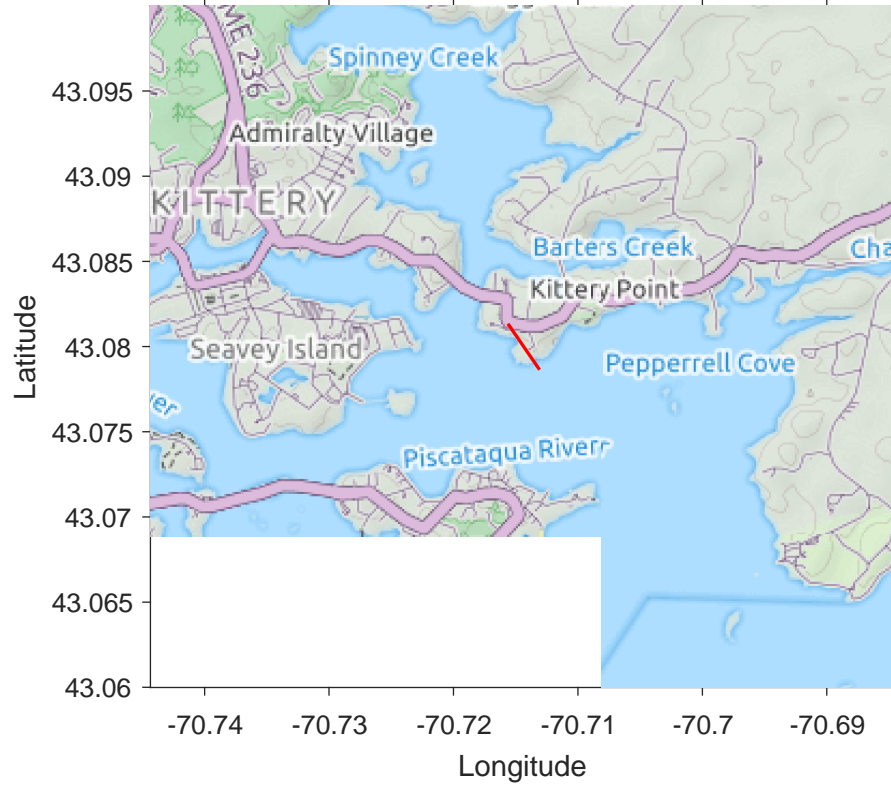
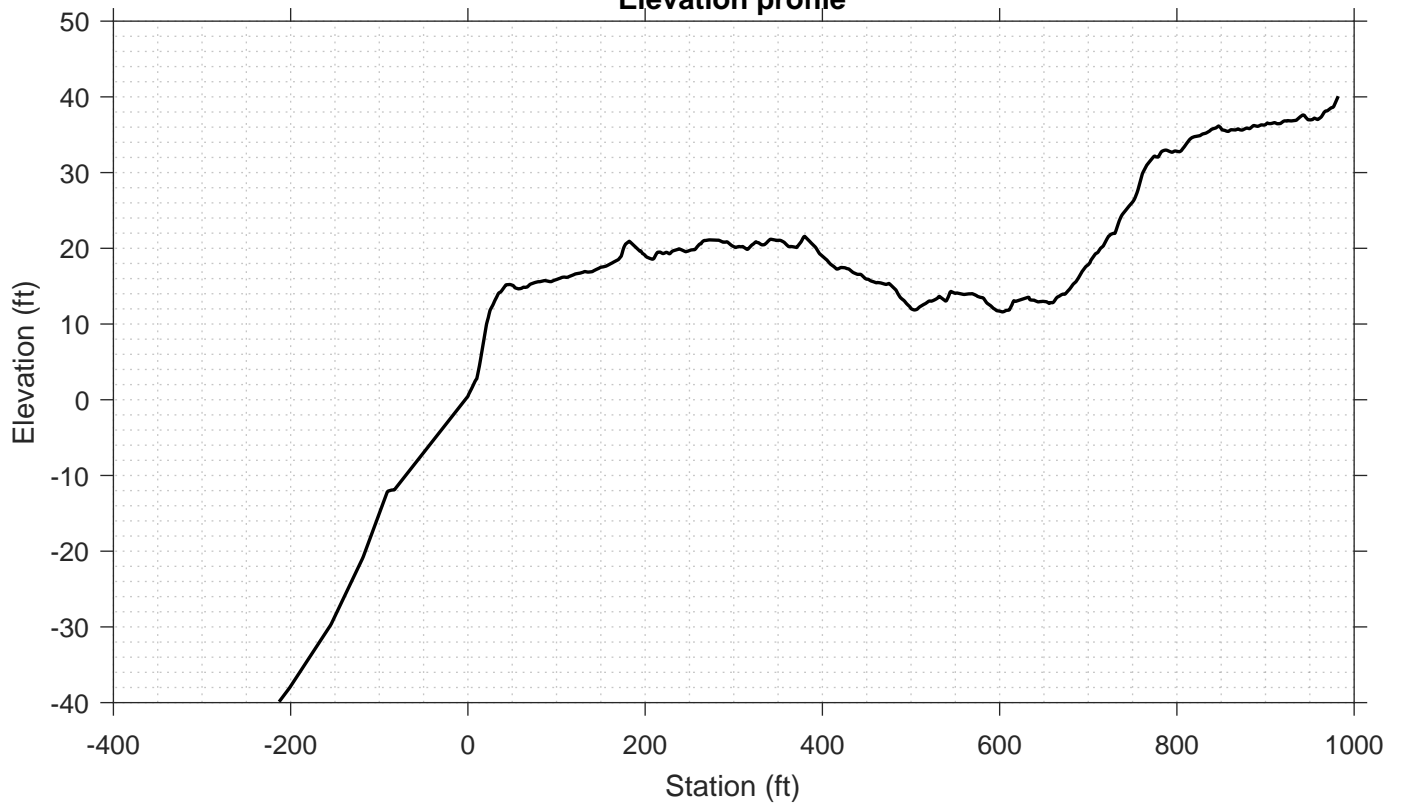


**Transect Number: YK-05**



**Elevation profile**



---

DATA LOG FOR TRANSECT ID: YK-05

---

---

PART 1: USER INPUT

SWAN 1-D / WHAFIS input

---

station: -151 ft  
LON: -70.7132 deg E  
LAT: 43.0788 deg N  
Bottom ELEV: -28.829 ft-NAVD88  
TWL: 9.0268 ft-NAVD88  
HS: 3.2539 ft  
TP: 6.2617 sec  
Wave Direction bin: 135 deg CCW from East (90 deg sector)  
Transect Direction: 133.2631 deg CCW from East

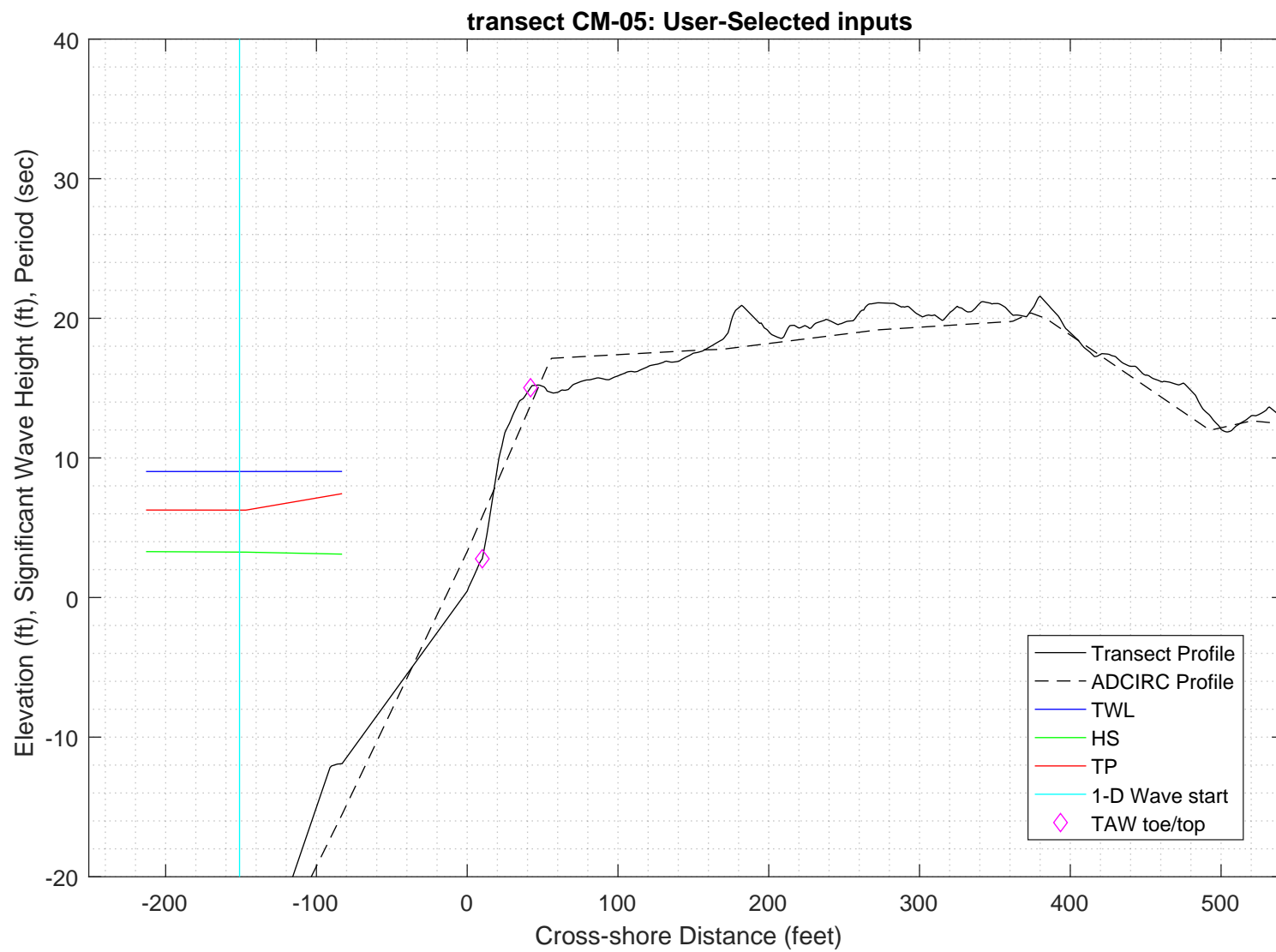
TAW/RUNUP input

---

toe sta: 10 ft  
toe elev: 2.774 ft-NAVD88  
top sta: 42 ft  
top elev: 15.0282 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/YK-05zmeters\_xmeters.grd  
swan file name: 2\_swan/swanfiles/YK-05.swn  
swan output name: 2\_swan/swanfiles/YK-05.dat

Boundary Conditions:

TWL- 2.7514 meters

HS- 0.9918 meters

PER- 6.2617 seconds

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

SWAN maximum additional wave setup: 0.0028839 feet

SWAN output at toe:

SETUP- -0.040102 feet

HS- 3.5425 feet

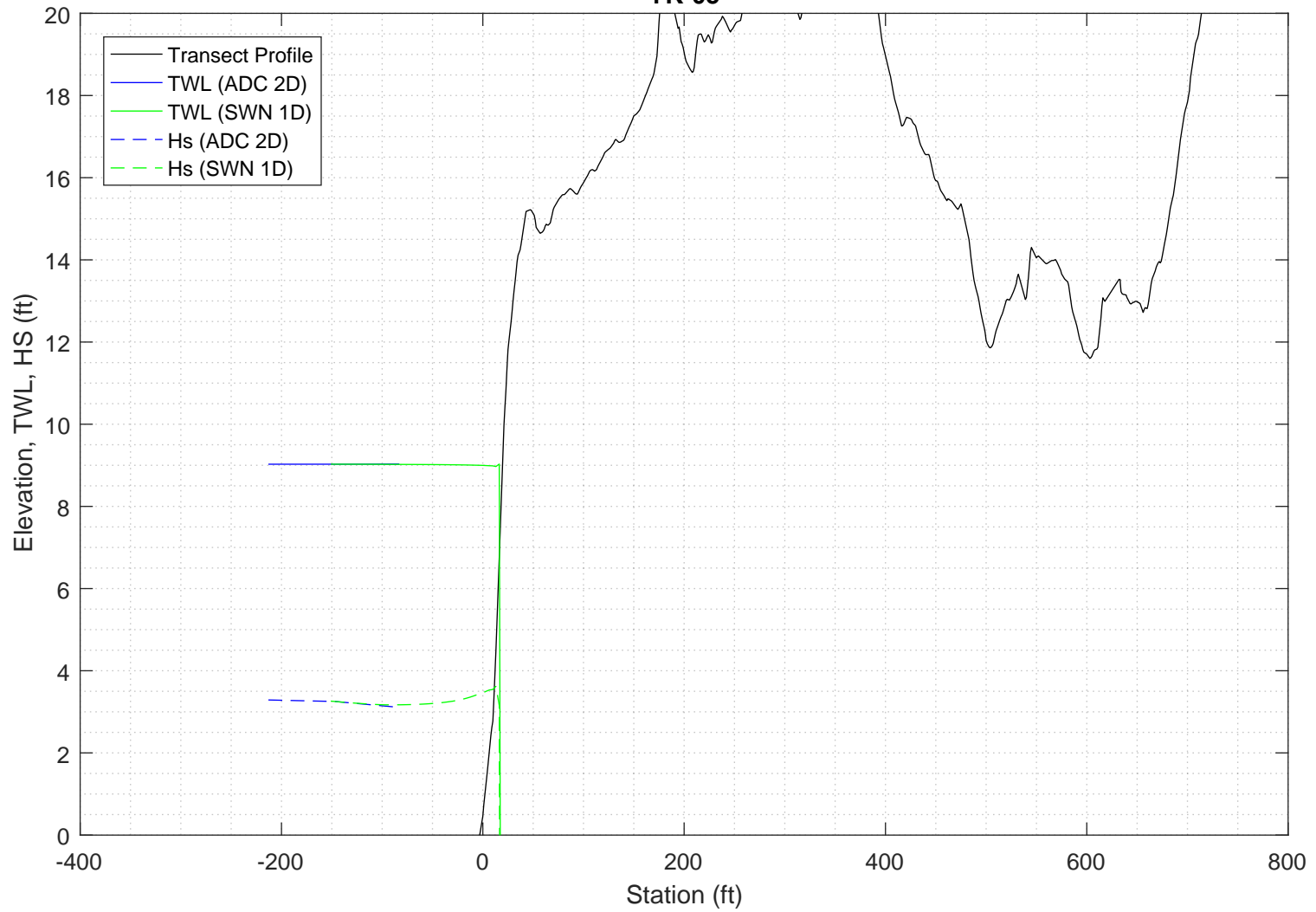
PER- 6.337 seconds

PART 2 COMPLETE

---

**REVISED SEP-05-2019**

**2-D ADCIRC+SWAN and SWAN 1-D results, Transect:  
YK-05**



Execution started at 20200206.151503

```

-----
                        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 52 0. 52 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 52 0 1 1

!READinp BOTtom [fac] 'fname1' [idla] [nhedf] [FREE|FOrmat[form]|UNFormatted]

READ BOTTOM -1. '../gridfiles/YK-05zmmeters\_xmmeters.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 0.9918 6.2617 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 [cnds2] [stpm] [powst] [delta] [powk]
    WCAP KOM
!   quadruplet wave interactions
!-- QUADrupl [iquad] [lambda] [Cn14] [Csh1] [Csh2]
! -- BREaking CONStant [alpha] [gamma]
    BREAK      CON      1.      0.73
!-- FRICtion JONswap CONStant [cfjon]
    FRIC      JONSWAP CON      0.038
!-- TRIad [itriad] [trfac] [cutfr]   [a] [b] [urcrit] [urslim]
! TRIAD      1      0.65      2.5      0.95 -0.75  0.2      0.01
    TRIAD
!-- VEGETation [height] [diamtr] [nstems] [drag]
!-- MUD [layer] [rhom] [viscm]
!-- LIMiter [ursell] [qb] deactivates quadruplets with Ursell number exceeds ursell
!-- OBSTacle -- not in 1-D
!-- SETUP [supcor]
    SETUP      0
!
! ----- N U M E R I C S -----
!
!-- PROP can use BBST or GSE instead of default
! -- NUMeric -- lots of options
!     NUM ACCUR npnts=100. stat 30
!     NUMeric STOPC
!
! -----O U T P U T -----
!
!OUTPut OPTions "comment" (TABLE [field]) (BLOck [ndec] [len]) (SPEC [ndec])
OUTPUT OPTIONS '%' TABLE 16
$BLOCK 9 1000 SPEC 8
!CURve 'sname' [xp1] [yp1] <[int] [xp] [yp] >
CURVE 'curve' 0      0      52 52      0
!TABLE 'sname' < HEADER|NOHEADer|INDEXed > 'fname' <output parameters> (output time)
Table 'curve'   HEADER 'YK-05.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      53 MYC      1
                   : MCGRD     54
                   : 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 90.39 % of wet grid points ( 99.50 % required)

```

```

iteration    3; sweep 1
iteration    3; sweep 2
iteration    3; sweep 3
iteration    3; sweep 4
accuracy OK in 1.93 % 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 88.47 % 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 98.08 % 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 100.00 % of wet grid points ( 99.50 % required)

STOP

```

%
% Run:1      Table:curve      SWAN version:41.20A
%
%      Xp      Yp      Hsig      TPsmoo      RTpeak      Tm_10      Dir      Dspr      Depth      Setup
%      [m]      [m]      [m]      [sec]      [sec]      [sec]      [degr]      [degr]      [m]      [m]
%
%      0.      0.      0.99401      6.2867      6.4550      5.6589      360.000      31.5059      11.5400      0.000000
%      1.      0.      0.99167      6.2872      6.4550      5.6570      360.000      31.2014      11.2900      -0.000035
%      2.      0.      0.98946      6.2876      6.4550      5.6554      360.000      30.9374      11.0499      -0.000070
%      3.      0.      0.98729      6.2882      6.4550      5.6540      360.000      30.6917      10.7999      -0.000108
%      4.      0.      0.98522      6.2887      6.4550      5.6528      360.000      30.4421      10.5599      -0.000147
%      5.      0.      0.98321      6.2894      6.4550      5.6519      360.000      30.1867      10.3098      -0.000190
%      6.      0.      0.98132      6.2900      6.4550      5.6512      360.000      29.9254      10.0698      -0.000235
%      7.      0.      0.97949      6.2907      6.4550      5.6509      360.000      29.6584      9.8197      -0.000285
%      8.      0.      0.97778      6.2915      6.4550      5.6508      360.000      29.3852      9.5797      -0.000336
%      9.      0.      0.97614      6.2923      6.4550      5.6510      360.000      29.1062      9.3296      -0.000394
%     10.      0.      0.97449      6.2931      6.4550      5.6515      360.000      28.8086      9.0795      -0.000455
%     11.      0.      0.97277      6.2941      6.4550      5.6529      360.000      28.4799      8.7695      -0.000537
%     12.      0.      0.97115      6.2952      6.4550      5.6548      360.000      28.1375      8.4494      -0.000629
%     13.      0.      0.96969      6.2963      6.4550      5.6571      360.000      27.7746      8.1393      -0.000727
%     14.      0.      0.96841      6.2974      6.4550      5.6600      360.000      27.3914      7.8192      -0.000840
%     15.      0.      0.96739      6.2986      6.4550      5.6636      360.000      26.9900      7.4990      -0.000964
%     16.      0.      0.96662      6.2998      6.4550      5.6675      360.000      26.5714      7.1889      -0.001099
%     17.      0.      0.96619      6.3011      6.4550      5.6723      360.000      26.1304      6.8687      -0.001255
%     18.      0.      0.96648      6.3024      6.4550      5.6779      360.000      25.7594      6.5486      -0.001429
%     19.      0.      0.96669      6.3030      6.4550      5.6799      360.000      25.5626      6.4085      -0.001513
%     20.      0.      0.96659      6.3031      6.4550      5.6791      360.000      25.4675      6.3885      -0.001527
%     21.      0.      0.96657      6.3033      6.4550      5.6790      360.000      25.3406      6.3384      -0.001561
%     22.      0.      0.96703      6.3039      6.4550      5.6815      360.000      25.1501      6.1883      -0.001658
%     23.      0.      0.96752      6.3045      6.4550      5.6841      360.000      24.9410      6.0382      -0.001762
%     24.      0.      0.96810      6.3051      6.4550      5.6868      0.000      24.7216      5.8881      -0.001872
%     25.      0.      0.96879      6.3057      6.4550      5.6896      0.000      24.4929      5.7380      -0.001989
%     26.      0.      0.96965      6.3064      6.4550      5.6921      0.000      24.2553      5.5879      -0.002115
%     27.      0.      0.97072      6.3070      6.4550      5.6943      0.000      24.0174      5.4377      -0.002250
%     28.      0.      0.97183      6.3076      6.4550      5.6963      0.000      23.7753      5.2976      -0.002385
%     29.      0.      0.97324      6.3083      6.4550      5.6984      0.000      23.5210      5.1475      -0.002539
%     30.      0.      0.97484      6.3089      6.4550      5.7002      360.000      23.2573      4.9973      -0.002706
%     31.      0.      0.97666      6.3096      6.4550      5.7019      360.000      22.9844      4.8471      -0.002885
%     32.      0.      0.97874      6.3102      6.4550      5.7034      360.000      22.7049      4.6969      -0.003080
%     33.      0.      0.98107      6.3109      6.4550      5.7045      360.000      22.4183      4.5467      -0.003291
%     34.      0.      0.98372      6.3116      6.4550      5.7047      360.000      22.1248      4.3965      -0.003520
%     35.      0.      0.98672      6.3123      6.4550      5.7042      360.000      21.8244      4.2462      -0.003769
%     36.      0.      0.99013      6.3130      6.4550      5.7024      360.000      21.5293      4.0960      -0.004041
%     37.      0.      0.99371      6.3137      6.4550      5.6986      360.000      21.2359      3.9557      -0.004318
%     38.      0.      0.99803      6.3144      6.4550      5.6931      360.000      20.9275      3.8054      -0.004643
%     39.      0.      1.00294      6.3152      6.4550      5.6847      359.999      20.6146      3.6550      -0.005002
%     40.      0.      1.00851      6.3161      6.4550      5.6724      359.999      20.2879      3.5046      -0.005400
%     41.      0.      1.01486      6.3170      6.4550      5.6553      359.999      19.9527      3.3542      -0.005845
%     42.      0.      1.02205      6.3181      6.4550      5.6325      0.000      19.6094      3.2037      -0.006343
%     43.      0.      1.03020      6.3193      6.4550      5.6027      0.002      19.2519      3.0531      -0.006905
%     44.      0.      1.03893      6.3208      6.4550      5.5670      359.999      18.8872      2.9025      -0.007524
%     45.      0.      1.04749      6.3225      6.4550      5.5278      359.984      18.5357      2.7518      -0.008175
%     46.      0.      1.05501      6.3245      6.4550      5.4832      359.958      18.0983      2.6112      -0.008806
%     47.      0.      1.06640      6.3278      6.4550      5.4416      359.902      17.5233      2.3599      -0.010052
%     48.      0.      1.07649      6.3319      6.4550      5.3804      359.881      16.9233      2.1187      -0.011328
%     49.      0.      1.07975      6.3370      6.4550      5.3036      359.786      15.9894      1.9078      -0.012223
%     50.      0.      1.10366      6.3450      6.4550      5.1694      359.790      14.0672      1.3627      -0.017273
%     51.      0.      0.96144      6.3625      6.4550      5.0927      359.430      14.5215      0.6909      0.000879
%     52.      0.      -9.00000      -9.0000      -9.0000      -9.0000      -999.000      -9.0000      -99.0000      -9.000000

```

---

PART 3: WHAFIS

WHAFIS input: YK-05.dat

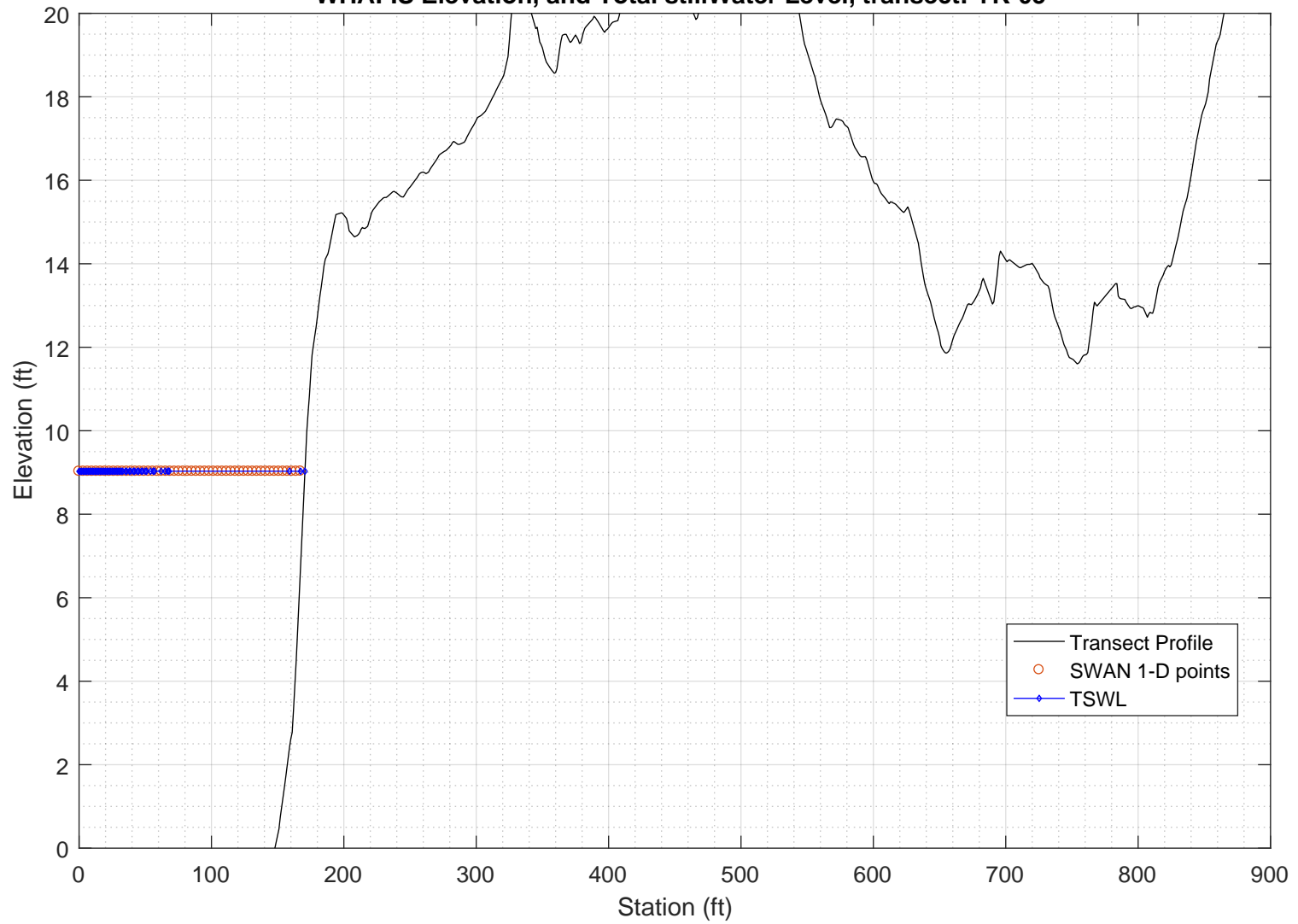
WHAFIS output: YK-05.out

PART 3 COMPLETE

---

**REVISED SEP-05-2019**

**WHAFIS Elevation, and Total stillWater Level, transect: YK-05**



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

Executed on: Thu Feb 6 16:14:34 2020

Input file: C:\Users\shayward\Desktop\Kittery\T2\3\_whafis\whafis4\YK-05.dat

Output file: C:\Users\shayward\Desktop\Kittery\T2\3\_whafis\whafis4\YK-05.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	-28.829	1.000	1.000	9.027	5.206	6.262	56.140	0.246	0.000
OF	1.000	-28.583	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
OF	2.000	-28.338	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
OF	3.000	-28.093	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
OF	4.000	-27.848	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
OF	5.000	-27.603	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
OF	6.000	-27.358	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
OF	7.000	-27.113	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
OF	8.000	-26.868	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
OF	9.000	-26.623	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
OF	10.000	-26.378	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
OF	11.000	-26.132	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
OF	12.000	-25.887	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
OF	13.000	-25.642	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
OF	14.000	-25.397	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
OF	15.000	-25.152	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	16.000	-24.907	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	17.000	-24.662	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	18.000	-24.417	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	19.000	-24.172	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	20.000	-23.927	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	21.000	-23.681	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	22.000	-23.436	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	23.000	-23.191	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	24.000	-22.946	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	25.000	-22.701	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	26.000	-22.456	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	27.000	-22.211	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	28.000	-21.966	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	29.000	-21.721	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	30.000	-21.476	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
OF	31.000	-21.230	0.000	9.029	0.000	0.000	0.000	0.000	0.245	0.000
OF	32.000	-20.985	0.000	9.029	0.000	0.000	0.000	0.000	0.258	0.000
OF	33.000	-20.714	0.000	9.029	0.000	0.000	0.000	0.000	0.301	0.000
OF	35.000	-20.081	0.000	9.029	0.000	0.000	0.000	0.000	0.316	0.000
OF	36.000	-19.765	0.000	9.029	0.000	0.000	0.000	0.000	0.316	0.000
OF	38.000	-19.133	0.000	9.029	0.000	0.000	0.000	0.000	0.316	0.000
OF	39.000	-18.817	0.000	9.029	0.000	0.000	0.000	0.000	0.316	0.000
OF	41.000	-18.185	0.000	9.029	0.000	0.000	0.000	0.000	0.316	0.000
OF	42.000	-17.869	0.000	9.029	0.000	0.000	0.000	0.000	0.316	0.000
OF	44.000	-17.237	0.000	9.029	0.000	0.000	0.000	0.000	0.316	0.000
OF	45.000	-16.920	0.000	9.030	0.000	0.000	0.000	0.000	0.316	0.000
OF	47.000	-16.288	0.000	9.030	0.000	0.000	0.000	0.000	0.316	0.000
OF	48.000	-15.972	0.000	9.030	0.000	0.000	0.000	0.000	0.316	0.000
OF	50.000	-15.340	0.000	9.030	0.000	0.000	0.000	0.000	0.316	0.000
OF	51.000	-15.024	0.000	9.030	0.000	0.000	0.000	0.000	0.316	0.000
OF	54.000	-14.076	0.000	9.030	0.000	0.000	0.000	0.000	0.316	0.000
OF	56.000	-13.443	0.000	9.030	0.000	0.000	0.000	0.000	0.316	0.000
OF	57.000	-13.127	0.000	9.030	0.000	0.000	0.000	0.000	0.236	0.000
OF	62.000	-12.029	0.000	9.031	0.000	0.000	0.000	0.000	0.150	0.000
OF	65.000	-11.928	0.000	9.031	0.000	0.000	0.000	0.000	0.024	0.000
OF	67.000	-11.909	0.000	9.031	0.000	0.000	0.000	0.000	0.009	0.000
OF	68.000	-11.900	0.000	9.031	0.000	0.000	0.000	0.000	0.156	0.000
IF	159.000	2.425	0.000	9.031	0.000	0.000	0.000	0.000	0.188	0.000
IF	167.300	6.749	0.000	9.030	0.000	0.000	0.000	0.000	0.569	0.000
IF	170.600	9.030	0.000	9.030	0.000	0.000	0.000	0.000	0.691	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1

	END STATION	END ELEVATION	FETCH LENGTH	SURGE 10-YEAR	ELEV 100-YEAR	SURGE 100-YEAR	INITIAL WAVE	INITIAL HEIGHT	W. PERIOD	BOTTOM SLOPE	AVERAGE A-ZONES
IE	0.000	-28.829	1.000	1.000	9.027	5.206	6.262	56.140		0.246	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	1.000	-28.583	0.000	9.027	0.000	0.000	0.000	0.000		0.245	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	2.000	-28.338	0.000	9.027	0.000	0.000	0.000	0.000		0.245	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	3.000	-28.093	0.000	9.027	0.000	0.000	0.000	0.000		0.245	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	4.000	-27.848	0.000	9.027	0.000	0.000	0.000	0.000		0.245	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	5.000	-27.603	0.000	9.027	0.000	0.000	0.000	0.000		0.245	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	6.000	-27.358	0.000	9.027	0.000	0.000	0.000	0.000		0.245	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	7.000	-27.113	0.000	9.027	0.000	0.000	0.000	0.000		0.245	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	8.000	-26.868	0.000	9.027	0.000	0.000	0.000	0.000		0.245	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	9.000	-26.623	0.000	9.027	0.000	0.000	0.000	0.000		0.245	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	10.000	-26.378	0.000	9.027	0.000	0.000	0.000	0.000		0.245	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	11.000	-26.132	0.000	9.027	0.000	0.000	0.000	0.000		0.245	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	12.000	-25.887	0.000	9.027	0.000	0.000	0.000	0.000		0.245	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	13.000	-25.642	0.000	9.027	0.000	0.000	0.000	0.000		0.245	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE

	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	14.000	-25.397	0.000	9.027	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	15.000	-25.152	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	16.000	-24.907	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	17.000	-24.662	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	18.000	-24.417	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	19.000	-24.172	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	20.000	-23.927	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	21.000	-23.681	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	22.000	-23.436	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	23.000	-23.191	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	24.000	-22.946	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	25.000	-22.701	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	26.000	-22.456	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	27.000	-22.211	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	28.000	-21.966	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	29.000	-21.721	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	30.000	-21.476	0.000	9.028	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	31.000	-21.230	0.000	9.029	0.000	0.000	0.000	0.000	0.245	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	32.000	-20.985	0.000	9.029	0.000	0.000	0.000	0.000	0.258	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	33.000	-20.714	0.000	9.029	0.000	0.000	0.000	0.000	0.301	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	35.000	-20.081	0.000	9.029	0.000	0.000	0.000	0.000	0.316	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	36.000	-19.765	0.000	9.029	0.000	0.000	0.000	0.000	0.316	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	38.000	-19.133	0.000	9.029	0.000	0.000	0.000	0.000	0.316	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	39.000	-18.817	0.000	9.029	0.000	0.000	0.000	0.000	0.316	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	41.000	-18.185	0.000	9.029	0.000	0.000	0.000	0.000	0.316	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	42.000	-17.869	0.000	9.029	0.000	0.000	0.000	0.000	0.316	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	44.000	-17.237	0.000	9.029	0.000	0.000	0.000	0.000	0.316	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	45.000	-16.920	0.000	9.030	0.000	0.000	0.000	0.000	0.316	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	47.000	-16.288	0.000	9.030	0.000	0.000	0.000	0.000	0.316	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	48.000	-15.972	0.000	9.030	0.000	0.000	0.000	0.000	0.316	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	50.000	-15.340	0.000	9.030	0.000	0.000	0.000	0.000	0.316	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	51.000	-15.024	0.000	9.030	0.000	0.000	0.000	0.000	0.316	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	54.000	-14.076	0.000	9.030	0.000	0.000	0.000	0.000	0.316	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	56.000	-13.443	0.000	9.030	0.000	0.000	0.000	0.000	0.316	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	57.000	-13.127	0.000	9.030	0.000	0.000	0.000	0.000	0.236	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	62.000	-12.029	0.000	9.031	0.000	0.000	0.000	0.000	0.150	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	65.000	-11.928	0.000	9.031	0.000	0.000	0.000	0.000	0.024	0.000

	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	67.000	-11.909	0.000	9.031	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	68.000	-11.900	0.000	9.031	0.000	0.000	0.000	0.000	0.156	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	159.000	2.425	0.000	9.031	0.000	0.000	0.000	0.000	0.188	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	167.300	6.749	0.000	9.030	0.000	0.000	0.000	0.000	0.569	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	170.600	9.030	0.000	9.030	0.000	0.000	0.000	0.000	0.691	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	5.21	6.26	12.67
OF	1.00	5.21	6.26	12.67
OF	2.00	5.20	6.26	12.67
OF	3.00	5.20	6.26	12.67
OF	4.00	5.20	6.26	12.67
OF	5.00	5.20	6.26	12.67
OF	6.00	5.20	6.26	12.67
OF	7.00	5.20	6.26	12.67
OF	8.00	5.20	6.26	12.67
OF	9.00	5.20	6.26	12.67
OF	10.00	5.20	6.26	12.67
OF	11.00	5.20	6.26	12.67
OF	12.00	5.20	6.26	12.67
OF	13.00	5.20	6.26	12.67
OF	14.00	5.20	6.26	12.67
OF	15.00	5.20	6.26	12.67
OF	16.00	5.20	6.26	12.67
OF	17.00	5.20	6.26	12.67
OF	18.00	5.20	6.26	12.67
OF	19.00	5.20	6.26	12.67
OF	20.00	5.20	6.26	12.67
OF	21.00	5.20	6.26	12.67
OF	22.00	5.20	6.26	12.67
OF	23.00	5.20	6.26	12.67
OF	24.00	5.20	6.26	12.67
OF	25.00	5.20	6.26	12.67
OF	26.00	5.21	6.26	12.67
OF	27.00	5.21	6.26	12.67
OF	28.00	5.21	6.26	12.67
OF	29.00	5.21	6.26	12.67
OF	30.00	5.21	6.26	12.68
OF	31.00	5.21	6.26	12.68
OF	32.00	5.21	6.26	12.68
OF	33.00	5.22	6.26	12.68
OF	35.00	5.22	6.26	12.68
OF	36.00	5.22	6.26	12.69
OF	38.00	5.23	6.26	12.69
OF	39.00	5.23	6.26	12.69
OF	41.00	5.24	6.26	12.70
OF	42.00	5.25	6.26	12.70
OF	44.00	5.26	6.26	12.71
OF	45.00	5.26	6.26	12.71
OF	47.00	5.27	6.26	12.72
OF	48.00	5.28	6.26	12.72
OF	50.00	5.29	6.26	12.73
OF	51.00	5.30	6.26	12.74
OF	54.00	5.32	6.26	12.76
OF	56.00	5.34	6.26	12.77
OF	57.00	5.35	6.26	12.77
OF	62.00	5.38	6.26	12.80
OF	65.00	5.39	6.26	12.80
OF	67.00	5.39	6.26	12.80
OF	68.00	5.39	6.26	12.80
IF	159.00	4.90	6.26	12.46
IF	167.30	1.75	6.26	10.25
IF	170.60	0.01	6.26	9.04
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	
15.00	1.00		9.03	
31.00	1.00		9.03	
45.00	1.00		9.03	
62.00	1.00		9.03	
167.30	1.00		9.03	
PART5 LOCATION OF V ZONES				
STATION OF GUTTER		LOCATION OF ZONE		
164.00		WINDWARD		
PART6 NUMBERED A ZONES AND V ZONES				
STATION OF GUTTER	ELEVATION	ZONE DESIGNATION		FHF
0.00	12.67			
		V22	EL=13	120
14.00	12.67			
		V22	EL=13	120
15.00	12.67			
		V22	EL=13	120
30.00	12.68			
		V22	EL=13	120
31.00	12.68			
		V22	EL=13	120
44.00	12.71			
		V22	EL=13	120
45.00	12.71			
		V22	EL=13	120
57.00	12.77			
		V22	EL=13	120
62.00	12.80			

148.23	12.50	V22	EL=13	120
159.00	12.46	V22	EL=12	120
162.61	11.50	V22	EL=12	120
164.00	11.13	V22	EL=11	120
166.37	10.50	A18	EL=11	90
167.30	10.25	A18	EL=10	90
169.34	9.50	A18	EL=10	90
170.60	9.04	A18	EL= 9	90

ZONE TERMINATED AT END OF TRANSECT  
 PART 7 POSTSCRIPT NOTES

PS# 1 START(360535.9213,4770987.724)  
 PS# 2 END(360385.9926,4771214.8466)

-1.000000e+00



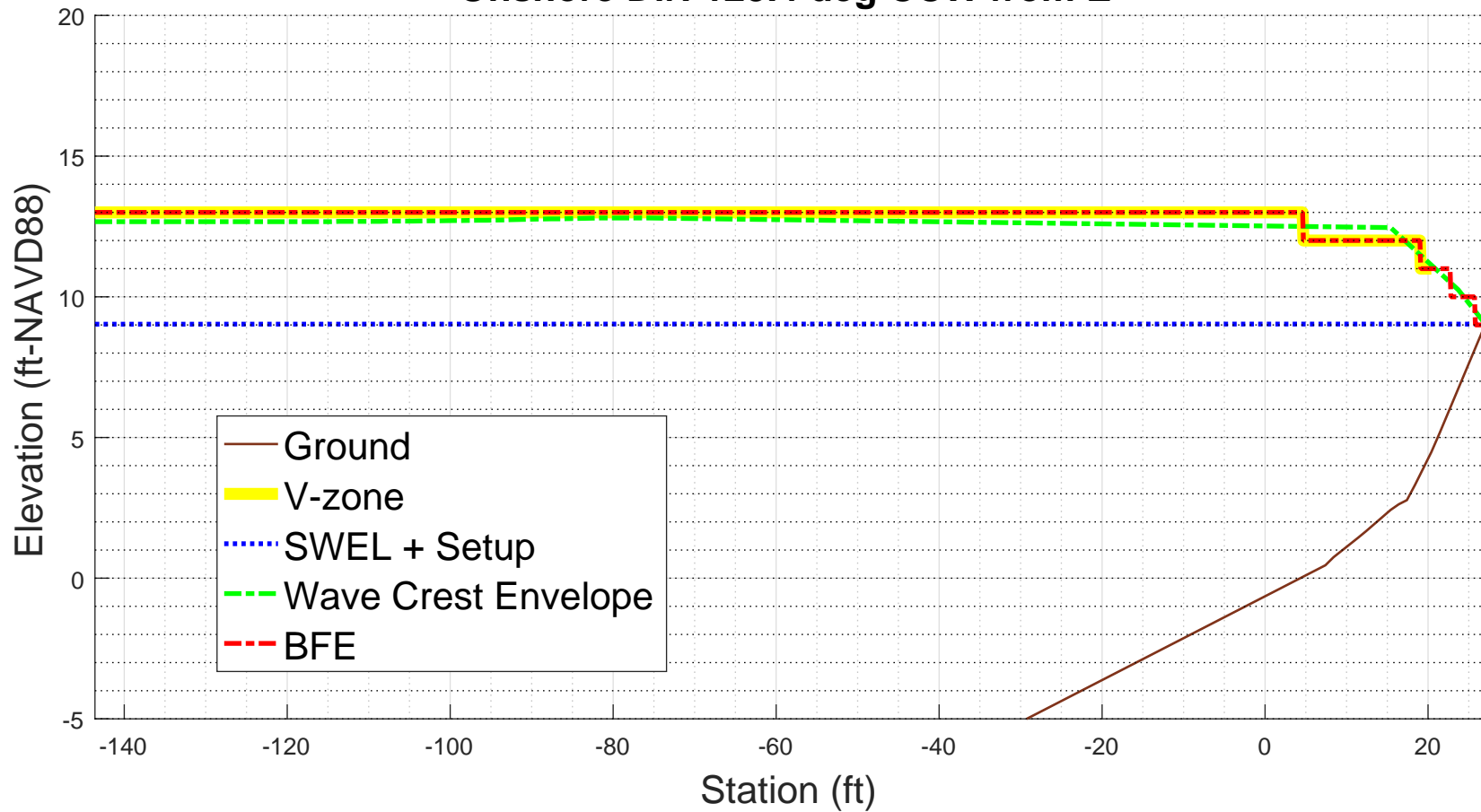
**REVISED SEP-05-2019**

**YK-05**

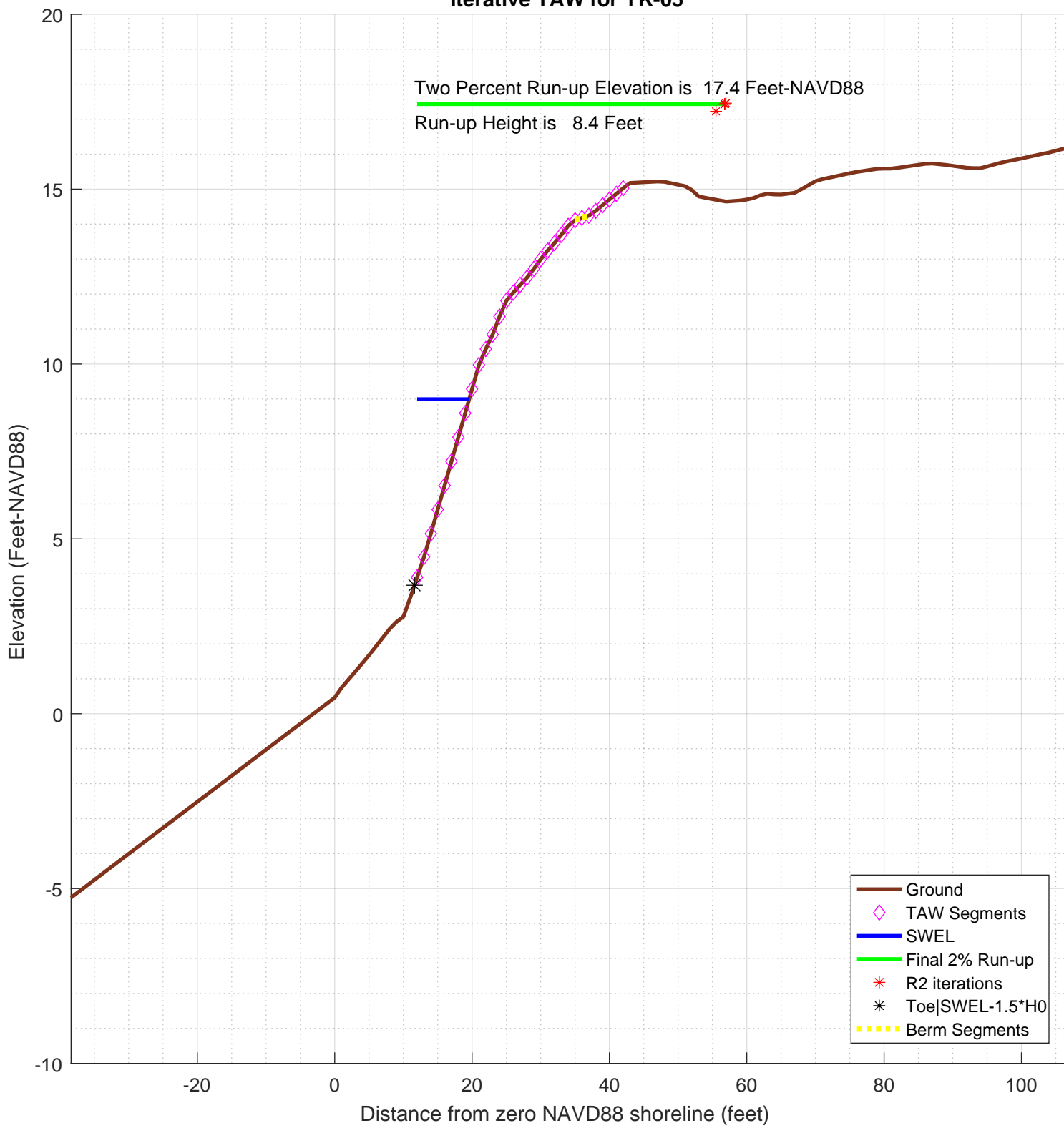
**100-year WHAFIS Output**

**Zero Station: -70.71351846, 43.07910583**

**Onshore Dir: 123.4 deg CCW from E**



### Iterative TAW for YK-05



```

diary on          % begin recording

% FEMA appeal for The Town of Harpswell, Cumberland county, Maine
% TRANSECT ID: YK-05
% calculation by SJH, Ransom Consulting, Inc. 06-Feb-2020
% 100-year wave runup using TAW methodology
% including berm and weighted average with foreshore if necessary
%
% chk nld 20181015
%
% 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/YK-05sta_ele_include.csv'; % file with station, elevation, include
% third column is 0 for excluded points
imgname='logfiles/YK-05-runup';
SWEL=9.0268; % 100-yr still water level including wave setup.
H0=3.5425; % significant wave height at toe of structure
Tp=6.337; % peak period, 1/fma,
T0=Tp/1.1;

gamma_berm=0.98213; % this may get changed automatically below
gamma_rough=0.75;
gamma_beta=1;
gamma_perm=1;

setupAtToe=-0.040102;
maxSetup=0.0028839; % only used in case of berm/shallow foreshore weighted average

plotTitle='Iterative TAW for YK-05'

plotTitle =

Iterative TAW for YK-05

% END CONFIG
%-----

SWEL=SWEL+setupAtToe

SWEL =

8.986698

SWEL_fore=SWEL+maxSetup

SWEL_fore =

8.9895819

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

L0 =

169.817777542363

% 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 =

```

3.672948

```
% 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 =
```

14.300448

```
% 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 =
```

11.6106776745786

```
top_sta =
```

37.4384359160029

```
% 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 =
```

37.4384359160029

```
toe_sta
```

```
toe_sta =
```

11.6106776745786

```
% 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',de
    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 9.6 ft landward of toe of slope

ans =

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

ans =

-!!-      setup is adjusted to -0.03 feet

ans =

-!!-      SWEL is adjusted to 8.99 feet

k =

    1
    2

% now iterate converge on a runup elevation
tol=0.001; % convergence criteria
R2del=999;
R2_new=3*H0; %initial guess
R2=R2_new;
iter=0;
R2_all=[];
topStaAll=[];
Berm_Segs=[];
TAW_ALWAYS_VALID=1;
while(abs(R2del) > tol && iter <= 25)
    iter=iter+1;
    sprintf('!----- STARTING ITERATION %d -----!',iter)
    % elevation of toe of slope
    Ztoe
    % station of toe slope (relative to 0-NAVD88 shoreline)
    toe_sta
    % station of top of slope/extent of 2% run-up
    top_sta
    % elevation of top of slope/extent of 2% run-up
    Z2
    % incident significant wave height
    H0
    % incident spectral peak wave period
    Tp
    % incident spectral mean wave period
    T0

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

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

    % loop over profile segments to determine berm factor
    % re-calculate influence of depth of berm based on this run-up elevation
    % check for berm, berm width, berm height
    berm_width=0;
    rdh_sum=0;
    Berm_Segs=[];
    Berm_Heights=[];
    for kk=1:length(sta)-1
        ddep=dep(kk+1)-dep(kk);
        dsta=sta(kk+1)-sta(kk);
        s=ddep/dsta;
        if (s < 1/15) % count it as a berm if slope is flatter than 1:15 (see TAW manual)
            sprintf('Berm Factor Calculation: Iteration %d, Profile Segment: %d',iter,kk)
            berm_width=berm_width+dsta; % tally the width of all berm segments
            % compute the rdh for this segment and weight it by the segment length
            dh=SWEL-(dep(kk)+dep(kk+1))/2
            if dh < 0
                chi=R2;
            else
                chi=2* H0;
            end
        end
    end
end

```

```

        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')
    % 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 =

        3.672948

toe_sta =

        11.6106776745786

top_sta =

        37.4384359160029

Z2 =

        14.300448

H0 =

        3.5425

Tp =

        6.337

T0 =

        5.76090909090909

R2 =

        10.6275

Z2 =

        19.6214318644647

top_sta =

        70.2660422428596

Lslope =

        58.655364568281

ans =

Berm Factor Calculation: Iteration 1, Profile Segment: 24

dh =

        -5.14946813553532

```

```

rdh_sum =
    0.475727240324892

ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 25

dh =
    -5.21381813553532

rdh_sum =
    0.960958320952088

ans =
!----- End Berm Factor Calculation, Iter: 1 -----!

berm_width =
    2

rB =
    0.0340974779497243

rdh_mean =
    0.480479160476044

gamma_berm =
    0.98228564962991

slope =
    0.281499977733681

Irb =
    1.94901423819125

gamma_berm =
    0.98228564962991

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.736714237222432

ans =
!!! - - Iribaren number: 1.91 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:3.6 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    8.23114946187324

```



```

R2del =
    2.39635053812676

Z2 =
    17.2250813263379

ans =
!----- STARTING ITERATION 2 -----!

