	11.57
OF	345.00	3.58	5.00	11.57
OF	346.00	3.58	5.00	11.57
OF	347.00	3.58	5.00	11.57
OF	348.00	3.58	5.00	11.57
OF	349.00	3.58	5.00	11.58
OF	350.00	3.59	5.00	11.58
OF	351.00	3.59	5.00	11.58
OF	352.00	3.59	5.00	11.58
OF	353.00	3.59	5.00	11.58
OF	354.00	3.59	5.00	11.58
OF	355.00	3.59	5.00	11.58
OF	356.00	3.59	5.00	11.58
OF	357.00	3.60	5.00	11.58
OF	358.00	3.60	5.00	11.58
OF	359.00	3.60	5.00	11.58
OF	360.00	3.60	5.00	11.58

OF	361.00	3.60	5.00	11.59
OF	362.00	3.60	5.00	11.59
OF	363.00	3.60	5.00	11.59
OF	364.00	3.61	5.00	11.59
OF	365.00	3.61	5.00	11.59
OF	366.00	3.61	5.00	11.59
OF	367.00	3.61	5.00	11.59
OF	368.00	3.61	5.00	11.59
OF	369.00	3.61	5.00	11.59
OF	370.00	3.61	5.00	11.60
OF	371.00	3.62	5.00	11.60
OF	372.00	3.62	5.00	11.60
OF	373.00	3.62	5.00	11.60
OF	374.00	3.62	5.00	11.60
OF	375.00	3.62	5.00	11.60
OF	376.00	3.62	5.00	11.60
OF	377.00	3.62	5.00	11.60
OF	378.00	3.63	5.00	11.60
OF	379.00	3.63	5.00	11.61
OF	380.00	3.63	5.00	11.61
OF	381.00	3.63	5.00	11.61
OF	382.00	3.63	5.00	11.61
OF	383.00	3.63	5.00	11.61
OF	384.00	3.64	5.00	11.61
OF	385.00	3.64	5.00	11.61
OF	386.00	3.64	5.00	11.61
OF	387.00	3.64	5.00	11.62
OF	388.00	3.64	5.00	11.62
OF	389.00	3.65	5.00	11.62
OF	390.00	3.65	5.00	11.62
OF	391.00	3.65	5.00	11.62
OF	392.00	3.65	5.00	11.62
OF	393.00	3.65	5.00	11.62
OF	394.00	3.65	5.00	11.62
OF	395.00	3.66	5.00	11.63
OF	396.00	3.66	5.00	11.63
OF	397.00	3.66	5.00	11.63
OF	398.00	3.66	5.00	11.63
OF	399.00	3.66	5.00	11.63
OF	400.00	3.67	5.00	11.63
OF	401.00	3.67	5.00	11.63
OF	402.00	3.67	5.00	11.63
OF	403.00	3.67	5.00	11.64