Ztoe =
    3.672948

toe_sta =
    11.6106776745786

top_sta =
    55.519269700541

Z2 =
    17.2250813263379

H0 =
    3.5425

Tp =
    6.337

T0 =
    5.76090909090909

R2 =
    8.23114946187324

Z2 =
    17.2250813263379

top_sta =
    55.519269700541

Lslope =
    43.9085920259624

ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 24

dh =
    -5.14946813553532

rdh_sum =
    0.692222097484545

ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 25

dh =
    -5.21381813553532

```

```

rdh_sum =
    1.39572158279274

ans =
!----- End Berm Factor Calculation, Iter: 2 -----!

berm_width =
    2

rB =
    0.0455491717615867

rdh_mean =
    0.697860791396368

gamma_berm =
    0.986237809291403

slope =
    0.323373625101563

Irb =
    2.23893374575942

gamma_berm =
    0.986237809291403

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.739678356968552

ans =
!!! - - Iribaren number: 2.21 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:3.1 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    8.46543871363766

R2del =
    0.234289251764425

Z2 =
    17.4593705781023

ans =
!----- STARTING ITERATION 3 -----!

```

```

Ztoe =
    3.672948

toe_sta =
    11.6106776745786

top_sta =
    56.9610497113991

Z2 =
    17.4593705781023

H0 =
    3.5425

Tp =
    6.337

T0 =
    5.76090909090909

R2 =
    8.46543871363766

Z2 =
    17.4593705781023

top_sta =
    56.9610497113991

Lslope =
    45.3503720368205

ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 24

dh =
    -5.14946813553532

rdh_sum =
    0.666843125112442

ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 25

dh =
    -5.21381813553532

rdh_sum =
    1.34489362697038

ans =
!----- End Berm Factor Calculation, Iter: 3 -----!

berm_width =
    2

```

```

rB =
    0.0441010715055695

rdh_mean =
    0.67244681348519

gamma_berm =
    0.985554553499633

slope =
    0.318023166361585

Irb =
    2.20188891062648

gamma_berm =
    0.985554553499633

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.739165915124725

ans =
!!! - - Iribaren number: 2.17 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:3.1 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    8.43611879326975

R2del =
    0.0293199203679073

Z2 =
    17.4300506577344

ans =
!----- STARTING ITERATION 4 -----!

Ztoe =
    3.672948

toe_sta =
    11.6106776745786

top_sta =
    56.7806194322119

```

```

Z2 =
    17.4300506577344

H0 =
    3.5425

Tp =
    6.337

T0 =
    5.76090909090909

R2 =
    8.43611879326975

Z2 =
    17.4300506577344

top_sta =
    56.7806194322119

Lslope =
    45.1699417576333

ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 24

dh =
    -5.14946813553532

rdh_sum =
    0.669969958416942

ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 25

dh =
    -5.21381813553532

rdh_sum =
    1.35115837256487

ans =
!----- End Berm Factor Calculation, Iter: 4 -----!

berm_width =
    2

rB =
    0.0442772322074561

rdh_mean =
    0.675579186282436

gamma_berm =
    0.985635544298096

```

```

slope =
    0.318673180866682

Irb =
    2.20638939952764

gamma_berm =
    0.985635544298096

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.739226658223572

ans =
!!! - - Iribaren number: 2.17 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:3.1 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    8.43969329239713

R2del =
    0.00357449912737451

Z2 =
    17.4336251568618

ans =
!----- STARTING ITERATION 5 -----!

Ztoe =
    3.672948

toe_sta =
    11.6106776745786

top_sta =
    56.8026163499189

Z2 =
    17.4336251568618

H0 =
    3.5425

Tp =
    6.337

```

```

T0 =
    5.76090909090909

R2 =
    8.43969329239713

Z2 =
    17.4336251568618

top_sta =
    56.8026163499189

Lslope =
    45.1919386753402

ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 24

dh =
    -5.14946813553532

rdh_sum =
    0.669587991433597

ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 25

dh =
    -5.21381813553532

rdh_sum =
    1.35039312106405

ans =
!----- End Berm Factor Calculation, Iter: 5 -----!

berm_width =
    2

rB =
    0.0442556805178914

rdh_mean =
    0.675196560532024

gamma_berm =
    0.985625602751793

slope =
    0.31859364452928

Irb =
    2.20583871581072

gamma_berm =
    0.985625602751793

```

```

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.739219202063845

ans =
!!! - - Iribaren number: 2.17 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:3.1 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    8.43925609246532

R2del =
    0.000437199931813126

Z2 =
    17.43318795693

% final 2% runup elevation
Z2=R2_new+SWEL
Z2 =
    17.43318795693

diary off

```



---

PART 5: RUNUP2

for transect: YK-05

Station locations shifted by: -3.09 feet from their  
original location to set the shoreline to  
elevation 0 for RUNUP2 input

---

RUNUP2 INPUT CONVERSIONS

for transect: YK-05

Incident significant wave height: 3.25 feet

Peak wave period: 6.26 seconds

Mean wave height: 2.04 feet

Local Depth below SWEL: 37.86 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

Deep water wavelength,  $L_0$  (m)

$$L_0 = gT^2/\pi$$

$$L_0 = 32.17 \times 5.32^2 / \pi = 145.06$$

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

$$C_0 = L_0/T$$

$$C_0 = 145.06 / 5.32 = 27.25$$

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

$$\sigma = \pi/T$$

$$\sigma = 6.28 / 5.32 = 1.18$$

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

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

$$y = 1.18 \times 1.18 \times 37.86 / 32.17 = 1.64$$

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

$$C_{1H} = 25.65$$

Shoaling Coefficient  $K_{sH}$

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

$$K_{sH} = \sqrt{27.25 / 25.65} = 1.03$$

Deepwater Wave Height  $H_{0H}$  (ft)

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

$$H_{0H} = 2.04 / 1.03 = 1.98$$

Deepwater mean wave height: 1.98 feet

---

END RUNUP2 CONVERSIONS

---

RUNUP2 RESULTS

for transect: YK-05

RUNUP2 SWEL:

9.00  
9.00  
9.00  
9.00  
9.00  
9.00  
9.00  
9.00  
9.00

RUNUP2 deepwater mean wave heights:

1.88

1.88  
1.88  
1.98  
1.98  
1.98  
2.08  
2.08  
2.08

RUNUP2 mean wave periods:

5.06  
5.32  
5.59  
5.06  
5.32  
5.59  
5.06  
5.32  
5.59

RUNUP2 runup above SWEL:

5.33  
5.49  
5.66  
5.66  
5.85  
6.01  
5.96  
6.14  
6.34

RUNUP2 Mean runup height above SWEL: 5.83 feet

RUNUP2 2-percent runup height above SWEL: 12.82 feet

RUNUP2 2-percent runup elevation: 21.82 feet-NAVD88

RUNUP2 Messages:

No Messages

\_\_\_\_\_END RUNUP2 RESULTS\_\_\_\_\_

\_\_\_\_\_ACES BEACH RUNUP\_\_\_\_\_

Incident significant wave height: 3.25 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 2.77 feet

Peak wave period: 6.26 seconds

Average beach Slope: 1:4.40 (H:V)

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

ACES Beach 2-percent runup height above SWEL: 8.23 feet

ACES Beach 2-percent runup elevation: 17.23 feet-NAVD88

!!!ACES BEACH RUNUP is NOT valid

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

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

FEMA  
RUNUP2 transect: YK-05

sjh

job 2  
1

8.00  
-28.83 -147.9 1.0  
-20.99 -115.9 1.0  
-20.71 -114.9 1.0  
-12.18 -87.9 1.0  
-12.06 -86.9 1.0  
-11.93 -82.9 1.0  
-11.90 -79.9 1.0  
0.46 3.1 1.0  
0.75 4.1 1.0  
1.67 8.1 1.0  
2.43 11.1 1.0  
2.77 13.1 1.0  
4.48 16.1 1.0  
9.98 24.1 1.0  
10.84 26.1 1.0  
11.81 28.1 1.0  
12.47 31.1 1.0  
13.95 37.1 1.0  
14.24 40.1 1.0  
1 15.03 45.1 1.0  
9.0 1.88 5.06  
9.0 1.88 5.32  
9.0 1.88 5.59  
9.0 1.98 5.06  
9.0 1.98 5.32  
9.0 1.98 5.59  
9.0 2.08 5.06  
9.0 2.08 5.32  
9.0 2.08 5.59



\*\*\*\*\*

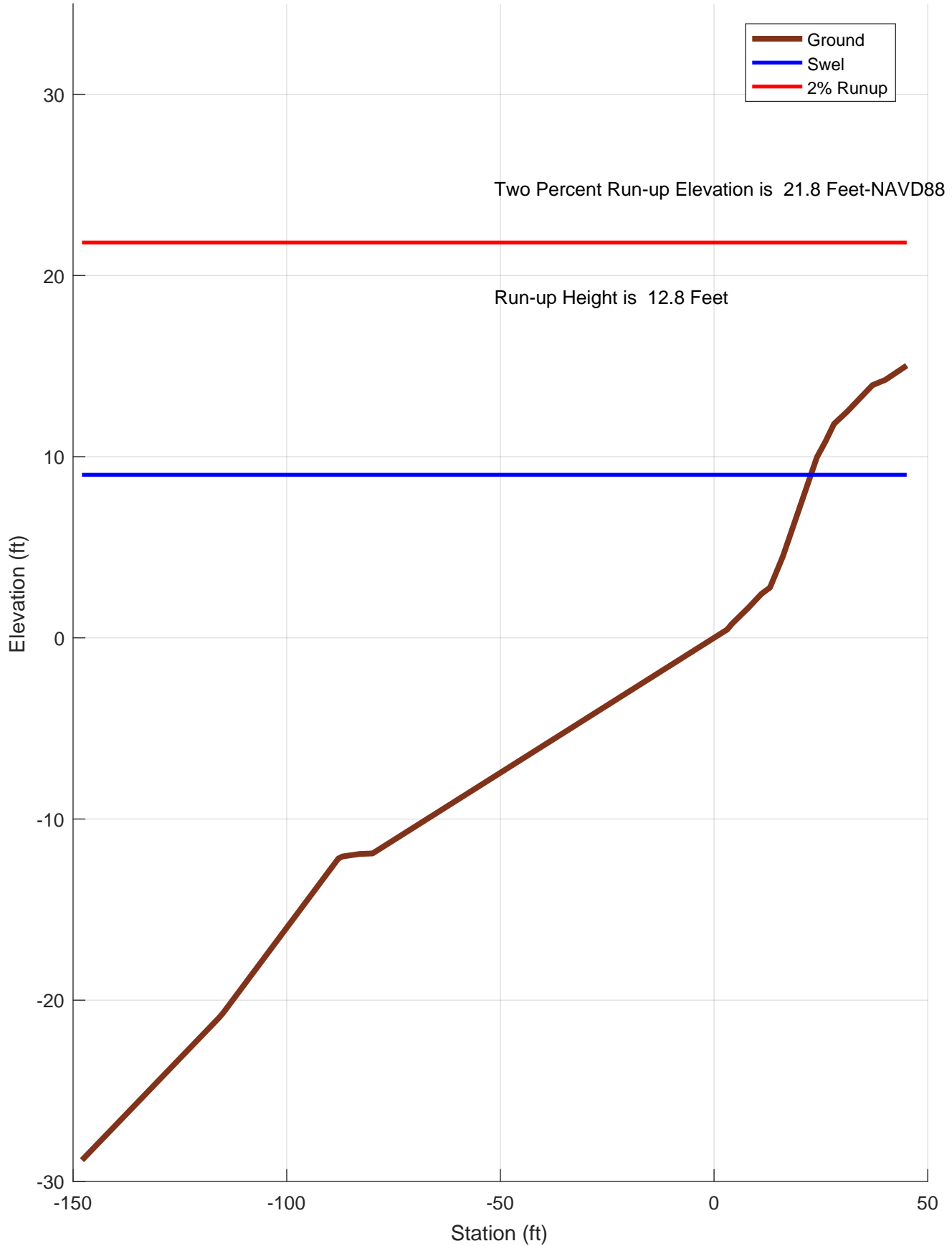
CROSS SECTION PROFILE

	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-147.0	-28.8		
2	-115.0	-20.9	.00	1.00
3	-114.0	-20.7	5.00	1.00
4	-87.9	-12.1	3.03	1.00
5	-86.9	-12.0	10.00	1.00
6	-82.9	-11.9	40.00	1.00
7	-79.9	-11.9	FLAT	1.00
8	3.1	.5	6.72	1.00
9	4.1	.8	3.45	1.00
10	8.1	1.7	4.35	1.00
11	11.1	2.4	3.95	1.00
12	13.1	2.8	5.88	1.00
13	16.1	4.5	1.75	1.00
14	24.1	10.0	1.45	1.00
15	26.1	10.9	2.33	1.00
16	28.1	11.8	2.06	1.00
17	31.1	12.5	4.55	1.00
18	37.1	14.0	4.05	1.00
19	40.1	14.3	10.34	1.00
20	45.1	15.0	6.33	1.00
	LAST SLOPE	8.00	LAST ROUGHNESS	1.00

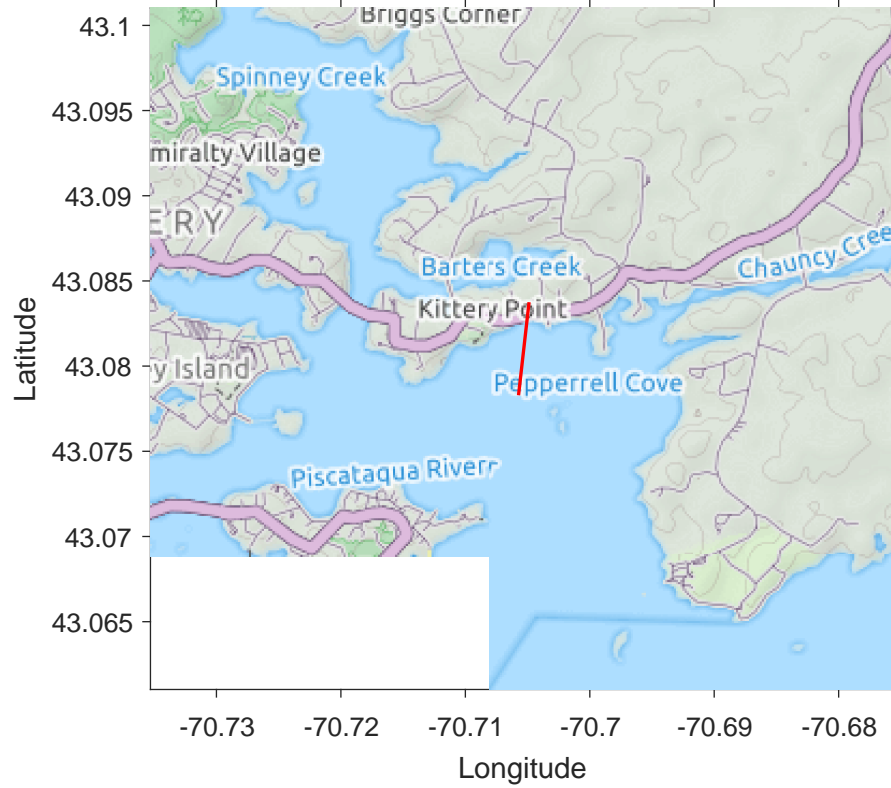
OUTPUT TABLE  
-----

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.)
9.00	1.88	5.06	11	19	5.33	2.56
9.00	1.88	5.32	11	19	5.49	2.60
9.00	1.88	5.59	11	19	5.66	2.64
9.00	1.98	5.06	11	19	5.66	2.68
9.00	1.98	5.32	11	19	5.85	2.72
9.00	1.98	5.59	11	19	6.01	2.76
9.00	2.08	5.06	11	19	5.96	2.79
9.00	2.08	5.32	11	20	6.14	2.83
9.00	2.08	5.59	11	20	6.34	2.87

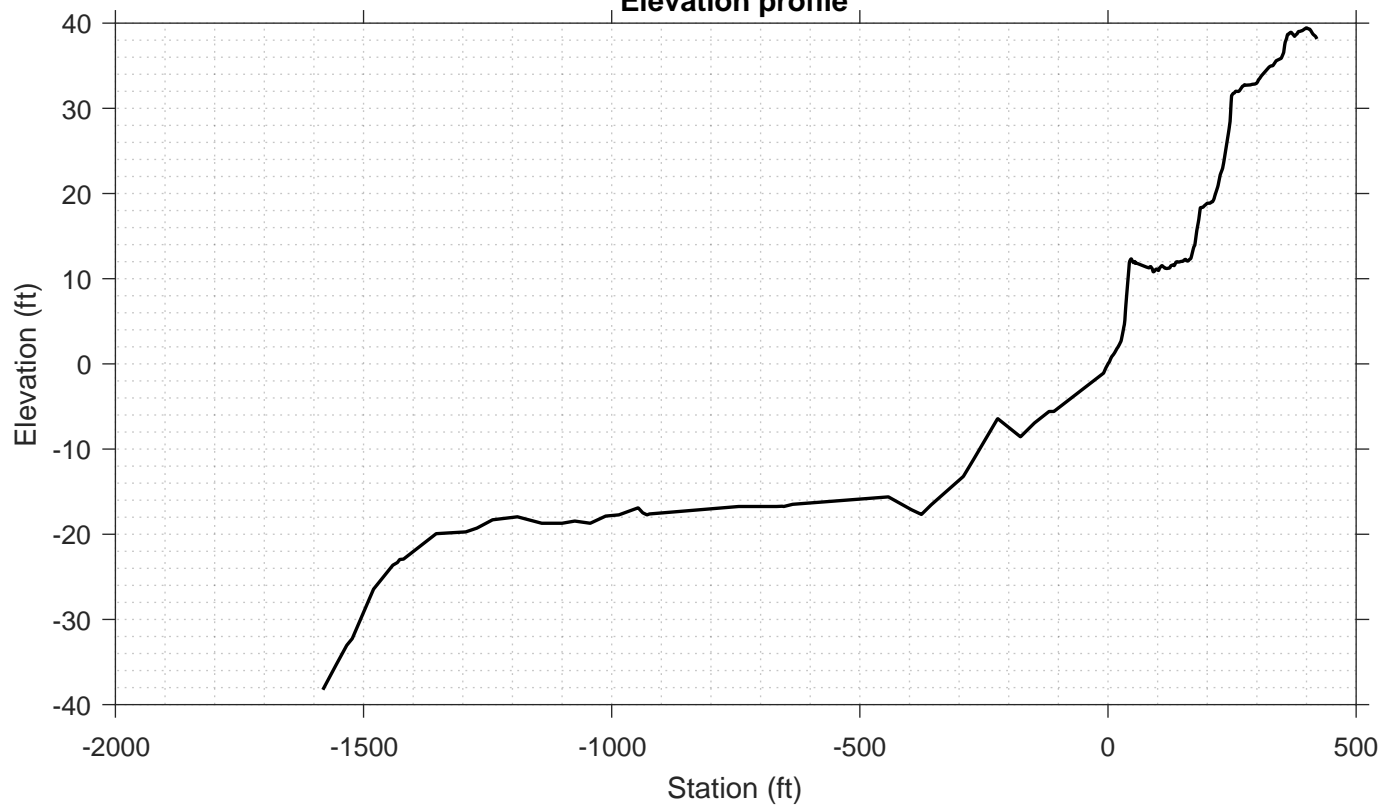
### Runup2 2% runup elevation for Transect: YK-05



**Transect Number: YK-06**



**Elevation profile**





---

DATA LOG FOR TRANSECT ID: YK-06

---

---

PART 1: USER INPUT

SWAN 1-D / WHAFIS input

---

station: -405 ft  
LON: -70.7052 deg E  
LAT: 43.0815 deg N  
Bottom ELEV: -16.8296 ft-NAVD88  
TWL: 9.0235 ft-NAVD88  
HS: 5.8592 ft  
TP: 9.6175 sec  
Wave Direction bin: 90 deg CCW from East (90 deg sector)  
Transect Direction: 81.199 deg CCW from East

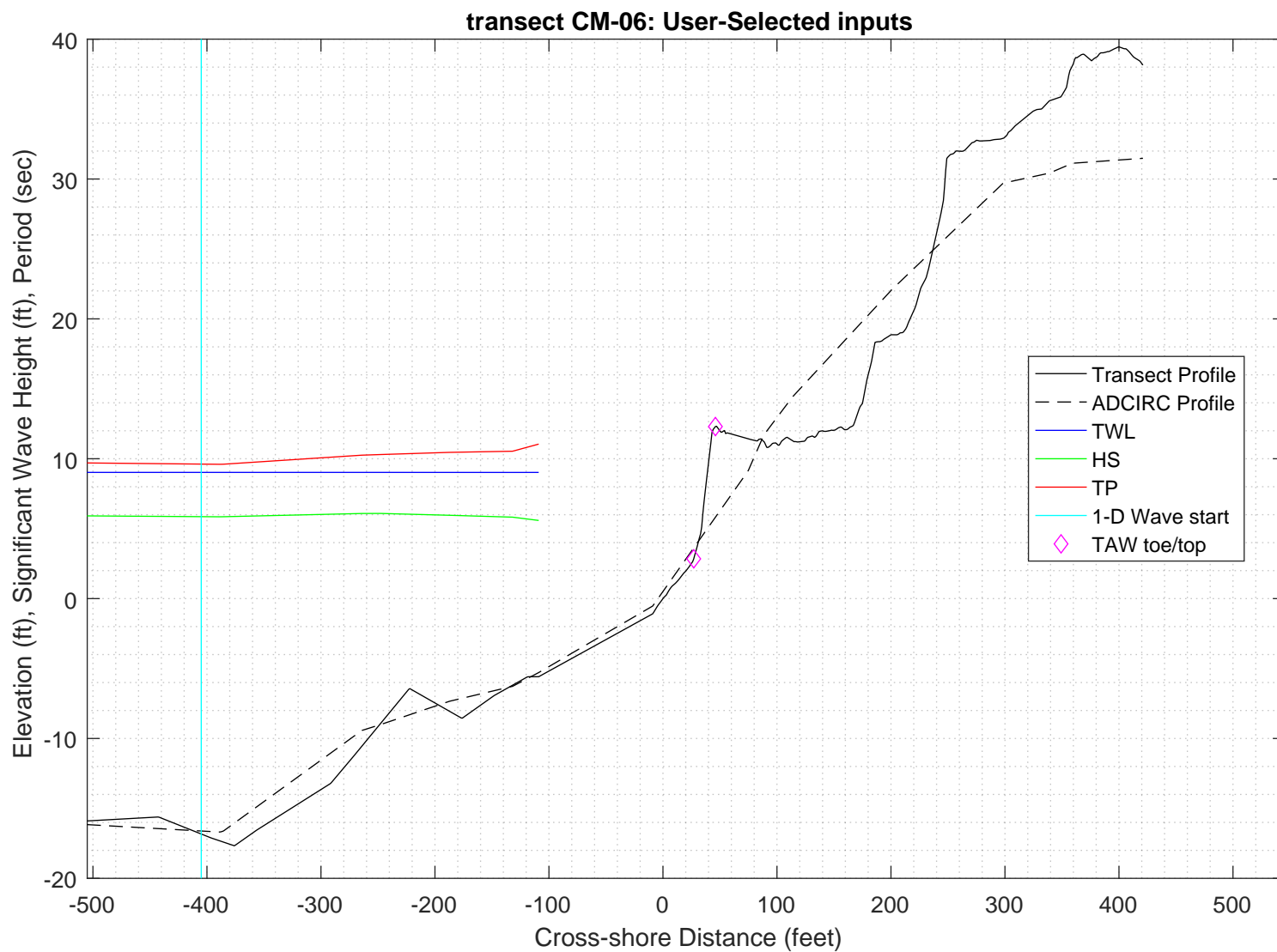
TAW/RUNUP input

---

toe sta: 27 ft  
toe elev: 2.8452 ft-NAVD88  
top sta: 46 ft  
top elev: 12.3021 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/YK-06zmeters\_xmeters.grd  
swan file name: 2\_swan/swanfiles/YK-06.swn  
swan output name: 2\_swan/swanfiles/YK-06.dat

Boundary Conditions:

TWL- 2.7504 meters  
HS- 1.7859 meters  
PER- 9.6175 seconds

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

SWAN maximum additional wave setup: 0.73082 feet

SWAN output at toe:

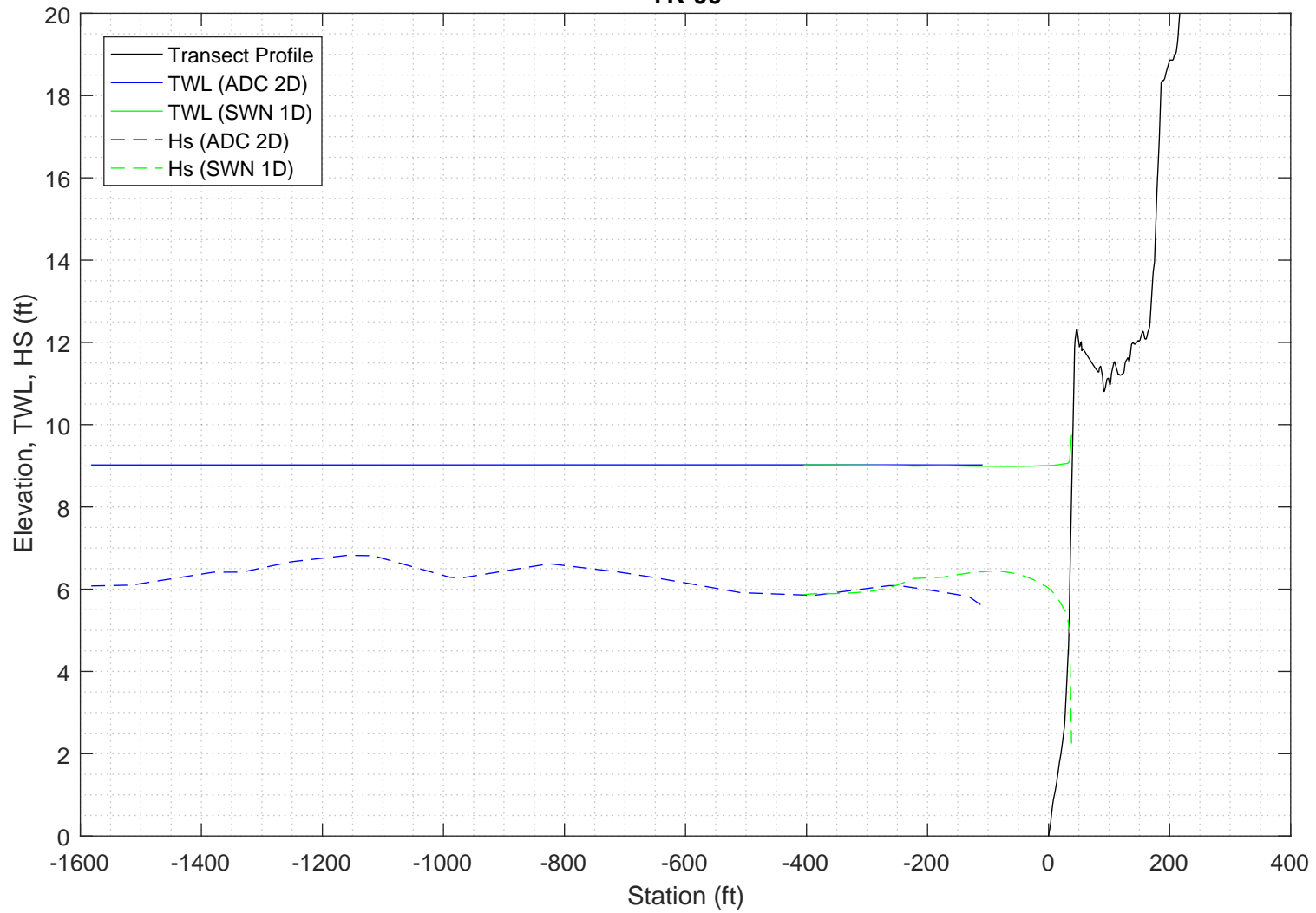
SETUP- 0.028035 feet  
HS- 5.4588 feet  
PER- 9.7161 seconds

PART 2 COMPLETE

---

**REVISED SEP-05-2019**

**2-D ADCIRC+SWAN and SWAN 1-D results, Transect:  
YK-06**



Execution started at 20200206.151503

```

-----
                        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 0 135 0. 135 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 0 135 0 1 1

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

READ BOTTOM -1. '../gridfiles/YK-06zmeters\_xmeters.grd' 1 0 FREE

!-----

! -- WIND [vel] [dir]

WIND 25.1 0

! -- BOUnd SHAPespec

BOUND SHAPE JONSWAP 3.3 PEAK DSPR POWER

! -- BOUndspec

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

BOUN SIDE W CCW CONSTANT PAR 1.7859 9.6175 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)
!-- WCAppling KOMen [cds2] [stpm] [powst] [delta] [powk]
    WCAP KOM
!   quadruplet wave interactions
!-- QUADrupl [iquad] [lambda] [Cn14] [Csh1] [Csh2]
! -- BREaking CONstant [alpha] [gamma]
    BREAK      CON      1.      0.73
!-- FRICtion JONswap CONstant [cfjon]
    FRIC      JONSWAP CON      0.038
!-- TRIad [itriad] [trfac] [cutfr]   [a] [b] [urcrit] [urslim]
! TRIAD      1      0.65      2.5      0.95 -0.75 0.2      0.01
    TRIAD
!-- VEGETation [height] [diamtr] [nstems] [drag]
!-- MUD [layer] [rhom] [viscm]
!- LIMiter [ursell] [qb] deactivates quadruplets with Ursell number exceeds ursell
!-- OBSTacle -- not in 1-D
!-- SETUP [supcor]
    SETUP      0
!
! ----- N U M E R I C S -----
!
!-- PROP can use BBST or GSE instead of default
! -- NUMeric -- lots of options
!     NUM ACCUR npnts=100. stat 30
    NUMERIC STOPC
!
! -----O U T P U T -----
!
!OUTPUT OPTIOns "comment" (TABLE [field]) (BLOck [ndec] [len]) (SPEC [ndec])
    OUTPUT OPTIONS '%' TABLE 16
    $BLOCK 9 1000 SPEC 8
!CURve 'sname' [xp1] [yp1] <[int] [xp] [yp] >
    CURVE 'curve' 0      0      135 135      0
!TABLE 'sname' < HEADer|NOHEADer|INDEXed > 'fname' <output parameters> (output time)
    Table 'curve'      HEADER 'YK-06.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      136 MYC      1
                   : MCGRD      137
                   : 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 38.24 % 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 0.74 % 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 37.50 % 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 71.33 % 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 99.27 % of wet grid points ( 99.50 % required)

iteration 7; sweep 1  
iteration 7; sweep 2  
iteration 7; sweep 3  
iteration 7; sweep 4  
accuracy OK in 100.00 % of wet grid points ( 99.50 % required)

STOP



Run:1	Table:curve	SWAN version:41.20A								
Xp	Yp	Hsig	TPsmoo	RTpeak	Tm_10	Dir	Dspr	Depth	Setup	
[m]	[m]	[m]	[sec]	[sec]	[sec]	[degr]	[degr]	[m]	[m]	
0.	0.	1.78908	9.6469	10.0005	8.6896	0.000	31.7897	7.8797	-0.000347	
1.	0.	1.79043	9.6470	10.0005	8.6816	0.000	31.9430	7.9097	-0.000308	
2.	0.	1.79179	9.6471	10.0005	8.6738	0.000	32.0929	7.9397	-0.000269	
3.	0.	1.79264	9.6472	10.0005	8.6657	0.000	32.2211	7.9798	-0.000213	
4.	0.	1.79378	9.6473	10.0005	8.6584	0.000	32.3245	7.9998	-0.000186	
5.	0.	1.79469	9.6474	10.0005	8.6509	0.000	32.4325	8.0299	-0.000145	
6.	0.	1.79552	9.6474	10.0005	8.6436	0.000	32.5332	8.0599	-0.000103	
7.	0.	1.79615	9.6474	10.0005	8.6364	0.000	32.6160	8.0899	-0.000060	
8.	0.	1.79689	9.6475	10.0005	8.6296	0.000	32.6839	8.1100	-0.000032	
9.	0.	1.79644	9.6475	10.0005	8.6225	0.000	32.6402	8.1300	0.000000	
10.	0.	1.79679	9.6478	10.0005	8.6176	0.000	32.4729	8.0699	-0.000081	
11.	0.	1.79683	9.6481	10.0005	8.6125	0.000	32.2718	8.0098	-0.000162	
12.	0.	1.79642	9.6482	10.0005	8.6064	359.988	32.0494	7.9598	-0.000228	
13.	0.	1.79637	9.6485	10.0005	8.6010	359.993	31.8291	7.8997	-0.000312	
14.	0.	1.79625	9.6481	10.0005	8.5951	0.014	31.6006	7.8396	-0.000396	
15.	0.	1.79617	9.6483	10.0005	8.5890	359.995	31.3967	7.7895	-0.000469	
16.	0.	1.79654	9.6486	10.0005	8.5831	359.994	31.2196	7.7294	-0.000557	
17.	0.	1.79685	9.6490	10.0005	8.5767	359.994	31.0569	7.6794	-0.000632	
18.	0.	1.79730	9.6493	10.0005	8.5702	359.993	30.9165	7.6293	-0.000706	
19.	0.	1.79783	9.6497	10.0005	8.5634	359.993	30.7836	7.5792	-0.000781	
20.	0.	1.79843	9.6501	10.0005	8.5564	359.993	30.6531	7.5291	-0.000858	
21.	0.	1.79911	9.6505	10.0005	8.5491	359.993	30.5228	7.4791	-0.000937	
22.	0.	1.79975	9.6509	10.0005	8.5416	359.994	30.3836	7.4290	-0.001018	
23.	0.	1.80073	9.6514	10.0005	8.5342	359.994	30.2414	7.3689	-0.001119	
24.	0.	1.80157	9.6518	10.0005	8.5261	359.994	30.1083	7.3188	-0.001205	
25.	0.	1.80251	9.6523	10.0005	8.5178	359.994	29.9780	7.2687	-0.001294	
26.	0.	1.80352	9.6527	10.0005	8.5092	359.994	29.8487	7.2186	-0.001384	
27.	0.	1.80461	9.6532	10.0005	8.5004	359.994	29.7197	7.1685	-0.001477	
28.	0.	1.80576	9.6537	10.0005	8.4913	359.994	29.5912	7.1184	-0.001573	
29.	0.	1.80688	9.6542	10.0005	8.4819	359.994	29.4552	7.0683	-0.001671	
30.	0.	1.80838	9.6548	10.0005	8.4725	359.994	29.3162	7.0082	-0.001791	
31.	0.	1.80973	9.6553	10.0005	8.4623	359.994	29.1847	6.9581	-0.001895	
32.	0.	1.81119	9.6559	10.0005	8.4516	359.994	29.0555	6.9080	-0.002001	
33.	0.	1.81273	9.6565	10.0005	8.4405	359.994	28.9273	6.8579	-0.002109	
34.	0.	1.81418	9.6570	10.0005	8.4291	359.994	28.7828	6.8078	-0.002221	
35.	0.	1.81598	9.6577	10.0005	8.4179	359.994	28.5902	6.7376	-0.002381	
36.	0.	1.81870	9.6586	10.0005	8.4073	359.994	28.3713	6.6374	-0.002616	
37.	0.	1.82115	9.6594	10.0005	8.3954	359.995	28.1582	6.5472	-0.002832	
38.	0.	1.82404	9.6603	10.0005	8.3829	359.995	27.9365	6.4469	-0.003081	
39.	0.	1.82719	9.6612	10.0005	8.3692	359.995	27.7197	6.3467	-0.003340	
40.	0.	1.83019	9.6621	10.0005	8.3539	359.995	27.5039	6.2564	-0.003584	
41.	0.	1.83372	9.6631	10.0005	8.3378	359.995	27.2799	6.1561	-0.003866	
42.	0.	1.83744	9.6642	10.0005	8.3207	359.995	27.0517	6.0558	-0.004162	
43.	0.	1.84138	9.6654	10.0005	8.3023	359.995	26.8225	5.9555	-0.004471	
44.	0.	1.84553	9.6666	10.0005	8.2828	359.995	26.5924	5.8552	-0.004795	
45.	0.	1.84991	9.6678	10.0005	8.2620	359.996	26.3611	5.7549	-0.005134	
46.	0.	1.85459	9.6692	10.0005	8.2399	359.996	26.1386	5.6545	-0.005490	
47.	0.	1.85904	9.6705	10.0005	8.2162	359.997	25.9186	5.5642	-0.005825	
48.	0.	1.86413	9.6720	10.0005	8.1916	359.997	25.6908	5.4638	-0.006214	
49.	0.	1.86945	9.6735	10.0005	8.1657	359.998	25.4601	5.3634	-0.006622	
50.	0.	1.87500	9.6751	10.0005	8.1385	359.998	25.2288	5.2629	-0.007051	
51.	0.	1.88077	9.6767	10.0005	8.1098	359.999	24.9989	5.1625	-0.007499	
52.	0.	1.88676	9.6785	10.0005	8.0798	359.999	24.7810	5.0620	-0.007965	
53.	0.	1.89266	9.6803	10.0005	8.0495	359.998	24.5742	4.9616	-0.008435	
54.	0.	1.89868	9.6822	10.0005	8.0181	359.997	24.3697	4.8611	-0.008924	
55.	0.	1.90506	9.6841	10.0005	7.9857	359.993	24.2020	4.7606	-0.009428	
56.	0.	1.90953	9.6859	10.0005	7.9497	359.989	24.1529	4.7103	-0.009666	
57.	0.	1.90943	9.6872	10.0005	7.9079	359.987	24.2432	4.7606	-0.009359	

58.	0.	1.90967	9.6883	10.0005	7.8688	359.988	24.3702	4.8109	-0.009063
59.	0.	1.91061	9.6893	10.0005	7.8331	359.987	24.5128	4.8512	-0.008830
60.	0.	1.91116	9.6901	10.0005	7.7991	359.988	24.6741	4.9014	-0.008555
61.	0.	1.91169	9.6908	10.0005	7.7676	359.988	24.8318	4.9517	-0.008291
62.	0.	1.91270	9.6915	10.0005	7.7390	359.989	24.9891	4.9919	-0.008083
63.	0.	1.91330	9.6920	10.0005	7.7115	359.990	25.1592	5.0422	-0.007836
64.	0.	1.91385	9.6924	10.0005	7.6857	359.990	25.3216	5.0924	-0.007597
65.	0.	1.91485	9.6928	10.0005	7.6623	359.991	25.4811	5.1326	-0.007410
66.	0.	1.91537	9.6931	10.0005	7.6393	359.992	25.6394	5.1828	-0.007184
67.	0.	1.91634	9.6934	10.0005	7.6184	359.994	25.7955	5.2230	-0.007007
68.	0.	1.91694	9.6935	10.0005	7.5978	359.995	25.9634	5.2732	-0.006792
69.	0.	1.91713	9.6937	10.0005	7.5784	359.998	26.0852	5.3234	-0.006583
70.	0.	1.91795	9.6939	10.0005	7.5629	0.001	26.0846	5.3335	-0.006543
71.	0.	1.92037	9.6944	10.0005	7.5526	0.004	25.9815	5.2833	-0.006750
72.	0.	1.92282	9.6949	10.0005	7.5429	0.007	25.8328	5.2230	-0.007001
73.	0.	1.92516	9.6954	10.0005	7.5331	0.009	25.6719	5.1627	-0.007257
74.	0.	1.92752	9.6960	10.0005	7.5228	0.011	25.5094	5.1025	-0.007518
75.	0.	1.93002	9.6965	10.0005	7.5122	0.013	25.3580	5.0422	-0.007785
76.	0.	1.93214	9.6971	10.0005	7.5004	0.015	25.2129	4.9920	-0.008011
77.	0.	1.93466	9.6977	10.0005	7.4892	0.016	25.0671	4.9317	-0.008286
78.	0.	1.93729	9.6983	10.0005	7.4777	0.017	24.9278	4.8714	-0.008567
79.	0.	1.93962	9.6989	10.0005	7.4649	0.018	24.8086	4.8212	-0.008802
80.	0.	1.94142	9.6994	10.0005	7.4514	0.017	24.6968	4.7810	-0.008983
81.	0.	1.94368	9.7000	10.0005	7.4385	0.017	24.5765	4.7308	-0.009221
82.	0.	1.94598	9.7007	10.0005	7.4254	0.016	24.4609	4.6805	-0.009462
83.	0.	1.94775	9.7012	10.0005	7.4112	0.015	24.3460	4.6404	-0.009648
84.	0.	1.95008	9.7019	10.0005	7.3971	0.011	24.2296	4.5901	-0.009891
85.	0.	1.95202	9.7025	10.0005	7.3808	0.009	24.1125	4.5499	-0.010078
86.	0.	1.95436	9.7031	10.0005	7.3650	0.007	23.9846	4.4997	-0.010322
87.	0.	1.95681	9.7037	10.0005	7.3493	0.005	23.8869	4.4494	-0.010561
88.	0.	1.95737	9.7042	10.0005	7.3300	0.003	23.8440	4.4395	-0.010543
89.	0.	1.95743	9.7046	10.0005	7.3106	0.001	23.8281	4.4395	-0.010456
90.	0.	1.95735	9.7049	10.0005	7.2916	359.999	23.7947	4.4396	-0.010371
91.	0.	1.95829	9.7054	10.0005	7.2768	359.993	23.7118	4.4095	-0.010471
92.	0.	1.96017	9.7059	10.0005	7.2632	359.988	23.6014	4.3593	-0.010699
93.	0.	1.96110	9.7064	10.0005	7.2494	359.989	23.4838	4.3191	-0.010851
94.	0.	1.96232	9.7070	10.0005	7.2368	359.993	23.3611	4.2689	-0.011059
95.	0.	1.96238	9.7074	10.0005	7.2250	359.993	23.2386	4.2288	-0.011179
96.	0.	1.96303	9.7080	10.0005	7.2130	359.984	23.1125	4.1786	-0.011364
97.	0.	1.96265	9.7085	10.0005	7.2008	359.976	22.9883	4.1385	-0.011458
98.	0.	1.96231	9.7090	10.0005	7.1911	359.973	22.8621	4.0884	-0.011603
99.	0.	1.96105	9.7095	10.0005	7.1805	359.970	22.7359	4.0483	-0.011655
100.	0.	1.95994	9.7100	10.0005	7.1714	359.964	22.6021	3.9982	-0.011760
101.	0.	1.95792	9.7105	10.0005	7.1614	359.957	22.4787	3.9582	-0.011766
102.	0.	1.95611	9.7110	10.0005	7.1528	359.953	22.3528	3.9082	-0.011827
103.	0.	1.95387	9.7114	10.0005	7.1403	359.962	22.2271	3.8682	-0.011799
104.	0.	1.95208	9.7119	10.0005	7.1278	359.950	22.1021	3.8182	-0.011832
105.	0.	1.94940	9.7124	10.0005	7.1134	359.931	21.9763	3.7782	-0.011756
106.	0.	1.94703	9.7129	10.0005	7.0997	359.907	21.8471	3.7283	-0.011740
107.	0.	1.94363	9.7134	10.0005	7.0843	359.882	21.7183	3.6884	-0.011604
108.	0.	1.94032	9.7139	10.0005	7.0706	359.856	21.5908	3.6385	-0.011519
109.	0.	1.93579	9.7143	10.0005	7.0559	359.833	21.4638	3.5987	-0.011300
110.	0.	1.93153	9.7148	10.0005	7.0419	359.810	21.3341	3.5489	-0.011140
111.	0.	1.92624	9.7153	10.0005	7.0256	359.785	21.2056	3.5092	-0.010845
112.	0.	1.92178	9.7158	10.0005	7.0073	359.770	21.0767	3.4594	-0.010627
113.	0.	1.91633	9.7163	10.0005	6.9861	359.761	20.9487	3.4197	-0.010271
114.	0.	1.91117	9.7168	10.0005	6.9653	359.754	20.8196	3.3700	-0.009972
115.	0.	1.90473	9.7172	10.0005	6.9427	359.752	20.6911	3.3305	-0.009518
116.	0.	1.89832	9.7178	10.0005	6.9219	359.758	20.5601	3.2809	-0.009115
117.	0.	1.89021	9.7182	10.0005	6.9011	359.764	20.4324	3.2415	-0.008532
118.	0.	1.88235	9.7187	10.0005	6.8810	359.774	20.2988	3.1920	-0.008012
119.	0.	1.87333	9.7191	10.0005	6.8584	359.788	20.1628	3.1527	-0.007329
120.	0.	1.86546	9.7195	10.0005	6.8306	359.818	19.9975	3.1033	-0.006741
121.	0.	1.85716	9.7199	10.0005	6.8089	359.861	19.7548	3.0337	-0.006303
122.	0.	1.85153	9.7204	10.0005	6.7956	359.914	19.4396	2.9035	-0.006475

123.	0.	1.84153	9.7206	10.0005	6.7776	359.969	19.1222	2.7939	-0.006126
124.	0.	1.82808	9.7207	10.0005	6.7558	0.024	18.7906	2.6946	-0.005366
125.	0.	1.81573	9.7205	10.0005	6.7259	0.066	18.4242	2.5752	-0.004753
126.	0.	1.80032	9.7199	10.0005	6.6899	0.135	18.0929	2.4663	-0.003698
127.	0.	1.77916	9.7190	10.0005	6.6430	0.212	17.7766	2.3983	-0.001662
128.	0.	1.76102	9.7164	10.0005	6.5887	0.347	17.4364	2.3000	-0.000013
129.	0.	1.73827	9.7148	10.0005	6.5419	0.485	17.0927	2.2021	0.002124
130.	0.	1.71347	9.7149	10.0005	6.4866	0.664	16.7218	2.1046	0.004642
131.	0.	1.68625	9.7155	10.0005	6.4302	0.881	16.2321	1.9974	0.007387
132.	0.	1.66384	9.7161	10.0005	6.3917	1.147	15.4725	1.7985	0.008545
133.	0.	1.62453	9.7198	10.0005	6.3902	1.125	14.2885	1.4907	0.010662
134.	0.	1.50876	9.7350	10.0005	6.5137	0.565	12.6585	1.0255	0.025526
135.	0.	0.68625	9.9861	10.0005	7.9534	356.696	15.3298	0.4528	0.222755

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PART 3: WHAFIS

WHAFIS input: YK-06.dat

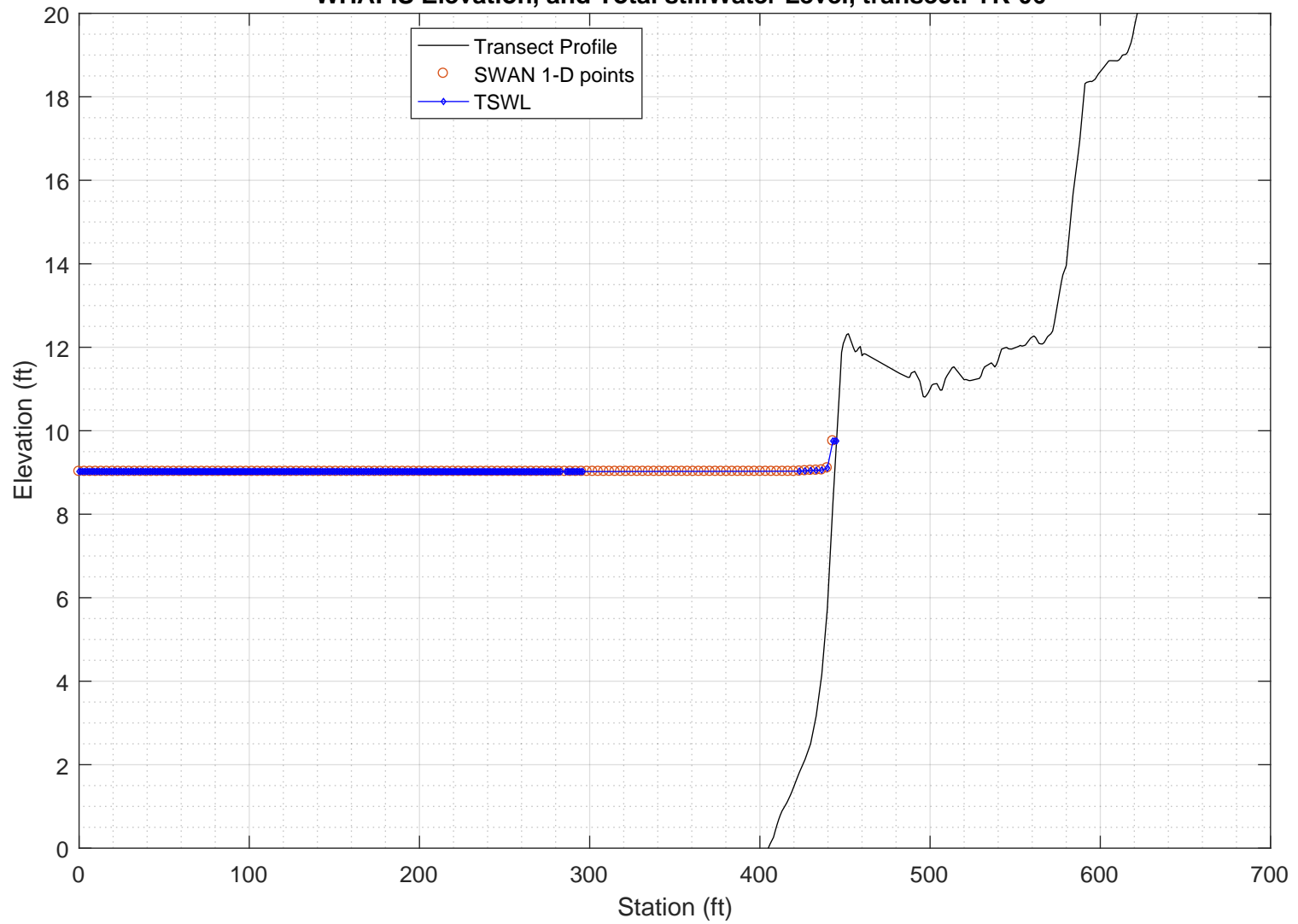
WHAFIS output: YK-06.out

PART 3 COMPLETE

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**REVISED SEP-05-2019**

**WHAFIS Elevation, and Total stillWater Level, transect: YK-06**



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

Executed on: Thu Feb 6 16:14:34 2020

Input file: C:\Users\shayward\Desktop\Kittery\T2\3\_whafis\whafis4\YK-06.dat

Output file: C:\Users\shayward\Desktop\Kittery\T2\3\_whafis\whafis4\YK-06.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	-16.829	1.000	1.000	9.024	9.375	9.618	56.140	-0.033	0.000
OF	1.000	-16.862	0.000	9.024	0.000	0.000	0.000	0.000	-0.032	0.000
OF	2.000	-16.894	0.000	9.024	0.000	0.000	0.000	0.000	-0.032	0.000
OF	3.000	-16.927	0.000	9.024	0.000	0.000	0.000	0.000	-0.032	0.000
OF	4.000	-16.959	0.000	9.024	0.000	0.000	0.000	0.000	-0.032	0.000
OF	5.000	-16.992	0.000	9.024	0.000	0.000	0.000	0.000	-0.032	0.000
OF	6.000	-17.024	0.000	9.024	0.000	0.000	0.000	0.000	-0.032	0.000
OF	7.000	-17.056	0.000	9.024	0.000	0.000	0.000	0.000	-0.032	0.000
OF	8.000	-17.089	0.000	9.024	0.000	0.000	0.000	0.000	-0.032	0.000
OF	9.000	-17.120	0.000	9.024	0.000	0.000	0.000	0.000	-0.030	0.000
OF	10.000	-17.148	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	11.000	-17.175	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	12.000	-17.203	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	13.000	-17.230	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	14.000	-17.258	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	15.000	-17.285	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	16.000	-17.313	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	17.000	-17.340	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	18.000	-17.368	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	19.000	-17.395	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	20.000	-17.423	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	21.000	-17.450	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	22.000	-17.478	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	23.000	-17.505	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	24.000	-17.533	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	25.000	-17.560	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	26.000	-17.588	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	27.000	-17.615	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	28.000	-17.643	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	29.000	-17.670	0.000	9.024	0.000	0.000	0.000	0.000	0.011	0.000
OF	30.000	-17.621	0.000	9.024	0.000	0.000	0.000	0.000	0.053	0.000
OF	31.000	-17.564	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	32.000	-17.506	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	33.000	-17.449	0.000	9.024	0.000	0.000	0.000	0.000	0.057	0.000
OF	34.000	-17.392	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	35.000	-17.334	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	36.000	-17.277	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	37.000	-17.219	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	38.000	-17.162	0.000	9.024	0.000	0.000	0.000	0.000	0.057	0.000
OF	39.000	-17.105	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	40.000	-17.047	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	41.000	-16.990	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	42.000	-16.932	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	43.000	-16.875	0.000	9.024	0.000	0.000	0.000	0.000	0.057	0.000
OF	44.000	-16.818	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	45.000	-16.760	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	46.000	-16.703	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	47.000	-16.645	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	48.000	-16.588	0.000	9.024	0.000	0.000	0.000	0.000	0.056	0.000
OF	49.000	-16.533	0.000	9.024	0.000	0.000	0.000	0.000	0.054	0.000
OF	50.000	-16.481	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	51.000	-16.430	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	52.000	-16.378	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	53.000	-16.327	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	54.000	-16.275	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	55.000	-16.224	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	56.000	-16.172	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	57.000	-16.121	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	58.000	-16.069	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	59.000	-16.018	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	60.000	-15.966	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	61.000	-15.915	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	62.000	-15.863	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	63.000	-15.812	0.000	9.024	0.000	0.000	0.000	0.000	0.051	0.000
OF	64.000	-15.761	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	65.000	-15.709	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	66.000	-15.658	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	67.000	-15.606	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	68.000	-15.555	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	69.000	-15.503	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	70.000	-15.452	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	71.000	-15.400	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	72.000	-15.349	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	73.000	-15.297	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	74.000	-15.246	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	75.000	-15.194	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	76.000	-15.143	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	77.000	-15.091	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	78.000	-15.040	0.000	9.024	0.000	0.000	0.000	0.000	0.051	0.000
OF	79.000	-14.989	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	80.000	-14.937	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	81.000	-14.886	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	82.000	-14.834	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	83.000	-14.783	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	84.000	-14.731	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	85.000	-14.680	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	86.000	-14.628	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	87.000	-14.577	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	88.000	-14.525	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	89.000	-14.474	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	90.000	-14.422	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	91.000	-14.371	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	92.000	-14.319	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	93.000	-14.268	0.000	9.024	0.000	0.000	0.000	0.000	0.051	0.000
OF	94.000	-14.217	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	95.000	-14.165	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	96.000	-14.114	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	97.000	-14.062	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	98.000	-14.011	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	99.000	-13.959	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	100.000	-13.908	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000

OF	101.000	-13.856	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	102.000	-13.805	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	103.000	-13.753	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	104.000	-13.702	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	105.000	-13.650	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	106.000	-13.599	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	107.000	-13.547	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	108.000	-13.496	0.000	9.024	0.000	0.000	0.000	0.000	0.051	0.000
OF	109.000	-13.445	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	110.000	-13.393	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	111.000	-13.342	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	112.000	-13.290	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	113.000	-13.239	0.000	9.024	0.000	0.000	0.000	0.000	0.062	0.000
OF	114.000	-13.167	0.000	9.024	0.000	0.000	0.000	0.000	0.084	0.000
OF	115.000	-13.071	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	116.000	-12.974	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	117.000	-12.877	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	118.000	-12.780	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	119.000	-12.684	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	120.000	-12.587	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	121.000	-12.490	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	122.000	-12.393	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	123.000	-12.297	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	124.000	-12.200	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	125.000	-12.103	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	126.000	-12.007	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	127.000	-11.910	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	128.000	-11.813	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	129.000	-11.716	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	130.000	-11.620	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	131.000	-11.523	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	132.000	-11.426	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	133.000	-11.329	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	134.000	-11.232	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	135.000	-11.134	0.000	9.024	0.000	0.000	0.000	0.000	0.098	0.000
OF	136.000	-11.035	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	137.000	-10.936	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	138.000	-10.837	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	139.000	-10.738	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	140.000	-10.639	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	141.000	-10.540	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	142.000	-10.441	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	143.000	-10.342	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	144.000	-10.243	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	145.000	-10.144	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	146.000	-10.045	0.000	9.024	0.000	0.000	0.000	0.000	0.098	0.000
OF	147.000	-9.947	0.000	9.024	0.000	0.000	0.000	0.000	0.098	0.000
OF	148.000	-9.848	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	149.000	-9.749	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	150.000	-9.650	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	151.000	-9.551	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	152.000	-9.452	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	153.000	-9.353	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	154.000	-9.254	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	155.000	-9.156	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	156.000	-9.057	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	157.000	-8.958	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	158.000	-8.859	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	159.000	-8.760	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	160.000	-8.661	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	161.000	-8.562	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	162.000	-8.463	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	163.000	-8.364	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	164.000	-8.265	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	165.000	-8.166	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	166.000	-8.067	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	167.000	-7.968	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	168.000	-7.870	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	169.000	-7.771	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	170.000	-7.672	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	171.000	-7.573	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	172.000	-7.474	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	173.000	-7.375	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	174.000	-7.276	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	175.000	-7.177	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	176.000	-7.078	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	177.000	-6.979	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	178.000	-6.880	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	179.000	-6.781	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	180.000	-6.682	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	181.000	-6.583	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	182.000	-6.485	0.000	9.023	0.000	0.000	0.000	0.000	0.073	0.000
OF	183.000	-6.437	0.000	9.023	0.000	0.000	0.000	0.000	0.001	0.000
OF	184.000	-6.483	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	185.000	-6.530	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	186.000	-6.576	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	187.000	-6.623	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	188.000	-6.669	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	189.000	-6.716	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	190.000	-6.763	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	191.000	-6.809	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	192.000	-6.856	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	193.000	-6.902	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	194.000	-6.949	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	195.000	-6.995	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	196.000	-7.042	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	197.000	-7.089	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	198.000	-7.135	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	199.000	-7.182	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	200.000	-7.228	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	201.000	-7.275	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	202.000	-7.321	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	203.000	-7.368	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	204.000	-7.414	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	205.000	-7.461	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	206.000	-7.508	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	207.000	-7.554	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	208.000	-7.601	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	209.000	-7.647	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	210.000	-7.694	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000

OF	211.000	-7.740	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	212.000	-7.787	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	213.000	-7.833	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	214.000	-7.880	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	215.000	-7.926	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	216.000	-7.973	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	217.000	-8.020	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	218.000	-8.066	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	219.000	-8.113	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	220.000	-8.159	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	221.000	-8.206	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	222.000	-8.252	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	223.000	-8.299	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	224.000	-8.345	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	225.000	-8.392	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	226.000	-8.439	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	227.000	-8.485	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	228.000	-8.532	0.000	9.022	0.000	0.000	0.000	0.000	-0.030	0.000
OF	229.000	-8.545	0.000	9.022	0.000	0.000	0.000	0.000	0.022	0.000
OF	230.000	-8.488	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	231.000	-8.430	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	232.000	-8.372	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	233.000	-8.314	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	234.000	-8.257	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	235.000	-8.199	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	236.000	-8.141	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	237.000	-8.083	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	238.000	-8.025	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	239.000	-7.968	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	240.000	-7.910	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	241.000	-7.852	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	242.000	-7.794	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	243.000	-7.736	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	244.000	-7.678	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	245.000	-7.621	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	246.000	-7.563	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	247.000	-7.505	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	248.000	-7.447	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	249.000	-7.389	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	250.000	-7.332	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	251.000	-7.274	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	252.000	-7.216	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	253.000	-7.158	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	254.000	-7.100	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	255.000	-7.043	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	256.000	-6.985	0.000	9.021	0.000	0.000	0.000	0.000	0.057	0.000
OF	257.000	-6.928	0.000	9.021	0.000	0.000	0.000	0.000	0.051	0.000
OF	258.000	-6.882	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	259.000	-6.836	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	260.000	-6.790	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	261.000	-6.745	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	262.000	-6.699	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	263.000	-6.653	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	264.000	-6.607	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	265.000	-6.561	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	266.000	-6.515	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	267.000	-6.470	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	268.000	-6.424	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	269.000	-6.378	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	270.000	-6.332	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	271.000	-6.286	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	272.000	-6.240	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	273.000	-6.194	0.000	9.020	0.000	0.000	0.000	0.000	0.046	0.000
OF	274.000	-6.149	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	275.000	-6.103	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	276.000	-6.057	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	277.000	-6.011	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	278.000	-5.965	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	279.000	-5.920	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	280.000	-5.874	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	281.000	-5.828	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	282.000	-5.782	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	283.000	-5.736	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	286.000	-5.599	0.000	9.021	0.000	0.000	0.000	0.000	0.037	0.000
OF	287.000	-5.588	0.000	9.021	0.000	0.000	0.000	0.000	0.005	0.000
OF	288.000	-5.588	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	289.000	-5.587	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	290.000	-5.587	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	291.000	-5.586	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	292.000	-5.586	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	293.000	-5.585	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	294.000	-5.584	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	295.000	-5.584	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	296.000	-5.583	0.000	9.022	0.000	0.000	0.000	0.000	0.058	0.000
IF	423.200	1.818	0.000	9.031	0.000	0.000	0.000	0.000	0.059	0.000
IF	426.500	2.124	0.000	9.039	0.000	0.000	0.000	0.000	0.103	0.000
IF	429.800	2.501	0.000	9.048	0.000	0.000	0.000	0.000	0.158	0.000
IF	433.100	3.166	0.000	9.052	0.000	0.000	0.000	0.000	0.250	0.000
IF	436.400	4.152	0.000	9.059	0.000	0.000	0.000	0.000	0.396	0.000
IF	439.600	5.739	0.000	9.107	0.000	0.000	0.000	0.000	0.634	0.000
IF	442.900	8.273	0.000	9.754	0.000	0.000	0.000	0.000	0.748	0.000
IF	444.000	9.031	0.000	9.754	0.000	0.000	0.000	0.000	0.705	0.000
IF	445.000	9.754	0.000	9.754	0.000	0.000	0.000	0.000	0.723	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

	END STATION	END ELEVATION	FETCH LENGTH	SURGE 10-YEAR	ELEV 100-YEAR	SURGE WAVE	ELEV HEIGHT	INITIAL W. PERIOD		BOTTOM SLOPE	AVERAGE A-ZONES
IE	0.000	-16.829	1.000	1.000	9.024		9.375	9.618	56.140	-0.033	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	1.000	-16.862	0.000	9.024	0.000		0.000	0.000	0.000	-0.032	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	2.000	-16.894	0.000	9.024	0.000		0.000	0.000	0.000	-0.032	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	3.000	-16.927	0.000	9.024	0.000		0.000	0.000	0.000	-0.032	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	4.000	-16.959	0.000	9.024	0.000		0.000	0.000	0.000	-0.032	0.000



	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	5.000	-16.992	0.000	9.024	0.000	0.000	0.000	0.000		-0.032	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	6.000	-17.024	0.000	9.024	0.000	0.000	0.000	0.000		-0.032	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	7.000	-17.056	0.000	9.024	0.000	0.000	0.000	0.000		-0.032	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	8.000	-17.089	0.000	9.024	0.000	0.000	0.000	0.000		-0.032	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	9.000	-17.120	0.000	9.024	0.000	0.000	0.000	0.000		-0.030	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	10.000	-17.148	0.000	9.024	0.000	0.000	0.000	0.000		-0.027	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	11.000	-17.175	0.000	9.024	0.000	0.000	0.000	0.000		-0.027	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	12.000	-17.203	0.000	9.024	0.000	0.000	0.000	0.000		-0.027	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	13.000	-17.230	0.000	9.024	0.000	0.000	0.000	0.000		-0.027	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	14.000	-17.258	0.000	9.024	0.000	0.000	0.000	0.000		-0.027	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	15.000	-17.285	0.000	9.024	0.000	0.000	0.000	0.000		-0.027	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	16.000	-17.313	0.000	9.024	0.000	0.000	0.000	0.000		-0.027	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	17.000	-17.340	0.000	9.024	0.000	0.000	0.000	0.000		-0.027	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	18.000	-17.368	0.000	9.024	0.000	0.000	0.000	0.000		-0.027	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	19.000	-17.395	0.000	9.024	0.000	0.000	0.000	0.000		-0.027	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	20.000	-17.423	0.000	9.024	0.000	0.000					

OF	41.000	-16.990	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	42.000	-16.932	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	43.000	-16.875	0.000	9.024	0.000	0.000	0.000	0.000	0.057	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	44.000	-16.818	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	45.000	-16.760	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	46.000	-16.703	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	47.000	-16.645	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	48.000	-16.588	0.000	9.024	0.000	0.000	0.000	0.000	0.056	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	49.000	-16.533	0.000	9.024	0.000	0.000	0.000	0.000	0.054	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	50.000	-16.481	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	51.000	-16.430	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	52.000	-16.378	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	53.000	-16.327	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	54.000	-16.275	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	55.000	-16.224	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	56.000	-16.172	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	57.000	-16.121	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SUR						



	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	115.000	-13.071	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	116.000	-12.974	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	117.000	-12.877	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	118.000	-12.780	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	119.000	-12.684	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	120.000	-12.587	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	121.000	-12.490	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	122.000	-12.393	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	123.000	-12.297	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	124.000	-12.200	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	125.000	-12.103	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	126.000	-12.007	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	127.000	-11.910	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	128.000	-11.813	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	129.000	-11.716	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	130.000	-11.620	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	131.000	-11.523	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	132.000	-11.426	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	133.000	-11.329	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	134.000	-11.232	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	135.000	-11.134	0.000	9.024	0.000	0.000	0.000	0.000		0.098	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	136.000	-11.035	0.000	9.024	0.000	0.000	0.000	0.000		0.099	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	137.000	-10.936	0.000	9.024	0.000	0.000	0.000	0.000		0.099	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	138.000	-10.837	0.000	9.024	0.000	0.000	0.000	0.000		0.099	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	139.000	-10.738	0.000	9.024	0.000	0.000	0.000	0.000		0.099	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	140.000	-10.639	0.000	9.024	0.000	0.000	0.000	0.000		0.099	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	141.000	-10.540	0.000	9.024	0.000	0.000	0.000	0.000		0.099	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	142.000	-10.441	0.000	9.024	0.000	0.000	0.000	0.000		0.099	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	143.000	-10.342	0.000	9.024	0.000	0.000	0.000	0.000		0.099	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	144.000	-10.243	0.000	9.024	0.000	0.000	0.000	0.000		0.099	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	145.000	-10.144	0.000	9.024	0.000	0.000	0.000	0.000		0.099	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	146.000	-10.045	0.000	9.024	0.000	0.000	0.000	0.000		0.098	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	147.000	-9.947	0.000	9.024	0.000	0.000	0.000	0.000		0.098	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	148.000	-9.848	0.000	9.024	0.000	0.000	0.000	0.000		0.099	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	149.000	-9.749	0.000	9.024	0.000	0.000	0.000	0.000		0.099	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	150.000	-9.650	0.000	9.024	0.000	0.000	0.000	0.000		0.099	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES

[illegible]

[illegible]

[illegible]

[illegible]



	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	433.100	3.166	0.000	9.052	0.000	0.000	0.000	0.000	0.250	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	436.400	4.152	0.000	9.059	0.000	0.000	0.000	0.000	0.396	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	439.600	5.739	0.000	9.107	0.000	0.000	0.000	0.000	0.634	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	442.900	8.273	0.000	9.754	0.000	0.000	0.000	0.000	0.748	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	444.000	9.031	0.000	9.754	0.000	0.000	0.000	0.000	0.705	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	445.000	9.754	0.000	9.754	0.000	0.000	0.000	0.000	0.723	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	9.38	15.59
OF	1.00	9.37	15.58
OF	2.00	9.37	15.58
OF	3.00	9.37	15.58
OF	4.00	9.36	15.58
OF	5.00	9.36	15.58
OF	6.00	9.36	15.57
OF	7.00	9.35	15.57
OF	8.00	9.35	15.57
OF	9.00	9.35	15.57
OF	10.00	9.35	15.57
OF	11.00	9.34	15.57
OF	12.00	9.34	15.56
OF	13.00	9.34	15.56
OF	14.00	9.34	15.56
OF	15.00	9.34	15.56
OF	16.00	9.33	15.56
OF	17.00	9.33	15.56
OF	18.00	9.33	15.55
OF	19.00	9.33	15.55
OF	20.00	9.32	15.55
OF	21.00	9.32	15.55
OF	22.00	9.32	15.55
OF	23.00	9.32	15.55
OF	24.00	9.31	15.54
OF	25.00	9.31	15.54
OF	26.00	9.31	15.54
OF	27.00	9.31	15.54
OF	28.00	9.30	15.54
OF	29.00	9.30	15.54
OF	30.00	9.31	15.54
OF	31.00	9.31	15.54
OF	32.00	9.32	15.55
OF	33.00	9.32	15.55
OF	34.00	9.33	15.55
OF	35.00	9.33	15.56
OF	36.00	9.34	15.56
OF	37.00	9.34	15.56
OF	38.00	9.35	15.57
OF	39.00	9.35	15.57
OF	40.00	9.36	15.58
OF	41.00	9.36	15.58
OF	42.00	9.37	15.58
OF	43.00	9.38	15.59
OF	44.00	9.38	15.59
OF	45.00	9.39	15.59
OF	46.00	9.39	15.60
OF	47.00	9.40	15.60
OF	48.00	9.40	15.61
OF	49.00	9.41	15.61
OF	50.00	9.41	15.61
OF	51.00	9.42	15.62
OF	52.00	9.42	15.62
OF	53.00	9.43	15.62
OF	54.00	9.43	15.63
OF	55.00	9.44	15.63
OF	56.00	9.44	15.63
OF	57.00	9.45	15.64
OF	58.00	9.45	15.64
OF	59.00	9.46	15.65
OF	60.00	9.46	15.65
OF	61.00	9.47	15.65
OF	62.00	9.47	15.66
OF	63.00	9.48	15.66
OF	64.00	9.48	15.66
OF	65.00	9.49	15.67
OF	66.00	9.50	15.67
OF	67.00	9.50	15.67
OF	68.00	9.51	15.68
OF	69.00	9.51	15.68
OF	70.00	9.52	15.69
OF	71.00	9.52	15.69
OF	72.00	9.53	15.69
OF	73.00	9.53	15.70
OF	74.00	9.54	15.70
OF	75.00	9.54	15.70
OF	76.00	9.55	15.71
OF	77.00	9.56	15.71
OF	78.00	9.56	15.72
OF	79.00	9.57	15.72
OF	80.00	9.57	15.72
OF	81.00	9.58	15.73
OF	82.00	9.58	15.73
OF	83.00	9.59	15.74
OF	84.00	9.59	15.74

OF	85.00	9.60	9.62	15.74
OF	86.00	9.61	9.62	15.75
OF	87.00	9.61	9.62	15.75
OF	88.00	9.62	9.62	15.76
OF	89.00	9.62	9.62	15.76
OF	90.00	9.63	9.62	15.76
OF	91.00	9.63	9.62	15.77
OF	92.00	9.64	9.62	15.77
OF	93.00	9.65	9.62	15.78
OF	94.00	9.65	9.62	15.78
OF	95.00	9.66	9.62	15.78
OF	96.00	9.66	9.62	15.79
OF	97.00	9.67	9.62	15.79
OF	98.00	9.68	9.62	15.80
OF	99.00	9.68	9.62	15.80
OF	100.00	9.69	9.62	15.81
OF	101.00	9.69	9.62	15.81
OF	102.00	9.70	9.62	15.81
OF	103.00	9.71	9.62	15.82
OF	104.00	9.71	9.62	15.82
OF	105.00	9.72	9.62	15.83
OF	106.00	9.72	9.62	15.83
OF	107.00	9.73	9.62	15.84
OF	108.00	9.74	9.62	15.84
OF	109.00	9.74	9.62	15.84
OF	110.00	9.75	9.62	15.85
OF	111.00	9.75	9.62	15.85
OF	112.00	9.76	9.62	15.86
OF	113.00	9.77	9.62	15.86
OF	114.00	9.78	9.62	15.87
OF	115.00	9.79	9.62	15.88
OF	116.00	9.80	9.62	15.88
OF	117.00	9.81	9.62	15.89
OF	118.00	9.82	9.62	15.90
OF	119.00	9.84	9.62	15.91
OF	120.00	9.85	9.62	15.92
OF	121.00	9.86	9.62	15.93
OF	122.00	9.87	9.62	15.94
OF	123.00	9.89	9.62	15.94
OF	124.00	9.90	9.62	15.95
OF	125.00	9.91	9.62	15.96
OF	126.00	9.93	9.62	15.97
OF	127.00	9.94	9.62	15.98
OF	128.00	9.95	9.62	15.99
OF	129.00	9.97	9.62	16.00
OF	130.00	9.98	9.62	16.01
OF	131.00	9.99	9.62	16.02
OF	132.00	10.01	9.62	16.03
OF	133.00	10.02	9.62	16.04
OF	134.00	10.03	9.62	16.05
OF	135.00	10.05	9.62	16.06
OF	136.00	10.06	9.62	16.07
OF	137.00	10.08	9.62	16.08
OF	138.00	10.09	9.62	16.09
OF	139.00	10.11	9.62	16.10
OF	140.00	10.12	9.62	16.11
OF	141.00	10.14	9.62	16.12
OF	142.00	10.15	9.62	16.13
OF	143.00	10.17	9.62	16.14
OF	144.00	10.18	9.62	16.15
OF	145.00	10.20	9.62	16.16
OF	146.00	10.21	9.62	16.17
OF	147.00	10.23	9.62	16.18
OF	148.00	10.25	9.62	16.20
OF	149.00	10.26	9.62	16.21
OF	150.00	10.28	9.62	16.22
OF	151.00	10.29	9.62	16.23
OF	152.00	10.31	9.62	16.24
OF	153.00	10.33	9.62	16.25
OF	154.00	10.34	9.62	16.27
OF	155.00	10.36	9.62	16.28
OF	156.00	10.38	9.62	16.29
OF	157.00	10.40	9.62	16.30
OF	158.00	10.41	9.62	16.31
OF	159.00	10.43	9.62	16.33
OF	160.00	10.45	9.62	16.34
OF	161.00	10.47	9.62	16.35
OF	162.00	10.46	9.62	16.34
OF	163.00	10.45	9.62	16.34
OF	164.00	10.43	9.62	16.33
OF	165.00	10.42	9.62	16.32
OF	166.00	10.41	9.62	16.31
OF	167.00	10.40	9.62	16.30
OF	168.00	10.39	9.62	16.29
OF	169.00	10.38	9.62	16.29
OF	170.00	10.36	9.62	16.28
OF	171.00	10.35	9.62	16.27
OF	172.00	10.34	9.62	16.26
OF	173.00	10.33	9.62	16.25
OF	174.00	10.31	9.62	16.24
OF	175.00	10.30	9.62	16.23
OF	176.00	10.29	9.62	16.22
OF	177.00	10.27	9.62	16.21
OF	178.00	10.26	9.62	16.21
OF	179.00	10.25	9.62	16.20
OF	180.00	10.23	9.62	16.19
OF	181.00	10.22	9.62	16.18
OF	182.00	10.20	9.62	16.17
OF	183.00	10.20	9.62	16.16
OF	184.00	10.21	9.62	16.17
OF	185.00	10.22	9.62	16.18
OF	186.00	10.23	9.62	16.18
OF	187.00	10.24	9.62	16.19
OF	188.00	10.25	9.62	16.20
OF	189.00	10.26	9.62	16.20
OF	190.00	10.27	9.62	16.21
OF	191.00	10.28	9.62	16.22
OF	192.00	10.29	9.62	16.22
OF	193.00	10.30	9.62	16.23
OF	194.00	10.30	9.62	16.24

OF	195.00	10.31	9.62	16.24
OF	196.00	10.32	9.62	16.25
OF	197.00	10.33	9.62	16.26
OF	198.00	10.34	9.62	16.26
OF	199.00	10.35	9.62	16.27
OF	200.00	10.36	9.62	16.27
OF	201.00	10.37	9.62	16.28
OF	202.00	10.38	9.62	16.29
OF	203.00	10.39	9.62	16.29
OF	204.00	10.40	9.62	16.30
OF	205.00	10.41	9.62	16.31
OF	206.00	10.42	9.62	16.31
OF	207.00	10.42	9.62	16.32
OF	208.00	10.43	9.62	16.33
OF	209.00	10.44	9.62	16.33
OF	210.00	10.45	9.62	16.34
OF	211.00	10.46	9.62	16.34
OF	212.00	10.47	9.62	16.35
OF	213.00	10.48	9.62	16.36
OF	214.00	10.49	9.62	16.36
OF	215.00	10.50	9.62	16.37
OF	216.00	10.51	9.62	16.38
OF	217.00	10.51	9.62	16.38
OF	218.00	10.52	9.62	16.39
OF	219.00	10.53	9.62	16.39
OF	220.00	10.54	9.62	16.40
OF	221.00	10.55	9.62	16.41
OF	222.00	10.56	9.62	16.41
OF	223.00	10.57	9.62	16.42
OF	224.00	10.58	9.62	16.42
OF	225.00	10.58	9.62	16.43
OF	226.00	10.59	9.62	16.44
OF	227.00	10.60	9.62	16.44
OF	228.00	10.61	9.62	16.45
OF	229.00	10.61	9.62	16.45
OF	230.00	10.61	9.62	16.45
OF	231.00	10.60	9.62	16.44
OF	232.00	10.60	9.62	16.44
OF	233.00	10.59	9.62	16.43
OF	234.00	10.58	9.62	16.43
OF	235.00	10.58	9.62	16.43
OF	236.00	10.57	9.62	16.42
OF	237.00	10.57	9.62	16.42
OF	238.00	10.56	9.62	16.41
OF	239.00	10.55	9.62	16.41
OF	240.00	10.55	9.62	16.40
OF	241.00	10.54	9.62	16.40
OF	242.00	10.53	9.62	16.39
OF	243.00	10.53	9.62	16.39
OF	244.00	10.52	9.62	16.39
OF	245.00	10.51	9.62	16.38
OF	246.00	10.51	9.62	16.38
OF	247.00	10.50	9.62	16.37
OF	248.00	10.49	9.62	16.37
OF	249.00	10.49	9.62	16.36
OF	250.00	10.48	9.62	16.36
OF	251.00	10.47	9.62	16.35
OF	252.00	10.47	9.62	16.35
OF	253.00	10.46	9.62	16.34
OF	254.00	10.45	9.62	16.34
OF	255.00	10.45	9.62	16.33
OF	256.00	10.44	9.62	16.33
OF	257.00	10.43	9.62	16.32
OF	258.00	10.43	9.62	16.32
OF	259.00	10.42	9.62	16.32
OF	260.00	10.41	9.62	16.31
OF	261.00	10.41	9.62	16.31
OF	262.00	10.40	9.62	16.30
OF	263.00	10.40	9.62	16.30
OF	264.00	10.39	9.62	16.30
OF	265.00	10.39	9.62	16.29
OF	266.00	10.38	9.62	16.29
OF	267.00	10.38	9.62	16.28
OF	268.00	10.37	9.62	16.28
OF	269.00	10.36	9.62	16.28
OF	270.00	10.36	9.62	16.27
OF	271.00	10.35	9.62	16.27
OF	272.00	10.35	9.62	16.26
OF	273.00	10.34	9.62	16.26
OF	274.00	10.34	9.62	16.26
OF	275.00	10.33	9.62	16.25
OF	276.00	10.32	9.62	16.25
OF	277.00	10.32	9.62	16.24
OF	278.00	10.31	9.62	16.24
OF	279.00	10.30	9.62	16.23
OF	280.00	10.30	9.62	16.23
OF	281.00	10.29	9.62	16.23
OF	282.00	10.29	9.62	16.22
OF	283.00	10.28	9.62	16.22
OF	286.00	10.26	9.62	16.20
OF	287.00	10.26	9.62	16.20
OF	288.00	10.26	9.62	16.20
OF	289.00	10.26	9.62	16.20
OF	290.00	10.26	9.62	16.21
OF	291.00	10.26	9.62	16.21
OF	292.00	10.27	9.62	16.21
OF	293.00	10.27	9.62	16.21
OF	294.00	10.27	9.62	16.21
OF	295.00	10.27	9.62	16.21
OF	296.00	10.28	9.62	16.21
	397.76	6.59	9.62	13.64
IF	423.20	5.49	9.62	12.88
IF	426.50	5.27	9.62	12.73
IF	429.80	5.00	9.62	12.55
IF	433.10	4.50	9.62	12.20
IF	436.40	3.77	9.62	11.70
IF	439.60	2.60	9.62	10.93
IF	442.90	1.15	9.62	10.56
IF	444.00	0.56	9.62	10.15
IF	445.00	0.01	9.62	9.76

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
163.00	1.00	9.02
198.00	1.00	9.02
230.00	1.00	9.02
273.00	1.00	9.02
274.00	1.00	9.02
288.00	1.00	9.02
423.20	1.00	9.03
426.50	1.00	9.04
429.80	1.00	9.05
433.10	1.00	9.05
436.40	1.00	9.06
439.60	1.00	9.11
442.90	1.00	9.75

PART5 LOCATION OF V ZONES  
 STATION OF GUTTER LOCATION OF ZONE  
 438.50 WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	15.59		
162.00	16.34	V22 EL=16	120
163.00	16.34	V22 EL=16	120
197.00	16.26	V22 EL=16	120
198.00	16.26	V22 EL=16	120
229.00	16.45	V22 EL=16	120
230.00	16.45	V22 EL=16	120
272.00	16.26	V22 EL=16	120
273.00	16.26	V22 EL=16	120
274.00	16.26	V22 EL=16	120
287.00	16.20	V22 EL=16	120
288.00	16.20	V22 EL=16	120
296.00	16.21	V22 EL=16	120
324.26	15.50	V22 EL=15	120
363.80	14.50	V22 EL=14	120
402.46	13.50	V22 EL=13	120
423.20	12.88	V22 EL=13	120
426.50	12.73	V22 EL=13	120
429.80	12.55	V22 EL=13	120
430.25	12.50	V22 EL=12	120
433.10	12.20	V23 EL=12	130
436.40	11.70	V23 EL=12	130
437.21	11.50	V23 EL=11	130
438.50	11.18	A19 EL=11	95
439.60	10.93	A19 EL=11	95
442.90	10.56	A19 EL=11	95
443.06	10.50	A19 EL=10	95
445.00	9.76		

ZONE TERMINATED AT END OF TRANSECT  
 PART 7 POSTSCRIPT NOTES

PS# 1 START(361191.8955,4771276.21)  
 PS# 2 END(361217.8661,4771469.8232)

-1.000000e+00

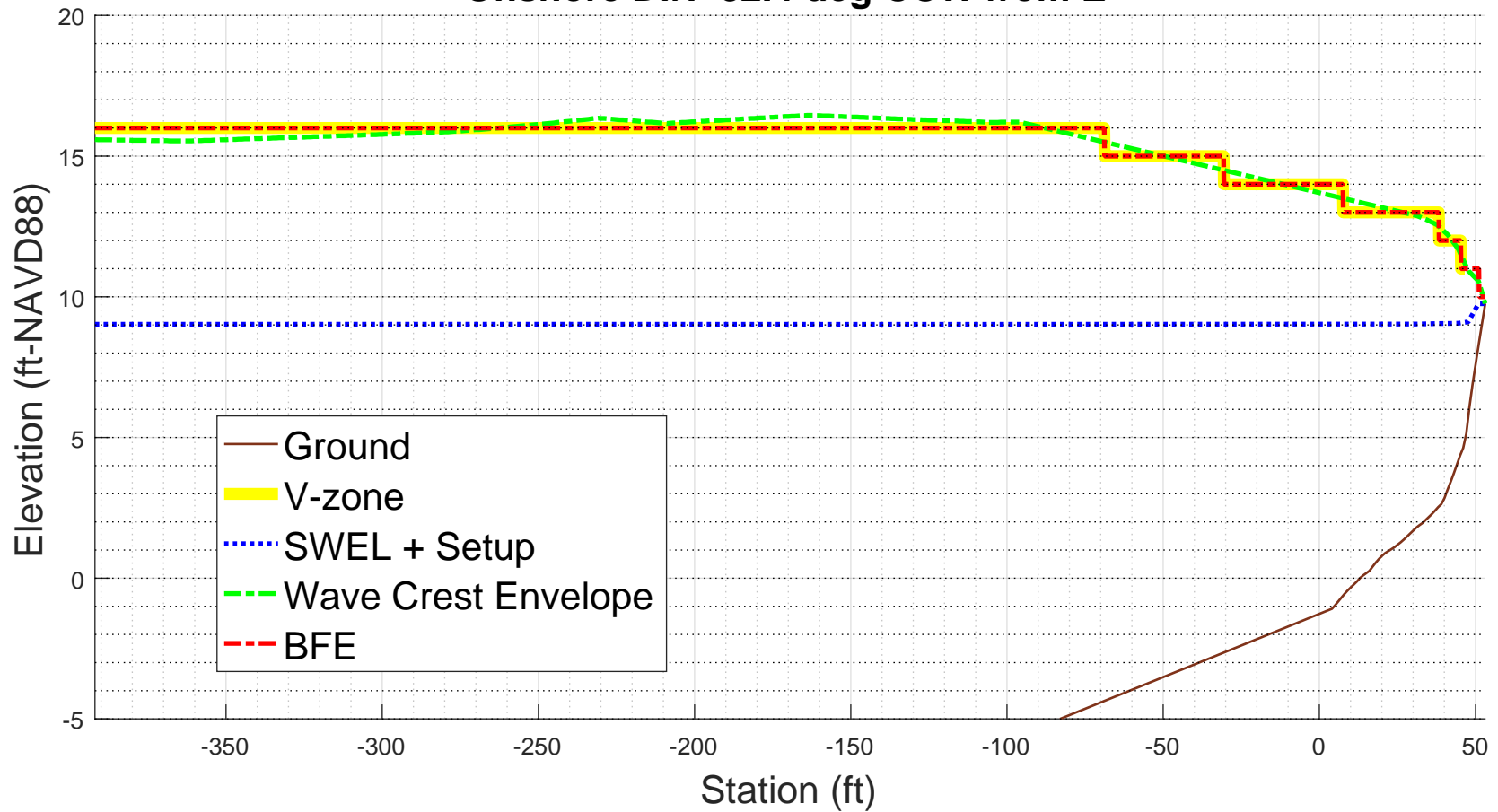
**REVISED SEP-05-2019**

**YK-06**

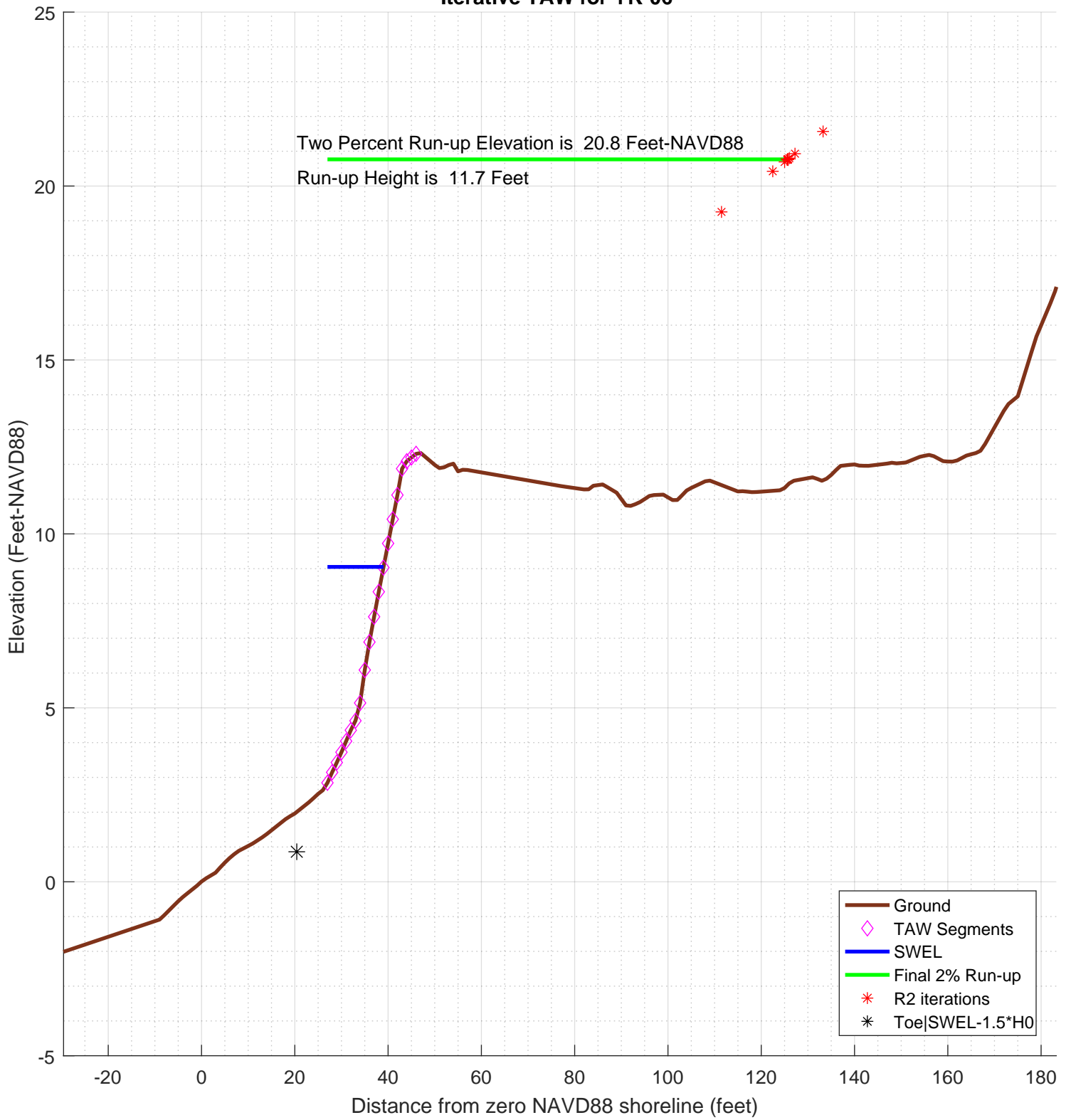
**100-year WHAFIS Output**

**Zero Station: -70.70506513, 43.08256716**

**Onshore Dir: 82.4 deg CCW from E**



### Iterative TAW for YK-06



```

diary on          % begin recording

% FEMA appeal for The Town of Harpswell, Cumberland county, Maine
% TRANSECT ID: YK-06
% calculation by SJH, Ransom Consulting, Inc. 06-Feb-2020
% 100-year wave runup using TAW methodology
% including berm and weighted average with foreshore if necessary
%
% chk nld 20181015
%
% 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/YK-06sta_ele_include.csv'; % file with station, elevation, include
% third column is 0 for excluded points
imgname='logfiles/YK-06-runup';
SWEL=9.0235; % 100-yr still water level including wave setup.
H0=5.4588; % significant wave height at toe of structure
Tp=9.7161; % peak period, 1/fma,
T0=Tp/1.1;

gamma_berm=1; % this may get changed automatically below
gamma_rough=0.75;
gamma_beta=1;
gamma_perm=1;

setupAtToe=0.028035;
maxSetup=0.73082; % only used in case of berm/shallow foreshore weighted average

plotTitle='Iterative TAW for YK-06'

plotTitle =

Iterative TAW for YK-06

% END CONFIG
%-----

SWEL=SWEL+setupAtToe

SWEL =

          9.051535

SWEL_fore=SWEL+maxSetup

SWEL_fore =

          9.782355

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

L0 =

          399.208418021136

% 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 =

```

0.8633349999999999

```
% 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 =
```

17.239735

```
% determine station at the max runup and -1.5*H0 (i.e. the toe)
top_sta=-999;
toe_sta=-999;
for kk=1:length(sta)-1
    if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1))) % here is the intersection of z2 with profile
        top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
    end
    if ((Ztoe > dep(kk)) & (Ztoe <= dep(kk+1))) % here is the intersection of Ztoe with profile
        toe_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Ztoe)
    end
end
% check to make sure we got them, if not extend the end slopes outward
S=diff(dep)./diff(sta);
if toe_sta== -999
    dy=dep(1)-Ztoe;
    toe_sta=sta(1)-dy/S(1)
end
```

```
toe_sta =
```

20.4222867573847

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

```
top_sta =
```

92.4937382297555

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

```
top_sta =
```

92.4937382297555

```
toe_sta
```

```
toe_sta =
```

20.4222867573847

```
% 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',de
    sprintf('-!!- This may be reasonable for some cases. However the user may want to consider:\n')
    sprintf('-!!- 1) Selecting a starting point that is at or below %4.2f feet elevation, or\n', Ztoe)
    sprintf('-!!- 2) Reducing the incident wave height to a depth limited condition.\n')
```



```

end

ans =

-!!- The User has selected a starting point that is 1.98 feet above the elevation of SWEL-1.5H0

ans =

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

ans =

-!!- 1) Selecting a starting point that is at or below 0.86 feet elevation, or

ans =

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

% now iterate converge on a runup elevation
tol=0.001; % convergence criteria
R2del=999;
R2_new=3*H0; %initial guess
R2=R2_new;
iter=0;
R2_all=[];
topStaAll=[];
Berm_Segs=[];
TAW_ALWAYS_VALID=1;
while(abs(R2del) > tol && iter <= 25)
    iter=iter+1;
    sprintf('!----- STARTING ITERATION %d -----!',iter)
    % elevation of toe of slope
    Ztoe
    % station of toe slope (relative to 0-NAVD88 shoreline)
    toe_sta
    % station of top of slope/extent of 2% run-up
    top_sta
    % elevation of top of slope/extent of 2% run-up
    Z2
    % incident significant wave height
    H0
    % incident spectral peak wave period
    Tp
    % incident spectral mean wave period
    T0

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

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

    % loop over profile segments to determine berm factor
    % re-calculate influence of depth of berm based on this run-up elevation
    % check for berm, berm width, berm height
    berm_width=0;
    rdh_sum=0;
    Berm_Segs=[];
    Berm_Heights=[];
    for kk=1:length(sta)-1
        ddep=dep(kk+1)-dep(kk);
        dsta=sta(kk+1)-sta(kk);
        s=ddep/dsta;
        if (s < 1/15) % count it as a berm if slope is flatter than 1:15 (see TAW manual)
            sprintf('Berm Factor Calculation: Iteration %d, Profile Segment: %d',iter,kk)
            berm_width=berm_width+dsta; % tally the width of all berm segments
            % compute the rdh for this segment and weight it by the segment length
            dh=SWEL-(dep(kk)+dep(kk+1))/2
            if dh < 0
                chi=R2;
            else
                chi=2* H0;
            end
            if (dh <= R2 & dh >=-2*H0)

```

```

        rdh=(0.5-0.5*cos(3.14159*dh/chi)) ;
    else
        rdh=1;
    end
    rdh_sum=rdh_sum + rdh * dsta
    Berm_Segs=[Berm_Segs, kk];
    Berm_Heights=[Berm_Heights, (dep(kk)+dep(kk+1))/2];
end
if dep(kk) >= Z2 % jump out of loop if we reached limit of run-up for this iteration
    break
end
end
sprintf('!----- End Berm Factor Calculation, Iter: %d -----!', iter)
berm_width
rB=berm_width/Lslope
if (berm_width > 0)
    rdh_mean=rdh_sum/berm_width
else
    rdh_mean=1
end
gamma_berm=1- rB * (1-rdh_mean)
if gamma_berm > 1
    gamma_berm=1
end
if gamma_berm < 0.6
    gamma_berm =0.6
end
% Iribarren number
slope=(Z2-Ztoe)/(Lslope-berm_width)
Irb=(slope/(sqrt(H0/L0)))
% runup height
gamma_berm
gamma_perm
gamma_beta
gamma_rough
gamma=gamma_berm*gamma_perm*gamma_beta*gamma_rough

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

```

```

        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 =

    0.863334999999999

toe_sta =

    20.4222867573847

top_sta =

    92.4937382297555

Z2 =

    17.239735

H0 =

    5.4588

Tp =

    9.7161

T0 =

    8.83281818181818

R2 =

    16.3764

Z2 =

    25.427935

top_sta =

    169.59543314501

Lslope =

    149.173146387625

ans =

!----- End Berm Factor Calculation, Iter: 1 -----!

berm_width =

    0

rB =

```

```

0

rdh_mean =
    1

gamma_berm =
    1

slope =
    0.164671729428895

Irb =
    1.40821932699039

gamma_berm =
    1

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.75

ans =
!!! - - Iribaren number: 1.41 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:6.1 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    10.2047416215375

R2del =
    6.17165837846249

Z2 =
    19.2562766215375

ans =
!----- STARTING ITERATION 2 -----!

Ztoe =
    0.863334999999999

toe_sta =
    20.4222867573847

top_sta =
    111.481889091691

```

```

Z2 =
    19.2562766215375

H0 =
    5.4588

Tp =
    9.7161

T0 =
    8.83281818181818

R2 =
    10.2047416215375

Z2 =
    19.2562766215375

top_sta =
    111.481889091691

Lslope =
    91.059602334306

ans =
!----- End Berm Factor Calculation, Iter: 2 -----!

berm_width =
    0

rB =
    0

rdh_mean =
    1

gamma_berm =
    1

slope =
    0.201987941414588

Irb =
    1.72733549289557

gamma_berm =
    1

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =

```

0.75

ans =

!!! - - Iribaren number: 1.73 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =

!!! - - slope: 1:5.0 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2\_new =

12.5172351073908

R2del =

2.31249348585333

Z2 =

21.5687701073908

ans =

!----- STARTING ITERATION 3 -----!