OF	404.00	3.67	5.00	11.64
OF	405.00	3.67	5.00	11.64
OF	406.00	3.68	5.00	11.64
OF	407.00	3.68	5.00	11.64
OF	408.00	3.68	5.00	11.64
OF	409.00	3.68	5.00	11.64
OF	410.00	3.68	5.00	11.65
OF	411.00	3.69	5.00	11.65
OF	412.00	3.69	5.00	11.65
OF	413.00	3.69	5.00	11.65
OF	414.00	3.69	5.00	11.65
OF	415.00	3.70	5.00	11.65
OF	416.00	3.70	5.00	11.65
OF	417.00	3.70	5.00	11.66
OF	418.00	3.70	5.00	11.66
OF	419.00	3.70	5.00	11.66
OF	420.00	3.71	5.00	11.66
OF	421.00	3.71	5.00	11.66
OF	422.00	3.71	5.00	11.66
OF	423.00	3.71	5.00	11.67
OF	424.00	3.72	5.00	11.67
OF	425.00	3.72	5.00	11.67
OF	426.00	3.72	5.00	11.67
OF	427.00	3.72	5.00	11.67
OF	428.00	3.72	5.00	11.67
OF	429.00	3.73	5.00	11.67
OF	430.00	3.73	5.00	11.68
OF	431.00	3.73	5.00	11.68
OF	432.00	3.73	5.00	11.68
OF	433.00	3.74	5.00	11.68
OF	434.00	3.74	5.00	11.68
OF	435.00	3.74	5.00	11.68
OF	436.00	3.74	5.00	11.69
OF	437.00	3.75	5.00	11.69
OF	438.00	3.75	5.00	11.69
OF	439.00	3.75	5.00	11.69
OF	440.00	3.75	5.00	11.69
OF	441.00	3.76	5.00	11.70
OF	442.00	3.76	5.00	11.70
OF	443.00	3.76	5.00	11.70
OF	444.00	3.76	5.00	11.70
OF	445.00	3.77	5.00	11.70
IF	561.00	4.17	5.00	11.98
IF	562.00	4.16	5.00	11.98
IF	563.00	4.16	5.00	11.98
IF	564.00	4.15	5.00	11.97
IF	565.00	4.14	5.00	11.97
IF	566.00	4.14	5.00	11.96
IF	567.00	4.13	5.00	11.96
IF	568.00	4.12	5.00	11.95
IF	569.00	4.12	5.00	11.95
IF	570.00	4.11	5.00	11.94
IF	571.00	4.10	5.00	11.94
IF	572.00	4.10	5.00	11.93
IF	573.00	4.09	5.00	11.93
IF	574.00	4.08	5.00	11.92
	717.15	3.83	5.00	11.75
IF	778.50	3.58	5.00	11.57
IF	788.50	3.21	5.00	11.32