Ztoe =

0.863334999999999

toe\_sta =

20.4222867573847

top\_sta =

133.256780672231

Z2 =

21.5687701073908

H0 =

5.4588

Tp =

9.7161

T0 =

8.83281818181818

R2 =

12.5172351073908

Z2 =

21.5687701073908

top\_sta =

133.256780672231

Lslope =

112.834493914846

ans =

!----- End Berm Factor Calculation, Iter: 3 -----!

```

berm_width =
    0

rB =
    0

rdh_mean =
    1

gamma_berm =
    1

slope =
    0.183502707275107

Irb =
    1.56925575407555

gamma_berm =
    1

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.75

ans =
!!! - - Iribaren number: 1.57 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.4 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    11.3717012694865

R2del =
    1.14553383790435

Z2 =
    20.4232362694865

ans =
!----- STARTING ITERATION 4 -----!

Ztoe =
    0.863334999999999

toe_sta =
    20.4222867573847

```

```
top_sta =
    122.470209693847

Z2 =
    20.4232362694865

H0 =
    5.4588

Tp =
    9.7161

T0 =
    8.83281818181818

R2 =
    11.3717012694865

Z2 =
    20.4232362694865

top_sta =
    122.470209693847

Lslope =
    102.047922936462

ans =
!----- End Berm Factor Calculation, Iter: 4 -----!

berm_width =
    0

rB =
    0

rdh_mean =
    1

gamma_berm =
    1

slope =
    0.191673683369969

Irb =
    1.63913129675108

gamma_berm =
    1

gamma_perm =
    1

gamma_beta =
    1
```



```

gamma_rough =
                                0.75

gamma =
                                0.75

ans =
!!! - - Iribaren number:  1.64 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.2 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
                                11.8780583723906

R2del =
                                0.506357102904133

Z2 =
                                20.9295933723906

ans =
!----- STARTING ITERATION 5 -----!

Ztoe =
                                0.8633349999999999

toe_sta =
                                20.4222867573847

top_sta =
                                127.238167348311

Z2 =
                                20.9295933723906

H0 =
                                5.4588

Tp =
                                9.7161

T0 =
                                8.83281818181818

R2 =
                                11.8780583723906

Z2 =
                                20.9295933723906

top_sta =
                                127.238167348311

Lslope =
                                106.815880590927

```

```

ans =
!----- End Berm Factor Calculation, Iter: 5 -----!

berm_width =
    0

rB =
    0

rdh_mean =
    1

gamma_berm =
    1

slope =
    0.187858380807986

Irb =
    1.60650406422771

gamma_berm =
    1

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.75

ans =
!!! - - Iribaren number: 1.61 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    11.6416232721578

R2del =
    0.236435100232841

Z2 =
    20.6931582721578

ans =
!----- STARTING ITERATION 6 -----!

Ztoe =
    0.863334999999999

```

```

toe_sta =
    20.4222867573847

top_sta =
    125.011848137079

Z2 =
    20.6931582721578

H0 =
    5.4588

Tp =
    9.7161

T0 =
    8.83281818181818

R2 =
    11.6416232721578

Z2 =
    20.6931582721578

top_sta =
    125.011848137079

Lslope =
    104.589561379695

ans =
!----- End Berm Factor Calculation, Iter: 6 -----!

berm_width =
    0

rB =
    0

rdh_mean =
    1

gamma_berm =
    1

slope =
    0.189596581251249

Irb =
    1.62136859177519

gamma_berm =
    1

gamma_perm =
    1

```

```

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.75

ans =
!!! - - Iribaren number: 1.62 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    11.7493399183087

R2del =
    0.10771664615088

Z2 =
    20.8008749183087

ans =
!----- STARTING ITERATION 7 -----!

Ztoe =
    0.863334999999999

toe_sta =
    20.4222867573847

top_sta =
    126.026129174282

Z2 =
    20.8008749183087

H0 =
    5.4588

Tp =
    9.7161

T0 =
    8.83281818181818

R2 =
    11.7493399183087

Z2 =
    20.8008749183087

top_sta =
    126.026129174282

```

```

Lslope =
    105.603842416897

ans =
!----- End Berm Factor Calculation, Iter: 7 -----!

berm_width =
    0

rB =
    0

rdh_mean =
    1

gamma_berm =
    1

slope =
    0.188795591732357

Irb =
    1.61451878868433

gamma_berm =
    1

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.75

ans =
!!! - - Iribaren number: 1.61 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    11.6997024297719

R2del =
    0.0496374885367334

Z2 =
    20.7512374297719

ans =

```

!----- STARTING ITERATION 8 -----!

Ztoe =  
0.863334999999999

toe\_sta =  
20.4222867573847

top\_sta =  
125.558732860376

Z2 =  
20.7512374297719

H0 =  
5.4588

Tp =  
9.7161

T0 =  
8.83281818181818

R2 =  
11.6997024297719

Z2 =  
20.7512374297719

top\_sta =  
125.558732860376

Lslope =  
105.136446102992

ans =  
!----- End Berm Factor Calculation, Iter: 8 -----!

berm\_width =  
0

rB =  
0

rdh\_mean =  
1

gamma\_berm =  
1

slope =  
0.189162780053358

Irb =  
1.61765886434924

gamma\_berm =  
1

```

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.75

ans =
!!! - - Iribaren number: 1.62 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    11.722457167062

R2del =
    0.0227547372900769

Z2 =
    20.773992167062

ans =
!----- STARTING ITERATION 9 -----!

Ztoe =
    0.8633349999999999

toe_sta =
    20.4222867573847

top_sta =
    125.772995923372

Z2 =
    20.773992167062

H0 =
    5.4588

Tp =
    9.7161

T0 =
    8.83281818181818

R2 =
    11.722457167062

Z2 =

```

```

20.773992167062

top_sta =
    125.772995923372

Lslope =
    105.350709165987

ans =
!----- End Berm Factor Calculation, Iter: 9 -----!

berm_width =
    0

rB =
    0

rdh_mean =
    1

gamma_berm =
    1

slope =
    0.188994049728621

Irb =
    1.61621593722891

gamma_berm =
    1

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.75

ans =
!!! - - Iribaren number: 1.62 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    11.7120009134377

R2del =
    0.0104562536242749

Z2 =

```



```

20.7635359134377

ans =
!----- STARTING ITERATION 10 -----!

Ztoe =
0.8633349999999999

toe_sta =
20.4222867573847

top_sta =
125.674537791316

Z2 =
20.7635359134377

H0 =
5.4588

Tp =
9.7161

T0 =
8.83281818181818

R2 =
11.7120009134377

Z2 =
20.7635359134377

top_sta =
125.674537791316

Lslope =
105.252251033931

ans =
!----- End Berm Factor Calculation, Iter: 10 -----!

berm_width =
0

rB =
0

rdh_mean =
1

gamma_berm =
1

slope =
0.189071499354653

Irb =

```

```

1.61687826136083

gamma_berm =
    1

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.75

ans =
!!! - - Iribaren number: 1.62 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    11.7168004830122

R2del =
    0.00479956957445182

Z2 =
    20.7683354830122

ans =
!----- STARTING ITERATION 11 -----!

Ztoe =
    0.863334999999999

toe_sta =
    20.4222867573847

top_sta =
    125.719731478458

Z2 =
    20.7683354830122

H0 =
    5.4588

Tp =
    9.7161

T0 =
    8.83281818181818

R2 =

```

```

11.7168004830122

Z2 =
20.7683354830122

top_sta =
125.719731478458

Lslope =
105.297444721073

ans =
!----- End Berm Factor Calculation, Iter: 11 -----!

berm_width =
0

rB =
0

rdh_mean =
1

gamma_berm =
1

slope =
0.189035930888346

Irb =
1.61657409135024

gamma_berm =
1

gamma_perm =
1

gamma_beta =
1

gamma_rough =
0.75

gamma =
0.75

ans =
!!! - - Iribaren number: 1.62 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
11.7145962976927

```

```

R2del =
    0.00220418531947786

Z2 =
    20.7661312976927

ans =
!----- STARTING ITERATION 12 -----!

Ztoe =
    0.863334999999999

toe_sta =
    20.4222867573847

top_sta =
    125.698976437785

Z2 =
    20.7661312976927

H0 =
    5.4588

Tp =
    9.7161

T0 =
    8.83281818181818

R2 =
    11.7145962976927

Z2 =
    20.7661312976927

top_sta =
    125.698976437785

Lslope =
    105.2766896804

ans =
!----- End Berm Factor Calculation, Iter: 12 -----!

berm_width =
    0

rB =
    0

rdh_mean =
    1

gamma_berm =
    1

slope =

```

```

0.189052261788567

Irb =
    1.61671374792273

gamma_berm =
    1

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.75

ans =
!!! - - Iribaren number: 1.62 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    11.7156083270057

R2del =
    0.00101202931299405

Z2 =
    20.7671433270057

ans =
!----- STARTING ITERATION 13 -----!

Ztoe =
    0.863334999999999

toe_sta =
    20.4222867573847

top_sta =
    125.708505904009

Z2 =
    20.7671433270057

H0 =
    5.4588

Tp =
    9.7161

```

```

T0 =
    8.83281818181818

R2 =
    11.7156083270057

Z2 =
    20.7671433270057

top_sta =
    125.708505904009

Lslope =
    105.286219146624

ans =
!----- End Berm Factor Calculation, Iter: 13 -----!

berm_width =
    0

rB =
    0

rdh_mean =
    1

gamma_berm =
    1

slope =
    0.189044762822067

Irb =
    1.61664961918858

gamma_berm =
    1

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.75

gamma =
    0.75

ans =
!!! - - Iribaren number: 1.62 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

```

```
R2_new =  
11.7151436144784
```

```
R2del =  
0.000464712527325162
```

```
Z2 =  
20.7666786144784
```

```
% final 2% runup elevation  
Z2=R2_new+SWEL
```

```
Z2 =  
20.7666786144784
```

```
diary off
```

---

PART 5: RUNUP2

for transect: YK-06

Station locations shifted by: -0.06 feet from their  
original location to set the shoreline to  
elevation 0 for RUNUP2 input

---

RUNUP2 INPUT CONVERSIONS

for transect: YK-06

Incident significant wave height: 5.86 feet

Peak wave period: 9.62 seconds

Mean wave height: 3.67 feet

Local Depth below SWEL: 25.85 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

Deep water wavelength,  $L_0$  (m)

$$L_0 = gT^2/\pi$$

$$L_0 = 32.17 \times 8.17^2 / 6.28 = 342.20$$

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

$$C_0 = L_0/T$$

$$C_0 = 342.20/8.17 = 41.86$$

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

$$\sigma = \pi/T$$

$$\sigma = 6.28/8.17 = 0.77$$

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

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

$$y = 0.77 \times 0.77 \times 25.85 / 32.17 = 0.47$$

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

$$C_{1H} = 26.56$$

Shoaling Coefficient  $K_{sH}$

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

$$K_{sH} = \sqrt{41.86/26.56} = 1.26$$

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

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

$$H_{0\_H} = 3.67/1.26 = 2.92$$

Deepwater mean wave height: 2.92 feet

---

END RUNUP2 CONVERSIONS

---

RUNUP2 RESULTS

for transect: YK-06

RUNUP2 SWEL:

9.00  
9.00  
9.00  
9.00  
9.00  
9.00  
9.00  
9.00  
9.00

RUNUP2 deepwater mean wave heights:  
2.78



2.78  
2.78  
2.92  
2.92  
2.92  
3.07  
3.07  
3.07

RUNUP2 mean wave periods:

7.77  
8.17  
8.58  
7.77  
8.17  
8.58  
7.77  
8.17  
8.58

RUNUP2 runup above SWEL:

8.03  
8.25  
8.34  
8.21  
8.31  
8.41  
8.30  
8.46  
8.64

RUNUP2 Mean runup height above SWEL: 8.33 feet

RUNUP2 2-percent runup height above SWEL: 18.32 feet

RUNUP2 2-percent runup elevation: 27.32 feet-NAVD88

RUNUP2 Messages:

No Messages

\_\_\_\_\_END RUNUP2 RESULTS\_\_\_\_\_

\_\_\_\_\_ACES BEACH RUNUP\_\_\_\_\_

Incident significant wave height: 5.86 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 4.09 feet

Peak wave period: 9.62 seconds

Average beach Slope: 1:15.48 (H:V)

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

ACES Beach 2-percent runup height above SWEL: 5.88 feet

ACES Beach 2-percent runup elevation: 14.88 feet-NAVD88

ACES BEACH RUNUP is valid

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

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

FEMA  
RUNUP2 transect: YK-06  
9.00  
-16.83 -404.9 1.0  
-16.83 -361.9 1.0  
-16.53 -355.9 1.0  
-13.24 -291.9 1.0  
-11.23 -270.9 1.0  
-6.48 -222.9 1.0  
-6.44 -221.9 1.0  
-6.44 -137.9 1.0  
-5.60 -118.9 1.0  
-5.58 -108.9 1.0  
-1.09 -8.9 1.0  
-0.44 -3.9 1.0  
0.26 3.1 1.0  
0.89 8.1 1.0  
1.37 14.1 1.0  
2.63 26.1 1.0  
4.63 33.1 1.0  
6.89 36.1 1.0  
11.88 43.1 1.0  
1 12.30 46.1 1.0  
9.0 2.78 7.77  
9.0 2.78 8.17  
9.0 2.78 8.58  
9.0 2.92 7.77  
9.0 2.92 8.17  
9.0 2.92 8.58  
9.0 3.07 7.77  
9.0 3.07 8.17  
9.0 3.07 8.58

sjh

job 2  
1



CLIENT- FEMA  
PROJECT-RUNUP2 transect: YK-06

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

ENGINEERED BY sjh

JOB job 2  
RUN 1 PAGE 1

\*\*\*\*\*

CROSS SECTION PROFILE

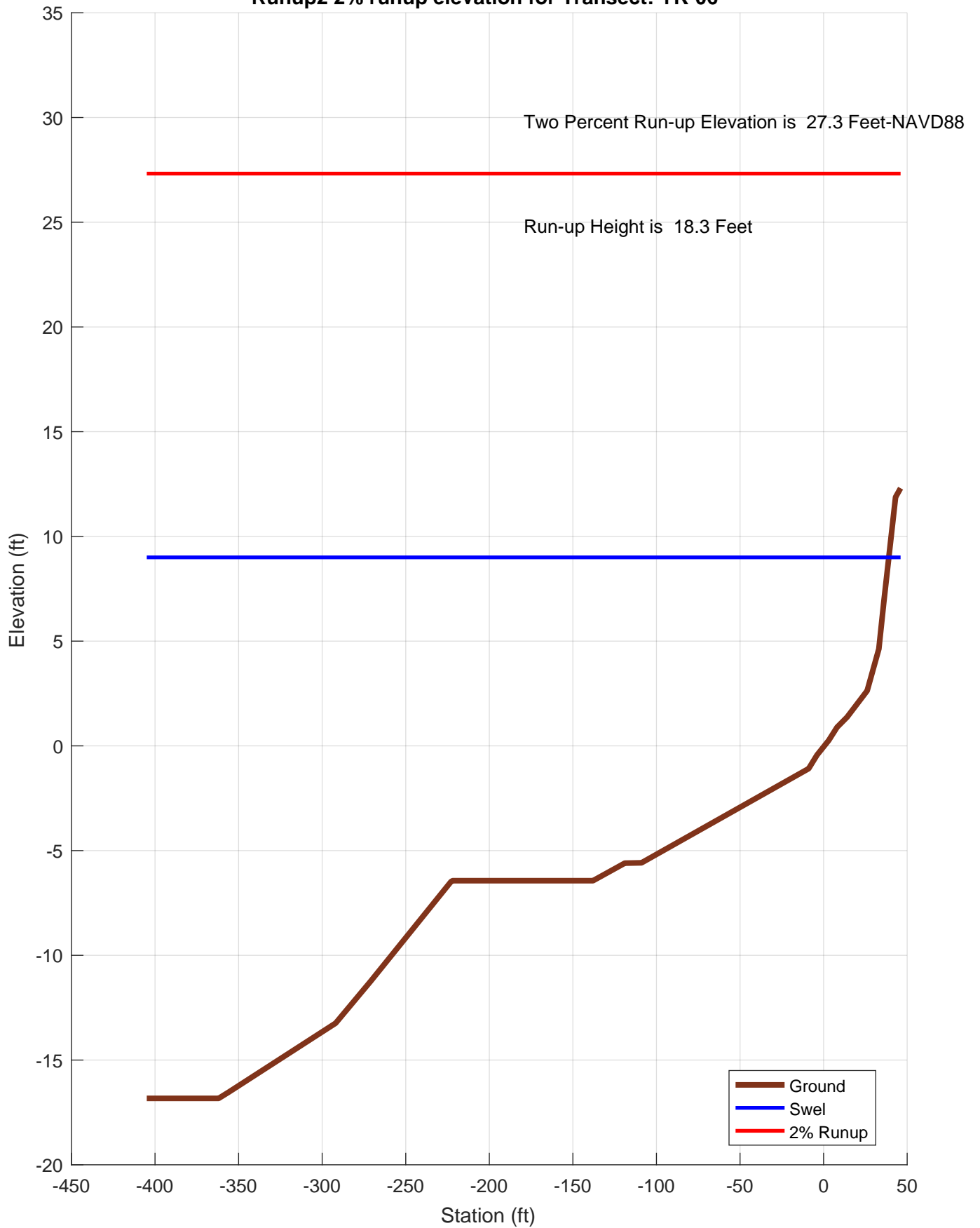
	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-404.0	-16.8		
2	-361.0	-16.8	.00	1.00
3	-355.0	-16.5	20.00	1.00
4	-291.0	-13.2	19.39	1.00
5	-270.0	-11.2	10.50	1.00
6	-222.9	-6.5	9.98	1.00
7	-221.9	-6.4	25.00	1.00
8	-137.9	-6.4	FLAT	1.00
9	-118.9	-5.6	22.62	1.00
10	-108.9	-5.6	500.00	1.00
11	-8.9	-1.1	22.27	1.00
12	-3.9	-.4	7.69	1.00
13	3.1	.3	10.00	1.00
14	8.1	.9	7.94	1.00
15	14.1	1.4	12.50	1.00
16	26.1	2.6	9.52	1.00
17	33.1	4.6	3.50	1.00
18	36.1	6.9	1.33	1.00
19	43.1	11.9	1.40	1.00
20	46.1	12.3	7.14	1.00
	LAST SLOPE		9.00	LAST ROUGHNESS 1.00

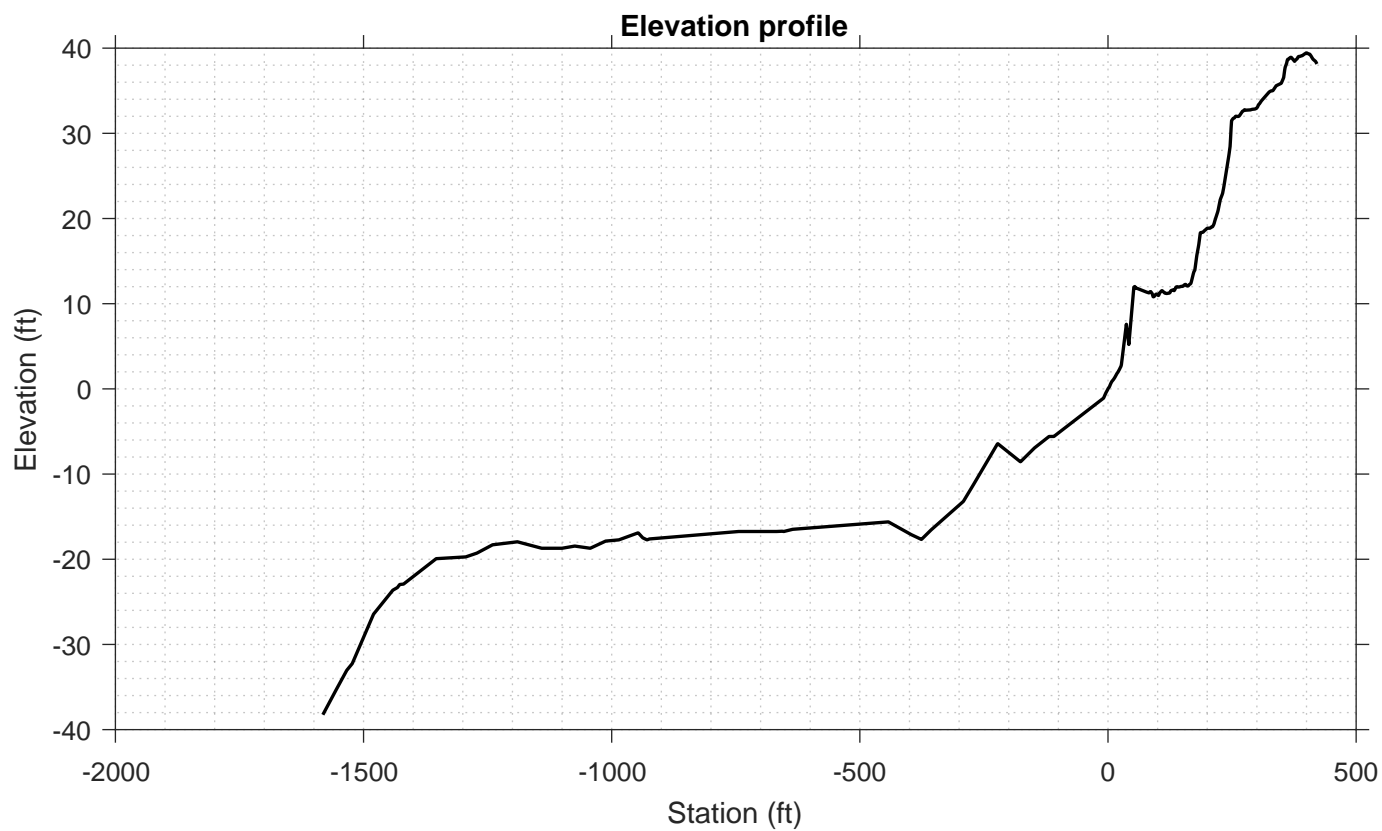
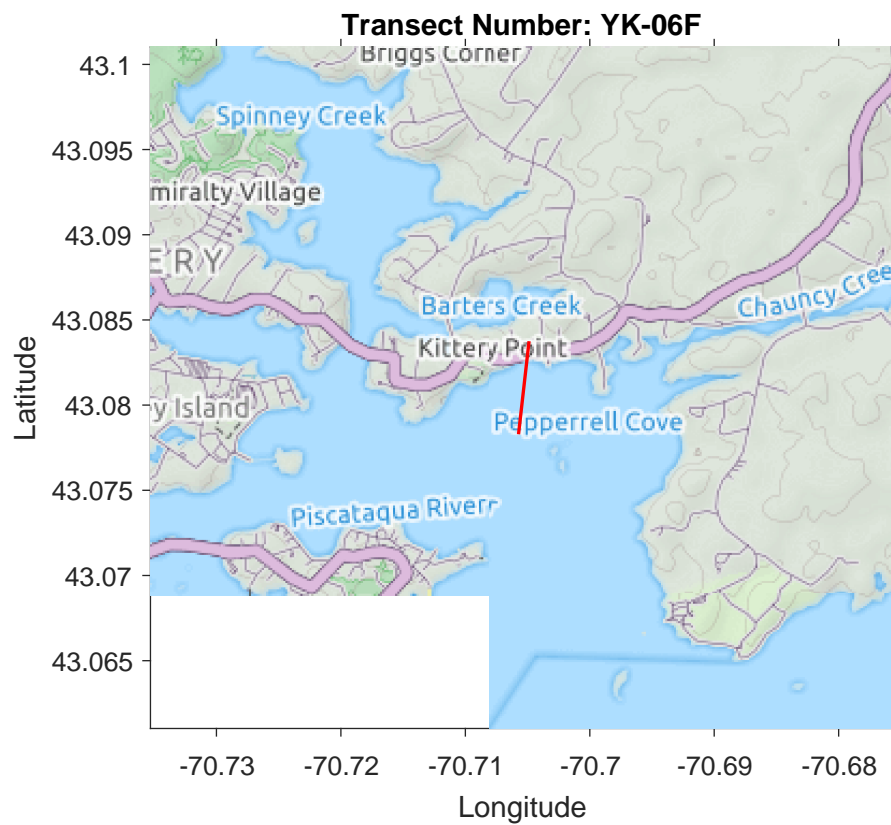
\*\*\*\*\*

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.)
9.00	2.78	7.77	11	20	8.03	5.03
9.00	2.78	8.17	11	20	8.25	5.13
9.00	2.78	8.58	11	20	8.34	5.23
9.00	2.92	7.77	11	20	8.21	5.24
9.00	2.92	8.17	11	20	8.31	5.34
9.00	2.92	8.58	11	20	8.41	5.44
9.00	3.07	7.77	11	20	8.30	5.46
9.00	3.07	8.17	11	20	8.46	5.56
9.00	3.07	8.58	11	20	8.64	5.66

### Runup2 2% runup elevation for Transect: YK-06





---

DATA LOG FOR TRANSECT ID: YK-06F

---

---

PART 1: USER INPUT

SWAN 1-D / WHAFIS input

---

station: -400 ft  
LON: -70.7052 deg E  
LAT: 43.0815 deg N  
Bottom ELEV: -16.992 ft-NAVD88  
TWL: 9.0235 ft-NAVD88  
HS: 5.8565 ft  
TP: 9.6134 sec  
Wave Direction bin: 90 deg CCW from East (90 deg sector)  
Transect Direction: 81.199 deg CCW from East

TAW/RUNUP input

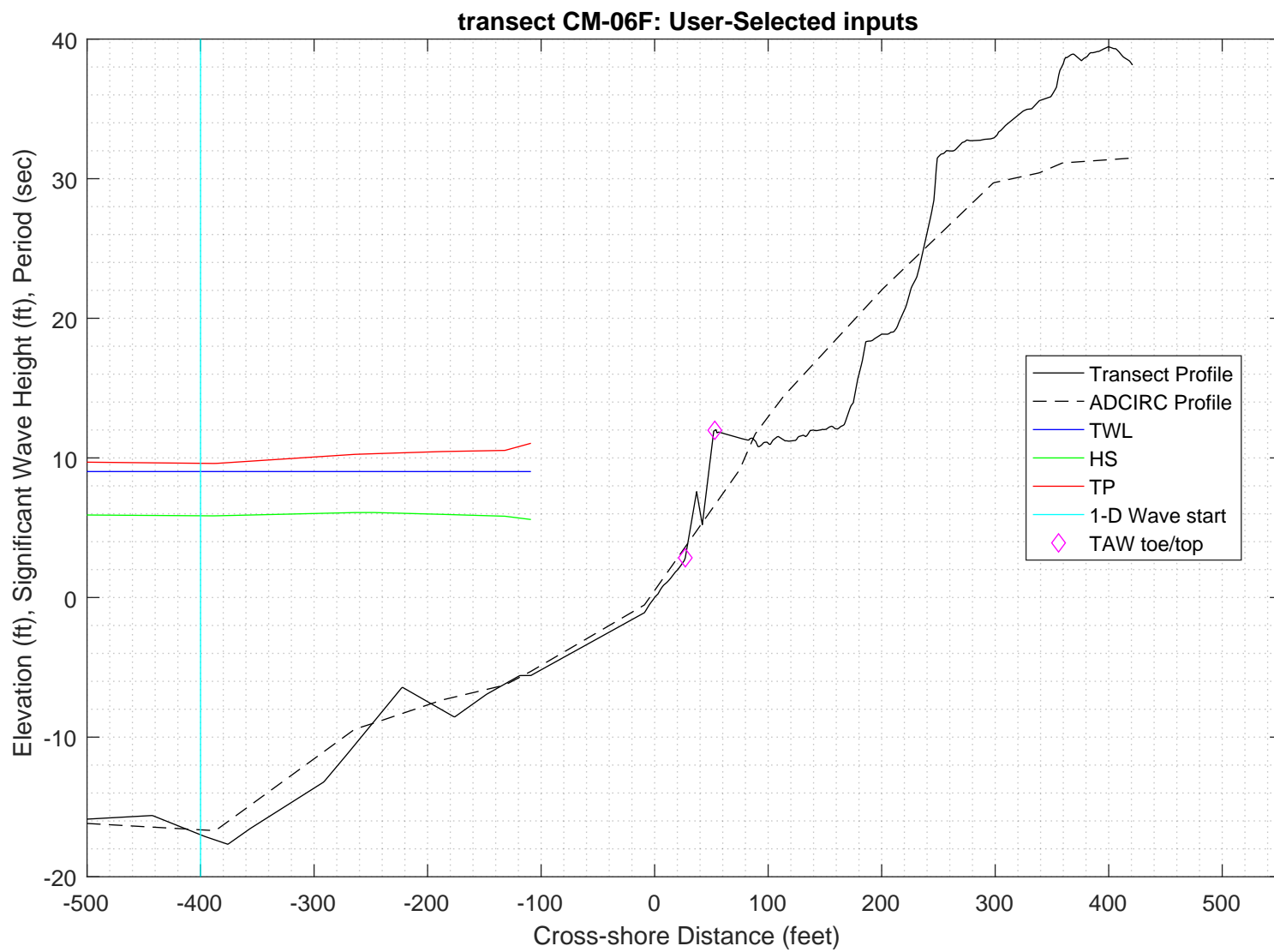
---

toe sta: 27 ft  
toe elev: 2.8452 ft-NAVD88  
top sta: 53 ft  
top elev: 11.9795 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/YK-06Fzmeters\_xmeters.grd  
swan file name: 2\_swan/swanfiles/YK-06F.swn  
swan output name: 2\_swan/swanfiles/YK-06F.dat

Boundary Conditions:

TWL- 2.7504 meters  
HS- 1.7851 meters  
PER- 9.6134 seconds

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

SWAN maximum additional wave setup: 0.62428 feet

SWAN output at toe:

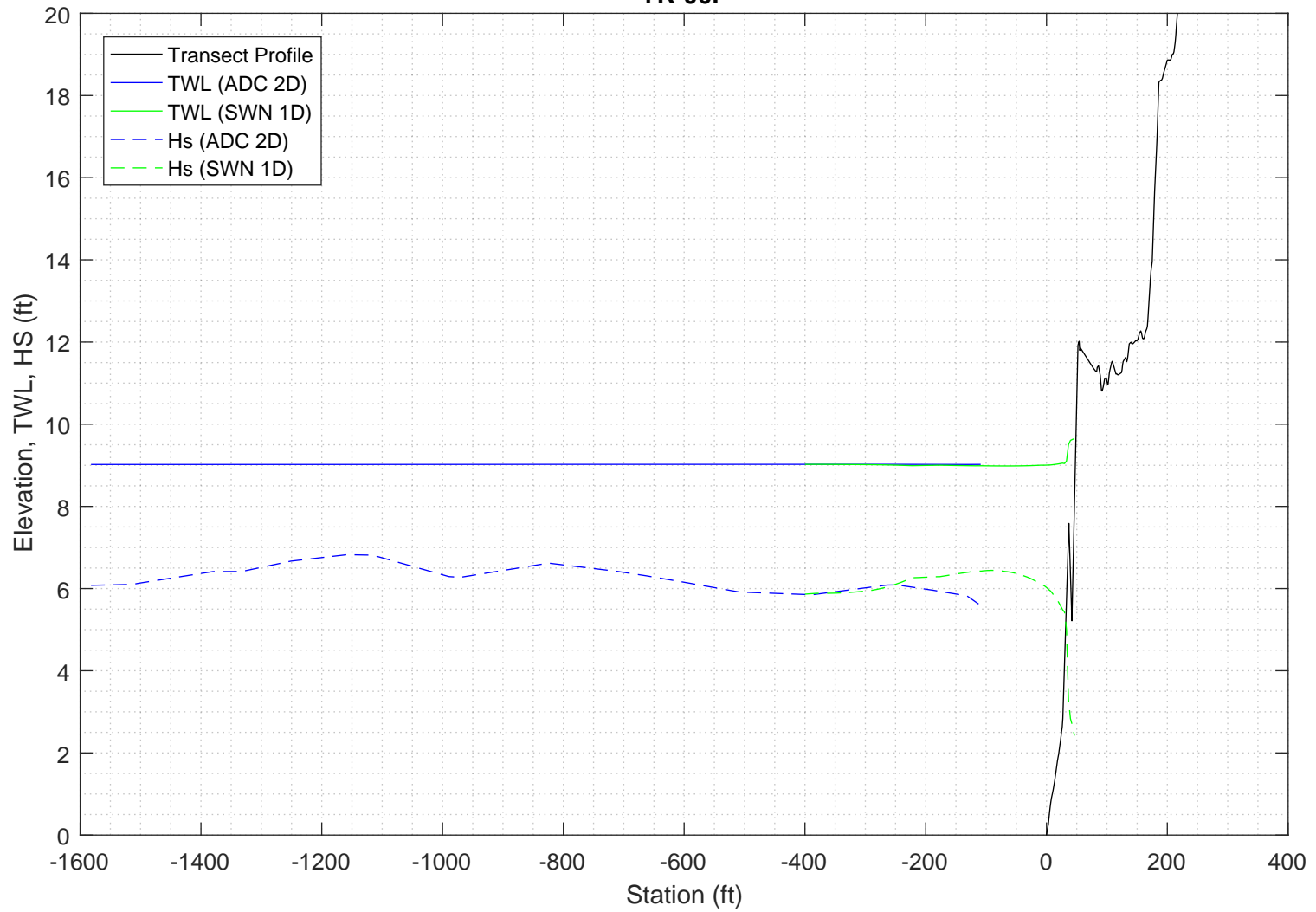
SETUP- 0.02834 feet  
HS- 5.4882 feet  
PER- 9.7138 seconds

PART 2 COMPLETE

---

**REVISED SEP-05-2019**

**2-D ADCIRC+SWAN and SWAN 1-D results, Transect:  
YK-06F**



Execution started at 20200206.151503

```

-----
                        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 0 136 0. 136 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 0 136 0 1 1

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

READ BOTTOM -1. '../gridfiles/YK-06Fzmmeters\_xmmeters.grd' 1 0 FREE

!-----

! -- WIND [vel] [dir]

WIND 25.1 0

! -- BOUnd SHAPespec

BOUND SHAPE JONSWAP 3.3 PEAK DSPR POWER

! -- BOUndspec

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

BOUN SIDE W CCW CONSTANT PAR 1.7851 9.6134 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] [ypl] <[int] [xp] [yp] >
CURVE 'curve' 0      0      136 136      0
!TABLE 'sname' < HEADER|NOHEADER|INDEXed > 'fname' <output parameters> (output time)
Table 'curve'   HEADER 'YK-06F.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      137 MYC      1
                   : MCGRD     138
                   : 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 36.50 % 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 0.73 % 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 35.77 % 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 81.76 % 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 99.28 % of wet grid points ( 99.50 % required)

iteration 7; sweep 1  
iteration 7; sweep 2  
iteration 7; sweep 3  
iteration 7; sweep 4  
accuracy OK in 100.00 % of wet grid points ( 99.50 % required)

STOP

Run:1	Table:curve	SWAN version:41.20A								
Xp	Yp	Hsig	TPsmoo	RTpeak	Tm_10	Dir	Dspr	Depth	Setup	
[m]	[m]	[m]	[sec]	[sec]	[sec]	[degr]	[degr]	[m]	[m]	
0.	0.	1.78725	9.6412	10.0005	8.6858	0.000	31.6913	7.9297	-0.000270	
1.	0.	1.78860	9.6413	10.0005	8.6781	0.000	31.8460	7.9598	-0.000232	
2.	0.	1.78977	9.6414	10.0005	8.6705	0.000	31.9802	7.9898	-0.000192	
3.	0.	1.79085	9.6415	10.0005	8.6631	0.000	32.1061	8.0198	-0.000152	
4.	0.	1.79169	9.6415	10.0005	8.6557	0.000	32.2092	8.0499	-0.000111	
5.	0.	1.79272	9.6416	10.0005	8.6488	0.000	32.3047	8.0699	-0.000085	
6.	0.	1.79357	9.6417	10.0005	8.6417	0.000	32.4102	8.1000	-0.000044	
7.	0.	1.79351	9.6417	10.0005	8.6345	0.000	32.4275	8.1300	0.000000	
8.	0.	1.79377	9.6419	10.0005	8.6289	0.000	32.3260	8.1000	-0.000040	
9.	0.	1.79394	9.6422	10.0005	8.6238	0.000	32.1375	8.0399	-0.000121	
10.	0.	1.79404	9.6425	10.0005	8.6186	0.000	31.9360	7.9798	-0.000204	
11.	0.	1.79390	9.6428	10.0005	8.6128	0.000	31.7336	7.9297	-0.000274	
12.	0.	1.79400	9.6431	10.0005	8.6072	0.000	31.5223	7.8696	-0.000360	
13.	0.	1.79429	9.6435	10.0005	8.6015	0.000	31.3233	7.8096	-0.000449	
14.	0.	1.79453	9.6438	10.0005	8.5953	0.000	31.1433	7.7595	-0.000525	
15.	0.	1.79491	9.6442	10.0005	8.5890	0.000	30.9787	7.7094	-0.000602	
16.	0.	1.79529	9.6445	10.0005	8.5824	0.000	30.8348	7.6593	-0.000674	
17.	0.	1.79600	9.6449	10.0005	8.5759	0.000	30.6933	7.5992	-0.000765	
18.	0.	1.79660	9.6453	10.0005	8.5688	0.000	30.5606	7.5492	-0.000842	
19.	0.	1.79729	9.6457	10.0005	8.5615	0.000	30.4303	7.4991	-0.000921	
20.	0.	1.79805	9.6461	10.0005	8.5540	0.000	30.3009	7.4490	-0.001002	
21.	0.	1.79889	9.6466	10.0005	8.5462	0.000	30.1718	7.3989	-0.001086	
22.	0.	1.79979	9.6470	10.0005	8.5382	0.000	30.0441	7.3488	-0.001172	
23.	0.	1.80066	9.6475	10.0005	8.5299	0.000	29.9077	7.2987	-0.001259	
24.	0.	1.80188	9.6480	10.0005	8.5217	0.000	29.7683	7.2386	-0.001368	
25.	0.	1.80295	9.6484	10.0005	8.5128	0.000	29.6368	7.1885	-0.001461	
26.	0.	1.80411	9.6489	10.0005	8.5036	0.000	29.5091	7.1384	-0.001556	
27.	0.	1.80535	9.6495	10.0005	8.4941	0.000	29.3824	7.0883	-0.001653	
28.	0.	1.80665	9.6500	10.0005	8.4844	0.000	29.2559	7.0382	-0.001754	
29.	0.	1.80802	9.6505	10.0005	8.4744	0.000	29.1296	6.9881	-0.001856	
30.	0.	1.80937	9.6511	10.0005	8.4641	0.000	28.9953	6.9380	-0.001961	
31.	0.	1.81113	9.6517	10.0005	8.4536	0.000	28.8576	6.8779	-0.002090	
32.	0.	1.81272	9.6523	10.0005	8.4422	0.000	28.7276	6.8278	-0.002201	
33.	0.	1.81409	9.6529	10.0005	8.4304	0.000	28.5665	6.7777	-0.002315	
34.	0.	1.81649	9.6536	10.0005	8.4198	0.000	28.3589	6.6875	-0.002524	
35.	0.	1.81930	9.6545	10.0005	8.4085	0.000	28.1514	6.5872	-0.002759	
36.	0.	1.82187	9.6554	10.0005	8.3959	360.000	27.9409	6.4970	-0.002980	
37.	0.	1.82491	9.6563	10.0005	8.3826	360.000	27.7215	6.3968	-0.003234	
38.	0.	1.82822	9.6573	10.0005	8.3682	360.000	27.5058	6.2965	-0.003501	
39.	0.	1.83134	9.6583	10.0005	8.3522	360.000	27.2908	6.2062	-0.003750	
40.	0.	1.83502	9.6594	10.0005	8.3354	360.000	27.0669	6.1060	-0.004040	
41.	0.	1.83891	9.6606	10.0005	8.3174	360.000	26.8404	6.0057	-0.004343	
42.	0.	1.84301	9.6618	10.0005	8.2981	360.000	26.6123	5.9053	-0.004660	
43.	0.	1.84733	9.6631	10.0005	8.2776	360.000	26.3825	5.8050	-0.004993	
44.	0.	1.85187	9.6644	10.0005	8.2558	0.000	26.1538	5.7047	-0.005340	
45.	0.	1.85665	9.6658	10.0005	8.2328	0.000	25.9239	5.6043	-0.005705	
46.	0.	1.86166	9.6672	10.0005	8.2085	0.001	25.6932	5.5039	-0.006087	
47.	0.	1.86696	9.6687	10.0005	8.1829	0.001	25.4698	5.4035	-0.006488	
48.	0.	1.87203	9.6703	10.0005	8.1554	0.002	25.2497	5.3131	-0.006867	
49.	0.	1.87775	9.6719	10.0005	8.1272	0.002	25.0232	5.2127	-0.007306	
50.	0.	1.88368	9.6736	10.0005	8.0976	0.003	24.8048	5.1122	-0.007762	
51.	0.	1.88972	9.6754	10.0005	8.0671	0.002	24.5959	5.0118	-0.008232	
52.	0.	1.89568	9.6773	10.0005	8.0362	0.001	24.3917	4.9113	-0.008710	
53.	0.	1.90179	9.6792	10.0005	8.0040	359.999	24.1883	4.8108	-0.009210	
54.	0.	1.90864	9.6812	10.0005	7.9711	359.995	24.0786	4.7103	-0.009718	
55.	0.	1.90928	9.6827	10.0005	7.9295	359.992	24.1195	4.7405	-0.009519	
56.	0.	1.90988	9.6839	10.0005	7.8900	359.991	24.2278	4.7807	-0.009271	
57.	0.	1.91030	9.6850	10.0005	7.8521	359.990	24.3739	4.8310	-0.008980	



58.	0.	1.91076	9.6859	10.0005	7.8169	359.990	24.5233	4.8813	-0.008700
59.	0.	1.91174	9.6867	10.0005	7.7850	359.990	24.6754	4.9215	-0.008480
60.	0.	1.91231	9.6873	10.0005	7.7546	359.990	24.8417	4.9718	-0.008219
61.	0.	1.91282	9.6879	10.0005	7.7263	359.991	25.0015	5.0220	-0.007968
62.	0.	1.91379	9.6884	10.0005	7.7006	359.992	25.1592	5.0622	-0.007770
63.	0.	1.91436	9.6888	10.0005	7.6757	359.992	25.3286	5.1125	-0.007534
64.	0.	1.91487	9.6891	10.0005	7.6523	359.993	25.4883	5.1627	-0.007304
65.	0.	1.91581	9.6894	10.0005	7.6310	359.994	25.6443	5.2029	-0.007124
66.	0.	1.91638	9.6896	10.0005	7.6100	359.995	25.8106	5.2531	-0.006907
67.	0.	1.91688	9.6897	10.0005	7.5901	359.997	25.9668	5.3033	-0.006695
68.	0.	1.91688	9.6899	10.0005	7.5717	359.998	26.0131	5.3435	-0.006530
69.	0.	1.91931	9.6903	10.0005	7.5600	0.000	25.9461	5.3033	-0.006697
70.	0.	1.92153	9.6908	10.0005	7.5495	0.003	25.8183	5.2531	-0.006905
71.	0.	1.92396	9.6913	10.0005	7.5396	0.006	25.6622	5.1928	-0.007160
72.	0.	1.92632	9.6919	10.0005	7.5295	0.008	25.4999	5.1326	-0.007419
73.	0.	1.92871	9.6924	10.0005	7.5190	0.009	25.3381	5.0723	-0.007683
74.	0.	1.93126	9.6930	10.0005	7.5081	0.011	25.1878	5.0120	-0.007954
75.	0.	1.93342	9.6935	10.0005	7.4960	0.013	25.0470	4.9618	-0.008181
76.	0.	1.93600	9.6941	10.0005	7.4845	0.015	24.9021	4.9015	-0.008460
77.	0.	1.93876	9.6947	10.0005	7.4726	0.016	24.7725	4.8413	-0.008744
78.	0.	1.94057	9.6953	10.0005	7.4589	0.016	24.6591	4.8011	-0.008925
79.	0.	1.94294	9.6959	10.0005	7.4458	0.016	24.5485	4.7508	-0.009162
80.	0.	1.94483	9.6965	10.0005	7.4317	0.016	24.4385	4.7107	-0.009349
81.	0.	1.94710	9.6971	10.0005	7.4184	0.016	24.3182	4.6604	-0.009591
82.	0.	1.94936	9.6977	10.0005	7.4050	0.016	24.2018	4.6102	-0.009835
83.	0.	1.95119	9.6983	10.0005	7.3896	0.012	24.0865	4.5700	-0.010021
84.	0.	1.95365	9.6989	10.0005	7.3739	0.010	23.9697	4.5197	-0.010266
85.	0.	1.95557	9.6995	10.0005	7.3570	0.009	23.8607	4.4796	-0.010449
86.	0.	1.95770	9.7001	10.0005	7.3400	0.007	23.7873	4.4394	-0.010625
87.	0.	1.95789	9.7005	10.0005	7.3193	0.005	23.7622	4.4395	-0.010544
88.	0.	1.95806	9.7008	10.0005	7.2995	0.003	23.7434	4.4395	-0.010460
89.	0.	1.95824	9.7012	10.0005	7.2819	359.999	23.6850	4.4296	-0.010437
90.	0.	1.96028	9.7017	10.0005	7.2681	359.996	23.5841	4.3793	-0.010667
91.	0.	1.96135	9.7022	10.0005	7.2541	359.996	23.4709	4.3392	-0.010823
92.	0.	1.96273	9.7027	10.0005	7.2412	359.999	23.3513	4.2890	-0.011036
93.	0.	1.96300	9.7032	10.0005	7.2289	359.999	23.2309	4.2488	-0.011164
94.	0.	1.96376	9.7037	10.0005	7.2168	359.990	23.1063	4.1986	-0.011353
95.	0.	1.96355	9.7042	10.0005	7.2044	359.983	22.9831	4.1585	-0.011455
96.	0.	1.96337	9.7047	10.0005	7.1945	359.980	22.8580	4.1084	-0.011607
97.	0.	1.96227	9.7052	10.0005	7.1837	359.976	22.7332	4.0683	-0.011667
98.	0.	1.96143	9.7057	10.0005	7.1742	359.972	22.6056	4.0182	-0.011784
99.	0.	1.95953	9.7062	10.0005	7.1641	359.966	22.4763	3.9782	-0.011799
100.	0.	1.95790	9.7067	10.0005	7.1553	359.961	22.3519	3.9281	-0.011870
101.	0.	1.95524	9.7072	10.0005	7.1457	359.957	22.2266	3.8882	-0.011835
102.	0.	1.95406	9.7077	10.0005	7.1312	359.953	22.1002	3.8381	-0.011894
103.	0.	1.95158	9.7082	10.0005	7.1167	359.937	21.9761	3.7982	-0.011831
104.	0.	1.94937	9.7087	10.0005	7.1031	359.916	21.8494	3.7482	-0.011827
105.	0.	1.94611	9.7092	10.0005	7.0881	359.891	21.7213	3.7083	-0.011703
106.	0.	1.94303	9.7097	10.0005	7.0743	359.866	21.5935	3.6584	-0.011634
107.	0.	1.93881	9.7101	10.0005	7.0591	359.842	21.4665	3.6186	-0.011436
108.	0.	1.93481	9.7106	10.0005	7.0449	359.818	21.3371	3.5687	-0.011293
109.	0.	1.92972	9.7111	10.0005	7.0288	359.792	21.2092	3.5290	-0.011016
110.	0.	1.92543	9.7116	10.0005	7.0107	359.778	21.0815	3.4792	-0.010815
111.	0.	1.92016	9.7121	10.0005	6.9899	359.769	20.9548	3.4395	-0.010476
112.	0.	1.91516	9.7126	10.0005	6.9695	359.763	20.8268	3.3898	-0.010195
113.	0.	1.90892	9.7131	10.0005	6.9473	359.761	20.6994	3.3502	-0.009760
114.	0.	1.90271	9.7137	10.0005	6.9267	359.766	20.5697	3.3006	-0.009377
115.	0.	1.89493	9.7142	10.0005	6.9057	359.773	20.4425	3.2612	-0.008821
116.	0.	1.88723	9.7147	10.0005	6.8862	359.784	20.3121	3.2117	-0.008318
117.	0.	1.87836	9.7151	10.0005	6.8641	359.799	20.1789	3.1723	-0.007654
118.	0.	1.87080	9.7156	10.0005	6.8367	359.827	20.0404	3.1229	-0.007079
119.	0.	1.86081	9.7159	10.0005	6.8117	359.867	19.8474	3.0837	-0.006317
120.	0.	1.85523	9.7164	10.0005	6.7987	359.917	19.5537	2.9636	-0.006437
121.	0.	1.84722	9.7168	10.0005	6.7836	359.971	19.2285	2.8437	-0.006348
122.	0.	1.83564	9.7170	10.0005	6.7653	0.020	18.9146	2.7342	-0.005841

123.	0.	1.82156	9.7170	10.0005	6.7331	0.056	18.5689	2.6451	-0.004871
124.	0.	1.81038	9.7167	10.0005	6.7034	0.118	18.2033	2.5055	-0.004505
125.	0.	1.79109	9.7159	10.0005	6.6587	0.190	17.8867	2.4272	-0.002758
126.	0.	1.77147	9.7143	10.0005	6.6024	0.309	17.5730	2.3492	-0.000802
127.	0.	1.75047	9.7120	10.0005	6.5548	0.446	17.2418	2.2511	0.001121
128.	0.	1.72751	9.7121	10.0005	6.5012	0.622	16.8883	2.1534	0.003383
129.	0.	1.70118	9.7127	10.0005	6.4440	0.821	16.4958	2.0561	0.006116
130.	0.	1.67280	9.7138	10.0005	6.3942	1.037	15.7256	1.9286	0.008638
131.	0.	1.65448	9.7181	10.0005	6.4189	0.991	14.3953	1.4859	0.005927
132.	0.	1.52269	9.7371	10.0005	6.5500	0.479	13.2018	1.0347	0.024728
133.	0.	1.00588	9.8396	10.0005	7.1545	356.309	13.1604	0.6757	0.145696
134.	0.	0.86287	9.8832	10.0005	6.1039	351.754	10.1899	0.9973	0.177317
135.	0.	0.81134	9.8540	10.0005	5.9005	352.004	9.0225	1.1648	0.184795
136.	0.	0.73784	9.8526	10.0005	6.6920	351.816	9.6627	0.5003	0.190280

---

PART 3: WHAFIS

WHAFIS input: YK-06F.dat

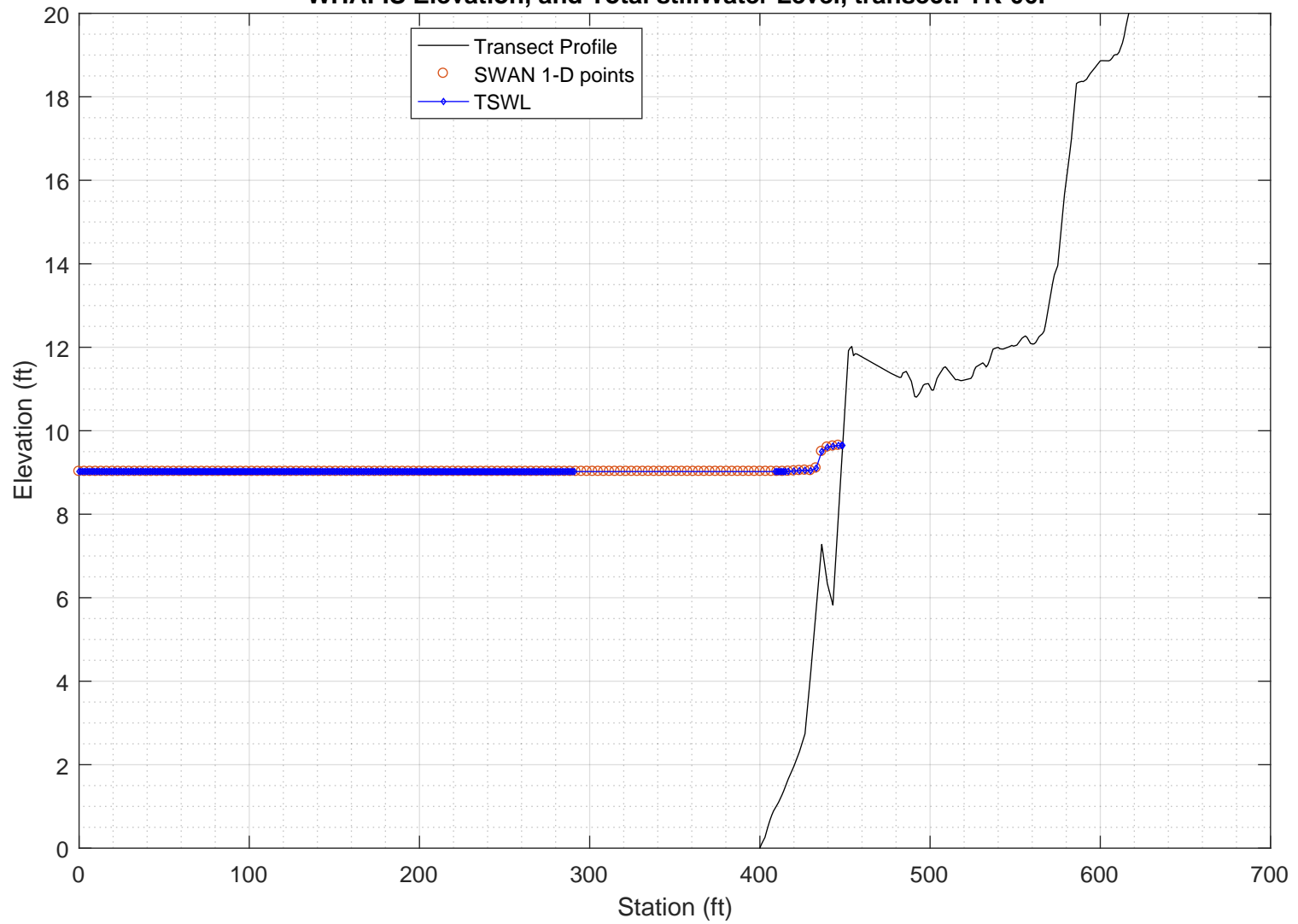
WHAFIS output: YK-06F.out

PART 3 COMPLETE

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**REVISED SEP-05-2019**

**WHAFIS Elevation, and Total stillWater Level, transect: YK-06F**



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

Executed on: Thu Feb 6 16:14:34 2020

Input file: C:\Users\shayward\Desktop\Kittery\T2\3\_whafis\whafis4\YK-06F.dat

Output file: C:\Users\shayward\Desktop\Kittery\T2\3\_whafis\whafis4\YK-06F.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	-16.992	1.000	1.000	9.024	9.370	9.613	56.140	-0.032	0.000
OF	1.000	-17.024	0.000	9.024	0.000	0.000	0.000	0.000	-0.032	0.000
OF	2.000	-17.056	0.000	9.024	0.000	0.000	0.000	0.000	-0.032	0.000
OF	3.000	-17.089	0.000	9.024	0.000	0.000	0.000	0.000	-0.032	0.000
OF	4.000	-17.120	0.000	9.024	0.000	0.000	0.000	0.000	-0.030	0.000
OF	5.000	-17.148	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	6.000	-17.175	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	7.000	-17.203	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	8.000	-17.230	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	9.000	-17.258	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	10.000	-17.285	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	11.000	-17.313	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	12.000	-17.340	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	13.000	-17.368	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	14.000	-17.395	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	15.000	-17.423	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	16.000	-17.450	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	17.000	-17.478	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	18.000	-17.505	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	19.000	-17.533	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	20.000	-17.560	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	21.000	-17.588	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	22.000	-17.615	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	23.000	-17.643	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
OF	24.000	-17.670	0.000	9.024	0.000	0.000	0.000	0.000	0.011	0.000
OF	25.000	-17.621	0.000	9.024	0.000	0.000	0.000	0.000	0.053	0.000
OF	26.000	-17.564	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	27.000	-17.506	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	28.000	-17.449	0.000	9.024	0.000	0.000	0.000	0.000	0.057	0.000
OF	29.000	-17.392	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	30.000	-17.334	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	31.000	-17.277	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	32.000	-17.219	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	33.000	-17.162	0.000	9.024	0.000	0.000	0.000	0.000	0.057	0.000
OF	34.000	-17.105	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	35.000	-17.047	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	36.000	-16.990	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	37.000	-16.932	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	38.000	-16.875	0.000	9.024	0.000	0.000	0.000	0.000	0.057	0.000
OF	39.000	-16.818	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	40.000	-16.760	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	41.000	-16.703	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	42.000	-16.645	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
OF	43.000	-16.588	0.000	9.024	0.000	0.000	0.000	0.000	0.056	0.000
OF	44.000	-16.533	0.000	9.024	0.000	0.000	0.000	0.000	0.054	0.000
OF	45.000	-16.481	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	46.000	-16.430	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	47.000	-16.378	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	48.000	-16.327	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	49.000	-16.275	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	50.000	-16.224	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	51.000	-16.172	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	52.000	-16.121	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	53.000	-16.069	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	54.000	-16.018	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	55.000	-15.966	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	56.000	-15.915	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	57.000	-15.863	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	58.000	-15.812	0.000	9.024	0.000	0.000	0.000	0.000	0.051	0.000
OF	59.000	-15.761	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	60.000	-15.709	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	61.000	-15.658	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	62.000	-15.606	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	63.000	-15.555	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	64.000	-15.503	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	65.000	-15.452	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	66.000	-15.400	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	67.000	-15.349	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	68.000	-15.297	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	69.000	-15.246	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	70.000	-15.194	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	71.000	-15.143	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	72.000	-15.091	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	73.000	-15.040	0.000	9.024	0.000	0.000	0.000	0.000	0.051	0.000
OF	74.000	-14.989	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	75.000	-14.937	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	76.000	-14.886	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	77.000	-14.834	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	78.000	-14.783	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	79.000	-14.731	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	80.000	-14.680	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	81.000	-14.628	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	82.000	-14.577	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	83.000	-14.525	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	84.000	-14.474	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	85.000	-14.422	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	86.000	-14.371	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	87.000	-14.319	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	88.000	-14.268	0.000	9.024	0.000	0.000	0.000	0.000	0.051	0.000
OF	89.000	-14.217	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	90.000	-14.165	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	91.000	-14.114	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	92.000	-14.062	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	93.000	-14.011	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	94.000	-13.959	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	95.000	-13.908	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	96.000	-13.856	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	97.000	-13.805	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	98.000	-13.753	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	99.000	-13.702	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	100.000	-13.650	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000

OF	101.000	-13.599	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	102.000	-13.547	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	103.000	-13.496	0.000	9.024	0.000	0.000	0.000	0.000	0.051	0.000
OF	104.000	-13.445	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	105.000	-13.393	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	106.000	-13.342	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	107.000	-13.290	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
OF	108.000	-13.239	0.000	9.024	0.000	0.000	0.000	0.000	0.062	0.000
OF	109.000	-13.167	0.000	9.024	0.000	0.000	0.000	0.000	0.084	0.000
OF	110.000	-13.071	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	111.000	-12.974	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	112.000	-12.877	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	113.000	-12.780	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	114.000	-12.684	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	115.000	-12.587	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	116.000	-12.490	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	117.000	-12.393	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	118.000	-12.297	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	119.000	-12.200	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	120.000	-12.103	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	121.000	-12.007	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	122.000	-11.910	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	123.000	-11.813	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	124.000	-11.716	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	125.000	-11.620	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	126.000	-11.523	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	127.000	-11.426	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	128.000	-11.329	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	129.000	-11.232	0.000	9.024	0.000	0.000	0.000	0.000	0.097	0.000
OF	130.000	-11.134	0.000	9.024	0.000	0.000	0.000	0.000	0.098	0.000
OF	131.000	-11.035	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	132.000	-10.936	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	133.000	-10.837	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	134.000	-10.738	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	135.000	-10.639	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	136.000	-10.540	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	137.000	-10.441	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	138.000	-10.342	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	139.000	-10.243	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	140.000	-10.144	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	141.000	-10.045	0.000	9.024	0.000	0.000	0.000	0.000	0.098	0.000
OF	142.000	-9.947	0.000	9.024	0.000	0.000	0.000	0.000	0.098	0.000
OF	143.000	-9.848	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	144.000	-9.749	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	145.000	-9.650	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	146.000	-9.551	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	147.000	-9.452	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	148.000	-9.353	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	149.000	-9.254	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	150.000	-9.156	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	151.000	-9.057	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	152.000	-8.958	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	153.000	-8.859	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	154.000	-8.760	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	155.000	-8.661	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	156.000	-8.562	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	157.000	-8.463	0.000	9.024	0.000	0.000	0.000	0.000	0.099	0.000
OF	158.000	-8.364	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	159.000	-8.265	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	160.000	-8.166	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	161.000	-8.067	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	162.000	-7.968	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	163.000	-7.870	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	164.000	-7.771	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	165.000	-7.672	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	166.000	-7.573	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	167.000	-7.474	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	168.000	-7.375	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	169.000	-7.276	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	170.000	-7.177	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	171.000	-7.078	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	172.000	-6.979	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	173.000	-6.880	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	174.000	-6.781	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	175.000	-6.682	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	176.000	-6.583	0.000	9.023	0.000	0.000	0.000	0.000	0.099	0.000
OF	177.000	-6.485	0.000	9.023	0.000	0.000	0.000	0.000	0.073	0.000
OF	178.000	-6.437	0.000	9.023	0.000	0.000	0.000	0.000	0.001	0.000
OF	179.000	-6.483	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	180.000	-6.530	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	181.000	-6.576	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	182.000	-6.623	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	183.000	-6.669	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	184.000	-6.716	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	185.000	-6.763	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	186.000	-6.809	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	187.000	-6.856	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	188.000	-6.902	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	189.000	-6.949	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	190.000	-6.995	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	191.000	-7.042	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	192.000	-7.089	0.000	9.023	0.000	0.000	0.000	0.000	-0.047	0.000
OF	193.000	-7.135	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	194.000	-7.182	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	195.000	-7.228	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	196.000	-7.275	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	197.000	-7.321	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	198.000	-7.368	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	199.000	-7.414	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	200.000	-7.461	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	201.000	-7.508	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	202.000	-7.554	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	203.000	-7.601	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	204.000	-7.647	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	205.000	-7.694	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	206.000	-7.740	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	207.000	-7.787	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	208.000	-7.833	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	209.000	-7.880	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	210.000	-7.926	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000

OF	211.000	-7.973	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	212.000	-8.020	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	213.000	-8.066	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	214.000	-8.113	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	215.000	-8.159	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	216.000	-8.206	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	217.000	-8.252	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	218.000	-8.299	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	219.000	-8.345	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	220.000	-8.392	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	221.000	-8.439	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	222.000	-8.485	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
OF	223.000	-8.532	0.000	9.022	0.000	0.000	0.000	0.000	-0.030	0.000
OF	224.000	-8.545	0.000	9.022	0.000	0.000	0.000	0.000	0.022	0.000
OF	225.000	-8.488	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	226.000	-8.430	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	227.000	-8.372	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	228.000	-8.314	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	229.000	-8.257	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	230.000	-8.199	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	231.000	-8.141	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	232.000	-8.083	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	233.000	-8.025	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	234.000	-7.968	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	235.000	-7.910	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	236.000	-7.852	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	237.000	-7.794	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	238.000	-7.736	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	239.000	-7.678	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	240.000	-7.621	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	241.000	-7.563	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	242.000	-7.505	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	243.000	-7.447	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	244.000	-7.389	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	245.000	-7.332	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	246.000	-7.274	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	247.000	-7.216	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	248.000	-7.158	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	249.000	-7.100	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	250.000	-7.043	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
OF	251.000	-6.985	0.000	9.021	0.000	0.000	0.000	0.000	0.057	0.000
OF	252.000	-6.928	0.000	9.021	0.000	0.000	0.000	0.000	0.051	0.000
OF	253.000	-6.882	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	254.000	-6.836	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	255.000	-6.790	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	256.000	-6.745	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	257.000	-6.699	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	258.000	-6.653	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	259.000	-6.607	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	260.000	-6.561	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	261.000	-6.515	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	262.000	-6.470	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	263.000	-6.424	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	264.000	-6.378	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	265.000	-6.332	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	266.000	-6.286	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	267.000	-6.240	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	268.000	-6.194	0.000	9.020	0.000	0.000	0.000	0.000	0.046	0.000
OF	269.000	-6.149	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	270.000	-6.103	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	271.000	-6.057	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	272.000	-6.011	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	273.000	-5.965	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	274.000	-5.920	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	275.000	-5.874	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	276.000	-5.828	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	277.000	-5.782	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	278.000	-5.736	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	279.000	-5.690	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	280.000	-5.645	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
OF	281.000	-5.599	0.000	9.021	0.000	0.000	0.000	0.000	0.028	0.000
OF	282.000	-5.588	0.000	9.021	0.000	0.000	0.000	0.000	0.005	0.000
OF	283.000	-5.588	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	284.000	-5.587	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	285.000	-5.587	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	286.000	-5.586	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	287.000	-5.586	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	288.000	-5.585	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	289.000	-5.584	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	290.000	-5.584	0.000	9.022	0.000	0.000	0.000	0.000	0.001	0.000
OF	291.000	-5.583	0.000	9.022	0.000	0.000	0.000	0.000	0.055	0.000
IF	409.000	0.960	0.000	9.022	0.000	0.000	0.000	0.000	0.056	0.000
IF	410.000	1.029	0.000	9.022	0.000	0.000	0.000	0.000	0.071	0.000
IF	411.000	1.102	0.000	9.022	0.000	0.000	0.000	0.000	0.080	0.000
IF	412.000	1.189	0.000	9.022	0.000	0.000	0.000	0.000	0.087	0.000
IF	413.000	1.276	0.000	9.022	0.000	0.000	0.000	0.000	0.092	0.000
IF	414.000	1.373	0.000	9.022	0.000	0.000	0.000	0.000	0.102	0.000
IF	415.000	1.480	0.000	9.022	0.000	0.000	0.000	0.000	0.105	0.000
IF	416.700	1.657	0.000	9.027	0.000	0.000	0.000	0.000	0.098	0.000
IF	419.900	1.959	0.000	9.035	0.000	0.000	0.000	0.000	0.101	0.000
IF	423.200	2.310	0.000	9.044	0.000	0.000	0.000	0.000	0.118	0.000
IF	426.500	2.740	0.000	9.052	0.000	0.000	0.000	0.000	0.281	0.000
IF	429.800	4.167	0.000	9.043	0.000	0.000	0.000	0.000	0.452	0.000
IF	433.100	5.722	0.000	9.105	0.000	0.000	0.000	0.000	0.471	0.000
IF	436.400	7.277	0.000	9.502	0.000	0.000	0.000	0.000	0.095	0.000
IF	439.600	6.338	0.000	9.605	0.000	0.000	0.000	0.000	-0.224	0.000
IF	442.900	5.823	0.000	9.630	0.000	0.000	0.000	0.000	0.254	0.000
IF	446.200	8.011	0.000	9.648	0.000	0.000	0.000	0.000	0.665	0.000
IF	448.000	9.215	0.000	9.648	0.000	0.000	0.000	0.000	0.682	0.000
IF	448.600	9.648	0.000	9.648	0.000	0.000	0.000	0.000	0.721	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

	END STATION	END ELEVATION	FETCH LENGTH	SURGE ELEV 10-YEAR	SURGE ELEV 100-YEAR	INITIAL WAVE	INITIAL HEIGHT	INITIAL W. PERIOD	BOTTOM SLOPE	AVERAGE A-ZONES
IE	0.000	-16.992	1.000	1.000	9.024		9.370	9.613	56.140	-0.032 0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	1.000	-17.024	0.000	9.024	0.000		0.000	0.000	0.000	-0.032 0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES

OF	2.000	-17.056	0.000	9.024	0.000	0.000	0.000	0.000	-0.032	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	3.000	-17.089	0.000	9.024	0.000	0.000	0.000	0.000	-0.032	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	4.000	-17.120	0.000	9.024	0.000	0.000	0.000	0.000	-0.030	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	5.000	-17.148	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	6.000	-17.175	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	7.000	-17.203	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	8.000	-17.230	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	9.000	-17.258	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	10.000	-17.285	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	11.000	-17.313	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	12.000	-17.340	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	13.000	-17.368	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	14.000	-17.395	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	15.000	-17.423	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	16.000	-17.450	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	17.000	-17.478	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	18.000	-17.505	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	19.000	-17.533	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	20.000	-17.560	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	21.000	-17.588	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	22.000	-17.615	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	23.000	-17.643	0.000	9.024	0.000	0.000	0.000	0.000	-0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	24.000	-17.670	0.000	9.024	0.000	0.000	0.000	0.000	0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	25.000	-17.621	0.000	9.024	0.000	0.000	0.000	0.000	0.053	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	26.000	-17.564	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	27.000	-17.506	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	28.000	-17.449	0.000	9.024	0.000	0.000	0.000	0.000	0.057	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	29.000	-17.392	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	30.000	-17.334	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	31.000	-17.277	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	32.000	-17.219	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	33.000	-17.162	0.000	9.024	0.000	0.000	0.000	0.000	0.057	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	34.000	-17.105	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	35.000	-17.047	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	36.000	-16.990	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	37.000	-16.932	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	38.000	-16.875	0.000	9.024	0.000	0.000	0.000	0.000	0.057	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE



	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	39.000	-16.818	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	40.000	-16.760	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	41.000	-16.703	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	42.000	-16.645	0.000	9.024	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	43.000	-16.588	0.000	9.024	0.000	0.000	0.000	0.000	0.056	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	44.000	-16.533	0.000	9.024	0.000	0.000	0.000	0.000	0.054	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	45.000	-16.481	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	46.000	-16.430	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	47.000	-16.378	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	48.000	-16.327	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	49.000	-16.275	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	50.000	-16.224	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	51.000	-16.172	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	52.000	-16.121	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	53.000	-16.069	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	54.000	-16.018	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	55.000	-15.966	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	56.000	-15.915	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	57.000	-15.863	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	58.000	-15.812	0.000	9.024	0.000	0.000	0.000	0.000	0.051	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	59.000	-15.761	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	60.000	-15.709	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	61.000	-15.658	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	62.000	-15.606	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	63.000	-15.555	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	64.000	-15.503	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	65.000	-15.452	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	66.000	-15.400	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	67.000	-15.349	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	68.000	-15.297	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	69.000	-15.246	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	70.000	-15.194	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	71.000	-15.143	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	72.000	-15.091	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	73.000	-15.040	0.000	9.024	0.000	0.000	0.000	0.000	0.051	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	74.000	-14.989	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	75.000	-14.937	0.000	9.024	0.000	0.000	0.000	0.000	0.052	0.000

	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	76.000	-14.886	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	77.000	-14.834	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	78.000	-14.783	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	79.000	-14.731	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	80.000	-14.680	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	81.000	-14.628	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	82.000	-14.577	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	83.000	-14.525	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	84.000	-14.474	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	85.000	-14.422	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	86.000	-14.371	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	87.000	-14.319	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	88.000	-14.268	0.000	9.024	0.000	0.000	0.000	0.000		0.051	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	89.000	-14.217	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	90.000	-14.165	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	91.000	-14.114	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	92.000	-14.062	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	93.000	-14.011	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	94.000	-13.959	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	95.000	-13.908	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	96.000	-13.856	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	97.000	-13.805	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	98.000	-13.753	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	99.000	-13.702	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	100.000	-13.650	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	101.000	-13.599	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	102.000	-13.547	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	103.000	-13.496	0.000	9.024	0.000	0.000	0.000	0.000		0.051	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	104.000	-13.445	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	105.000	-13.393	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	106.000	-13.342	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	107.000	-13.290	0.000	9.024	0.000	0.000	0.000	0.000		0.052	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	108.000	-13.239	0.000	9.024	0.000	0.000	0.000	0.000		0.062	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	109.000	-13.167	0.000	9.024	0.000	0.000	0.000	0.000		0.084	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	110.000	-13.071	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	111.000	-12.974	0.000	9.024	0.000	0.000	0.000	0.000		0.097	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES

[illegible]

[illegible]

[illegible]

OF	222.000	-8.485	0.000	9.022	0.000	0.000	0.000	0.000	-0.047	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	223.000	-8.532	0.000	9.022	0.000	0.000	0.000	0.000	-0.030	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	224.000	-8.545	0.000	9.022	0.000	0.000	0.000	0.000	0.022	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	225.000	-8.488	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	226.000	-8.430	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	227.000	-8.372	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	228.000	-8.314	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	229.000	-8.257	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	230.000	-8.199	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	231.000	-8.141	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	232.000	-8.083	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	233.000	-8.025	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	234.000	-7.968	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	235.000	-7.910	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	236.000	-7.852	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	237.000	-7.794	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	238.000	-7.736	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	239.000	-7.678	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	240.000	-7.621	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	241.000	-7.563	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	242.000	-7.505	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	243.000	-7.447	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	244.000	-7.389	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	245.000	-7.332	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	246.000	-7.274	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	247.000	-7.216	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	248.000	-7.158	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	249.000	-7.100	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	250.000	-7.043	0.000	9.021	0.000	0.000	0.000	0.000	0.058	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	251.000	-6.985	0.000	9.021	0.000	0.000	0.000	0.000	0.057	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	252.000	-6.928	0.000	9.021	0.000	0.000	0.000	0.000	0.051	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	253.000	-6.882	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	254.000	-6.836	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	255.000	-6.790	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	256.000	-6.745	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	257.000	-6.699	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	258.000	-6.653	0.000	9.021	0.000	0.000	0.000	0.000	0.046	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE

	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	259.000	-6.607	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	260.000	-6.561	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	261.000	-6.515	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	262.000	-6.470	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	263.000	-6.424	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	264.000	-6.378	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	265.000	-6.332	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	266.000	-6.286	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	267.000	-6.240	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	268.000	-6.194	0.000	9.020	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	269.000	-6.149	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	270.000	-6.103	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	271.000	-6.057	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	272.000	-6.011	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	273.000	-5.965	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	274.000	-5.920	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	275.000	-5.874	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	276.000	-5.828	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	277.000	-5.782	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	278.000	-5.736	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	279.000	-5.690	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	280.000	-5.645	0.000	9.021	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	281.000	-5.599	0.000	9.021	0.000	0.000	0.000	0.000		0.028	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	282.000	-5.588	0.000	9.021	0.000	0.000	0.000	0.000		0.005	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	283.000	-5.588	0.000	9.022	0.000	0.000	0.000	0.000		0.001	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	284.000	-5.587	0.000	9.022	0.000	0.000	0.000	0.000		0.001	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	285.000	-5.587	0.000	9.022	0.000	0.000	0.000	0.000		0.001	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	286.000	-5.586	0.000	9.022	0.000	0.000	0.000	0.000		0.001	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	287.000	-5.586	0.000	9.022	0.000	0.000	0.000	0.000		0.001	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	288.000	-5.585	0.000	9.022	0.000	0.000	0.000	0.000		0.001	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	289.000	-5.584	0.000	9.022	0.000	0.000	0.000	0.000		0.001	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	290.000	-5.584	0.000	9.022	0.000	0.000	0.000	0.000		0.001	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
OF	291.000	-5.583	0.000	9.022	0.000	0.000	0.000	0.000		0.055	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
IF	409.000	0.960	0.000	9.022	0.000	0.000	0.000	0.000		0.056	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
IF	410.000	1.029	0.000	9.022	0.000	0.000	0.000	0.000		0.071	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
IF	411.000	1.102	0.000	9.022	0.000	0.000	0.000	0.000		0.080	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
IF	412.000	1.189	0.000	9.022	0.000	0.000	0.000	0.000		0.087	0.000

	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	413.000	1.276	0.000	9.022	0.000	0.000	0.000	0.000	0.092	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	414.000	1.373	0.000	9.022	0.000	0.000	0.000	0.000	0.102	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	415.000	1.480	0.000	9.022	0.000	0.000	0.000	0.000	0.105	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	416.700	1.657	0.000	9.027	0.000	0.000	0.000	0.000	0.098	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	419.900	1.959	0.000	9.035	0.000	0.000	0.000	0.000	0.101	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	423.200	2.310	0.000	9.044	0.000	0.000	0.000	0.000	0.118	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	426.500	2.740	0.000	9.052	0.000	0.000	0.000	0.000	0.281	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	429.800	4.167	0.000	9.043	0.000	0.000	0.000	0.000	0.452	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	433.100	5.722	0.000	9.105	0.000	0.000	0.000	0.000	0.471	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	436.400	7.277	0.000	9.502	0.000	0.000	0.000	0.000	0.095	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	439.600	6.338	0.000	9.605	0.000	0.000	0.000	0.000	-0.224	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	442.900	5.823	0.000	9.630	0.000	0.000	0.000	0.000	0.254	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	446.200	8.011	0.000	9.648	0.000	0.000	0.000	0.000	0.665	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	448.000	9.215	0.000	9.648	0.000	0.000	0.000	0.000	0.682	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	448.600	9.648	0.000	9.648	0.000	0.000	0.000	0.000	0.721	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	9.37	15.58
OF	1.00	9.37	15.58
OF	2.00	9.36	15.58
OF	3.00	9.36	15.58
OF	4.00	9.36	15.58
OF	5.00	9.36	15.57
OF	6.00	9.35	15.57
OF	7.00	9.35	15.57
OF	8.00	9.35	15.57
OF	9.00	9.35	15.57
OF	10.00	9.34	15.57
OF	11.00	9.34	15.56
OF	12.00	9.34	15.56
OF	13.00	9.34	15.56
OF	14.00	9.34	15.56
OF	15.00	9.33	15.56
OF	16.00	9.33	15.56
OF	17.00	9.33	15.55
OF	18.00	9.33	15.55
OF	19.00	9.32	15.55
OF	20.00	9.32	15.55
OF	21.00	9.32	15.55
OF	22.00	9.32	15.55
OF	23.00	9.31	15.54
OF	24.00	9.31	15.54
OF	25.00	9.32	15.55
OF	26.00	9.32	15.55
OF	27.00	9.33	15.55
OF	28.00	9.33	15.56
OF	29.00	9.34	15.56
OF	30.00	9.34	15.56
OF	31.00	9.35	15.57
OF	32.00	9.35	15.57
OF	33.00	9.36	15.57
OF	34.00	9.36	15.58
OF	35.00	9.37	15.58
OF	36.00	9.37	15.59
OF	37.00	9.38	15.59
OF	38.00	9.39	15.59
OF	39.00	9.39	15.60
OF	40.00	9.40	15.60
OF	41.00	9.40	15.60
OF	42.00	9.41	15.61
OF	43.00	9.41	15.61
OF	44.00	9.42	15.62
OF	45.00	9.42	15.62
OF	46.00	9.43	15.62
OF	47.00	9.43	15.63
OF	48.00	9.44	15.63
OF	49.00	9.44	15.63
OF	50.00	9.45	15.64
OF	51.00	9.45	15.64
OF	52.00	9.46	15.64
OF	53.00	9.46	15.65
OF	54.00	9.47	15.65
OF	55.00	9.47	15.66
OF	56.00	9.48	15.66



OF	57.00	9.48	9.61	15.66
OF	58.00	9.49	9.61	15.67
OF	59.00	9.49	9.61	15.67
OF	60.00	9.50	9.61	15.67
OF	61.00	9.51	9.61	15.68
OF	62.00	9.51	9.61	15.68
OF	63.00	9.52	9.61	15.68
OF	64.00	9.52	9.61	15.69
OF	65.00	9.53	9.61	15.69
OF	66.00	9.53	9.61	15.70
OF	67.00	9.54	9.61	15.70
OF	68.00	9.54	9.61	15.70
OF	69.00	9.55	9.61	15.71
OF	70.00	9.55	9.61	15.71
OF	71.00	9.56	9.61	15.72
OF	72.00	9.56	9.61	15.72
OF	73.00	9.57	9.61	15.72
OF	74.00	9.58	9.61	15.73
OF	75.00	9.58	9.61	15.73
OF	76.00	9.59	9.61	15.73
OF	77.00	9.59	9.61	15.74
OF	78.00	9.60	9.61	15.74
OF	79.00	9.60	9.61	15.75
OF	80.00	9.61	9.61	15.75
OF	81.00	9.62	9.61	15.75
OF	82.00	9.62	9.61	15.76
OF	83.00	9.63	9.61	15.76
OF	84.00	9.63	9.61	15.77
OF	85.00	9.64	9.61	15.77
OF	86.00	9.64	9.61	15.77
OF	87.00	9.65	9.61	15.78
OF	88.00	9.66	9.61	15.78
OF	89.00	9.66	9.61	15.79
OF	90.00	9.67	9.61	15.79
OF	91.00	9.67	9.61	15.80
OF	92.00	9.68	9.61	15.80
OF	93.00	9.68	9.61	15.80
OF	94.00	9.69	9.61	15.81
OF	95.00	9.70	9.61	15.81
OF	96.00	9.70	9.61	15.82
OF	97.00	9.71	9.61	15.82
OF	98.00	9.72	9.61	15.82
OF	99.00	9.72	9.61	15.83
OF	100.00	9.73	9.61	15.83
OF	101.00	9.73	9.61	15.84
OF	102.00	9.74	9.61	15.84
OF	103.00	9.75	9.61	15.85
OF	104.00	9.75	9.61	15.85
OF	105.00	9.76	9.61	15.85
OF	106.00	9.76	9.61	15.86
OF	107.00	9.77	9.61	15.86
OF	108.00	9.78	9.61	15.87
OF	109.00	9.79	9.61	15.87
OF	110.00	9.80	9.61	15.88
OF	111.00	9.81	9.61	15.89
OF	112.00	9.82	9.61	15.90
OF	113.00	9.83	9.61	15.91
OF	114.00	9.85	9.61	15.92
OF	115.00	9.86	9.61	15.93
OF	116.00	9.87	9.61	15.93
OF	117.00	9.88	9.61	15.94
OF	118.00	9.90	9.61	15.95
OF	119.00	9.91	9.61	15.96
OF	120.00	9.92	9.61	15.97
OF	121.00	9.94	9.61	15.98
OF	122.00	9.95	9.61	15.99
OF	123.00	9.96	9.61	16.00
OF	124.00	9.98	9.61	16.01
OF	125.00	9.99	9.61	16.02
OF	126.00	10.00	9.61	16.03
OF	127.00	10.02	9.61	16.04
OF	128.00	10.03	9.61	16.04
OF	129.00	10.04	9.61	16.05
OF	130.00	10.06	9.61	16.06
OF	131.00	10.07	9.61	16.07
OF	132.00	10.09	9.61	16.08
OF	133.00	10.10	9.61	16.09
OF	134.00	10.12	9.61	16.11
OF	135.00	10.13	9.61	16.12
OF	136.00	10.15	9.61	16.13
OF	137.00	10.16	9.61	16.14
OF	138.00	10.18	9.61	16.15
OF	139.00	10.19	9.61	16.16
OF	140.00	10.21	9.61	16.17
OF	141.00	10.22	9.61	16.18
OF	142.00	10.24	9.61	16.19
OF	143.00	10.26	9.61	16.20
OF	144.00	10.27	9.61	16.21
OF	145.00	10.29	9.61	16.23
OF	146.00	10.30	9.61	16.24
OF	147.00	10.32	9.61	16.25
OF	148.00	10.34	9.61	16.26
OF	149.00	10.35	9.61	16.27
OF	150.00	10.37	9.61	16.28
OF	151.00	10.39	9.61	16.30
OF	152.00	10.41	9.61	16.31
OF	153.00	10.42	9.61	16.32
OF	154.00	10.44	9.61	16.33
OF	155.00	10.46	9.61	16.35
OF	156.00	10.48	9.61	16.36
OF	157.00	10.47	9.61	16.35
OF	158.00	10.45	9.61	16.34
OF	159.00	10.44	9.61	16.33
OF	160.00	10.43	9.61	16.32
OF	161.00	10.42	9.61	16.32
OF	162.00	10.41	9.61	16.31
OF	163.00	10.40	9.61	16.30
OF	164.00	10.38	9.61	16.29
OF	165.00	10.37	9.61	16.28
OF	166.00	10.36	9.61	16.27

OF	167.00	10.35	9.61	16.27
OF	168.00	10.33	9.61	16.26
OF	169.00	10.32	9.61	16.25
OF	170.00	10.31	9.61	16.24
OF	171.00	10.29	9.61	16.23
OF	172.00	10.28	9.61	16.22
OF	173.00	10.27	9.61	16.21
OF	174.00	10.25	9.61	16.20
OF	175.00	10.24	9.61	16.19
OF	176.00	10.23	9.61	16.18
OF	177.00	10.21	9.61	16.17
OF	178.00	10.21	9.61	16.17
OF	179.00	10.22	9.61	16.17
OF	180.00	10.23	9.61	16.18
OF	181.00	10.24	9.61	16.19
OF	182.00	10.25	9.61	16.19
OF	183.00	10.26	9.61	16.20
OF	184.00	10.26	9.61	16.21
OF	185.00	10.27	9.61	16.22
OF	186.00	10.28	9.61	16.22
OF	187.00	10.29	9.61	16.23
OF	188.00	10.30	9.61	16.24
OF	189.00	10.31	9.61	16.24
OF	190.00	10.32	9.61	16.25
OF	191.00	10.33	9.61	16.25
OF	192.00	10.34	9.61	16.26
OF	193.00	10.35	9.61	16.27
OF	194.00	10.36	9.61	16.27
OF	195.00	10.37	9.61	16.28
OF	196.00	10.38	9.61	16.29
OF	197.00	10.39	9.61	16.29
OF	198.00	10.40	9.61	16.30
OF	199.00	10.41	9.61	16.31
OF	200.00	10.41	9.61	16.31
OF	201.00	10.42	9.61	16.32
OF	202.00	10.43	9.61	16.32
OF	203.00	10.44	9.61	16.33
OF	204.00	10.45	9.61	16.34
OF	205.00	10.46	9.61	16.34
OF	206.00	10.47	9.61	16.35
OF	207.00	10.48	9.61	16.36
OF	208.00	10.49	9.61	16.36
OF	209.00	10.50	9.61	16.37
OF	210.00	10.50	9.61	16.38
OF	211.00	10.51	9.61	16.38
OF	212.00	10.52	9.61	16.39
OF	213.00	10.53	9.61	16.39
OF	214.00	10.54	9.61	16.40
OF	215.00	10.55	9.61	16.41
OF	216.00	10.56	9.61	16.41
OF	217.00	10.57	9.61	16.42
OF	218.00	10.58	9.61	16.42
OF	219.00	10.58	9.61	16.43
OF	220.00	10.59	9.61	16.44
OF	221.00	10.60	9.61	16.44
OF	222.00	10.61	9.61	16.45
OF	223.00	10.62	9.61	16.45
OF	224.00	10.62	9.61	16.46
OF	225.00	10.62	9.61	16.45
OF	226.00	10.61	9.61	16.45
OF	227.00	10.60	9.61	16.44
OF	228.00	10.60	9.61	16.44
OF	229.00	10.59	9.61	16.44
OF	230.00	10.59	9.61	16.43
OF	231.00	10.58	9.61	16.43
OF	232.00	10.57	9.61	16.42
OF	233.00	10.57	9.61	16.42
OF	234.00	10.56	9.61	16.41
OF	235.00	10.55	9.61	16.41
OF	236.00	10.55	9.61	16.40
OF	237.00	10.54	9.61	16.40
OF	238.00	10.54	9.61	16.40
OF	239.00	10.53	9.61	16.39
OF	240.00	10.52	9.61	16.39
OF	241.00	10.52	9.61	16.38
OF	242.00	10.51	9.61	16.38
OF	243.00	10.50	9.61	16.37
OF	244.00	10.49	9.61	16.37
OF	245.00	10.49	9.61	16.36
OF	246.00	10.48	9.61	16.36
OF	247.00	10.47	9.61	16.35
OF	248.00	10.47	9.61	16.35
OF	249.00	10.46	9.61	16.34
OF	250.00	10.45	9.61	16.34
OF	251.00	10.45	9.61	16.33
OF	252.00	10.44	9.61	16.33
OF	253.00	10.43	9.61	16.32
OF	254.00	10.43	9.61	16.32
OF	255.00	10.42	9.61	16.32
OF	256.00	10.42	9.61	16.31
OF	257.00	10.41	9.61	16.31
OF	258.00	10.41	9.61	16.31
OF	259.00	10.40	9.61	16.30
OF	260.00	10.39	9.61	16.30
OF	261.00	10.39	9.61	16.29
OF	262.00	10.38	9.61	16.29
OF	263.00	10.38	9.61	16.29
OF	264.00	10.37	9.61	16.28
OF	265.00	10.37	9.61	16.28
OF	266.00	10.36	9.61	16.27
OF	267.00	10.35	9.61	16.27
OF	268.00	10.35	9.61	16.26
OF	269.00	10.34	9.61	16.26
OF	270.00	10.34	9.61	16.26
OF	271.00	10.33	9.61	16.25
OF	272.00	10.32	9.61	16.25
OF	273.00	10.32	9.61	16.24
OF	274.00	10.31	9.61	16.24
OF	275.00	10.31	9.61	16.24
OF	276.00	10.30	9.61	16.23

OF	277.00	10.29	9.61	16.23
OF	278.00	10.29	9.61	16.22
OF	279.00	10.28	9.61	16.22
OF	280.00	10.27	9.61	16.21
OF	281.00	10.27	9.61	16.21
OF	282.00	10.27	9.61	16.21
OF	283.00	10.27	9.61	16.21
OF	284.00	10.27	9.61	16.21
OF	285.00	10.27	9.61	16.21
OF	286.00	10.28	9.61	16.22
OF	287.00	10.28	9.61	16.22
OF	288.00	10.28	9.61	16.22
OF	289.00	10.28	9.61	16.22
OF	290.00	10.29	9.61	16.22
OF	291.00	10.29	9.61	16.22
	391.30	6.85	9.61	13.82
IF	409.00	6.12	9.61	13.31
IF	410.00	6.07	9.61	13.27
IF	411.00	6.02	9.61	13.24
IF	412.00	5.95	9.61	13.19
IF	413.00	5.89	9.61	13.14
IF	414.00	5.82	9.61	13.09
IF	415.00	5.74	9.61	13.04
IF	416.70	5.61	9.61	12.95
IF	419.90	5.39	9.61	12.81
IF	423.20	5.14	9.61	12.64
IF	426.50	4.82	9.61	12.43
IF	429.80	3.74	9.61	11.66
IF	433.10	2.61	9.61	10.93
IF	436.40	1.72	9.61	10.71
IF	439.60	1.90	9.61	10.94
IF	442.90	1.95	9.61	11.00
IF	446.20	1.27	9.61	10.54
IF	448.00	0.34	9.61	9.88
IF	448.60	0.01	9.61	9.65

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
158.00	1.00	9.02
193.00	1.00	9.02
225.00	1.00	9.02
268.00	1.00	9.02
269.00	1.00	9.02
283.00	1.00	9.02
416.70	1.00	9.03
419.90	1.00	9.03
423.20	1.00	9.04
426.50	1.00	9.05
429.80	1.00	9.04
433.10	1.00	9.10
436.40	1.00	9.50
439.60	1.00	9.60
442.90	1.00	9.63
446.20	1.00	9.65

PART5 LOCATION OF V ZONES

STATION OF GUTTER	LOCATION OF ZONE
431.96	WINDWARD

PART6 NUMBERED A ZONES AND V ZONES

STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	15.58		
157.00	16.35	V22 EL=16	120
158.00	16.34	V22 EL=16	120
192.00	16.26	V22 EL=16	120
193.00	16.27	V22 EL=16	120
224.00	16.46	V22 EL=16	120
225.00	16.45	V22 EL=16	120
267.00	16.27	V22 EL=16	120
268.00	16.26	V22 EL=16	120
269.00	16.26	V22 EL=16	120
282.00	16.21	V22 EL=16	120
283.00	16.21	V22 EL=16	120
321.12	15.50	V22 EL=15	120
362.77	14.50	V22 EL=14	120
402.31	13.50	V22 EL=13	120
415.00	13.04	V22 EL=13	120
416.70	12.95	V22 EL=13	120
419.90	12.81	V22 EL=13	120
423.20	12.64	V22 EL=13	120
425.37	12.50	V22 EL=12	120
426.50	12.43	V22 EL=12	120
429.80	11.66	V23 EL=12	130
430.53	11.50	V23 EL=11	130
431.96	11.17	A20 EL=11	100
433.10	10.93	A20 EL=11	100

436.40	10.71			
439.60	10.94	A20	EL=11	100
442.90	11.00	A20	EL=11	100
446.20	10.54	A20	EL=11	100
446.30	10.50	A20	EL=11	100
448.60	9.65	A20	EL=10	100

ZONE TERMINATED AT END OF TRANSECT  
PART 7 POSTSCRIPT NOTES

PS# 1 START(361192.0982,4771277.7202)  
PS# 2 END(361217.8661,4771469.8232)

-1.000000e+00

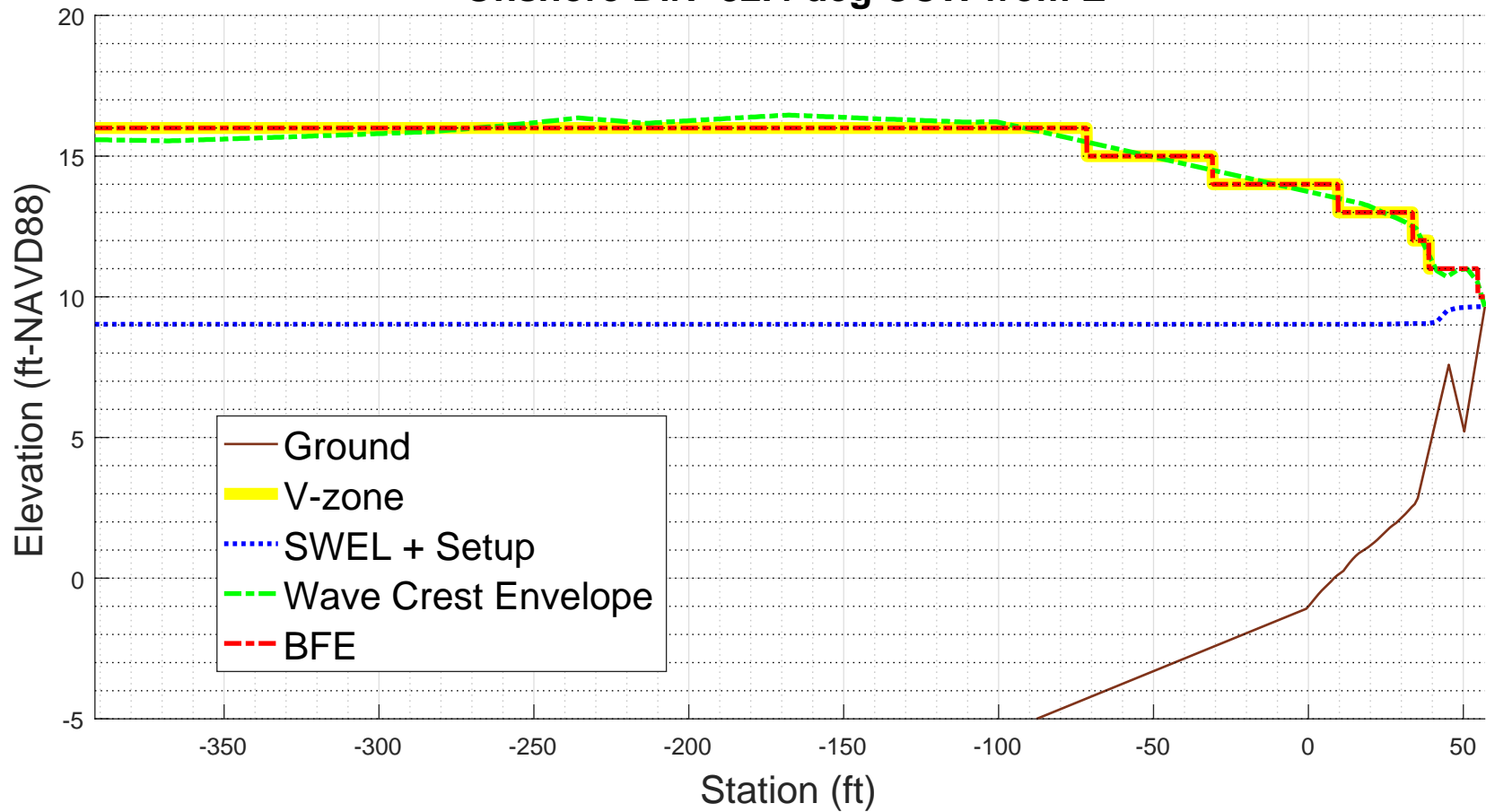
**REVISED SEP-05-2019**

**YK-06F**

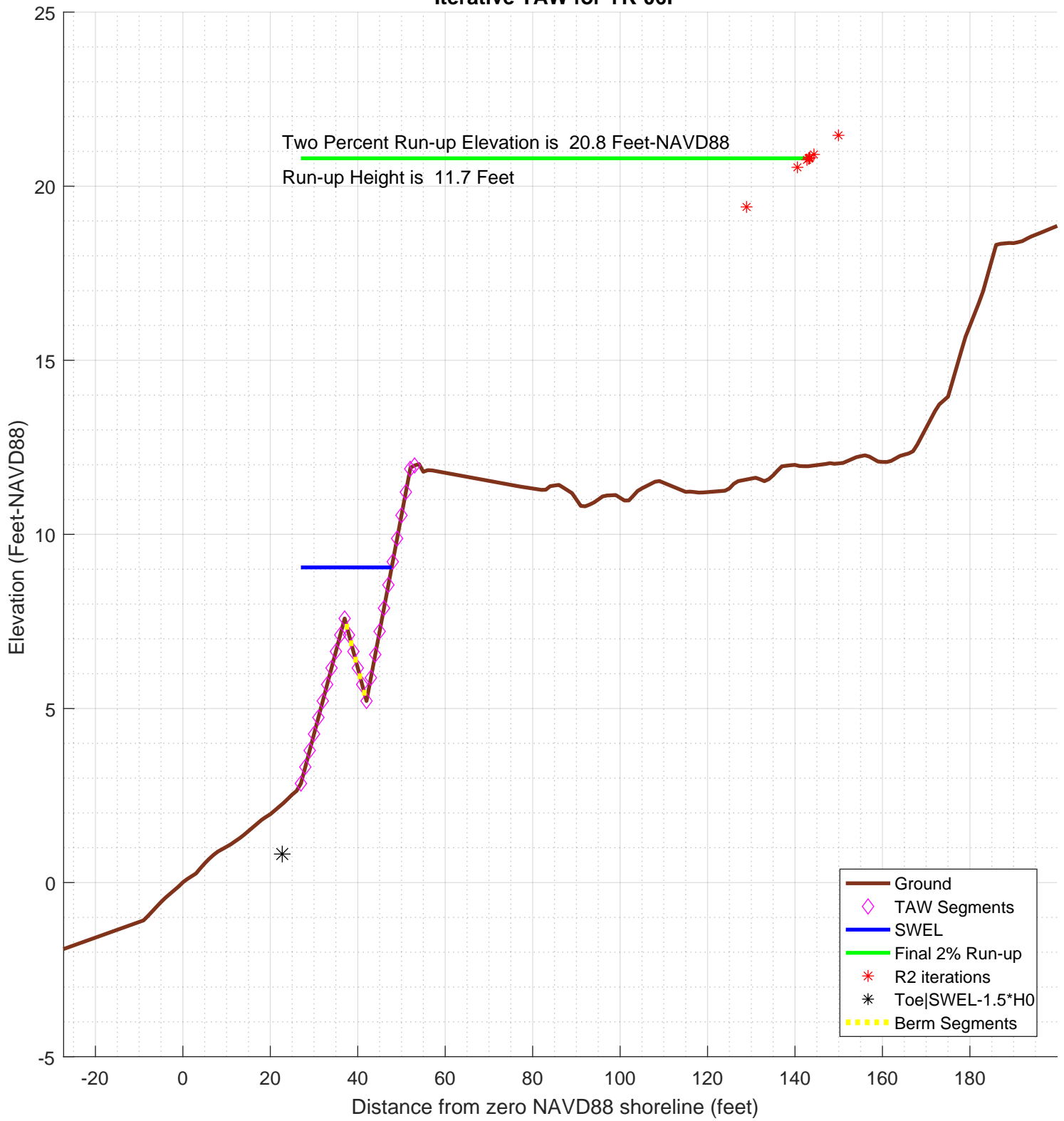
**100-year WHAFIS Output**

**Zero Station: -70.70506313, 43.08258006**

**Onshore Dir: 82.4 deg CCW from E**



### Iterative TAW for YK-06F



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diary on          % begin recording

% FEMA appeal for The Town of Harpswell, Cumberland county, Maine
% TRANSECT ID: YK-06F
% calculation by SJH, Ransom Consulting, Inc. 06-Feb-2020
% 100-year wave runup using TAW methodology
% including berm and weighted average with foreshore if necessary
%
% chk nld 20181015
%
% 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/YK-06Fsta_ele_include.csv'; % file with station, elevation, include
% third column is 0 for excluded points
imgname='logfiles/YK-06F-runup';
SWEL=9.0235; % 100-yr still water level including wave setup.
H0=5.4882; % significant wave height at toe of structure
Tp=9.7138; % peak period, 1/fma,
T0=Tp/1.1;

gamma_berm=0.96835; % this may get changed automatically below
gamma_rough=0.85;
gamma_beta=1;
gamma_perm=1;

setupAtToe=0.02834;
maxSetup=0.62428; % only used in case of berm/shallow foreshore weighted average

plotTitle='Iterative TAW for YK-06F'

plotTitle =

Iterative TAW for YK-06F

% END CONFIG
%-----

SWEL=SWEL+setupAtToe

SWEL =

          9.05184

SWEL_fore=SWEL+maxSetup

SWEL_fore =

          9.67612

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

L0 =

          399.019438762892

% 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 =