IF	794.00	3.20	5.00	11.31
IF	800.50	3.21	5.00	11.31
IF	816.90	0.90	5.00	9.74
IF	819.90	0.01	5.00	9.12

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

PART4 LOCATION OF SURGE CHANGES

STATION	10-YEAR SURGE	100-YEAR SURGE
38.00	1.00	9.07
53.00	1.00	9.07
163.00	1.00	9.07
800.50	1.00	9.07
816.90	1.00	9.12

PART5 LOCATION OF V ZONES

STATION OF GUTTER	LOCATION OF ZONE
801.97	WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	11.44		
		V23 EL=11	130
37.00	11.45	V23 EL=11	130
38.00	11.46	V23 EL=11	130
52.00	11.46	V23 EL=11	130
53.00	11.46	V23 EL=11	130
162.00	11.50	V23 EL=11	130
163.00	11.49	V23 EL=11	130
179.62	11.50	V23 EL=12	130
781.30	11.50	V23 EL=11	130
794.00	11.31	V23 EL=11	130
800.50	11.31	V23 EL=11	130
801.97	11.19	A19 EL=11	95
809.00	10.50	A19 EL=10	95
816.90	9.74	A19 EL=10	95
818.08	9.50	A19 EL= 9	95
819.90	9.12		

ZONE TERMINATED AT END OF TRANSECT

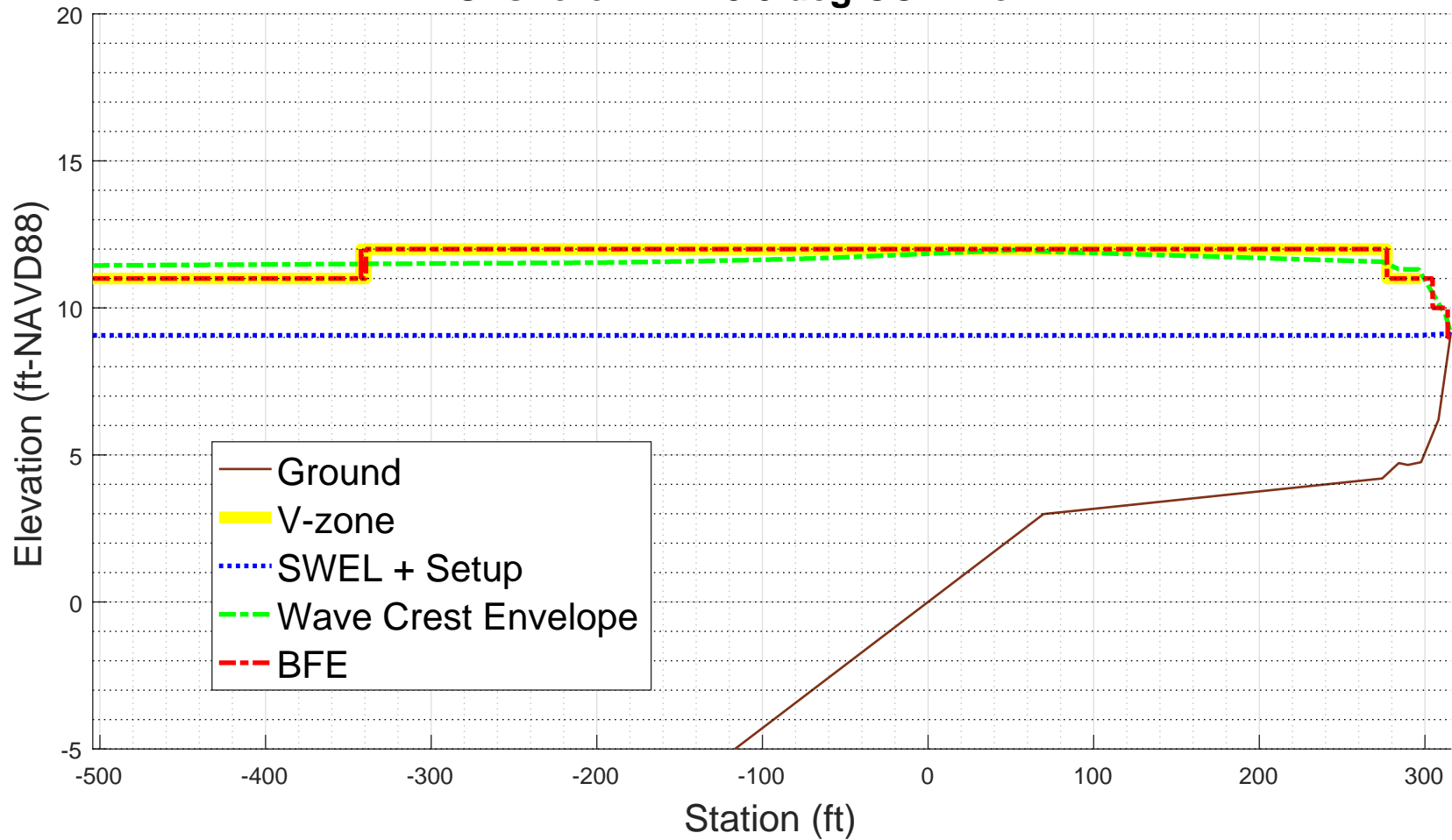
PART 7 POSTSCRIPT NOTES

PS# 1 START(422594.8458,4855174.6617)

PS# 2 END(422951.6172,4855294.2385)