```

0.81954

```
% 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 =
```

17.28414

```
% determine station at the max runup and -1.5*H0 (i.e. the toe)
top_sta=-999;
toe_sta=-999;
for kk=1:length(sta)-1
    if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1))) % here is the intersection of z2 with profile
        top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
    end
    if ((Ztoe > dep(kk)) & (Ztoe <= dep(kk+1))) % here is the intersection of Ztoe with profile
        toe_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Ztoe)
    end
end
% check to make sure we got them, if not extend the end slopes outward
S=diff(dep)./diff(sta);
if toe_sta== -999
    dy=dep(1)-Ztoe;
    toe_sta=sta(1)-dy/S(1)
end
```

```
toe_sta =
```

22.726185201595

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

```
top_sta =
```

107.239672801636

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

```
top_sta =
```

107.239672801636

```
toe_sta
```

```
toe_sta =
```

22.726185201595

```
% 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',de
    sprintf('-!!- This may be reasonable for some cases. However the user may want to consider:\n')
    sprintf('-!!- 1) Selecting a starting point that is at or below %4.2f feet elevation, or\n', Ztoe)
    sprintf('-!!- 2) Reducing the incident wave height to a depth limited condition.\n')
```



```

end

ans =

-!!- The User has selected a starting point that is 2.03 feet above the elevation of SWEL-1.5H0

ans =

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

ans =

-!!- 1) Selecting a starting point that is at or below 0.82 feet elevation, or

ans =

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

% now iterate converge on a runup elevation
tol=0.001; % convergence criteria
R2del=999;
R2_new=3*H0; %initial guess
R2=R2_new;
iter=0;
R2_all=[];
topStaAll=[];
Berm_Segs=[];
TAW_ALWAYS_VALID=1;
while(abs(R2del) > tol && iter <= 25)
    iter=iter+1;
    sprintf('!----- STARTING ITERATION %d -----!',iter)
    % elevation of toe of slope
    Ztoe
    % station of toe slope (relative to 0-NAVD88 shoreline)
    toe_sta
    % station of top of slope/extent of 2% run-up
    top_sta
    % elevation of top of slope/extent of 2% run-up
    Z2
    % incident significant wave height
    H0
    % incident spectral peak wave period
    Tp
    % incident spectral mean wave period
    T0

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

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

    % loop over profile segments to determine berm factor
    % re-calculate influence of depth of berm based on this run-up elevation
    % check for berm, berm width, berm height
    berm_width=0;
    rdh_sum=0;
    Berm_Segs=[];
    Berm_Heights=[];
    for kk=1:length(sta)-1
        ddep=dep(kk+1)-dep(kk);
        dsta=sta(kk+1)-sta(kk);
        s=ddep/dsta;
        if (s < 1/15) % count it as a berm if slope is flatter than 1:15 (see TAW manual)
            sprintf('Berm Factor Calculation: Iteration %d, Profile Segment: %d',iter,kk)
            berm_width=berm_width+dsta; % tally the width of all berm segments
            % compute the rdh for this segment and weight it by the segment length
            dh=SWEL-(dep(kk)+dep(kk+1))/2
            if dh < 0
                chi=R2;
            else
                chi=2* H0;
            end
            if (dh <= R2 & dh >=-2*H0)

```

```

        rdh=(0.5-0.5*cos(3.14159*dh/chi)) ;
    else
        rdh=1;
    end
    rdh_sum=rdh_sum + rdh * dsta
    Berm_Segs=[Berm_Segs, kk];
    Berm_Heights=[Berm_Heights, (dep(kk)+dep(kk+1))/2];
end
if dep(kk) >= Z2 % jump out of loop if we reached limit of run-up for this iteration
    break
end
end
sprintf('!----- End Berm Factor Calculation, Iter: %d -----!', iter)
berm_width
rB=berm_width/Lslope
if (berm_width > 0)
    rdh_mean=rdh_sum/berm_width
else
    rdh_mean=1
end
gamma_berm=1- rB * (1-rdh_mean)
if gamma_berm > 1
    gamma_berm=1
end
if gamma_berm < 0.6
    gamma_berm =0.6
end
% Iribarren number
slope=(Z2-Ztoe)/(Lslope-berm_width)
Irb=(slope/(sqrt(H0/L0)))
% runup height
gamma_berm
gamma_perm
gamma_beta
gamma_rough
gamma=gamma_berm*gamma_perm*gamma_beta*gamma_rough

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

```

```

        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 =

        0.81954

toe_sta =

        22.726185201595

top_sta =

        107.239672801636

Z2 =

        17.28414

H0 =

        5.4882

Tp =

        9.7138

T0 =

        8.83072727272727

R2 =

        16.4646

Z2 =

        25.51644

top_sta =

        191.414519427404

Lslope =

        168.688334225809

ans =

Berm Factor Calculation: Iteration 1, Profile Segment: 11

dh =

        1.70393

rdh_sum =

```

0.0582905121957862

ans =

Berm Factor Calculation: Iteration 1, Profile Segment: 12

dh =

2.17791

rdh\_sum =

0.152325771265479

ans =

Berm Factor Calculation: Iteration 1, Profile Segment: 13

dh =

2.65189

rdh\_sum =

0.289565477260354

ans =

Berm Factor Calculation: Iteration 1, Profile Segment: 14

dh =

3.12587

rdh\_sum =

0.476675438096609

ans =

Berm Factor Calculation: Iteration 1, Profile Segment: 15

dh =

3.59985

rdh\_sum =

0.719405083726818

ans =

!----- End Berm Factor Calculation, Iter: 1 -----!

berm\_width =

5

rB =

0.0296404610487583

rdh\_mean =

0.143881016745364

gamma\_berm =

0.974624238623738

slope =

0.150877581574815

Irb =

```

1.28649107041569

gamma_berm =
    0.974624238623738

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.85

gamma =
    0.828430602830178

ans =
!!! - - Iribaren number: 1.25 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:6.6 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    10.3529974157404

R2del =
    6.11160258425958

Z2 =
    19.4048374157404

ans =
!----- STARTING ITERATION 2 -----!

Ztoe =
    0.81954

toe_sta =
    22.726185201595

top_sta =
    128.923695457469

Z2 =
    19.4048374157404

H0 =
    5.4882

Tp =
    9.7138

T0 =
    8.83072727272727

R2 =

```

10.3529974157404

Z2 =

19.4048374157404

top\_sta =

128.923695457469

Lslope =

106.197510255874

ans =

Berm Factor Calculation: Iteration 2, Profile Segment: 11

dh =

1.70393

rdh\_sum =

0.0582905121957862

ans =

Berm Factor Calculation: Iteration 2, Profile Segment: 12

dh =

2.17791

rdh\_sum =

0.152325771265479

ans =

Berm Factor Calculation: Iteration 2, Profile Segment: 13

dh =

2.65189

rdh\_sum =

0.289565477260354

ans =

Berm Factor Calculation: Iteration 2, Profile Segment: 14

dh =

3.12587

rdh\_sum =

0.476675438096609

ans =

Berm Factor Calculation: Iteration 2, Profile Segment: 15

dh =

3.59985

rdh\_sum =

0.719405083726818

ans =

!----- End Berm Factor Calculation, Iter: 2 -----!

berm\_width =

5

rB =

0.0470820830728792

rdh\_mean =

0.143881016745364

gamma\_berm =

0.959692134910136

slope =

0.183653702237814

Irb =

1.56596391267428

gamma\_berm =

0.959692134910136

gamma\_perm =

1

gamma\_beta =

1

gamma\_rough =

0.85

gamma =

0.815738314673616

ans =

!!! - - Iribaren number: 1.50 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =

!!! - - slope: 1:5.4 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2\_new =

12.4089720609493

R2del =

2.0559746452089

Z2 =

21.4608120609493

ans =

!----- STARTING ITERATION 3 -----!

Ztoe =

0.81954

toe\_sta =

22.726185201595

top\_sta =

149.945931093552

Z2 =

21.4608120609493

H0 =

5.4882

TP =

9.7138

T0 =

8.83072727272727

R2 =

12.4089720609493

Z2 =

21.4608120609493

top\_sta =

149.945931093552

Lslope =

127.219745891957

ans =

Berm Factor Calculation: Iteration 3, Profile Segment: 11

dh =

1.70393

rdh\_sum =

0.0582905121957862

ans =

Berm Factor Calculation: Iteration 3, Profile Segment: 12

dh =

2.17791

rdh\_sum =

0.152325771265479

ans =

Berm Factor Calculation: Iteration 3, Profile Segment: 13

dh =

2.65189

rdh\_sum =

0.289565477260354

ans =



Berm Factor Calculation: Iteration 3, Profile Segment: 14

dh =

3.12587

rdh\_sum =

0.476675438096609

ans =

Berm Factor Calculation: Iteration 3, Profile Segment: 15

dh =

3.59985

rdh\_sum =

0.719405083726818

ans =

!----- End Berm Factor Calculation, Iter: 3 -----!

berm\_width =

5

rB =

0.039302075043023

rdh\_mean =

0.143881016745364

gamma\_berm =

0.96635274747437

slope =

0.168886556835066

Irb =

1.44004858119911

gamma\_berm =

0.96635274747437

gamma\_perm =

1

gamma\_beta =

1

gamma\_rough =

0.85

gamma =

0.821399835353214

ans =

!!! - - Iribaren number: 1.39 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =

!!! - - slope: 1:5.9 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2\_new =

11.4903947996176

R2del =

0.918577261331743

Z2 =

20.5422347996176

ans =

!----- STARTING ITERATION 4 -----!

Ztoe =

0.81954

toe\_sta =

22.726185201595

top\_sta =

140.553525558462

Z2 =

20.5422347996176

H0 =

5.4882

Tp =

9.7138

T0 =

8.83072727272727

R2 =

11.4903947996176

Z2 =

20.5422347996176

top\_sta =

140.553525558462

Lslope =

117.827340356867

ans =

Berm Factor Calculation: Iteration 4, Profile Segment: 11

dh =

1.70393

rdh\_sum =

0.0582905121957862

ans =

Berm Factor Calculation: Iteration 4, Profile Segment: 12

dh =

2.17791

rdh\_sum =

0.152325771265479

ans =

Berm Factor Calculation: Iteration 4, Profile Segment: 13

dh =

2.65189

rdh\_sum =

0.289565477260354

ans =

Berm Factor Calculation: Iteration 4, Profile Segment: 14

dh =

3.12587

rdh\_sum =

0.476675438096609

ans =

Berm Factor Calculation: Iteration 4, Profile Segment: 15

dh =

3.59985

rdh\_sum =

0.719405083726818

ans =

!----- End Berm Factor Calculation, Iter: 4 -----!

berm\_width =

5

rB =

0.0424349729430906

rdh\_mean =

0.143881016745364

gamma\_berm =

0.963670614109523

slope =

0.174804216223086

Irb =

1.49050681283954

gamma\_berm =

0.963670614109523

```

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.85

gamma =
    0.819120021993095

ans =
!!! - - Iribaren number: 1.44 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.7 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    11.8600003798249

R2del =
    0.369605580207363

Z2 =
    20.9118403798249

ans =
!----- STARTING ITERATION 5 -----!

Ztoe =
    0.81954

toe_sta =
    22.726185201595

top_sta =
    144.332723720092

Z2 =
    20.9118403798249

H0 =
    5.4882

Tp =
    9.7138

T0 =
    8.83072727272727

R2 =
    11.8600003798249

Z2 =

```

```

20.9118403798249

top_sta =
144.332723720092

Lslope =
121.606538518497

ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 11

dh =
1.70393

rdh_sum =
0.0582905121957862

ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 12

dh =
2.17791

rdh_sum =
0.152325771265479

ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 13

dh =
2.65189

rdh_sum =
0.289565477260354

ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 14

dh =
3.12587

rdh_sum =
0.476675438096609

ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 15

dh =
3.59985

rdh_sum =
0.719405083726818

ans =
!----- End Berm Factor Calculation, Iter: 5 -----!

berm_width =
5

```

```

rB =
    0.041116210204762

rdh_mean =
    0.143881016745364

gamma_berm =
    0.964799631924215

slope =
    0.17230852261889

Irb =
    1.46922672932561

gamma_berm =
    0.964799631924215

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.85

gamma =
    0.820079687135583

ans =
!!! - - Iribaren number: 1.42 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.8 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    11.7043707848237

R2del =
    0.155629595001265

Z2 =
    20.7562107848237

ans =
!----- STARTING ITERATION 6 -----!

Ztoe =
    0.81954

toe_sta =
    22.726185201595

top_sta =

```

142.741419067727

Z2 =

20.7562107848237

H0 =

5.4882

TP =

9.7138

T0 =

8.83072727272727

R2 =

11.7043707848237

Z2 =

20.7562107848237

top\_sta =

142.741419067727

Lslope =

120.015233866132

ans =

Berm Factor Calculation: Iteration 6, Profile Segment: 11

dh =

1.70393

rdh\_sum =

0.0582905121957862

ans =

Berm Factor Calculation: Iteration 6, Profile Segment: 12

dh =

2.17791

rdh\_sum =

0.152325771265479

ans =

Berm Factor Calculation: Iteration 6, Profile Segment: 13

dh =

2.65189

rdh\_sum =

0.289565477260354

ans =

Berm Factor Calculation: Iteration 6, Profile Segment: 14

dh =

3.12587

```

rdh_sum =
    0.476675438096609

ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 15

dh =
    3.59985

rdh_sum =
    0.719405083726818

ans =
!----- End Berm Factor Calculation, Iter: 6 -----!

berm_width =
    5

rB =
    0.0416613778012308

rdh_mean =
    0.143881016745364

gamma_berm =
    0.964332903595823

slope =
    0.173339392658439

Irb =
    1.47801667072575

gamma_berm =
    0.964332903595823

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.85

gamma =
    0.81968296805645

ans =
!!! - - Iribaren number: 1.43 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.8 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =

```



```

11.7686985703862

R2del =
0.0643277855624831

Z2 =
20.8205385703862

ans =
!----- STARTING ITERATION 7 -----!

Ztoe =
0.81954

toe_sta =
22.726185201595

top_sta =
143.399167386362

Z2 =
20.8205385703862

H0 =
5.4882

Tp =
9.7138

T0 =
8.83072727272727

R2 =
11.7686985703862

Z2 =
20.8205385703862

top_sta =
143.399167386362

Lslope =
120.672982184767

ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 11

dh =
1.70393

rdh_sum =
0.0582905121957862

ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 12

dh =
2.17791

```

```

rdh_sum =
    0.152325771265479

ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 13

dh =
    2.65189

rdh_sum =
    0.289565477260354

ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 14

dh =
    3.12587

rdh_sum =
    0.476675438096609

ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 15

dh =
    3.59985

rdh_sum =
    0.719405083726818

ans =
!----- End Berm Factor Calculation, Iter: 7 -----!

berm_width =
    5

rB =
    0.0414342954775437

rdh_mean =
    0.143881016745364

gamma_berm =
    0.964527313083893

slope =
    0.172909854942947

Irb =
    1.47435412238942

gamma_berm =
    0.964527313083893

gamma_perm =
    1

```

```

gamma_beta =
    1

gamma_rough =
    0.85

gamma =
    0.819848216121309

ans =
!!! - - Iribaren number: 1.42 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.8 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    11.7419022420415

R2del =
    0.026796328344652

Z2 =
    20.7937422420415

ans =
!----- STARTING ITERATION 8 -----!

Ztoe =
    0.81954

toe_sta =
    22.726185201595

top_sta =
    143.125176298993

Z2 =
    20.7937422420415

H0 =
    5.4882

Tp =
    9.7138

T0 =
    8.83072727272727

R2 =
    11.7419022420415

Z2 =
    20.7937422420415

top_sta =
    143.125176298993

```

```
Lslope =
    120.398991097398

ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 11

dh =
    1.70393

rdh_sum =
    0.0582905121957862

ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 12

dh =
    2.17791

rdh_sum =
    0.152325771265479

ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 13

dh =
    2.65189

rdh_sum =
    0.289565477260354

ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 14

dh =
    3.12587

rdh_sum =
    0.476675438096609

ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 15

dh =
    3.59985

rdh_sum =
    0.719405083726818

ans =
!----- End Berm Factor Calculation, Iter: 8 -----!

berm_width =
    5

rB =
    0.0415285871951799
```

```

rdh_mean =
    0.143881016745364

gamma_berm =
    0.964446588154461

slope =
    0.17308818779172

Irb =
    1.47587471686816

gamma_berm =
    0.964446588154461

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.85

gamma =
    0.819779599931292

ans =
!!! - - Iribaren number: 1.42 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.8 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    11.7530286694215

R2del =
    0.0111264273799865

Z2 =
    20.8048686694215

ans =
!----- STARTING ITERATION 9 -----!

Ztoe =
    0.81954

toe_sta =
    22.726185201595

top_sta =
    143.238943450118

Z2 =
    20.8048686694215

```

```
H0 =  
5.4882  
  
Tp =  
9.7138  
  
T0 =  
8.83072727272727  
  
R2 =  
11.7530286694215  
  
Z2 =  
20.8048686694215  
  
top_sta =  
143.238943450118  
  
Lslope =  
120.512758248523  
  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 11  
  
dh =  
1.70393  
  
rdh_sum =  
0.0582905121957862  
  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 12  
  
dh =  
2.17791  
  
rdh_sum =  
0.152325771265479  
  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 13  
  
dh =  
2.65189  
  
rdh_sum =  
0.289565477260354  
  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 14  
  
dh =  
3.12587  
  
rdh_sum =  
0.476675438096609
```

```

ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 15

dh =
3.59985

rdh_sum =
0.719405083726818

ans =
!----- End Berm Factor Calculation, Iter: 9 -----!

berm_width =
5

rB =
0.0414893831380818

rdh_mean =
0.143881016745364

gamma_berm =
0.964480151491963

slope =
0.173014037344892

Irb =
1.47524245668268

gamma_berm =
0.964480151491963

gamma_perm =
1

gamma_beta =
1

gamma_rough =
0.85

gamma =
0.819808128768169

ans =
!!! - - Iribaren number: 1.42 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.8 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
11.748402545563

R2del =
0.00462612385846839

```

```
Z2 =
    20.800242545563

ans =
!----- STARTING ITERATION 10 -----!

Ztoe =
    0.81954

toe_sta =
    22.726185201595

top_sta =
    143.191641570175

Z2 =
    20.800242545563

H0 =
    5.4882

Tp =
    9.7138

T0 =
    8.83072727272727

R2 =
    11.748402545563

Z2 =
    20.800242545563

top_sta =
    143.191641570175

Lslope =
    120.46545636858

ans =
Berm Factor Calculation: Iteration 10, Profile Segment: 11

dh =
    1.70393

rdh_sum =
    0.0582905121957862

ans =
Berm Factor Calculation: Iteration 10, Profile Segment: 12

dh =
    2.17791

rdh_sum =
    0.152325771265479
```



```
ans =
Berm Factor Calculation: Iteration 10, Profile Segment: 13

dh =
2.65189

rdh_sum =
0.289565477260354

ans =
Berm Factor Calculation: Iteration 10, Profile Segment: 14

dh =
3.12587

rdh_sum =
0.476675438096609

ans =
Berm Factor Calculation: Iteration 10, Profile Segment: 15

dh =
3.59985

rdh_sum =
0.719405083726818

ans =
!----- End Berm Factor Calculation, Iter: 10 -----!

berm_width =
5

rB =
0.0415056743295925

rdh_mean =
0.143881016745364

gamma_berm =
0.964466204293651

slope =
0.173044849723559

Irb =
1.47550518524447

gamma_berm =
0.964466204293651

gamma_perm =
1

gamma_beta =
1
```

```

gamma_rough =
    0.85

gamma =
    0.819796273649604

ans =
!!! - - Iribaren number: 1.42 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.8 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    11.7503249174496

R2del =
    0.00192237188656819

Z2 =
    20.8021649174496

ans =
!----- STARTING ITERATION 11 -----!

Ztoe =
    0.81954

toe_sta =
    22.726185201595

top_sta =
    143.211297724434

Z2 =
    20.8021649174496

H0 =
    5.4882

Tp =
    9.7138

T0 =
    8.83072727272727

R2 =
    11.7503249174496

Z2 =
    20.8021649174496

top_sta =
    143.211297724434

Lslope =
    120.485112522839

```

```
ans =
Berm Factor Calculation: Iteration 11, Profile Segment: 11

dh =

1.70393

rdh_sum =

0.0582905121957862

ans =
Berm Factor Calculation: Iteration 11, Profile Segment: 12

dh =

2.17791

rdh_sum =

0.152325771265479

ans =
Berm Factor Calculation: Iteration 11, Profile Segment: 13

dh =

2.65189

rdh_sum =

0.289565477260354

ans =
Berm Factor Calculation: Iteration 11, Profile Segment: 14

dh =

3.12587

rdh_sum =

0.476675438096609

ans =
Berm Factor Calculation: Iteration 11, Profile Segment: 15

dh =

3.59985

rdh_sum =

0.719405083726818

ans =
!----- End Berm Factor Calculation, Iter: 11 -----!

berm_width =

5

rB =

0.0414989030205056

rdh_mean =

0.143881016745364
```

```

gamma_berm =
    0.964472001339902

slope =
    0.173032042666952

Irb =
    1.47539598304364

gamma_berm =
    0.964472001339902

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.85

gamma =
    0.819801201138917

ans =
!!! - - Iribaren number: 1.42 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:5.8 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    11.7495258969969

R2del =
    0.000799020452674881

Z2 =
    20.8013658969969

% final 2% runup elevation
Z2=R2_new+SWEL

Z2 =
    20.8013658969969

diary off

```

---

PART 5: RUNUP2

for transect: YK-06F

Station locations shifted by: -0.06 feet from their  
original location to set the shoreline to  
elevation 0 for RUNUP2 input

---

RUNUP2 INPUT CONVERSIONS

for transect: YK-06F

Incident significant wave height: 5.86 feet

Peak wave period: 9.61 seconds

Mean wave height: 3.67 feet

Local Depth below SWEL: 26.02 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

Deep water wavelength,  $L_0$  (m)

$$L_0 = gT^2/\pi$$

$$L_0 = 32.17 \times 8.17^2 / 6.28 = 341.91$$

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

$$C_0 = L_0/T$$

$$C_0 = 341.91/8.17 = 41.84$$

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

$$\sigma = \pi/T$$

$$\sigma = 6.28/8.17 = 0.77$$

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

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

$$y = 0.77 \times 0.77 \times 26.02 / 32.17 = 0.48$$

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

$$C_{1H} = 26.63$$

Shoaling Coefficient  $K_{sH}$

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

$$K_{sH} = \sqrt{41.84/26.63} = 1.25$$

Deepwater Wave Height  $H_{0H}$  (ft)

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

$$H_{0H} = 3.67/1.25 = 2.92$$

Deepwater mean wave height: 2.92 feet

---

END RUNUP2 CONVERSIONS

---

RUNUP2 RESULTS

for transect: YK-06F

RUNUP2 SWEL:

9.00  
9.00  
9.00  
9.00  
9.00  
9.00  
9.00  
9.00  
9.00

RUNUP2 deepwater mean wave heights:  
2.78

2.78  
2.78  
2.92  
2.92  
2.92  
3.07  
3.07  
3.07

RUNUP2 mean wave periods:

7.76  
8.17  
8.58  
7.76  
8.17  
8.58  
7.76  
8.17  
8.58

RUNUP2 runup above SWEL:

11.91  
12.38  
12.76  
12.11  
12.57  
13.00  
12.35  
12.80  
13.30

RUNUP2 Mean runup height above SWEL: 12.58 feet

RUNUP2 2-percent runup height above SWEL: 27.67 feet

RUNUP2 2-percent runup elevation: 36.67 feet-NAVD88

RUNUP2 Messages:

Nonfatal Error, Check Output

\_\_\_\_\_END RUNUP2 RESULTS\_\_\_\_\_

\_\_\_\_\_ACES BEACH RUNUP\_\_\_\_\_

Incident significant wave height: 5.86 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 4.09 feet

Peak wave period: 9.61 seconds

Average beach Slope: 1:15.64 (H:V)

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

ACES Beach 2-percent runup height above SWEL: 5.84 feet

ACES Beach 2-percent runup elevation: 14.84 feet-NAVD88

ACES BEACH RUNUP is valid

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

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

FEMA  
RUNUP2 transect: YK-06F

sjh

job 2  
1

31.0  
-16.99 -399.9 1.0  
-16.99 -363.9 1.0  
-16.53 -355.9 1.0  
-13.24 -291.9 1.0  
-11.23 -270.9 1.0  
-6.48 -222.9 1.0  
-6.44 -221.9 1.0  
-6.44 -137.9 1.0  
-5.60 -118.9 1.0  
-5.58 -108.9 1.0  
-1.09 -8.9 1.0  
0.89 8.1 1.0  
1.37 14.1 1.0  
2.63 26.1 1.0  
2.85 27.1 1.0  
7.58 37.1 1.0  
7.58 45.1 1.0  
7.88 46.1 1.0  
11.92 52.1 1.0  
1 11.98 53.1 1.0  
9.0 2.78 7.76  
9.0 2.78 8.17  
9.0 2.78 8.58  
9.0 2.92 7.76  
9.0 2.92 8.17  
9.0 2.92 8.58  
9.0 3.07 7.76  
9.0 3.07 8.17  
9.0 3.07 8.58





CLIENT- FEMA  
PROJECT-RUNUP2 transect: YK-06F

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

ENGINEERED BY sjh

JOB job 2  
RUN 1 PAGE 1

\*\*\*\*\*

CROSS SECTION PROFILE

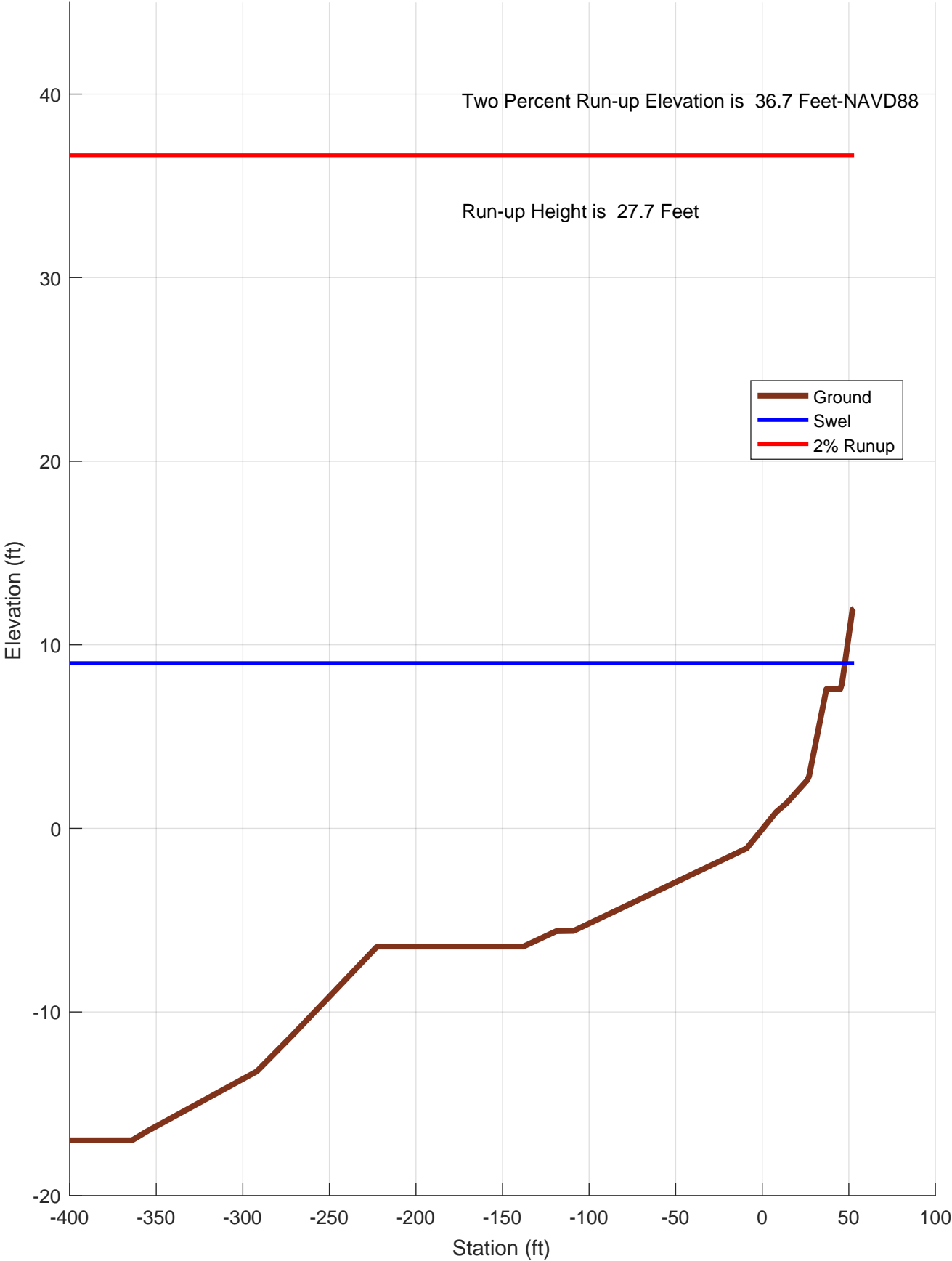
	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-399.0	-16.9		
2	-363.0	-16.9	.00	1.00
3	-355.0	-16.5	20.00	1.00
4	-291.0	-13.2	19.39	1.00
5	-270.0	-11.2	10.50	1.00
6	-222.9	-6.5	9.98	1.00
7	-221.9	-6.4	25.00	1.00
8	-137.9	-6.4	FLAT	1.00
9	-118.9	-5.6	22.62	1.00
10	-108.9	-5.6	500.00	1.00
11	-8.9	-1.1	22.27	1.00
12	8.1	.9	8.59	1.00
13	14.1	1.4	12.50	1.00
14	26.1	2.6	9.52	1.00
15	27.1	2.9	4.55	1.00
16	37.1	7.6	2.11	1.00
17	45.1	7.6	FLAT	1.00
18	46.1	7.9	3.33	1.00
19	52.1	11.9	1.49	1.00
20	53.1	12.0	16.67	1.00
	LAST SLOPE	31.00	LAST ROUGHNESS	1.00

\*\*\*\*\*

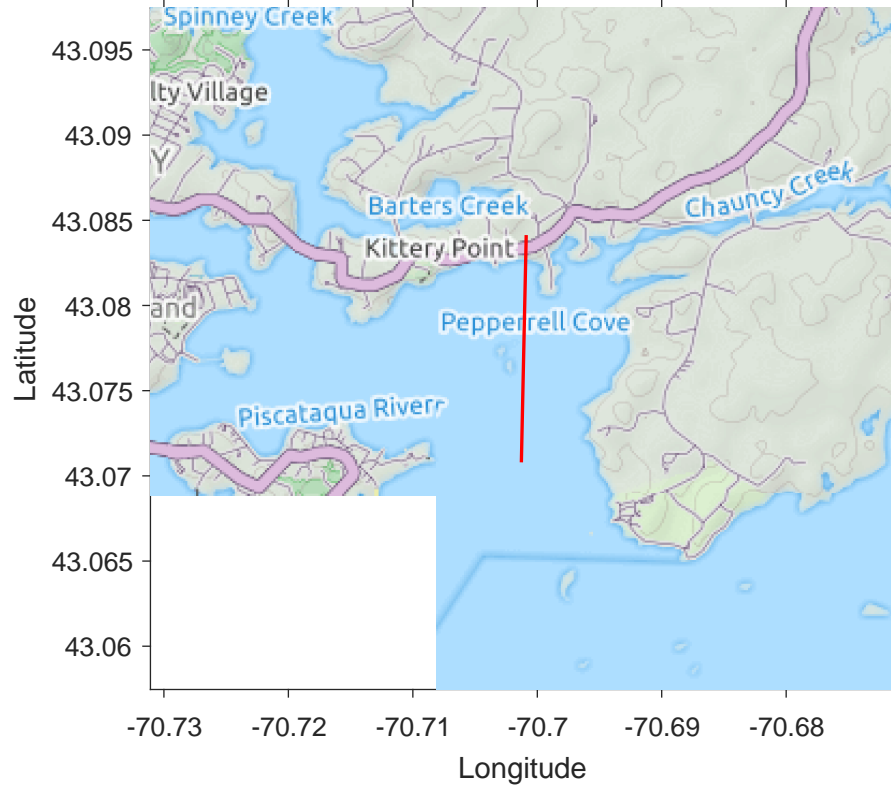
OUTPUT TABLE  
-----

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.)
9.00	2.78	7.76	11	20	11.91 1.25 SOLUTION DOES NOT CONVERGE	5.03
9.00	2.78	8.17	11	20	12.38 1.28 SOLUTION DOES NOT CONVERGE	5.13
9.00	2.78	8.58	11	20	12.76 1.33 SOLUTION DOES NOT CONVERGE	5.23
9.00	2.92	7.76	11	20	12.11 1.28 SOLUTION DOES NOT CONVERGE	5.23
9.00	2.92	8.17	11	20	12.57 1.31 SOLUTION DOES NOT CONVERGE	5.34
9.00	2.92	8.58	11	20	13.00 1.34 SOLUTION DOES NOT CONVERGE	5.44
9.00	3.07	7.76	11	20	12.35 1.32 SOLUTION DOES NOT CONVERGE	5.45
9.00	3.07	8.17	11	20	12.80 1.35 SOLUTION DOES NOT CONVERGE	5.56
9.00	3.07	8.58	11	20	13.30 1.38 SOLUTION DOES NOT CONVERGE	5.66

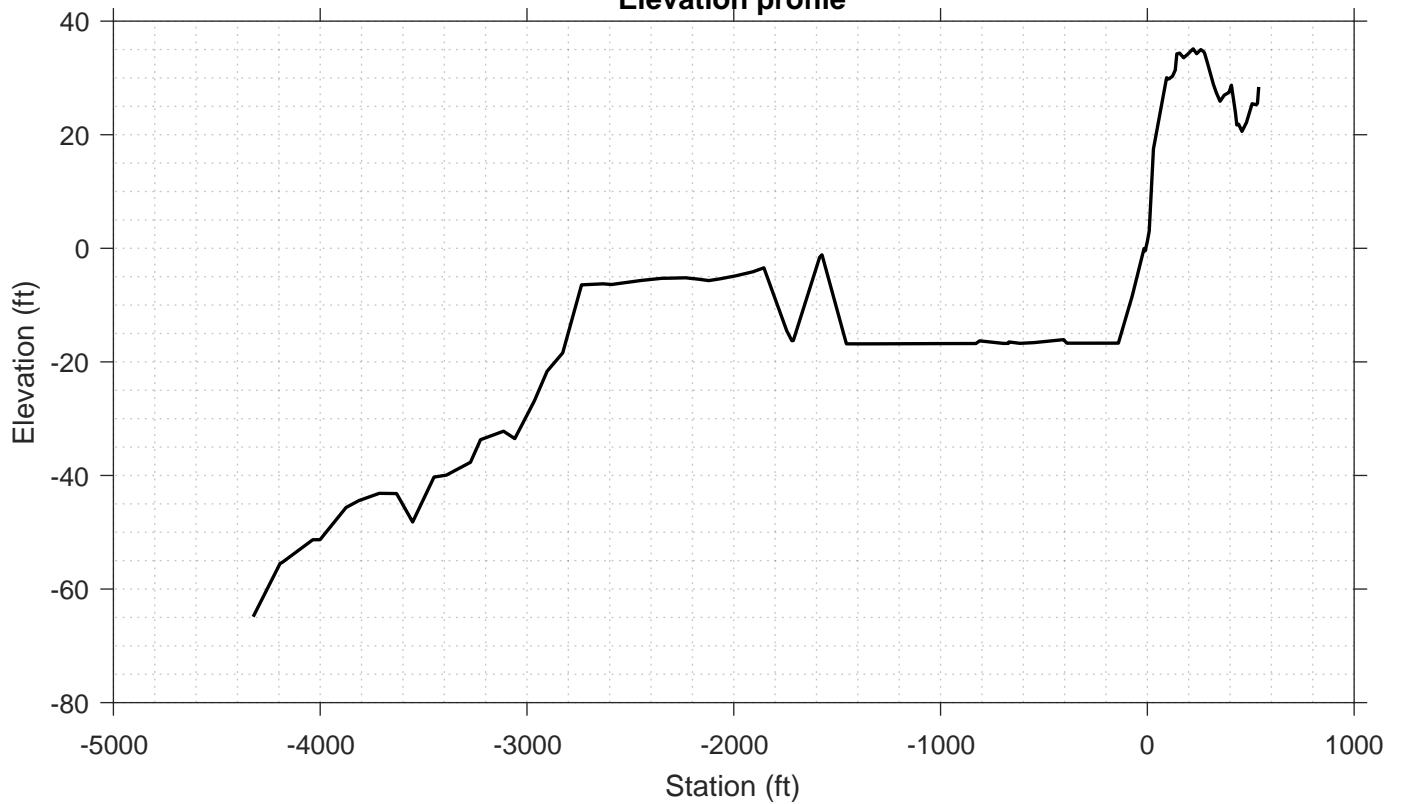
Runup2 2% runup elevation for Transect: YK-06F



**Transect Number: YK-07**



**Elevation profile**



---

DATA LOG FOR TRANSECT ID: YK-07

---

---

PART 1: USER INPUT

---

SWAN 1-D / WHAFIS input

---

station: -796 ft  
LON: -70.701 deg E  
LAT: 43.0805 deg N  
Bottom ELEV: -16.3564 ft-NAVD88  
TWL: 9.0273 ft-NAVD88  
HS: 2.9371 ft  
TP: 6.937 sec  
Wave Direction bin: 90 deg CCW from East (90 deg sector)  
Transect Direction: 88.3456 deg CCW from East

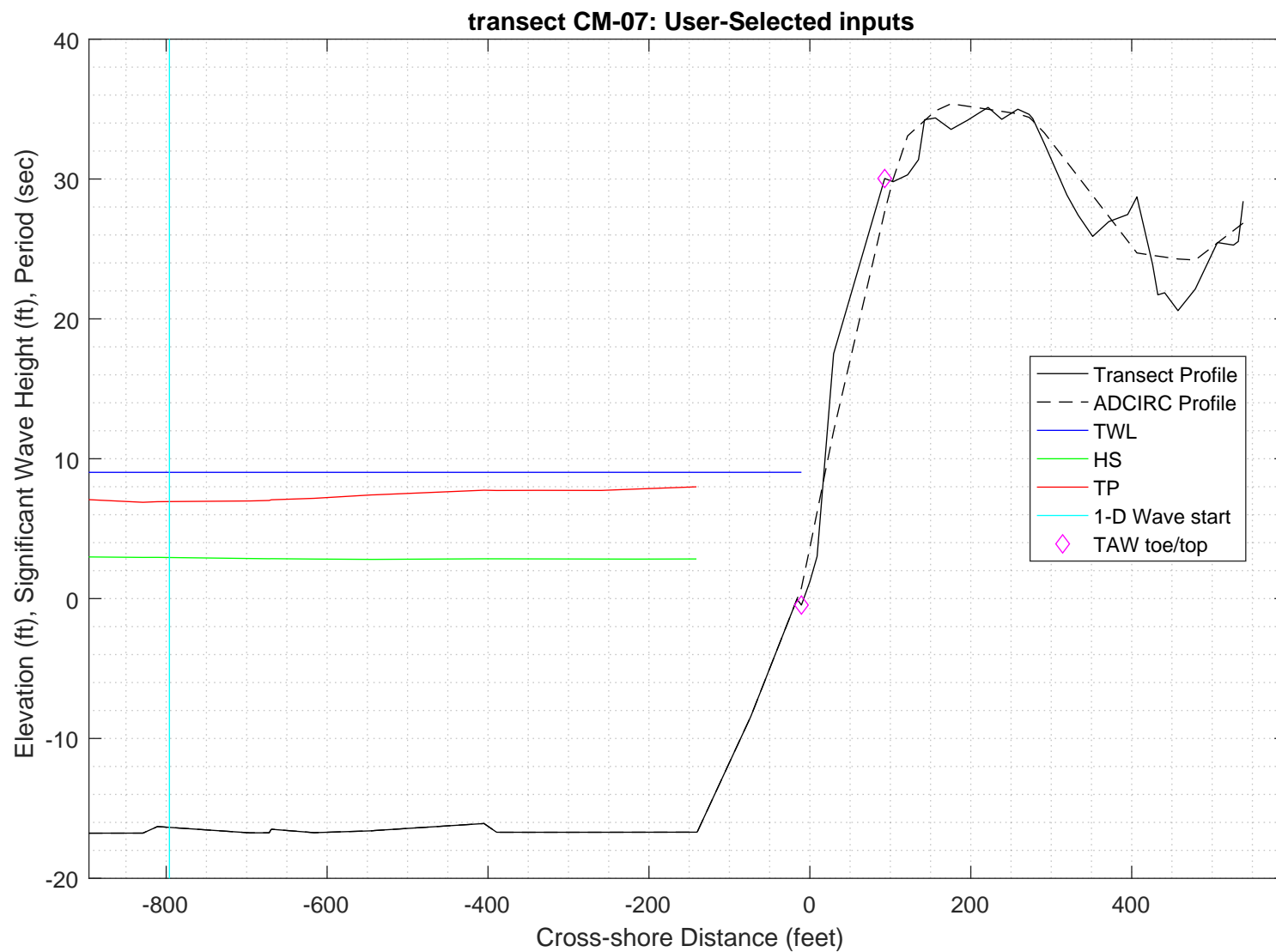
TAW/RUNUP input

---

toe sta: -10.5 ft  
toe elev: -0.45932 ft-NAVD88  
top sta: 93 ft  
top elev: 30.0361 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/YK-07zmeters\_xmeters.grd  
swan file name: 2\_swan/swanfiles/YK-07.swn  
swan output name: 2\_swan/swanfiles/YK-07.dat

Boundary Conditions:

TWL- 2.7515 meters  
HS- 0.89523 meters  
PER- 6.937 seconds

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

SWAN maximum additional wave setup: 0 feet

SWAN output at toe:

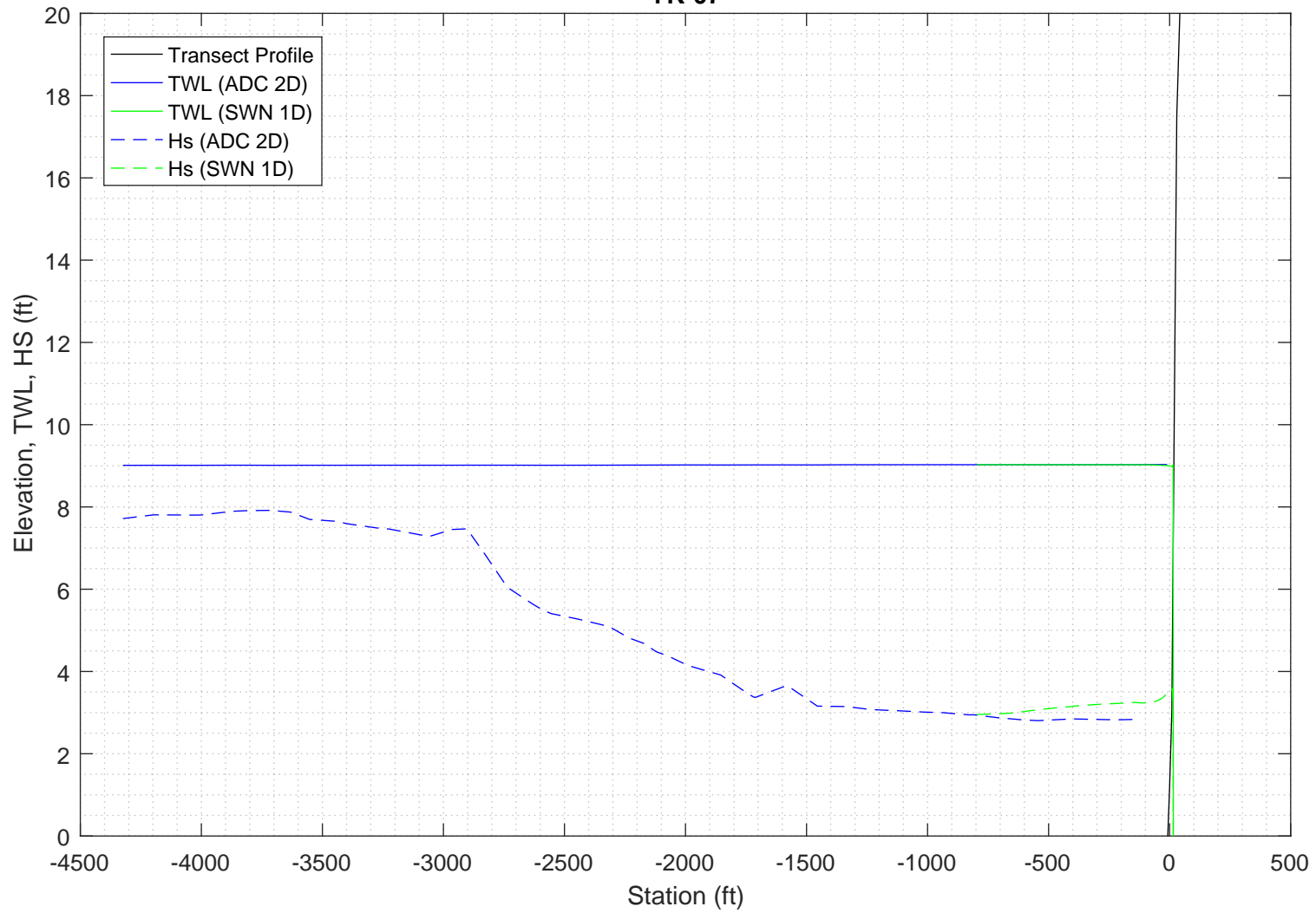
SETUP- -0.02211 feet  
HS- 3.4318 feet  
PER- 6.9867 seconds

PART 2 COMPLETE

---

**REVISED SEP-05-2019**

**2-D ADCIRC+SWAN and SWAN 1-D results, Transect:  
YK-07**





Execution started at 20200206.151503

```

-----
                        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/YK-07zmmeters\_xmmeters.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 0.89523 6.937 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' [xp1] [yp1] <[int]   [xp]   [yp] >

CURVE 'curve' 0      0      251 251    0

!TABLE 'sname' < HEADER|NOHEADER|INDEXed > 'fname' <output parameters> (output time)

Table 'curve'   HEADER 'YK-07.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 18.15 % of wet grid points ( 99.50 % required)