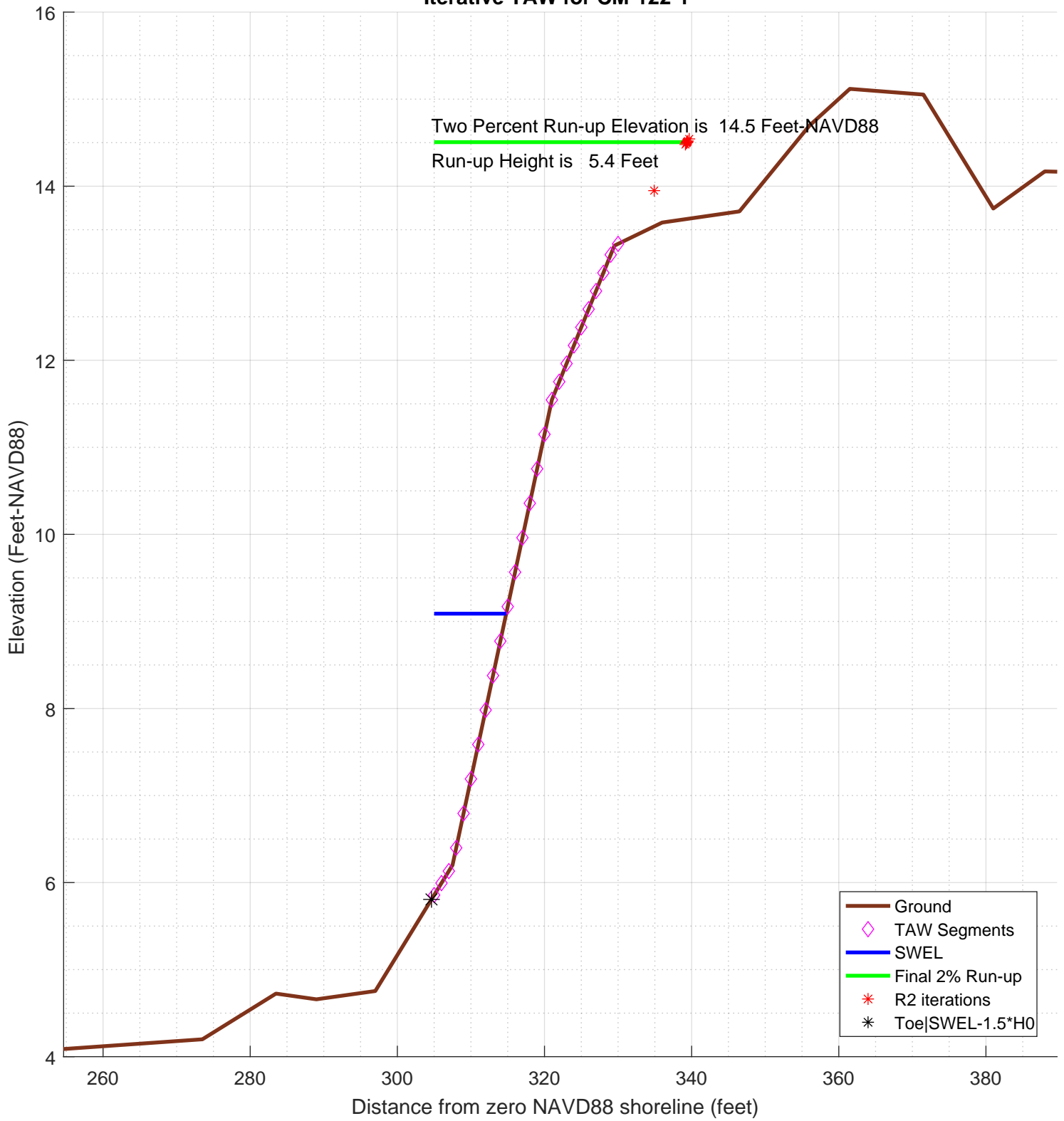
-1.000000e+00

**CM-122-1**  
**100-year WHAFIS Output**  
**Zero Station: -69.96116166, 43.84605372**  
**Onshore Dir: 18.5 deg CCW from E**