```

```

iteration    3; sweep 1
iteration    3; sweep 2
iteration    3; sweep 3
iteration    3; sweep 4
accuracy OK in 0.41 % 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 18.55 % 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 99.20 % 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 100.00 % of wet grid points ( 99.50 % required)

STOP

Run:1	Table:curve	SWAN version:41.20A								
Xp	Yp	Hsig	TPsmoo	RTpeak	Tm_10	Dir	Dspr	Depth	Setup	
[m]	[m]	[m]	[sec]	[sec]	[sec]	[degr]	[degr]	[m]	[m]	
0.	0.	0.90046	6.9617	7.2016	6.2284	0.111	32.5508	7.7400	-0.000007	
1.	0.	0.90060	6.9617	7.2016	6.2275	0.111	32.5521	7.7400	-0.000008	
2.	0.	0.90080	6.9617	7.2016	6.2267	0.111	32.5664	7.7400	-0.000009	
3.	0.	0.90098	6.9617	7.2016	6.2256	0.112	32.5845	7.7500	-0.000006	
4.	0.	0.90121	6.9616	7.2016	6.2248	0.112	32.6038	7.7500	-0.000007	
5.	0.	0.90140	6.9616	7.2016	6.2238	0.112	32.6235	7.7600	-0.000005	
6.	0.	0.90157	6.9616	7.2016	6.2229	0.112	32.6302	7.7600	-0.000006	
7.	0.	0.90179	6.9616	7.2016	6.2221	0.112	32.6464	7.7600	-0.000007	
8.	0.	0.90197	6.9615	7.2016	6.2210	0.112	32.6644	7.7700	-0.000005	
9.	0.	0.90220	6.9615	7.2016	6.2202	0.112	32.6832	7.7700	-0.000006	
10.	0.	0.90239	6.9614	7.2016	6.2191	0.113	32.7024	7.7800	-0.000004	
11.	0.	0.90256	6.9614	7.2016	6.2182	0.113	32.7086	7.7800	-0.000005	
12.	0.	0.90278	6.9614	7.2016	6.2173	0.113	32.7245	7.7800	-0.000006	
13.	0.	0.90296	6.9614	7.2016	6.2162	0.113	32.7419	7.7900	-0.000004	
14.	0.	0.90320	6.9614	7.2016	6.2153	0.113	32.7600	7.7900	-0.000005	
15.	0.	0.90339	6.9613	7.2016	6.2141	0.113	32.7784	7.8000	-0.000002	
16.	0.	0.90356	6.9613	7.2016	6.2132	0.114	32.7842	7.8000	-0.000003	
17.	0.	0.90378	6.9613	7.2016	6.2122	0.114	32.7998	7.8000	-0.000005	
18.	0.	0.90396	6.9612	7.2016	6.2111	0.114	32.8164	7.8100	-0.000002	
19.	0.	0.90420	6.9612	7.2016	6.2101	0.114	32.8338	7.8100	-0.000003	
20.	0.	0.90439	6.9611	7.2016	6.2090	0.114	32.8516	7.8200	-0.000001	
21.	0.	0.90456	6.9611	7.2016	6.2080	0.114	32.8570	7.8200	-0.000002	
22.	0.	0.90479	6.9611	7.2016	6.2070	0.114	32.8724	7.8200	-0.000003	
23.	0.	0.90497	6.9611	7.2016	6.2058	0.115	32.8886	7.8300	-0.000001	
24.	0.	0.90515	6.9610	7.2016	6.2047	0.115	32.8933	7.8300	-0.000002	
25.	0.	0.90538	6.9610	7.2016	6.2037	0.115	32.9083	7.8300	-0.000003	
26.	0.	0.90556	6.9610	7.2016	6.2024	0.115	32.9238	7.8400	-0.000001	
27.	0.	0.90580	6.9610	7.2016	6.2014	0.115	32.9401	7.8400	-0.000002	
28.	0.	0.90600	6.9609	7.2016	6.2001	0.115	32.9569	7.8500	0.000000	
29.	0.	0.90623	6.9609	7.2016	6.1984	0.116	32.9599	7.8500	-0.000001	
30.	0.	0.90654	6.9609	7.2016	6.1963	0.116	32.9723	7.8500	-0.000002	
31.	0.	0.90684	6.9608	7.2016	6.1938	0.116	32.9845	7.8600	0.000000	
32.	0.	0.90712	6.9608	7.2016	6.1914	0.116	32.9857	7.8600	-0.000001	
33.	0.	0.90744	6.9608	7.2016	6.1885	0.116	32.9852	7.8600	-0.000002	
34.	0.	0.90777	6.9608	7.2016	6.1854	0.116	32.9832	7.8600	-0.000004	
35.	0.	0.90811	6.9608	7.2016	6.1822	0.116	32.9809	7.8600	-0.000005	
36.	0.	0.90847	6.9607	7.2016	6.1789	0.116	32.9788	7.8600	-0.000007	
37.	0.	0.90869	6.9607	7.2016	6.1753	0.117	32.9503	7.8600	-0.000008	
38.	0.	0.90883	6.9608	7.2016	6.1715	0.117	32.8724	7.8300	-0.000019	
39.	0.	0.90916	6.9610	7.2016	6.1682	0.117	32.8089	7.7800	-0.000037	
40.	0.	0.90956	6.9610	7.2016	6.1638	0.117	32.7997	7.7800	-0.000038	
41.	0.	0.91000	6.9609	7.2016	6.1591	0.117	32.8015	7.7900	-0.000037	
42.	0.	0.91053	6.9609	7.2016	6.1546	0.117	32.8098	7.7900	-0.000038	
43.	0.	0.91104	6.9608	7.2016	6.1496	0.117	32.8200	7.8000	-0.000037	
44.	0.	0.91162	6.9608	7.2016	6.1446	0.117	32.8305	7.8000	-0.000038	
45.	0.	0.91221	6.9608	7.2016	6.1389	0.117	32.8409	7.8100	-0.000037	
46.	0.	0.91287	6.9608	7.2016	6.1330	0.117	32.8515	7.8100	-0.000039	
47.	0.	0.91353	6.9607	7.2016	6.1265	0.117	32.8615	7.8200	-0.000038	
48.	0.	0.91423	6.9607	7.2016	6.1203	0.118	32.8718	7.8200	-0.000040	
49.	0.	0.91488	6.9606	7.2016	6.1138	0.119	32.8829	7.8300	-0.000039	
50.	0.	0.91553	6.9606	7.2016	6.1074	0.120	32.8822	7.8300	-0.000041	
51.	0.	0.91624	6.9606	7.2016	6.1009	0.121	32.8922	7.8300	-0.000043	
52.	0.	0.91689	6.9605	7.2016	6.0944	0.123	32.9029	7.8400	-0.000042	
53.	0.	0.91761	6.9605	7.2016	6.0880	0.124	32.9147	7.8400	-0.000044	
54.	0.	0.91830	6.9605	7.2016	6.0812	0.126	32.9272	7.8500	-0.000043	
55.	0.	0.91899	6.9605	7.2016	6.0744	0.126	32.9289	7.8500	-0.000045	
56.	0.	0.91968	6.9604	7.2016	6.0676	0.127	32.9301	7.8500	-0.000047	
57.	0.	0.92039	6.9604	7.2016	6.0605	0.128	32.9303	7.8500	-0.000049	

58.	0.	0.92109	6.9604	7.2016	6.0529	0.130	32.9225	7.8499	-0.000052
59.	0.	0.92185	6.9604	7.2016	6.0453	0.130	32.9129	7.8399	-0.000057
60.	0.	0.92262	6.9604	7.2016	6.0372	0.131	32.9117	7.8399	-0.000060
61.	0.	0.92344	6.9604	7.2016	6.0289	0.131	32.9122	7.8399	-0.000063
62.	0.	0.92428	6.9604	7.2016	6.0204	0.132	32.9141	7.8399	-0.000065
63.	0.	0.92515	6.9604	7.2016	6.0116	0.133	32.9167	7.8399	-0.000068
64.	0.	0.92597	6.9603	7.2016	6.0029	0.136	32.9123	7.8399	-0.000071
65.	0.	0.92676	6.9604	7.2016	5.9950	0.140	32.9092	7.8299	-0.000076
66.	0.	0.92750	6.9603	7.2016	5.9877	0.144	32.9169	7.8299	-0.000079
67.	0.	0.92821	6.9603	7.2016	5.9808	0.152	32.9279	7.8299	-0.000081
68.	0.	0.92889	6.9603	7.2016	5.9742	0.158	32.9425	7.8299	-0.000084
69.	0.	0.92954	6.9603	7.2016	5.9674	0.164	32.9498	7.8299	-0.000086
70.	0.	0.93025	6.9603	7.2016	5.9607	0.171	32.9566	7.8199	-0.000092
71.	0.	0.93096	6.9603	7.2016	5.9538	0.177	32.9727	7.8199	-0.000094
72.	0.	0.93166	6.9603	7.2016	5.9471	0.183	32.9914	7.8199	-0.000097
73.	0.	0.93236	6.9603	7.2016	5.9405	0.191	33.0121	7.8199	-0.000100
74.	0.	0.93301	6.9602	7.2016	5.9339	0.202	33.0258	7.8199	-0.000102
75.	0.	0.93367	6.9603	7.2016	5.9279	0.210	33.0388	7.8099	-0.000108
76.	0.	0.93433	6.9602	7.2016	5.9215	0.217	33.0610	7.8099	-0.000110
77.	0.	0.93498	6.9602	7.2016	5.9150	0.226	33.0775	7.8099	-0.000113
78.	0.	0.93569	6.9603	7.2016	5.9084	0.235	33.0948	7.7999	-0.000119
79.	0.	0.93642	6.9602	7.2016	5.9016	0.244	33.1214	7.7999	-0.000122
80.	0.	0.93713	6.9602	7.2016	5.8944	0.253	33.1424	7.7999	-0.000124
81.	0.	0.93785	6.9602	7.2016	5.8878	0.258	33.1629	7.7899	-0.000130
82.	0.	0.93858	6.9602	7.2016	5.8810	0.263	33.1924	7.7899	-0.000133
83.	0.	0.93930	6.9602	7.2016	5.8739	0.269	33.2163	7.7899	-0.000136
84.	0.	0.94002	6.9602	7.2016	5.8674	0.275	33.2370	7.7799	-0.000142
85.	0.	0.94073	6.9602	7.2016	5.8609	0.278	33.2621	7.7799	-0.000145
86.	0.	0.94141	6.9602	7.2016	5.8542	0.281	33.2812	7.7799	-0.000148
87.	0.	0.94212	6.9602	7.2016	5.8480	0.285	33.3000	7.7698	-0.000154
88.	0.	0.94276	6.9602	7.2016	5.8417	0.293	33.3145	7.7698	-0.000157
89.	0.	0.94343	6.9602	7.2016	5.8359	0.300	33.3281	7.7598	-0.000163
90.	0.	0.94408	6.9602	7.2016	5.8301	0.305	33.3479	7.7598	-0.000166
91.	0.	0.94468	6.9602	7.2016	5.8244	0.309	33.3610	7.7598	-0.000169
92.	0.	0.94531	6.9602	7.2016	5.8191	0.312	33.3725	7.7498	-0.000175
93.	0.	0.94594	6.9602	7.2016	5.8135	0.314	33.3917	7.7498	-0.000177
94.	0.	0.94651	6.9602	7.2016	5.8082	0.315	33.4043	7.7498	-0.000180
95.	0.	0.94710	6.9602	7.2016	5.8033	0.315	33.4156	7.7398	-0.000186
96.	0.	0.94764	6.9602	7.2016	5.7983	0.316	33.4253	7.7398	-0.000188
97.	0.	0.94822	6.9602	7.2016	5.7935	0.318	33.4341	7.7298	-0.000194
98.	0.	0.94881	6.9602	7.2016	5.7884	0.319	33.4505	7.7298	-0.000197
99.	0.	0.94933	6.9602	7.2016	5.7837	0.323	33.4583	7.7298	-0.000200
100.	0.	0.94988	6.9602	7.2016	5.7793	0.325	33.4640	7.7198	-0.000206
101.	0.	0.95043	6.9602	7.2016	5.7747	0.328	33.4766	7.7198	-0.000208
102.	0.	0.95094	6.9602	7.2016	5.7701	0.330	33.4819	7.7198	-0.000211
103.	0.	0.95147	6.9602	7.2016	5.7660	0.332	33.4841	7.7098	-0.000217
104.	0.	0.95199	6.9602	7.2016	5.7617	0.333	33.4924	7.7098	-0.000220
105.	0.	0.95246	6.9601	7.2016	5.7576	0.335	33.4937	7.7098	-0.000222
106.	0.	0.95296	6.9602	7.2016	5.7539	0.336	33.4953	7.6998	-0.000229
107.	0.	0.95342	6.9601	7.2016	5.7499	0.338	33.4966	7.6998	-0.000231
108.	0.	0.95391	6.9601	7.2016	5.7461	0.338	33.4956	7.6898	-0.000237
109.	0.	0.95441	6.9601	7.2016	5.7422	0.339	33.5015	7.6898	-0.000240
110.	0.	0.95487	6.9601	7.2016	5.7382	0.340	33.5013	7.6898	-0.000243
111.	0.	0.95537	6.9601	7.2016	5.7345	0.343	33.4983	7.6798	-0.000249
112.	0.	0.95585	6.9601	7.2016	5.7307	0.346	33.5022	7.6797	-0.000252
113.	0.	0.95630	6.9601	7.2016	5.7269	0.348	33.5000	7.6797	-0.000255
114.	0.	0.95679	6.9601	7.2016	5.7234	0.351	33.4966	7.6697	-0.000261
115.	0.	0.95722	6.9601	7.2016	5.7196	0.353	33.4925	7.6697	-0.000264
116.	0.	0.95771	6.9601	7.2016	5.7161	0.354	33.4878	7.6597	-0.000270
117.	0.	0.95818	6.9601	7.2016	5.7124	0.356	33.4900	7.6597	-0.000273
118.	0.	0.95862	6.9601	7.2016	5.7086	0.358	33.4853	7.6597	-0.000275
119.	0.	0.95932	6.9601	7.2016	5.7055	0.361	33.5169	7.6497	-0.000282
120.	0.	0.96011	6.9600	7.2016	5.7019	0.364	33.6065	7.6897	-0.000271
121.	0.	0.96096	6.9598	7.2016	5.6984	0.367	33.7049	7.7297	-0.000261
122.	0.	0.96183	6.9596	7.2016	5.6949	0.371	33.8036	7.7697	-0.000250

123.	0.	0.96262	6.9595	7.2016	5.6912	0.374	33.8898	7.8098	-0.000240
124.	0.	0.96323	6.9593	7.2016	5.6874	0.377	33.9352	7.8398	-0.000233
125.	0.	0.96378	6.9593	7.2016	5.6840	0.379	33.9497	7.8398	-0.000236
126.	0.	0.96430	6.9593	7.2016	5.6806	0.380	33.9597	7.8398	-0.000238
127.	0.	0.96479	6.9593	7.2016	5.6772	0.381	33.9645	7.8398	-0.000241
128.	0.	0.96527	6.9592	7.2016	5.6738	0.381	33.9668	7.8398	-0.000244
129.	0.	0.96575	6.9592	7.2016	5.6704	0.381	33.9685	7.8398	-0.000247
130.	0.	0.96621	6.9592	7.2016	5.6671	0.382	33.9705	7.8398	-0.000250
131.	0.	0.96667	6.9592	7.2016	5.6639	0.382	33.9722	7.8397	-0.000252
132.	0.	0.96712	6.9592	7.2016	5.6608	0.383	33.9738	7.8397	-0.000255
133.	0.	0.96755	6.9592	7.2016	5.6577	0.384	33.9758	7.8397	-0.000258
134.	0.	0.96798	6.9591	7.2016	5.6547	0.385	33.9778	7.8397	-0.000261
135.	0.	0.96842	6.9591	7.2016	5.6517	0.385	33.9800	7.8397	-0.000263
136.	0.	0.96885	6.9591	7.2016	5.6488	0.386	33.9823	7.8397	-0.000266
137.	0.	0.96927	6.9591	7.2016	5.6459	0.386	33.9849	7.8397	-0.000268
138.	0.	0.96970	6.9591	7.2016	5.6429	0.386	33.9873	7.8397	-0.000271
139.	0.	0.97013	6.9591	7.2016	5.6400	0.387	33.9898	7.8397	-0.000274
140.	0.	0.97054	6.9590	7.2016	5.6372	0.388	33.9925	7.8397	-0.000276
141.	0.	0.97093	6.9590	7.2016	5.6346	0.388	33.9953	7.8397	-0.000278
142.	0.	0.97133	6.9590	7.2016	5.6320	0.388	33.9981	7.8397	-0.000281
143.	0.	0.97173	6.9590	7.2016	5.6293	0.387	34.0006	7.8397	-0.000283
144.	0.	0.97212	6.9590	7.2016	5.6268	0.386	34.0030	7.8397	-0.000286
145.	0.	0.97251	6.9589	7.2016	5.6242	0.384	34.0053	7.8397	-0.000288
146.	0.	0.97290	6.9589	7.2016	5.6217	0.383	34.0076	7.8397	-0.000291
147.	0.	0.97329	6.9589	7.2016	5.6192	0.381	34.0099	7.8397	-0.000294
148.	0.	0.97367	6.9589	7.2016	5.6168	0.379	34.0126	7.8397	-0.000296
149.	0.	0.97406	6.9589	7.2016	5.6143	0.377	34.0154	7.8397	-0.000299
150.	0.	0.97444	6.9589	7.2016	5.6119	0.375	34.0184	7.8397	-0.000301
151.	0.	0.97483	6.9588	7.2016	5.6094	0.373	34.0214	7.8397	-0.000304
152.	0.	0.97520	6.9588	7.2016	5.6070	0.372	34.0240	7.8397	-0.000306
153.	0.	0.97557	6.9588	7.2016	5.6047	0.371	34.0267	7.8397	-0.000309
154.	0.	0.97594	6.9588	7.2016	5.6025	0.371	34.0290	7.8397	-0.000311
155.	0.	0.97630	6.9588	7.2016	5.6003	0.371	34.0309	7.8397	-0.000314
156.	0.	0.97665	6.9588	7.2016	5.5982	0.371	34.0325	7.8397	-0.000316
157.	0.	0.97699	6.9587	7.2016	5.5962	0.371	34.0331	7.8397	-0.000319
158.	0.	0.97731	6.9587	7.2016	5.5944	0.371	34.0326	7.8397	-0.000321
159.	0.	0.97762	6.9587	7.2016	5.5927	0.370	34.0314	7.8397	-0.000323
160.	0.	0.97792	6.9587	7.2016	5.5911	0.369	34.0292	7.8397	-0.000326
161.	0.	0.97821	6.9587	7.2016	5.5896	0.367	34.0264	7.8397	-0.000328
162.	0.	0.97849	6.9587	7.2016	5.5882	0.365	34.0233	7.8397	-0.000331
163.	0.	0.97876	6.9586	7.2016	5.5868	0.362	34.0188	7.8397	-0.000333
164.	0.	0.97903	6.9586	7.2016	5.5854	0.359	34.0141	7.8397	-0.000335
165.	0.	0.97930	6.9586	7.2016	5.5841	0.356	34.0093	7.8397	-0.000338
166.	0.	0.97957	6.9586	7.2016	5.5828	0.353	34.0045	7.8397	-0.000340
167.	0.	0.97984	6.9586	7.2016	5.5814	0.351	33.9999	7.8397	-0.000342
168.	0.	0.98011	6.9585	7.2016	5.5801	0.348	33.9955	7.8397	-0.000345
169.	0.	0.98038	6.9585	7.2016	5.5788	0.345	33.9914	7.8397	-0.000347
170.	0.	0.98066	6.9585	7.2016	5.5774	0.343	33.9872	7.8397	-0.000349
171.	0.	0.98093	6.9585	7.2016	5.5760	0.341	33.9833	7.8396	-0.000352
172.	0.	0.98122	6.9585	7.2016	5.5745	0.341	33.9805	7.8396	-0.000354
173.	0.	0.98150	6.9585	7.2016	5.5731	0.341	33.9779	7.8396	-0.000356
174.	0.	0.98179	6.9584	7.2016	5.5716	0.342	33.9756	7.8396	-0.000358
175.	0.	0.98208	6.9584	7.2016	5.5701	0.343	33.9738	7.8396	-0.000361
176.	0.	0.98237	6.9584	7.2016	5.5686	0.345	33.9723	7.8396	-0.000363
177.	0.	0.98266	6.9584	7.2016	5.5671	0.347	33.9712	7.8396	-0.000365
178.	0.	0.98296	6.9584	7.2016	5.5655	0.349	33.9701	7.8396	-0.000368
179.	0.	0.98325	6.9584	7.2016	5.5640	0.349	33.9686	7.8396	-0.000370
180.	0.	0.98354	6.9583	7.2016	5.5624	0.349	33.9677	7.8396	-0.000372
181.	0.	0.98384	6.9583	7.2016	5.5609	0.349	33.9670	7.8396	-0.000374
182.	0.	0.98414	6.9583	7.2016	5.5593	0.350	33.9663	7.8396	-0.000377
183.	0.	0.98444	6.9583	7.2016	5.5577	0.350	33.9650	7.8396	-0.000379
184.	0.	0.98474	6.9583	7.2016	5.5561	0.351	33.9637	7.8396	-0.000381
185.	0.	0.98507	6.9583	7.2016	5.5543	0.351	33.9619	7.8396	-0.000384
186.	0.	0.98541	6.9582	7.2016	5.5523	0.353	33.9601	7.8396	-0.000386
187.	0.	0.98575	6.9582	7.2016	5.5503	0.354	33.9583	7.8396	-0.000388

188.	0.	0.98609	6.9582	7.2016	5.5484	0.355	33.9566	7.8396	-0.000391
189.	0.	0.98644	6.9582	7.2016	5.5464	0.357	33.9551	7.8396	-0.000393
190.	0.	0.98679	6.9582	7.2016	5.5444	0.359	33.9536	7.8396	-0.000395
191.	0.	0.98714	6.9581	7.2016	5.5423	0.360	33.9524	7.8396	-0.000398
192.	0.	0.98750	6.9581	7.2016	5.5402	0.362	33.9514	7.8396	-0.000400
193.	0.	0.98786	6.9581	7.2016	5.5381	0.363	33.9502	7.8396	-0.000403
194.	0.	0.98822	6.9581	7.2016	5.5360	0.363	33.9490	7.8396	-0.000405
195.	0.	0.98858	6.9581	7.2016	5.5339	0.364	33.9475	7.8396	-0.000407
196.	0.	0.98894	6.9581	7.2016	5.5317	0.365	33.9462	7.8396	-0.000410
197.	0.	0.98931	6.9580	7.2016	5.5295	0.366	33.9448	7.8396	-0.000412
198.	0.	0.98969	6.9580	7.2016	5.5273	0.366	33.9435	7.8396	-0.000415
199.	0.	0.99001	6.9580	7.2016	5.5249	0.366	33.9337	7.8396	-0.000417
200.	0.	0.98975	6.9579	7.2016	5.5213	0.366	33.8207	7.8296	-0.000422
201.	0.	0.98920	6.9583	7.2016	5.5188	0.366	33.5801	7.7095	-0.000463
202.	0.	0.98853	6.9588	7.2016	5.5164	0.366	33.3052	7.5795	-0.000510
203.	0.	0.98790	6.9592	7.2016	5.5140	0.365	33.0347	7.4594	-0.000555
204.	0.	0.98733	6.9597	7.2016	5.5119	0.365	32.7763	7.3394	-0.000601
205.	0.	0.98691	6.9602	7.2016	5.5105	0.365	32.5605	7.2093	-0.000652
206.	0.	0.98654	6.9607	7.2016	5.5090	0.365	32.3471	7.0893	-0.000701
207.	0.	0.98632	6.9612	7.2016	5.5083	0.364	32.1328	6.9592	-0.000758
208.	0.	0.98612	6.9617	7.2016	5.5076	0.364	31.9181	6.8392	-0.000813
209.	0.	0.98607	6.9623	7.2016	5.5076	0.363	31.7015	6.7091	-0.000876
210.	0.	0.98608	6.9629	7.2016	5.5078	0.362	31.4898	6.5891	-0.000937
211.	0.	0.98616	6.9634	7.2016	5.5082	0.361	31.2738	6.4690	-0.001003
212.	0.	0.98642	6.9640	7.2016	5.5093	0.359	31.0573	6.3389	-0.001077
213.	0.	0.98667	6.9646	7.2016	5.5105	0.357	30.8554	6.2189	-0.001148
214.	0.	0.98709	6.9652	7.2016	5.5123	0.355	30.6569	6.0888	-0.001229
215.	0.	0.98752	6.9658	7.2016	5.5142	0.352	30.4622	5.9687	-0.001307
216.	0.	0.98801	6.9664	7.2016	5.5161	0.349	30.2622	5.8486	-0.001390
217.	0.	0.98872	6.9670	7.2016	5.5186	0.347	30.0575	5.7185	-0.001485
218.	0.	0.98939	6.9676	7.2016	5.5209	0.346	29.8505	5.5984	-0.001577
219.	0.	0.99028	6.9682	7.2016	5.5240	0.345	29.6381	5.4683	-0.001683
220.	0.	0.99110	6.9688	7.2016	5.5270	0.344	29.4176	5.3482	-0.001788
221.	0.	0.99222	6.9695	7.2016	5.5313	0.342	29.1723	5.2081	-0.001917
222.	0.	0.99359	6.9703	7.2016	5.5367	0.339	28.9134	5.0579	-0.002065
223.	0.	0.99493	6.9710	7.2016	5.5421	0.336	28.6475	4.9178	-0.002214
224.	0.	0.99660	6.9717	7.2016	5.5488	0.331	28.3778	4.7676	-0.002386
225.	0.	0.99824	6.9725	7.2016	5.5556	0.326	28.1149	4.6274	-0.002557
226.	0.	1.00021	6.9732	7.2016	5.5638	0.320	27.8426	4.4772	-0.002755
227.	0.	1.00243	6.9740	7.2016	5.5724	0.316	27.5713	4.3270	-0.002970
228.	0.	1.00465	6.9747	7.2016	5.5807	0.310	27.2947	4.1868	-0.003189
229.	0.	1.00739	6.9755	7.2016	5.5897	0.304	26.9986	4.0366	-0.003445
230.	0.	1.01046	6.9763	7.2016	5.5989	0.297	26.6951	3.8863	-0.003726
231.	0.	1.01354	6.9771	7.2016	5.6075	0.290	26.3815	3.7460	-0.004016
232.	0.	1.01727	6.9780	7.2016	5.6169	0.284	26.0486	3.5956	-0.004359
233.	0.	1.02106	6.9789	7.2016	5.6247	0.282	25.6977	3.4553	-0.004714
234.	0.	1.02568	6.9800	7.2016	5.6318	0.282	25.3209	3.3049	-0.005137
235.	0.	1.03094	6.9812	7.2016	5.6361	0.285	24.9349	3.1544	-0.005610
236.	0.	1.03643	6.9826	7.2016	5.6353	0.287	24.5438	3.0139	-0.006104
237.	0.	1.04327	6.9843	7.2016	5.6297	0.285	24.1615	2.8633	-0.006698
238.	0.	1.04861	6.9860	7.2016	5.6116	0.290	23.9631	2.7729	-0.007089
239.	0.	1.04601	6.9867	7.2016	5.5745	0.304	23.9394	2.8533	-0.006739
240.	0.	1.04940	6.9881	7.2016	5.5551	0.309	23.6738	2.7930	-0.007003
241.	0.	1.05743	6.9904	7.2016	5.5427	0.305	23.1902	2.6322	-0.007765
242.	0.	1.06507	6.9933	7.2016	5.5245	0.292	22.5864	2.4714	-0.008597
243.	0.	1.07257	6.9970	7.2016	5.4991	0.259	21.8217	2.3004	-0.009556
244.	0.	1.07837	7.0021	7.2016	5.4728	0.230	20.8948	2.0993	-0.010650
245.	0.	1.08105	7.0087	7.2016	5.4307	0.180	19.4312	1.8882	-0.011835
246.	0.	1.09394	7.0188	7.2016	5.3802	0.130	16.6764	1.3636	-0.016369
247.	0.	0.96993	7.0564	7.2016	5.2869	359.218	16.5245	0.6780	-0.001962
248.	0.	-9.00000	-9.0000	-9.0000	-9.0000	-999.000	-9.0000	-99.0000	-9.000000
249.	0.	-9.00000	-9.0000	-9.0000	-9.0000	-999.000	-9.0000	-99.0000	-9.000000
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



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PART 3: WHAFIS

WHAFIS input: YK-07.dat

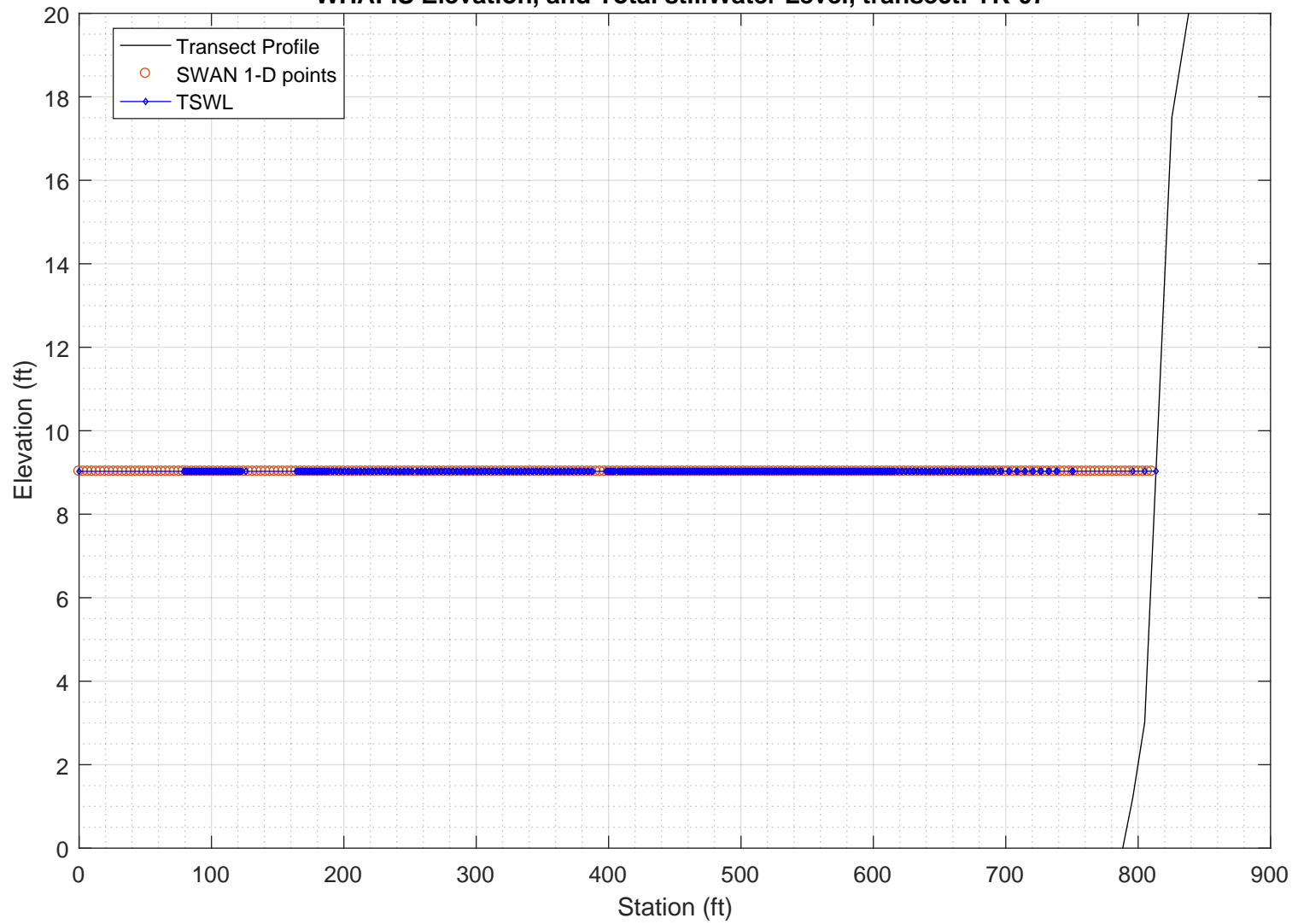
WHAFIS output: YK-07.out

PART 3 COMPLETE

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**REVISED SEP-05-2019**

**WHAFIS Elevation, and Total stillWater Level, transect: YK-07**



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

Executed on: Thu Feb 6 16:14:34 2020

Input file: C:\Users\shayward\Desktop\Kittery\T2\3\_whafis\whafis4\YK-07.dat

Output file: C:\Users\shayward\Desktop\Kittery\T2\3\_whafis\whafis4\YK-07.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	-16.356	1.000	1.000	9.027	4.699	6.937	56.140	-0.004	0.000
OF	79.000	-16.665	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	80.000	-16.669	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	81.000	-16.672	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	82.000	-16.676	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	83.000	-16.680	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	84.000	-16.684	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	85.000	-16.688	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	86.000	-16.692	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	87.000	-16.696	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	88.000	-16.700	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	89.000	-16.704	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	90.000	-16.708	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	91.000	-16.712	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	92.000	-16.716	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	93.000	-16.719	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	94.000	-16.723	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	95.000	-16.727	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	96.000	-16.731	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	97.000	-16.735	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	98.000	-16.739	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	99.000	-16.743	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	100.000	-16.747	0.000	9.027	0.000	0.000	0.000	0.000	-0.002	0.000
OF	101.000	-16.747	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	102.000	-16.747	0.000	9.027	0.000	0.000	0.000	0.000	0.001	0.000
OF	103.000	-16.746	0.000	9.027	0.000	0.000	0.000	0.000	0.001	0.000
OF	104.000	-16.746	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	105.000	-16.746	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	106.000	-16.746	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	107.000	-16.746	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	108.000	-16.746	0.000	9.027	0.000	0.000	0.000	0.000	0.001	0.000
OF	109.000	-16.745	0.000	9.027	0.000	0.000	0.000	0.000	0.001	0.000
OF	110.000	-16.745	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	111.000	-16.745	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	112.000	-16.745	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	113.000	-16.745	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	114.000	-16.745	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	115.000	-16.745	0.000	9.027	0.000	0.000	0.000	0.000	0.001	0.000
OF	116.000	-16.744	0.000	9.027	0.000	0.000	0.000	0.000	0.001	0.000
OF	117.000	-16.744	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	118.000	-16.744	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	119.000	-16.744	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	120.000	-16.744	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	121.000	-16.744	0.000	9.027	0.000	0.000	0.000	0.000	0.000	0.000
OF	122.000	-16.744	0.000	9.027	0.000	0.000	0.000	0.000	0.001	0.000
OF	123.000	-16.743	0.000	9.027	0.000	0.000	0.000	0.000	0.051	0.000
OF	126.000	-16.541	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	164.000	-16.662	0.000	9.027	0.000	0.000	0.000	0.000	-0.003	0.000
OF	165.000	-16.666	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	166.000	-16.671	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	167.000	-16.675	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	168.000	-16.680	0.000	9.027	0.000	0.000	0.000	0.000	-0.005	0.000
OF	169.000	-16.685	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	170.000	-16.689	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	171.000	-16.694	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	172.000	-16.698	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	173.000	-16.703	0.000	9.027	0.000	0.000	0.000	0.000	-0.005	0.000
OF	174.000	-16.708	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	175.000	-16.712	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	176.000	-16.717	0.000	9.027	0.000	0.000	0.000	0.000	-0.005	0.000
OF	177.000	-16.722	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	178.000	-16.726	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	179.000	-16.731	0.000	9.027	0.000	0.000	0.000	0.000	-0.004	0.000
OF	180.000	-16.735	0.000	9.027	0.000	0.000	0.000	0.000	-0.001	0.000
OF	181.000	-16.733	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	182.000	-16.731	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	183.000	-16.729	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	184.000	-16.727	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	185.000	-16.725	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	186.000	-16.724	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	187.000	-16.722	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	188.000	-16.720	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	189.000	-16.718	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	191.000	-16.714	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	192.000	-16.712	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	194.000	-16.709	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	195.000	-16.707	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	197.000	-16.703	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	198.000	-16.701	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	200.000	-16.698	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	201.000	-16.696	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	203.000	-16.692	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	204.000	-16.690	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	206.000	-16.686	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	207.000	-16.685	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	209.000	-16.681	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	210.000	-16.679	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	212.000	-16.675	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	213.000	-16.673	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	215.000	-16.670	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	216.000	-16.668	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	218.000	-16.664	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	219.000	-16.662	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	221.000	-16.659	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	222.000	-16.657	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	224.000	-16.653	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	225.000	-16.651	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	227.000	-16.647	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	228.000	-16.645	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	230.000	-16.642	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	231.000	-16.640	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000

OF	233.000	-16.636	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	234.000	-16.634	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	236.000	-16.631	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	237.000	-16.629	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	239.000	-16.625	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	240.000	-16.623	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	242.000	-16.619	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	243.000	-16.618	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	245.000	-16.614	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	246.000	-16.612	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	248.000	-16.608	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	249.000	-16.606	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	251.000	-16.603	0.000	9.027	0.000	0.000	0.000	0.000	0.002	0.000
OF	252.000	-16.599	0.000	9.027	0.000	0.000	0.000	0.000	0.005	0.000
OF	255.000	-16.581	0.000	9.027	0.000	0.000	0.000	0.000	0.005	0.000
OF	256.000	-16.578	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	258.000	-16.570	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	259.000	-16.567	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	261.000	-16.559	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	262.000	-16.556	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	264.000	-16.548	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	265.000	-16.545	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	267.000	-16.537	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	268.000	-16.533	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	270.000	-16.526	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	271.000	-16.522	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	273.000	-16.515	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	274.000	-16.511	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	276.000	-16.504	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	277.000	-16.500	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	279.000	-16.493	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	280.000	-16.489	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	282.000	-16.482	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	283.000	-16.478	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	285.000	-16.471	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	286.000	-16.467	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	288.000	-16.460	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	289.000	-16.456	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	291.000	-16.449	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	292.000	-16.445	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	294.000	-16.438	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	295.000	-16.434	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	297.000	-16.427	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	298.000	-16.423	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	300.000	-16.416	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	301.000	-16.412	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	303.000	-16.405	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	304.000	-16.401	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	306.000	-16.394	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	307.000	-16.390	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	309.000	-16.382	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	310.000	-16.379	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	312.000	-16.371	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	313.000	-16.368	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	315.000	-16.360	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	316.000	-16.357	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	318.000	-16.349	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	319.000	-16.346	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	321.000	-16.338	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	322.000	-16.335	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	324.000	-16.327	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	325.000	-16.323	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	327.000	-16.316	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	328.000	-16.312	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	330.000	-16.305	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	331.000	-16.301	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	333.000	-16.294	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	334.000	-16.290	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	336.000	-16.283	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	337.000	-16.279	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	339.000	-16.272	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	340.000	-16.268	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	342.000	-16.261	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	343.000	-16.257	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
OF	345.000	-16.250	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	346.000	-16.246	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	348.000	-16.239	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	349.000	-16.235	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	351.000	-16.228	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	352.000	-16.224	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	354.000	-16.217	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	355.000	-16.213	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	357.000	-16.206	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	358.000	-16.202	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	360.000	-16.195	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	361.000	-16.191	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	363.000	-16.184	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	364.000	-16.180	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	366.000	-16.172	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	367.000	-16.169	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	369.000	-16.161	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	370.000	-16.158	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	372.000	-16.150	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	373.000	-16.147	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	375.000	-16.139	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	376.000	-16.136	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	378.000	-16.128	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	379.000	-16.125	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	381.000	-16.117	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	382.000	-16.114	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	384.000	-16.106	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	385.000	-16.103	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	387.000	-16.095	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
OF	388.000	-16.091	0.000	9.028	0.000	0.000	0.000	0.000	-0.024	0.000
OF	398.000	-16.359	0.000	9.028	0.000	0.000	0.000	0.000	-0.028	0.000
OF	399.000	-16.399	0.000	9.028	0.000	0.000	0.000	0.000	-0.040	0.000
OF	400.000	-16.439	0.000	9.028	0.000	0.000	0.000	0.000	-0.040	0.000
OF	401.000	-16.479	0.000	9.028	0.000	0.000	0.000	0.000	-0.040	0.000
OF	402.000	-16.519	0.000	9.028	0.000	0.000	0.000	0.000	-0.040	0.000
OF	403.000	-16.559	0.000	9.028	0.000	0.				

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[illegible]

	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	324.000	-16.327	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	325.000	-16.323	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	327.000	-16.316	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	328.000	-16.312	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	330.000	-16.305	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	331.000	-16.301	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	333.000	-16.294	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	334.000	-16.290	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	336.000	-16.283	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	337.000	-16.279	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	339.000	-16.272	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	340.000	-16.268	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	342.000	-16.261	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	343.000	-16.257	0.000	9.027	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	345.000	-16.250	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	346.000	-16.246	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	348.000	-16.239	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	349.000	-16.235	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	351.000	-16.228	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	352.000	-16.224	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	354.000	-16.217	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	355.000	-16.213	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	357.000	-16.206	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	358.000	-16.202	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	360.000	-16.195	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	361.000	-16.191	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	363.000	-16.184	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	364.000	-16.180	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	366.000	-16.172	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	367.000	-16.169	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	369.000	-16.161	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	370.000	-16.158	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	372.000	-16.150	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	373.000	-16.147	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	375.000	-16.139	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	376.000	-16.136	0.000	9.028	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	378.000	-16.128	0.000	9.028	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
	379.000	-16.125	0.000	9.028	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
	381.000	-16.117	0.000	9.028	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
	382.000	-16.114	0.000	9.028	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
	384.000	-16.106	0.000	9.028	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
	385.000	-16.103	0.000	9.028	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
	387.000	-16.095	0.000	9.028	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
	388.000	-16.091	0.000	9.028	0.000	0.000	0.000	0.000		-0.024	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	398.000	-16.359	0.000	9.028	0.000	0.000	0.000	0.000		-0.028	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	399.000	-16.399	0.000	9.028	0.000	0.000	0.000	0.000		-0.040	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	400.000	-16.439	0.000	9.028	0.000	0.000	0.000	0.000		-0.040	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	401.000	-16.479	0.000	9.028	0.000	0.000	0.000	0.000		-0.040	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	402.000	-16.519	0.000	9.028	0.000	0.000	0.000	0.000		-0.040	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	403.000	-16.559	0.000	9.028	0.000	0.000	0.000	0.000		-0.040	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	404.000	-16.598	0.000	9.028	0.000	0.000	0.000	0.000		-0.040	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	405.000	-16.638	0.000	9.028	0.000	0.000	0.000	0.000		-0.036	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	407.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		-0.022	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	408.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	409.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	410.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	411.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	412.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	413.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	414.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	415.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	416.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	417.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	418.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	419.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	420.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	421.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	422.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	423.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	424.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	425.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	426.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	427.000	-16.705	0.000	9.028	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES

[illegible]

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[illegible]

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OF	664.000	-15.694	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	666.000	-15.446	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	667.000	-15.322	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	669.000	-15.074	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	670.000	-14.950	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	672.000	-14.702	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	673.000	-14.578	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	675.000	-14.329	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	676.000	-14.206	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	678.000	-13.957	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	679.000	-13.833	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	681.000	-13.585	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	682.000	-13.461	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	684.000	-13.213	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	685.000	-13.089	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	687.000	-12.841	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	688.000	-12.717	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	690.000	-12.469	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	691.000	-12.345	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	694.000	-11.972	0.000	9.028	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	696.000	-11.725	0.000	9.029	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	697.000	-11.600	0.000	9.029	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	702.000	-10.980	0.000	9.029	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	703.000	-10.856	0.000	9.029	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	708.000	-10.236	0.000	9.029	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	709.000	-10.112	0.000	9.029	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	714.000	-9.492	0.000	9.029	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	715.000	-9.368	0.000	9.029	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	720.000	-8.748	0.000	9.029	0.000	0.000	0.000	0.000	0.124	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	721.000	-8.624	0.000	9.029	0.000	0.000	0.000	0.000	0.137	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	726.000	-7.928	0.000	9.029	0.000	0.000	0.000	0.000	0.140	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	727.000	-7.782	0.000	9.029	0.000	0.000	0.000	0.000	0.146	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	732.000	-7.051	0.000	9.029	0.000	0.000	0.000	0.000	0.146	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	733.000	-6.905	0.000	9.029	0.000	0.000	0.000	0.000	0.146	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	738.000	-6.175	0.000	9.030	0.000	0.000	0.000	0.000	0.146	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	739.000	-6.029	0.000	9.030	0.000	0.000	0.000	0.000	0.146	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
OF	750.000	-4.422	0.000	9.030	0.000	0.000	0.000	0.000	0.146	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE

OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	751.000	-4.276	0.000	9.030	0.000	0.000	0.000	0.000	0.123	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	796.000	1.214	0.000	9.031	0.000	0.000	0.000	0.000	0.135	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	805.000	3.018	0.000	9.031	0.000	0.000	0.000	0.000	0.447	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	813.500	9.031	0.000	9.031	0.000	0.000	0.000	0.000	0.707	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	SPECTRAL PEAK	WAVE CREST
	WAVE HEIGHT	WAVE PERIOD	ELEVATION
IE	0.00	4.70	6.94
OF	79.00	4.72	6.94
OF	80.00	4.72	6.94
OF	81.00	4.72	6.94
OF	82.00	4.72	6.94
OF	83.00	4.72	6.94
OF	84.00	4.72	6.94
OF	85.00	4.72	6.94
OF	86.00	4.72	6.94
OF	87.00	4.72	6.94
OF	88.00	4.72	6.94
OF	89.00	4.72	6.94
OF	90.00	4.72	6.94
OF	91.00	4.72	6.94
OF	92.00	4.72	6.94
OF	93.00	4.72	6.94
OF	94.00	4.72	6.94
OF	95.00	4.72	6.94
OF	96.00	4.72	6.94
OF	97.00	4.72	6.94
OF	98.00	4.72	6.94
OF	99.00	4.72	6.94
OF	100.00	4.72	6.94
OF	101.00	4.72	6.94
OF	102.00	4.72	6.94
OF	103.00	4.72	6.94
OF	104.00	4.72	6.94
OF	105.00	4.72	6.94
OF	106.00	4.72	6.94
OF	107.00	4.72	6.94
OF	108.00	4.72	6.94
OF	109.00	4.72	6.94
OF	110.00	4.72	6.94
OF	111.00	4.72	6.94
OF	112.00	4.72	6.94
OF	113.00	4.73	6.94
OF	114.00	4.73	6.94
OF	115.00	4.73	6.94
OF	116.00	4.73	6.94
OF	117.00	4.73	6.94
OF	118.00	4.73	6.94
OF	119.00	4.73	6.94
OF	120.00	4.73	6.94
OF	121.00	4.73	6.94
OF	122.00	4.73	6.94
OF	123.00	4.73	6.94
OF	126.00	4.73	6.94
OF	164.00	4.74	6.94
OF	165.00	4.74	6.94
OF	166.00	4.74	6.94
OF	167.00	4.74	6.94
OF	168.00	4.74	6.94
OF	169.00	4.74	6.94
OF	170.00	4.74	6.94
OF	171.00	4.74	6.94
OF	172.00	4.74	6.94
OF	173.00	4.75	6.94
OF	174.00	4.75	6.94
OF	175.00	4.75	6.94
OF	176.00	4.75	6.94
OF	177.00	4.75	6.94
OF	178.00	4.75	6.94
OF	179.00	4.75	6.94
OF	180.00	4.75	6.94
OF	181.00	4.75	6.94
OF	182.00	4.75	6.94
OF	183.00	4.75	6.94
OF	184.00	4.75	6.94
OF	185.00	4.75	6.94
OF	186.00	4.75	6.94
OF	187.00	4.75	6.94
OF	188.00	4.75	6.94
OF	189.00	4.75	6.94
OF	191.00	4.75	6.94
OF	192.00	4.75	6.94
OF	194.00	4.75	6.94
OF	195.00	4.75	6.94
OF	197.00	4.75	6.94
OF	198.00	4.75	6.94
OF	200.00	4.75	6.94
OF	201.00	4.75	6.94
OF	203.00	4.75	6.94
OF	204.00	4.76	6.94
OF	206.00	4.76	6.94
OF	207.00	4.76	6.94
OF	209.00	4.76	6.94
OF	210.00	4.76	6.94
OF	212.00	4.76	6.94
OF	213.00	4.76	6.94
OF	215.00	4.76	6.94
OF	216.00	4.76	6.94

OF	218.00	4.76	6.94	12.36
OF	219.00	4.76	6.94	12.36
OF	221.00	4.76	6.94	12.36
OF	222.00	4.76	6.94	12.36
OF	224.00	4.76	6.94	12.36
OF	225.00	4.76	6.94	12.36
OF	227.00	4.76	6.94	12.36
OF	228.00	4.76	6.94	12.36
OF	230.00	4.76	6.94	12.36
OF	231.00	4.76	6.94	12.36
OF	233.00	4.77	6.94	12.36
OF	234.00	4.77	6.94	12.36
OF	236.00	4.77	6.94	12.36
OF	237.00	4.77	6.94	12.36
OF	239.00	4.77	6.94	12.36
OF	240.00	4.77	6.94	12.36
OF	242.00	4.77	6.94	12.37
OF	243.00	4.77	6.94	12.37
OF	245.00	4.77	6.94	12.37
OF	246.00	4.77	6.94	12.37
OF	248.00	4.77	6.94	12.37
OF	249.00	4.77	6.94	12.37
OF	251.00	4.77	6.94	12.37
OF	252.00	4.77	6.94	12.37
OF	255.00	4.77	6.94	12.37
OF	256.00	4.77	6.94	12.37
OF	258.00	4.78	6.94	12.37
OF	259.00	4.78	6.94	12.37
OF	261.00	4.78	6.94	12.37
OF	262.00	4.78	6.94	12.37
OF	264.00	4.78	6.94	12.37
OF	265.00	4.78	6.94	12.37
OF	267.00	4.78	6.94	12.37
OF	268.00	4.78	6.94	12.37
OF	270.00	4.78	6.94	12.37
OF	271.00	4.78	6.94	12.37
OF	273.00	4.78	6.94	12.37
OF	274.00	4.78	6.94	12.37
OF	276.00	4.78	6.94	12.37
OF	277.00	4.78	6.94	12.37
OF	279.00	4.78	6.94	12.38
OF	280.00	4.78	6.94	12.38
OF	282.00	4.78	6.94	12.38
OF	283.00	4.79	6.94	12.38
OF	285.00	4.79	6.94	12.38
OF	286.00	4.79	6.94	12.38
OF	288.00	4.79	6.94	12.38
OF	289.00	4.79	6.94	12.38
OF	291.00	4.79	6.94	12.38
OF	292.00	4.79	6.94	12.38
OF	294.00	4.79	6.94	12.38
OF	295.00	4.79	6.94	12.38
OF	297.00	4.79	6.94	12.38
OF	298.00	4.79	6.94	12.38
OF	300.00	4.79	6.94	12.38
OF	301.00	4.79	6.94	12.38
OF	303.00	4.79	6.94	12.38
OF	304.00	4.79	6.94	12.38
OF	306.00	4.79	6.94	12.38
OF	307.00	4.79	6.94	12.38
OF	309.00	4.80	6.94	12.38
OF	310.00	4.80	6.94	12.38
OF	312.00	4.80	6.94	12.38
OF	313.00	4.80	6.94	12.39
OF	315.00	4.80	6.94	12.39
OF	316.00	4.80	6.94	12.39
OF	318.00	4.80	6.94	12.39
OF	319.00	4.80	6.94	12.39
OF	321.00	4.80	6.94	12.39
OF	322.00	4.80	6.94	12.39
OF	324.00	4.80	6.94	12.39
OF	325.00	4.80	6.94	12.39
OF	327.00	4.80	6.94	12.39
OF	328.00	4.80	6.94	12.39
OF	330.00	4.80	6.94	12.39
OF	331.00	4.80	6.94	12.39
OF	333.00	4.81	6.94	12.39
OF	334.00	4.81	6.94	12.39
OF	336.00	4.81	6.94	12.39
OF	337.00	4.81	6.94	12.39
OF	339.00	4.81	6.94	12.39
OF	340.00	4.81	6.94	12.39
OF	342.00	4.81	6.94	12.39
OF	343.00	4.81	6.94	12.39
OF	345.00	4.81	6.94	12.40
OF	346.00	4.81	6.94	12.40
OF	348.00	4.81	6.94	12.40
OF	349.00	4.81	6.94	12.40
OF	351.00	4.81	6.94	12.40
OF	352.00	4.81	6.94	12.40
OF	354.00	4.81	6.94	12.40
OF	355.00	4.81	6.94	12.40
OF	357.00	4.82	6.94	12.40
OF	358.00	4.82	6.94	12.40
OF	360.00	4.82	6.94	12.40
OF	361.00	4.82	6.94	12.40
OF	363.00	4.82	6.94	12.40
OF	364.00	4.82	6.94	12.40
OF	366.00	4.82	6.94	12.40
OF	367.00	4.82	6.94	12.40
OF	369.00	4.82	6.94	12.40
OF	370.00	4.82	6.94	12.40
OF	372.00	4.82	6.94	12.40
OF	373.00	4.82	6.94	12.40
OF	375.00	4.82	6.94	12.40
OF	376.00	4.82	6.94	12.40
OF	378.00	4.82	6.94	12.40
OF	379.00	4.82	6.94	12.40
OF	381.00	4.83	6.94	12.41
OF	382.00	4.83	6.94	12.41

	384.00	4.83	6.94	12.41
OF	385.00	4.83	6.94	12.41
OF	387.00	4.83	6.94	12.41
OF	388.00	4.83	6.94	12.41
OF	398.00	4.82	6.94	12.40
OF	399.00	4.82	6.94	12.40
OF	400.00	4.82	6.94	12.40
OF	401.00	4.82	6.94	12.40
OF	402.00	4.82	6.94	12.40
OF	403.00	4.82	6.94	12.40
OF	404.00	4.82	6.94	12.40
OF	405.00	4.82	6.94	12.40
OF	407.00	4.82	6.94	12.40
OF	408.00	4.82	6.94	12.40
OF	409.00	4.82	6.94	12.40
OF	410.00	4.82	6.94	12.40
OF	411.00	4.82	6.94	12.40
OF	412.00	4.82	6.94	12.40
OF	413.00	4.82	6.94	12.40
OF	414.00	4.82	6.94	12.40
OF	415.00	4.82	6.94	12.40
OF	416.00	4.82	6.94	12.40
OF	417.00	4.82	6.94	12.40
OF	418.00	4.82	6.94	12.40
OF	419.00	4.82	6.95	12.40
OF	420.00	4.82	6.95	12.40
OF	421.00	4.82	6.95	12.40
OF	422.00	4.82	6.95	12.40
OF	423.00	4.82	6.95	12.40
OF	424.00	4.82	6.95	12.40
OF	425.00	4.82	6.95	12.40
OF	426.00	4.82	6.95	12.40
OF	427.00	4.82	6.95	12.40
OF	428.00	4.82	6.95	12.40
OF	429.00	4.82	6.95	12.41
OF	430.00	4.82	6.95	12.41
OF	431.00	4.83	6.95	12.41
OF	432.00	4.83	6.95	12.41
OF	433.00	4.83	6.95	12.41
OF	434.00	4.83	6.95	12.41
OF	435.00	4.83	6.95	12.41
OF	436.00	4.83	6.95	12.41
OF	437.00	4.83	6.95	12.41
OF	438.00	4.83	6.95	12.41
OF	439.00	4.83	6.95	12.41
OF	440.00	4.83	6.95	12.41
OF	441.00	4.83	6.95	12.41
OF	442.00	4.83	6.95	12.41
OF	443.00	4.83	6.95	12.41
OF	444.00	4.83	6.95	12.41
OF	445.00	4.83	6.95	12.41
OF	446.00	4.83	6.95	12.41
OF	447.00	4.83	6.95	12.41
OF	448.00	4.83	6.95	12.41
OF	449.00	4.83	6.95	12.41
OF	450.00	4.83	6.95	12.41
OF	451.00	4.83	6.95	12.41
OF	452.00	4.83	6.95	12.41
OF	453.00	4.83	6.95	12.41
OF	454.00	4.83	6.95	12.41
OF	455.00	4.83	6.95	12.41
OF	456.00	4.83	6.95	12.41
OF	457.00	4.83	6.95	12.41
OF	458.00	4.83	6.95	12.41
OF	459.00	4.83	6.95	12.41
OF	460.00	4.83	6.95	12.41
OF	461.00	4.83	6.95	12.41
OF	462.00	4.83	6.95	12.41
OF	463.00	4.83	6.95	12.41
OF	464.00	4.84	6.95	12.41
OF	465.00	4.84	6.95	12.41
OF	466.00	4.84	6.95	12.41
OF	467.00	4.84	6.95	12.41
OF	468.00	4.84	6.95	12.41
OF	469.00	4.84	6.95	12.41
OF	470.00	4.84	6.95	12.41
OF	471.00	4.84	6.95	12.41
OF	472.00	4.84	6.95	12.41
OF	473.00	4.84	6.95	12.41
OF	474.00	4.84	6.95	12.41
OF	475.00	4.84	6.95	12.41
OF	476.00	4.84	6.95	12.42
OF	477.00	4.84	6.95	12.42
OF	478.00	4.84	6.95	12.42
OF	479.00	4.84	6.95	12.42
OF	480.00	4.84	6.95	12.42
OF	481.00	4.84	6.95	12.42
OF	482.00	4.84	6.95	12.42
OF	483.00	4.84	6.95	12.42
OF	484.00	4.84	6.95	12.42
OF	485.00	4.84	6.95	12.42
OF	486.00	4.84	6.95	12.42
OF	487.00	4.84	6.95	12.42
OF	488.00	4.84	6.95	12.42
OF	489.00	4.84	6.95	12.42
OF	490.00	4.84	6.95	12.42
OF	491.00	4.84	6.95	12.42
OF	492.00	4.84	6.95	12.42
OF	493.00	4.84	6.95	12.42
OF	494.00	4.84	6.95	12.42
OF	495.00	4.84	6.95	12.42
OF	496.00	4.85	6.95	12.42
OF	497.00	4.85	6.95	12.42
OF	498.00	4.85	6.95	12.42
OF	499.00	4.85	6.95	12.42
OF	500.00	4.85	6.95	12.42
OF	501.00	4.85	6.95	12.42
OF	502.00	4.85	6.95	12.42
OF	503.00	4.85	6.95	12.42
OF	504.00	4.85	6.95	12.42

OF	505.00	4.85	6.95	12.42
OF	506.00	4.85	6.95	12.42
OF	507.00	4.85	6.95	12.42
OF	508.00	4.85	6.95	12.42
OF	509.00	4.85	6.95	12.42
OF	510.00	4.85	6.95	12.42
OF	511.00	4.85	6.95	12.42
OF	512.00	4.85	6.95	12.42
OF	513.00	4.85	6.95	12.42
OF	514.00	4.85	6.95	12.42
OF	515.00	4.85	6.95	12.42
OF	516.00	4.85	6.95	12.42
OF	517.00	4.85	6.95	12.42
OF	518.00	4.85	6.95	12.43
OF	519.00	4.85	6.95	12.43
OF	520.00	4.85	6.95	12.43
OF	521.00	4.85	6.95	12.43
OF	522.00	4.85	6.95	12.43
OF	523.00	4.85	6.95	12.43
OF	524.00	4.85	6.95	12.43
OF	525.00	4.85	6.95	12.43
OF	526.00	4.85	6.95	12.43
OF	527.00	4.85	6.95	12.43
OF	528.00	4.85	6.95	12.43
OF	529.00	4.86	6.95	12.43
OF	530.00	4.86	6.95	12.43
OF	531.00	4.86	6.95	12.43
OF	532.00	4.86	6.95	12.43
OF	533.00	4.86	6.95	12.43
OF	534.00	4.86	6.95	12.43
OF	535.00	4.86	6.95	12.43
OF	536.00	4.86	6.95	12.43
OF	537.00	4.86	6.95	12.43
OF	538.00	4.86	6.95	12.43
OF	539.00	4.86	6.95	12.43
OF	540.00	4.86	6.95	12.43
OF	541.00	4.86	6.95	12.43
OF	542.00	4.86	6.95	12.43
OF	543.00	4.86	6.95	12.43
OF	544.00	4.86	6.95	12.43
OF	545.00	4.86	6.95	12.43
OF	546.00	4.86	6.95	12.43
OF	547.00	4.86	6.95	12.43
OF	548.00	4.86	6.95	12.43
OF	549.00	4.86	6.95	12.43
OF	550.00	4.86	6.95	12.43
OF	551.00	4.86	6.95	12.43
OF	552.00	4.86	6.95	12.43
OF	553.00	4.86	6.95	12.43
OF	554.00	4.86	6.95	12.43
OF	555.00	4.86	6.95	12.43
OF	556.00	4.86	6.95	12.43
OF	557.00	4.86	6.95	12.43
OF	558.00	4.86	6.95	12.43
OF	559.00	4.86	6.95	12.43
OF	560.00	4.86	6.95	12.43
OF	561.00	4.86	6.95	12.43
OF	562.00	4.87	6.95	12.43
OF	563.00	4.87	6.95	12.43
OF	564.00	4.87	6.95	12.44
OF	565.00	4.87	6.95	12.44
OF	566.00	4.87	6.95	12.44
OF	567.00	4.87	6.95	12.44
OF	568.00	4.87	6.95	12.44
OF	569.00	4.87	6.95	12.44
OF	570.00	4.87	6.95	12.44
OF	571.00	4.87	6.95	12.44
OF	572.00	4.87	6.95	12.44
OF	573.00	4.87	6.95	12.44
OF	574.00	4.87	6.95	12.44
OF	575.00	4.87	6.95	12.44
OF	576.00	4.87	6.95	12.44
OF	577.00	4.87	6.95	12.44
OF	578.00	4.87	6.95	12.44
OF	579.00	4.87	6.95	12.44
OF	580.00	4.87	6.95	12.44
OF	581.00	4.87	6.95	12.44
OF	582.00	4.87	6.95	12.44
OF	583.00	4.87	6.95	12.44
OF	584.00	4.87	6.95	12.44
OF	585.00	4.87	6.95	12.44
OF	586.00	4.87	6.95	12.44
OF	587.00	4.87	6.95	12.44
OF	588.00	4.87	6.95	12.44
OF	589.00	4.87	6.95	12.44
OF	590.00	4.87	6.95	12.44
OF	591.00	4.87	6.95	12.44
OF	592.00	4.87	6.95	12.44
OF	593.00	4.87	6.95	12.44
OF	594.00	4.88	6.95	12.44
OF	595.00	4.88	6.95	12.44
OF	596.00	4.88	6.95	12.44
OF	597.00	4.88	6.95	12.44
OF	598.00	4.88	6.95	12.44
OF	599.00	4.88	6.95	12.44
OF	600.00	4.88	6.95	12.44
OF	601.00	4.88	6.95	12.44
OF	602.00	4.88	6.95	12.44
OF	603.00	4.88	6.95	12.44
OF	604.00	4.88	6.95	12.44
OF	605.00	4.88	6.95	12.44
OF	606.00	4.88	6.95	12.44
OF	607.00	4.88	6.95	12.44
OF	608.00	4.88	6.95	12.44
OF	609.00	4.88	6.95	12.44
OF	610.00	4.88	6.95	12.44
OF	611.00	4.88	6.95	12.44
OF	612.00	4.88	6.95	12.44
OF	613.00	4.88	6.95	12.44
OF	614.00	4.88	6.95	12.44



OF	615.00	4.88	6.95	12.44		
OF	616.00	4.88	6.95	12.45		
OF	618.00	4.88	6.95	12.45		
OF	619.00	4.88	6.95	12.45		
OF	621.00	4.88	6.95	12.45		
OF	622.00	4.88	6.95	12.45		
OF	624.00	4.88	6.95	12.45		
OF	625.00	4.88	6.95	12.45		
OF	627.00	4.89	6.95	12.45		
OF	628.00	4.89	6.95	12.45		
OF	630.00	4.89	6.95	12.45		
OF	631.00	4.89	6.95	12.45		
OF	633.00	4.89	6.95	12.45		
OF	634.00	4.89	6.95	12.45		
OF	636.00	4.89	6.95	12.45		
OF	637.00	4.89	6.95	12.45		
OF	639.00	4.89	6.95	12.45		
OF	640.00	4.89	6.95	12.45		
OF	642.00	4.89	6.95	12.45		
OF	643.00	4.89	6.95	12.45		
OF	645.00	4.89	6.95	12.45		
OF	646.00	4.89	6.95	12.45		
OF	648.00	4.89	6.95	12.45		
OF	649.00	4.89	6.95	12.45		
OF	651.00	4.89	6.95	12.45		
OF	652.00	4.89	6.95	12.45		
OF	654.00	4.89	6.95	12.45		
OF	655.00	4.89	6.95	12.45		
OF	657.00	4.90	6.95	12.46		
OF	658.00	4.90	6.95	12.46		
OF	660.00	4.91	6.95	12.46		
OF	661.00	4.91	6.95	12.47		
OF	663.00	4.92	6.95	12.47		
OF	664.00	4.92	6.95	12.47		
OF	666.00	4.93	6.95	12.48		
OF	667.00	4.94	6.95	12.48		
OF	669.00	4.94	6.95	12.49		
OF	670.00	4.95	6.95	12.49		
OF	672.00	4.96	6.95	12.50		
OF	673.00	4.96	6.95	12.50		
OF	675.00	4.97	6.95	12.51		
OF	676.00	4.97	6.95	12.51		
OF	678.00	4.98	6.95	12.52		
OF	679.00	4.99	6.95	12.52		
OF	681.00	5.00	6.95	12.53		
OF	682.00	5.00	6.95	12.53		
OF	684.00	5.01	6.95	12.54		
OF	685.00	5.02	6.95	12.54		
OF	687.00	5.03	6.95	12.55		
OF	688.00	5.03	6.95	12.55		
OF	690.00	5.04	6.95	12.56		
OF	691.00	5.05	6.95	12.56		
OF	694.00	5.07	6.95	12.57		
OF	696.00	5.08	6.95	12.58		
OF	697.00	5.08	6.95	12.59		
OF	702.00	5.11	6.95	12.61		
OF	703.00	5.12	6.95	12.61		
OF	708.00	5.15	6.95	12.64		
OF	709.00	5.16	6.95	12.64		
OF	714.00	5.20	6.95	12.67		
OF	715.00	5.20	6.95	12.67		
OF	720.00	5.24	6.95	12.70		
OF	721.00	5.25	6.95	12.70		
OF	726.00	5.30	6.95	12.74		
OF	727.00	5.31	6.95	12.74		
OF	732.00	5.36	6.95	12.78		
OF	733.00	5.37	6.95	12.79		
OF	738.00	5.43	6.95	12.83		
OF	739.00	5.45	6.95	12.84		
OF	750.00	5.60	6.95	12.95		
OF	751.00	5.62	6.95	12.96		
IF	796.00	5.69	6.95	13.01		
IF	805.00	4.52	6.95	12.19		
IF	813.50	0.01	6.95	9.04		
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				
345.00	1.00	9.03				
497.00	1.00	9.03				
577.00	1.00	9.03				
696.00	1.00	9.03				
738.00	1.00	9.03				
796.00	1.00	9.03				
PART5 LOCATION OF V ZONES						
STATION OF GUTTER	807.86	LOCATION OF ZONE				
WINDWARD						
PART6 NUMBERED A ZONES AND V ZONES						
STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF			
0.00	12.32					
343.00	12.39	V22 EL=12	120			
345.00	12.40	V22 EL=12	120			
496.00	12.42	V22 EL=12	120			
497.00	12.42	V22 EL=12	120			
576.00	12.44	V22 EL=12	120			
577.00	12.44	V22 EL=12	120			
672.80	12.50	V22 EL=13	120			
694.00	12.57	V22 EL=13	120			
696.00	12.58	V22 EL=13	120			
733.00	12.79	V22 EL=13	120			

738.00	12.83	V22	EL=13	120
751.00	12.96	V22	EL=13	120
796.00	13.01	V22	EL=13	120
801.63	12.50	V22	EL=13	120
806.87	11.50	V22	EL=12	120
807.86	11.13	V22	EL=11	120
809.56	10.50	A18	EL=11	90
812.25	9.50	A18	EL=10	90
813.50	9.04	A18	EL= 9	90

ZONE TERMINATED AT END OF TRANSECT  
PART 7 POSTSCRIPT NOTES

PS# 1 START(361534.0939,4771155.0782)  
PS# 2 END(361550.198,4771543.3657)

-1.000000e+00

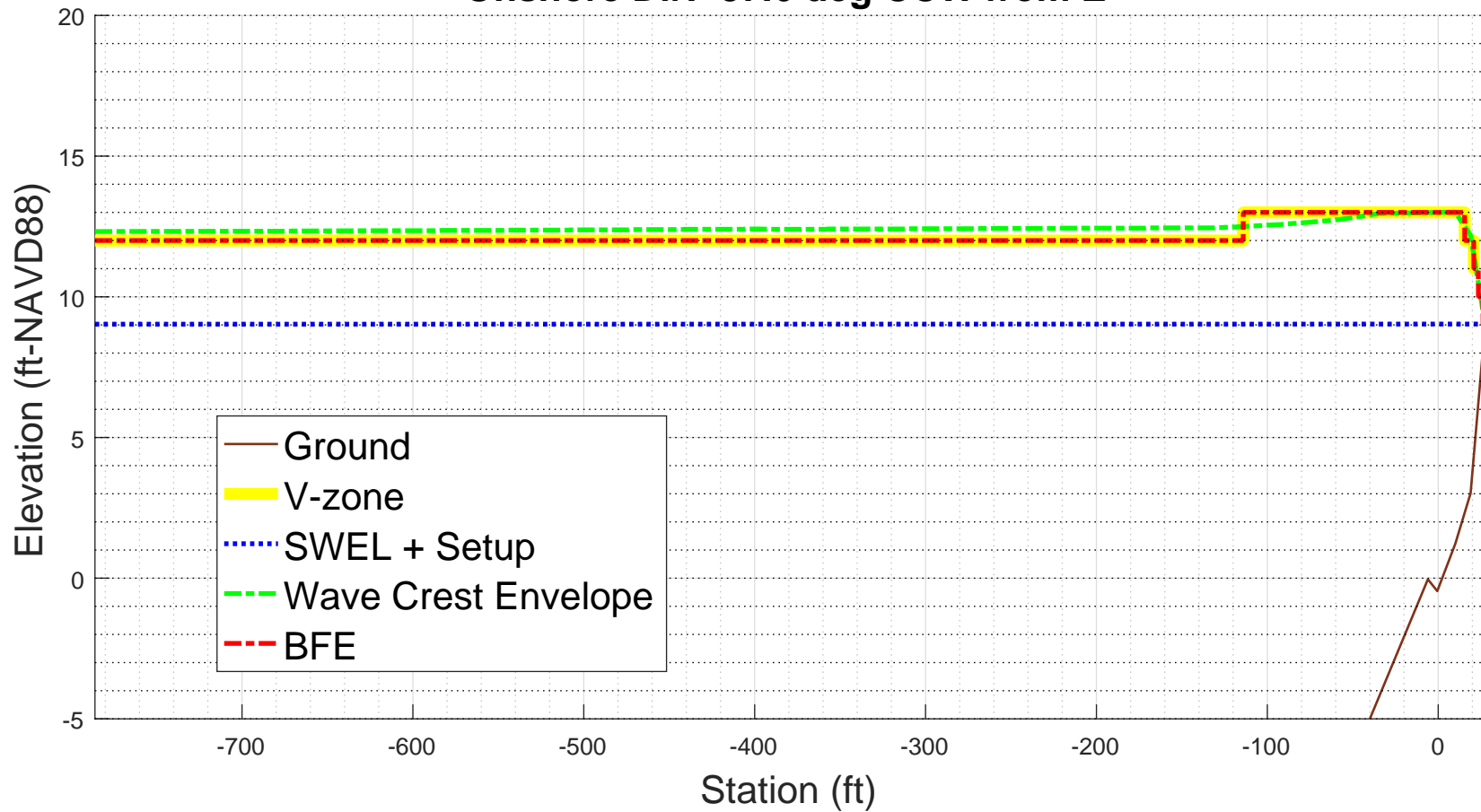
**REVISED SEP-05-2019**

**YK-07**

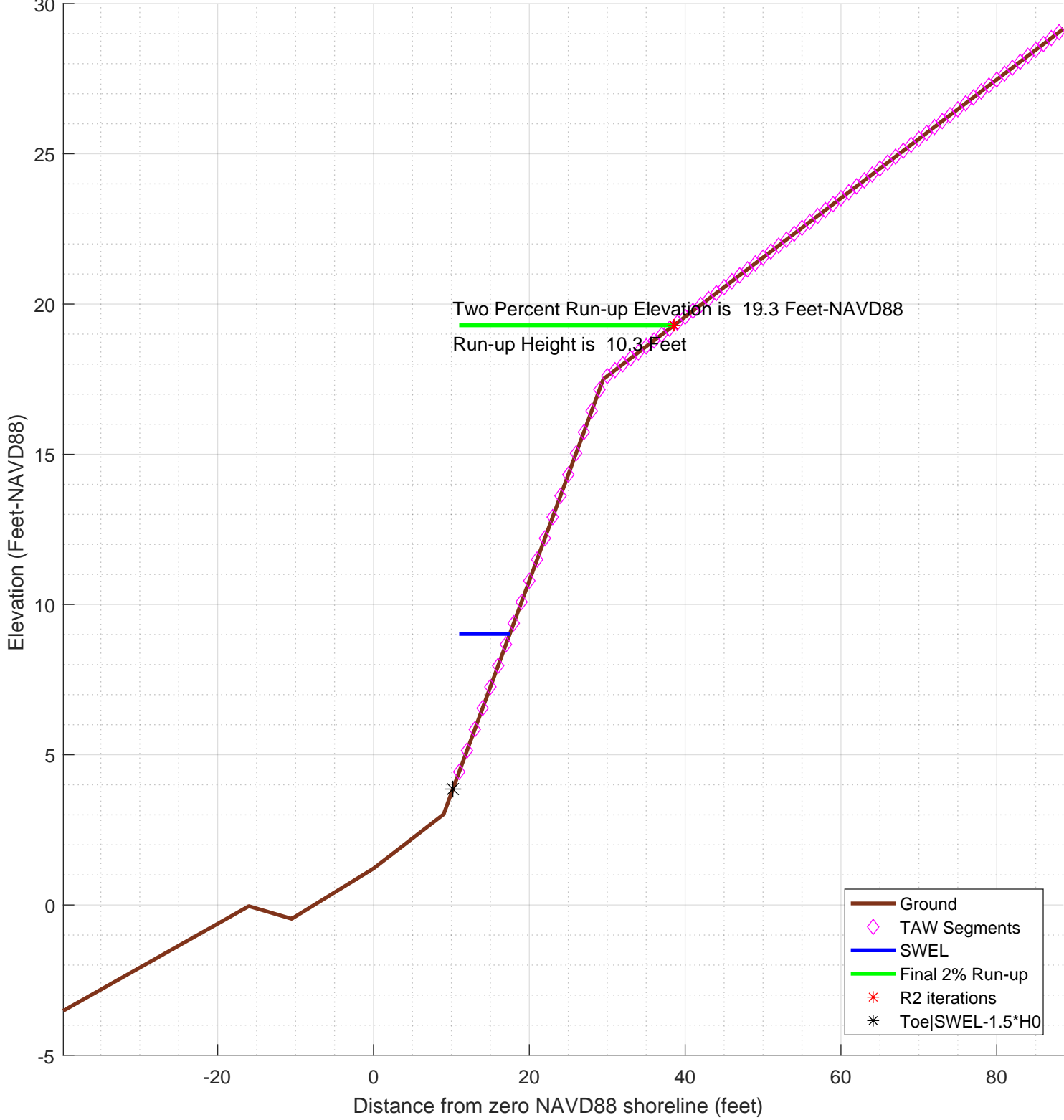
**100-year WHAFIS Output**

**Zero Station: -70.70093611, 43.08262722**

**Onshore Dir: 87.6 deg CCW from E**



Iterative TAW for YK-07