### Iterative TAW for CM-122-1



```

diary on          % begin recording

% FEMA appeal for The Town of Harpswell, Cumberland county, Maine
% TRANSECT ID: CM-122-1
% calculation by SJH, Ransom Consulting, Inc. 20-Feb-2020
% 100-year wave runup using TAW methodology
% including berm and weighted average with foreshore if necessary
%
% chk nld 20200220
%
% This script assumes that the incident wave conditions provided
% as input in the configuration section below are the
% appropriate values located at the end of the foreshore
% or toe of the slope on which the run-up is being calculated
% the script does not attempt to apply a depth limit or any other
% transformation to the incident wave conditions other than
% conversion of the peak wave period to the spectral mean wave
% as recommended in the references below
%
% references:
%
% Van der Meer, J.W., 2002. Technical Report Wave Run-up and
% Wave Overtopping at Dikes. TAW Technical Advisory Committee on
% Flood Defence, The Netherlands.
%
% FEMA. 2007, Atlantic Ocean and Gulf of Mexico Coastal Guidelines Update
%
%
%-----
% CONFIG
%-----
fname='infiles/CM-122-1sta_ele_include.csv'; % file with station, elevation, include
% third column is 0 for excluded points
imgname='logfiles/CM-122-1-runup';
SWEL=9.0674; % 100-yr still water level including wave setup.
H0=2.1741; % significant wave height at toe of structure
Tp=5.0338; % peak period, 1/fma,
T0=Tp/1.1;

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

setupAtToe=0.00035761;
maxSetup=0.050741; % only used in case of berm/shallow foreshore weighted average

plotTitle='Iterative TAW for CM-122-1'

plotTitle =

Iterative TAW for CM-122-1

% END CONFIG
%-----

SWEL=SWEL+setupAtToe

SWEL =

          9.06775761

SWEL_fore=SWEL+maxSetup

SWEL_fore =

          9.11849861

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

L0 =

          107.153818349666

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

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

```

```

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

Ztoe =

    5.80660761

% 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 =

    12.32890761

% 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 =

    304.639381762763

top_sta =

    324.759692030898

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

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

top_sta =

    324.759692030898

toe_sta

toe_sta =

    304.639381762763

% 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 17.9 ft landward of toe of slope

ans =

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

ans =

-!!!-      setup is adjusted to 0.02 feet

ans =

-!!!-      SWEL is adjusted to 9.09 feet

k =

    1
    2
    3
    4
    5
    6
    7
    8

% 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
end

```

```

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

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

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

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

% check to see if we need to evaluate a shallow foreshore
if berm_width > 0.25 * L0;

```

```

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

% convergence criterion
R2del=abs(R2-R2_new)
R2_all(iter)=R2_new;

% get the new top station (for plot purposes)
Z2=R2_new+SWEL
top_sta=-999;
for kk=1:length(sta)-1
    if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1))) % here is the intersection of z2 with profile
        top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
        break;
    end
end
if top_sta== -999
    dy=Z2-dep(end);
    top_sta=sta(end)+dy/S(end);
end
topStaAll(iter)=top_sta;

end
ans =
!----- STARTING ITERATION 1 -----!
Ztoe =
    5.80660761
toe_sta =
    304.639381762763
top_sta =
    324.759692030898
Z2 =
    12.32890761
H0 =
    2.1741
Tp =
    5.0338
T0 =
    4.57618181818182
R2 =
    6.5223
Z2 =
    15.6115963384552
top_sta =
    348.243855848088
Lslope =
    43.604474085325
ans =
!----- End Berm Factor Calculation, Iter: 1 -----!
berm_width =
    0
rB =
    0
rdh_mean =
    1
gamma_berm =
    1
slope =
    0.224861987998498

```

```

Irb =
    1.57862913424299
gamma_berm =
    1
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.8
ans =
!!! - - Iribaren number: 1.58 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:4.4 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
    4.85985020267289
R2del =
    1.66244979732711
Z2 =
    13.9491465411281
ans =
!----- STARTING ITERATION 2 -----!
Ztoe =
    5.80660761
toe_sta =
    304.639381762763
top_sta =
    334.907662956176
Z2 =
    13.9491465411281
H0 =
    2.1741
Tp =
    5.0338
T0 =
    4.57618181818182
R2 =
    4.85985020267289
Z2 =
    13.9491465411281
top_sta =
    334.907662956176
Lslope =
    30.2682811934127
ans =
!----- End Berm Factor Calculation, Iter: 2 -----!
berm_width =
    0
rB =
    0
rdh_mean =
    1
gamma_berm =
    1
slope =
    0.26901226663971
Irb =
    1.88858332778338
gamma_berm =
    1
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.8
ans =
!!! - - Iribaren number: 1.89 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:3.7 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
    5.45392086781691
R2del =
    0.594070665144022
Z2 =
    14.5432172062721
ans =
!----- STARTING ITERATION 3 -----!
Ztoe =
    5.80660761
toe_sta =
    304.639381762763
top_sta =
    339.673305199644
Z2 =
    14.5432172062721

```

```

H0 =
                2.1741
Tp =
                5.0338
T0 =
                4.57618181818182
R2 =
                5.45392086781691
Z2 =
                14.5432172062721
top_sta =
                339.673305199644
Lslope =
                35.033923436881
ans =
!----- End Berm Factor Calculation, Iter: 3 -----!
berm_width =
    0
rB =
    0
rdh_mean =
    1
gamma_berm =
    1
slope =
    0.249375711858606
Irb =
    1.7507261570382
gamma_berm =
    1
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.8
ans =
!!! - - Iribaren number: 1.75 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:4.0 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
    5.38965529303172
R2del =
    0.0642655747851926
Z2 =
    14.4789516314869
ans =
!----- STARTING ITERATION 4 -----!
Ztoe =
    5.80660761
toe_sta =
    304.639381762763
top_sta =
    339.157765961694
Z2 =
    14.4789516314869
H0 =
    2.1741
Tp =
    5.0338
T0 =
    4.57618181818182
R2 =
    5.38965529303172
Z2 =
    14.4789516314869
top_sta =
    339.157765961694
Lslope =
    34.5183841989305
ans =
!----- End Berm Factor Calculation, Iter: 4 -----!
berm_width =
    0
rB =
    0
rdh_mean =
    1
gamma_berm =
    1
slope =
    0.251238411725993
Irb =
    1.76380312173633
gamma_berm =
    1
gamma_perm =
    1

```



```

gamma_beta =
1
gamma_rough =
0.8
gamma =
0.8
ans =
!!! - - Iribaren number: 1.76 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:4.0 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
5.4299130636252
R2del =
0.040257770593481
Z2 =
14.5192094020804
ans =
!----- STARTING ITERATION 5 -----!
Ztoe =
5.80660761
toe_sta =
304.639381762763
top_sta =
339.480714296673
Z2 =
14.5192094020804
H0 =
2.1741
Tp =
5.0338
T0 =
4.57618181818182
R2 =
5.4299130636252
Z2 =
14.5192094020804
top_sta =
339.480714296673
Lslope =
34.8413325339095
ans =
!----- End Berm Factor Calculation, Iter: 5 -----!
berm_width =
0
rB =
0
rdh_mean =
1
gamma_berm =
1
slope =
0.250065114002192
Irb =
1.75556606047747
gamma_berm =
1
gamma_perm =
1
gamma_beta =
1
gamma_rough =
0.8
gamma =
0.8
ans =
!!! - - Iribaren number: 1.76 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:4.0 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
5.40455505967104
R2del =
0.0253580039541577
Z2 =
14.4938513981262
ans =
!----- STARTING ITERATION 6 -----!
Ztoe =
5.80660761
toe_sta =
304.639381762763
top_sta =
339.277292074462
Z2 =
14.4938513981262
H0 =
2.1741
Tp =
5.0338
T0 =
4.57618181818182

```

```

R2 =
    5.40455505967104
Z2 =
    14.4938513981262
top_sta =
    339.277292074462
Lslope =
    34.6379103116985
ans =
!----- End Berm Factor Calculation, Iter: 6 -----!
berm_width =
    0
rB =
    0
rdh_mean =
    1
gamma_berm =
    1
slope =
    0.250801613317655
Irb =
    1.76073660658483
gamma_berm =
    1
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.8
ans =
!!! - - Iribaren number: 1.76 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:4.0 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
    5.42047271822854
R2del =
    0.0159176585574956
Z2 =
    14.5097690566837
ans =
!----- STARTING ITERATION 7 -----!
Ztoe =
    5.80660761
toe_sta =
    304.639381762763
top_sta =
    339.404983728822
Z2 =
    14.5097690566837
H0 =
    2.1741
Tp =
    5.0338
T0 =
    4.57618181818182
R2 =
    5.42047271822854
Z2 =
    14.5097690566837
top_sta =
    339.404983728822
Lslope =
    34.7656019660581
ans =
!----- End Berm Factor Calculation, Iter: 7 -----!
berm_width =
    0
rB =
    0
rdh_mean =
    1
gamma_berm =
    1
slope =
    0.250338292867205
Irb =
    1.75748389514133
gamma_berm =
    1
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.8

```

```

ans =
!!! - - Iribaren number: 1.76 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:4.0 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
    5.4104591627803
R2del =
    0.0100135554482339
Z2 =
    14.4997555012355
ans =
!----- STARTING ITERATION 8 -----!
Ztoe =
    5.80660761
toe_sta =
    304.639381762763
top_sta =
    339.324654862827
Z2 =
    14.4997555012355
H0 =
    2.1741
Tp =
    5.0338
T0 =
    4.57618181818182
R2 =
    5.4104591627803
Z2 =
    14.4997555012355
top_sta =
    339.324654862827
Lslope =
    34.6852731000639
ans =
!----- End Berm Factor Calculation, Iter: 8 -----!
berm_width =
    0
rB =
    0
rdh_mean =
    1
gamma_berm =
    1
slope =
    0.250629362673794
Irb =
    1.75952733201063
gamma_berm =
    1
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.8
ans =
!!! - - Iribaren number: 1.76 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:4.0 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
    5.41674993549442
R2del =
    0.00629077271411393
Z2 =
    14.5060462739496
% final 2% runup elevation
Z2=R2_new+SWEL
Z2 =
    14.5060462739496
diary off
-1.000000e+00
-1.000000e+00

```

---

PART 5: RUNUP2

for transect: CM-122-1

Station locations shifted by: -0.69 feet from their  
original location to set the shoreline to  
elevation 0 for RUNUP2 input

---

RUNUP2 INPUT CONVERSIONS

for transect: CM-122-1

Incident significant wave height: 2.12 feet

Peak wave period: 4.98 seconds

Mean wave height: 1.33 feet

Local Depth below SWEL: 18.91 feet

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

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

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

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

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

Depth,  $D = 18.91$

Period,  $T = 4.24$

Waveheight,  $H = 1.33$

Deep water wavelength,  $L_0$  (ft)

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

$L_0 = 32.17 \cdot 4.24^2 / 6.28 = 91.84$

Deep water wave celerity,  $C_0$  (ft/s)

$C_0 = L_0 / T$

$C_0 = 91.84 / 4.24 = 21.69$

Angular frequency,  $\sigma$  (rad/s)

$\sigma = 2\pi / T$

$\sigma = 6.28 / 4.24 = 1.48$

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

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

$y = 1.48 \cdot 1.48 \cdot 18.91 / 32.17 = 1.29$

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

$C_{1H} = 19.40$

Shoaling Coefficient  $K_{sH}$

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

$K_{sH} = \sqrt{21.69 / 19.40} = 1.06$

Deepwater Wave Height  $H_{0\_H}$  (ft)

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

$H_{0\_H} = 1.33 / 1.06 = 1.26$

Deepwater mean wave height: 1.26 feet

---

END RUNUP2 CONVERSIONS

---

RUNUP2 RESULTS

for transect: CM-122-1

RUNUP2 SWEL:

9.10

9.10

9.10

9.10

9.10  
9.10  
9.10  
9.10  
9.10

RUNUP2 deepwater mean wave heights:

1.19  
1.19  
1.19  
1.26  
1.26  
1.26  
1.32  
1.32  
1.32

RUNUP2 mean wave periods:

4.02  
4.24  
4.45  
4.02  
4.24  
4.45  
4.02  
4.24  
4.45

RUNUP2 runup above SWEL:

1.46  
1.49  
1.52  
1.28  
1.29  
1.31  
1.12  
1.14  
1.14

RUNUP2 Mean runup height above SWEL: 1.31 feet

RUNUP2 2-percent runup height above SWEL: 2.87 feet

RUNUP2 2-percent runup elevation: 11.97 feet-NAVD88

RUNUP2 Messages:

No Messages

---

END RUNUP2 RESULTS

---

ACES BEACH RUNUP

Incident significant wave height: 2.12 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 1.76 feet

Peak wave period: 4.98 seconds

Average beach Slope: 1:36.03 (H:V)

ACES RUNUP CALCULATED USING 'Aces\_Beach\_Runup.m'

ACES Beach 2-percent runup height above SWEL: 1.17 feet

ACES Beach 2-percent runup elevation: 10.27 feet-NAVD88

ACES BEACH RUNUP is valid

\_\_\_\_\_END ACES BEACH RESULTS\_\_\_\_\_

PART 5 COMPLETE\_\_\_\_\_

FEMA  
RUNUP2 transect: CM-122-1

sjh

job 2  
1

5.00  
-9.84 -504.3 0.8  
-9.84 -500.3 0.8  
-9.73 -454.3 0.8  
-9.72 -453.3 0.8  
-8.94 -285.3 0.8  
-8.94 -284.3 0.8  
-8.75 -204.3 0.8  
-8.72 -203.3 0.8  
-7.99 -186.3 0.8  
-6.15 -143.3 0.8  
-4.65 -108.3 0.8  
0.33 7.7 0.8  
2.99 69.7 0.8  
4.20 274.2 0.8  
4.72 284.2 0.8  
4.72 289.7 0.8  
4.75 297.7 0.8  
6.20 308.2 0.8  
11.55 321.7 0.8  
1 13.32 330.2 0.8  
9.1 1.19 4.02  
9.1 1.19 4.24  
9.1 1.19 4.45  
9.1 1.26 4.02  
9.1 1.26 4.24  
9.1 1.26 4.45  
9.1 1.32 4.02  
9.1 1.32 4.24  
9.1 1.32 4.45





CLIENT- FEMA  
PROJECT-RUNUP2 transect: CM-122-1

\*\* WAVE RUNUP-VERSION 2.0 \*\*

ENGINEERED BY sjh

JOB job 2  
RUN 1 PAGE 1

\*\*\*\*\*

CROSS SECTION PROFILE

	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-504.3	-9.8		
2	-500.3	-9.8	.00	.80
3	-454.3	-9.7	418.18	.80
4	-453.3	-9.7	100.00	.80
5	-285.3	-8.9	215.38	.80
6	-284.3	-8.9	FLAT	.80
7	-204.3	-8.7	421.05	.80
8	-203.3	-8.7	33.33	.80
9	-186.3	-8.0	23.29	.80
10	-143.3	-6.1	23.37	.80
11	-108.3	-4.6	23.33	.80
12	7.7	.3	23.29	.80
13	69.7	3.0	23.31	.80
14	274.2	4.2	169.01	.80
15	284.2	4.7	19.23	.80
16	289.7	4.7	FLAT	.80
17	297.7	4.8	266.67	.80
18	308.2	6.2	7.24	.80
19	321.7	11.6	2.52	.80
20	330.2	13.3	4.80	.80
	LAST SLOPE	5.00	LAST ROUGHNESS	.80

CLIENT- FEMA  
PROJECT-RUNUP2 transect: CM-122-1

\*\* WAVE RUNUP-VERSION 2.0 \*\*

ENGINEERED BY sjh

JOB job 2  
RUN 1 PAGE 2

\*\*\*\*\*

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.)
9.10	1.19	4.02	11	18	1.46	2.00
9.10	1.19	4.24	11	18	1.49	2.04
9.10	1.19	4.45	11	18	1.52	2.07
9.10	1.26	4.02	11	18	1.28	2.10
9.10	1.26	4.24	11	18	1.29	2.13
9.10	1.26	4.45	11	18	1.31	2.17
9.10	1.32	4.02	11	18	1.12	2.18
9.10	1.32	4.24	11	18	1.14	2.22
9.10	1.32	4.45	11	18	1.14	2.26

Runup2 2% runup elevation for Transect: CM-122-1