```

diary on          % begin recording

% FEMA appeal for The Town of Harpswell, Cumberland county, Maine
% TRANSECT ID: YK-07
% calculation by SJH, Ransom Consulting, Inc. 06-Feb-2020
% 100-year wave runup using TAW methodology
% including berm and weighted average with foreshore if necessary
%
% chk nld 20181015
%
% 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/YK-07sta_ele_include.csv'; % file with station, elevation, include
                                     % third column is 0 for excluded points
imgname='logfiles/YK-07-runup';
SWEL=9.0273; % 100-yr still water level including wave setup.
H0=3.4318; % significant wave height at toe of structure
Tp=6.9867; % peak period, 1/fma,
T0=Tp/1.1;

gamma_berm=1; % this may get changed automatically below
gamma_rough=0.85;
gamma_beta=1;
gamma_perm=1;

setupAtToe=-0.02211;
maxSetup=0; % only used in case of berm/shallow foreshore weighted average

plotTitle='Iterative TAW for YK-07'

plotTitle =

Iterative TAW for YK-07

% END CONFIG
%-----

SWEL=SWEL+setupAtToe

SWEL =

          9.00519

SWEL_fore=SWEL+maxSetup

SWEL_fore =

          9.00519

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

L0 =

          206.423876616238

% 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 =

```

3.85749

```
% 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 =

    14.15289

% 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 =

    10.1875736822813

top_sta =

    24.7583051341601

% 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 =

    24.7583051341601

toe_sta

toe_sta =

    10.1875736822813

% 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',de
    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 28.5 ft landward of toe of slope

ans =

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

ans =

-!!-      setup is adjusted to -0.01 feet

ans =

-!!-      SWEL is adjusted to 9.02 feet

k =

```

```

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

```

```

% now iterate converge on a runup elevation
tol=0.001; % convergence criteria
R2del=999;
R2_new=3*H0; %initial guess
R2=R2_new;
iter=0;
R2_all=[];
topStaAll=[];
Berm_Segs=[];
TAW_ALWAYS_VALID=1;
while(abs(R2del) > tol && iter <= 25)
    iter=iter+1;
    sprintf('!----- STARTING ITERATION %d -----!',iter)
    % elevation of toe of slope
    Ztoe
    % station of toe slope (relative to 0-NAVD88 shoreline)
    toe_sta
    % station of top of slope/extent of 2% run-up
    top_sta
    % elevation of top of slope/extent of 2% run-up
    Z2
    % incident significant wave height
    H0
    % incident spectral peak wave period
    Tp
    % incident spectral mean wave period
    T0

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

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

```

```

% 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)
    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')
    % 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 =

        3.85749

toe_sta =

        10.1875736822813

top_sta =

        24.7583051341601

Z2 =

        14.15289

H0 =

        3.4318

Tp =

        6.9867

T0 =

        6.35154545454545

R2 =

        10.2954

Z2 =

        19.3170427184004

```

```

top_sta =
    38.6897861781059

Lslope =
    28.5022124958246

ans =
!----- End Berm Factor Calculation, Iter: 1 -----!

berm_width =
    0

rB =
    0

rdh_mean =
    1

gamma_berm =
    1

slope =
    0.542398339099645

Irb =
    4.20665921551532

gamma_berm =
    1

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.85

gamma =
    0.85

ans =
!!! - - Iribaren number: 4.21 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:1.8 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    10.2676484514331

R2del =
    0.0277515485668882

Z2 =
    19.2892911698335

```

```
top_sta =
    38.5491780320696

ans =
!----- STARTING ITERATION 2 -----!

Ztoe =
    3.85749

toe_sta =
    10.1875736822813

top_sta =
    38.5491780320696

Z2 =
    19.2892911698335

H0 =
    3.4318

Tp =
    6.9867

T0 =
    6.35154545454545

R2 =
    10.2676484514331

Z2 =
    19.2892911698335

top_sta =
    38.5491780320696

Lslope =
    28.3616043497883

ans =
!----- End Berm Factor Calculation, Iter: 2 -----!

berm_width =
    0

rB =
    0

rdh_mean =
    1

gamma_berm =
    1

slope =
    0.544108893823867
```

```

Irb =
    4.2199257030312

gamma_berm =
    1

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.85

gamma =
    0.85

ans =
!!! - - Iribaren number: 4.22 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:1.8 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    10.2712282212256

R2del =
    0.00357976979249308

Z2 =
    19.292870939626

top_sta =
    38.567315571045

ans =
!----- STARTING ITERATION 3 -----!

Ztoe =
    3.85749

toe_sta =
    10.1875736822813

top_sta =
    38.567315571045

Z2 =
    19.292870939626

H0 =
    3.4318

Tp =
    6.9867

```

```

T0 =
    6.35154545454545

R2 =
    10.2712282212256

Z2 =
    19.292870939626

top_sta =
    38.567315571045

Lslope =
    28.3797418887637

ans =
!----- End Berm Factor Calculation, Iter: 3 -----!

berm_width =
    0

rB =
    0

rdh_mean =
    1

gamma_berm =
    1

slope =
    0.543887291157404

Irb =
    4.21820702723177

gamma_berm =
    1

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.85

gamma =
    0.85

ans =
!!! - - Iribaren number: 4.22 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:1.8 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

```

```
R2_new =  
10.2707654137979
```

```
R2del =  
0.000462807427668466
```

```
Z2 =  
19.2924081321983
```

```
top_sta =  
38.5649706750757
```

```
% final 2% runup elevation  
Z2=R2_new+SWEL
```

```
Z2 =  
19.2924081321983
```

```
diary off
```

---

PART 5: RUNUP2

for transect: YK-07

Station locations shifted by: -7.62 feet from their  
original location to set the shoreline to  
elevation 0 for RUNUP2 input

---

RUNUP2 INPUT CONVERSIONS

for transect: YK-07

Incident significant wave height: 2.94 feet

Peak wave period: 6.94 seconds

Mean wave height: 1.84 feet

Local Depth below SWEL: 25.38 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

Deep water wavelength,  $L_0$  (m)

$$L_0 = gT^2/\pi$$

$$L_0 = 32.17 \times 5.90^2 / 6.28 = 178.04$$

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

$$C_0 = L_0/T$$

$$C_0 = 178.04 / 5.90 = 30.19$$

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

$$\sigma = \pi/T$$

$$\sigma = 6.28 / 5.90 = 1.07$$

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

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

$$y = 1.07 \times 1.07 \times 25.38 / 32.17 = 0.90$$

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

$$C_{1H} = 24.29$$

Shoaling Coefficient  $K_{sH}$

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

$$K_{sH} = \sqrt{30.19 / 24.29} = 1.11$$

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

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

$$H_{0\_H} = 1.84 / 1.11 = 1.65$$

Deepwater mean wave height: 1.65 feet

---

END RUNUP2 CONVERSIONS

---

RUNUP2 RESULTS

for transect: YK-07

RUNUP2 SWEL:

9.00  
9.00  
9.00  
9.00  
9.00  
9.00  
9.00  
9.00  
9.00

RUNUP2 deepwater mean wave heights:  
1.57

1.57  
1.57  
1.65  
1.65  
1.65  
1.73  
1.73  
1.73

RUNUP2 mean wave periods:

5.60  
5.90  
6.19  
5.60  
5.90  
6.19  
5.60  
5.90  
6.19

RUNUP2 runup above SWEL:

4.18  
4.27  
4.36  
4.41  
4.50  
4.58  
4.61  
4.74  
4.82

RUNUP2 Mean runup height above SWEL: 4.50 feet

RUNUP2 2-percent runup height above SWEL: 9.89 feet

RUNUP2 2-percent runup elevation: 18.89 feet-NAVD88

RUNUP2 Messages:

No Messages

\_\_\_\_\_END RUNUP2 RESULTS\_\_\_\_\_

\_\_\_\_\_ACES BEACH RUNUP\_\_\_\_\_

Incident significant wave height: 2.94 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 2.31 feet

Peak wave period: 6.94 seconds

Average beach Slope: 1:19.16 (H:V)

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

ACES Beach 2-percent runup height above SWEL: 2.77 feet

ACES Beach 2-percent runup elevation: 11.77 feet-NAVD88

ACES BEACH RUNUP is valid

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

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



FEMA  
RUNUP2 transect: YK-07  
5.00  
-16.36 -788.4 1.0  
-16.36 -472.4 1.0  
-16.35 -471.4 1.0  
-16.08 -397.4 1.0  
-16.08 -128.4 1.0  
-16.07 -127.4 1.0  
-13.46 -106.4 1.0  
-10.24 -80.4 1.0  
-8.50 -66.4 1.0  
-8.37 -65.4 1.0  
-6.76 -54.4 1.0  
-6.32 -51.4 1.0  
-2.96 -28.4 1.0  
-2.52 -25.4 1.0  
-0.04 -8.4 1.0  
-0.04 -2.9 1.0  
1.21 7.6 1.0  
3.02 16.6 1.0  
17.50 37.1 1.0  
1 30.04 100.6 1.0  
9.0 1.57 5.60  
9.0 1.57 5.90  
9.0 1.57 6.19  
9.0 1.65 5.60  
9.0 1.65 5.90  
9.0 1.65 6.19  
9.0 1.73 5.60  
9.0 1.73 5.90  
9.0 1.73 6.19

sjh

job 2  
1



CLIENT- FEMA  
PROJECT-RUNUP2 transect: YK-07

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

ENGINEERED BY sjh

JOB job 2  
RUN 1 PAGE 1

\*\*\*\*\*

CROSS SECTION PROFILE

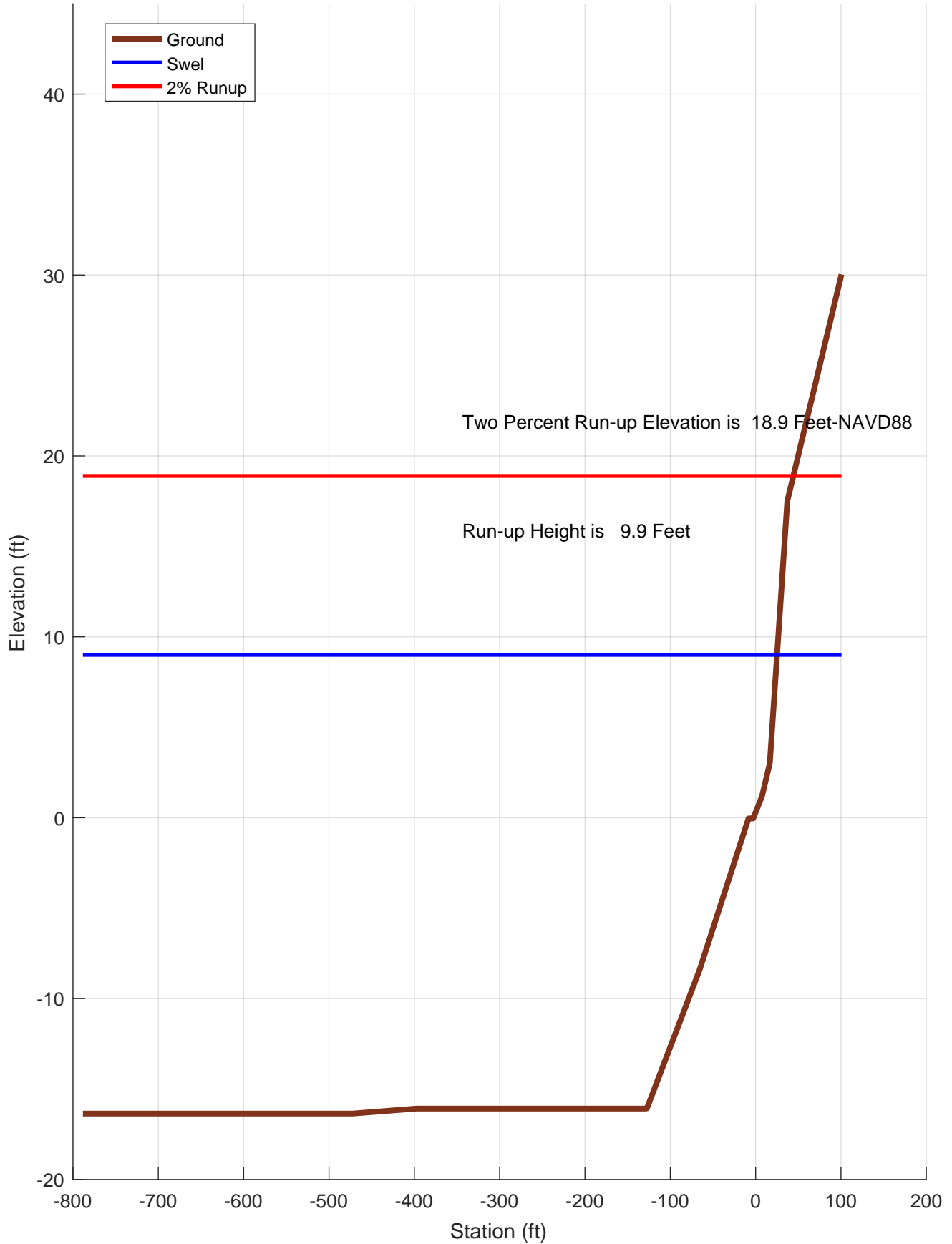
	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-788.0	-16.3		
2	-472.0	-16.3	.00	1.00
3	-471.0	-16.3	FLAT	1.00
4	-397.0	-16.0	246.67	1.00
5	-128.0	-16.0	FLAT	1.00
6	-127.0	-16.0	FLAT	1.00
7	-106.0	-13.4	8.08	1.00
8	-80.4	-10.2	8.00	1.00
9	-66.4	-8.5	8.24	1.00
10	-65.4	-8.4	7.69	1.00
11	-54.4	-6.8	6.83	1.00
12	-51.4	-6.3	6.82	1.00
13	-28.4	-3.0	6.85	1.00
14	-25.4	-2.5	6.82	1.00
15	-8.4	.0	6.85	1.00
16	-2.9	.0	FLAT	1.00
17	7.6	1.2	8.40	1.00
18	16.6	3.0	4.97	1.00
19	37.1	17.5	1.42	1.00
20	100.6	30.0	5.06	1.00
	LAST SLOPE		5.00	LAST ROUGHNESS 1.00

\*\*\*\*\*

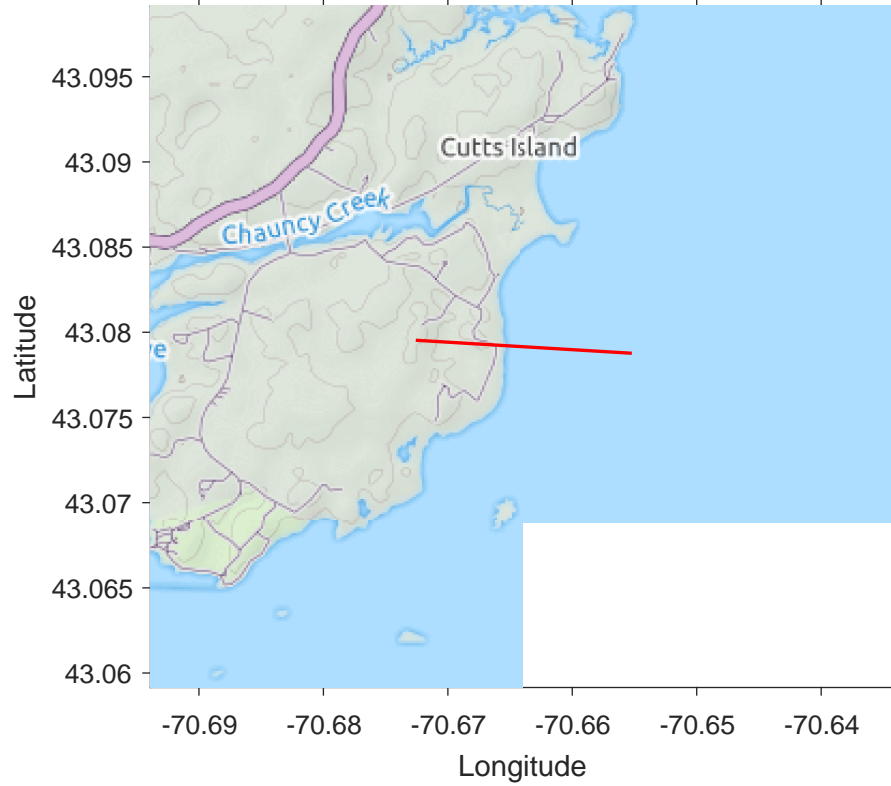
OUTPUT TABLE  
-----

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.)
9.00	1.57	5.60	11	18	4.18	2.27
9.00	1.57	5.90	11	18	4.27	2.31
9.00	1.57	6.19	11	18	4.36	2.35
9.00	1.65	5.60	11	18	4.41	2.37
9.00	1.65	5.90	11	18	4.50	2.41
9.00	1.65	6.19	11	18	4.58	2.45
9.00	1.73	5.60	11	18	4.61	2.46
9.00	1.73	5.90	11	18	4.74	2.50
9.00	1.73	6.19	11	18	4.82	2.55

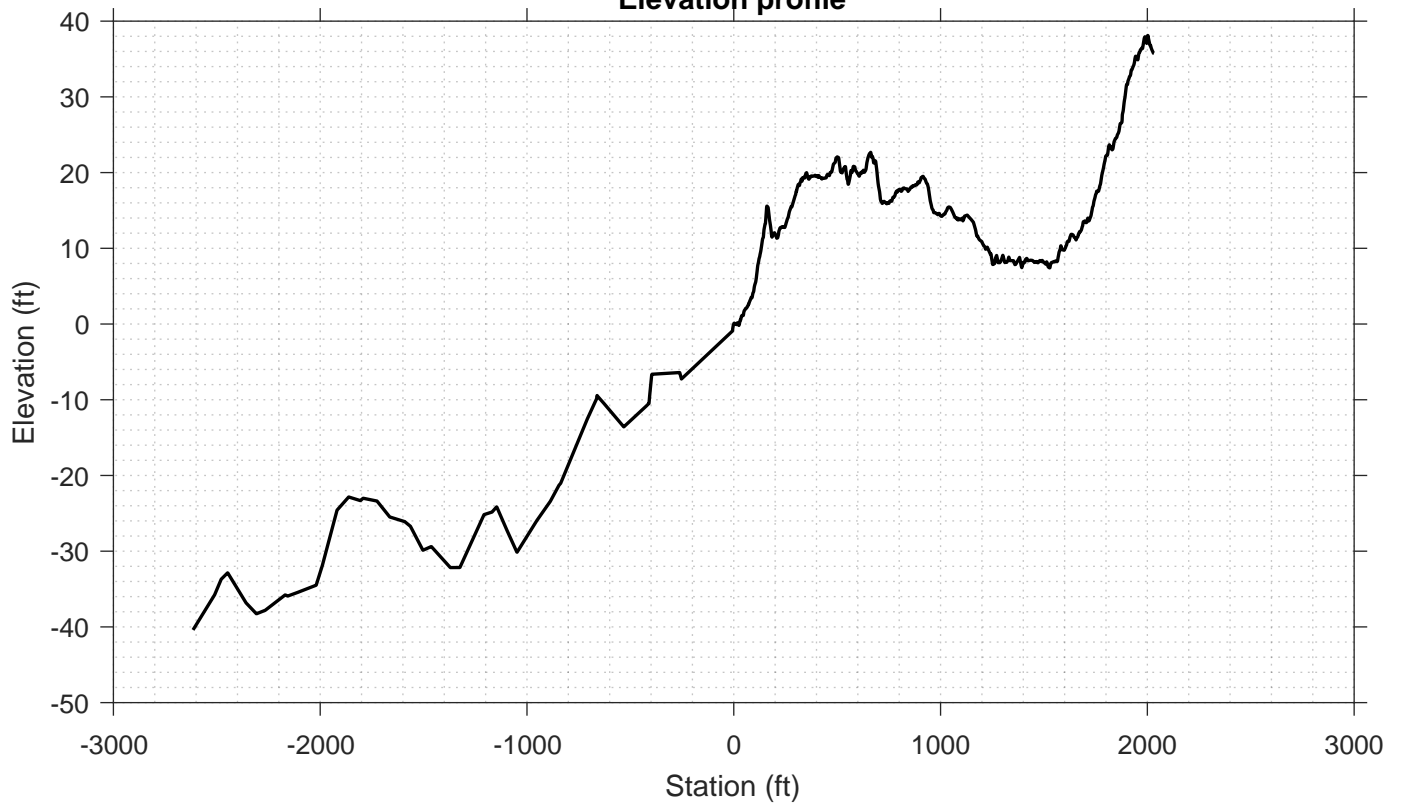
Runup2 2% runup elevation for Transect: YK-07



**Transect Number: YK-14**



**Elevation profile**



---

DATA LOG FOR TRANSECT ID: YK-14

---

---

PART 1: USER INPUT

SWAN 1-D / WHAFIS input

---

station: -298 ft  
LON: -70.6639 deg E  
LAT: 43.0792 deg N  
Bottom ELEV: -6.4683 ft-NAVD88  
TWL: 9.19 ft-NAVD88  
HS: 12.4602 ft  
TP: 14.0317 sec  
Wave Direction bin: 180 deg CCW from East (90 deg sector)  
Transect Direction: 177.4837 deg CCW from East

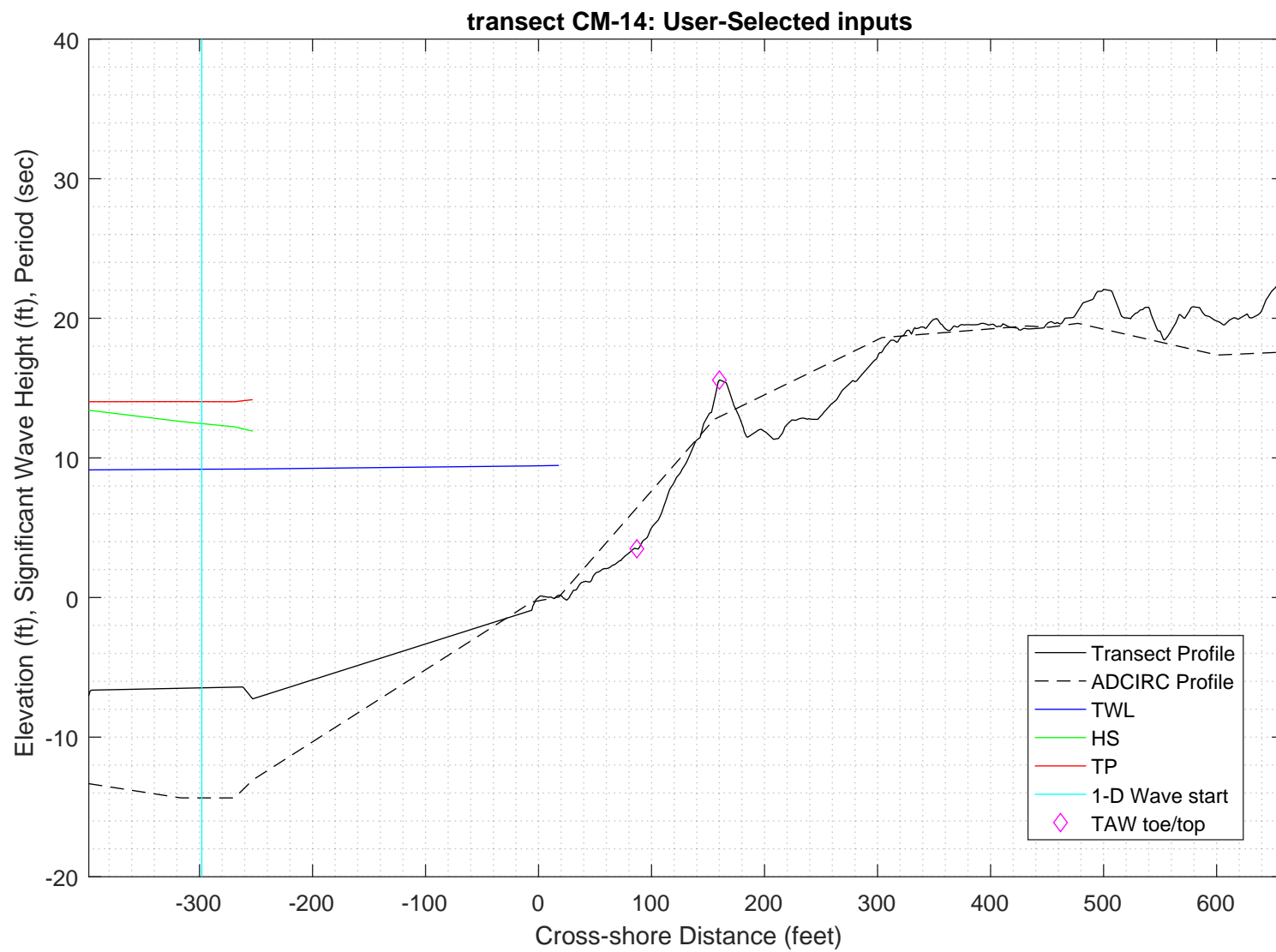
TAW/RUNUP input

---

toe sta: 87 ft  
toe elev: 3.4902 ft-NAVD88  
top sta: 160 ft  
top elev: 15.5739 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/YK-14zmeters\_xmeters.grd  
swan file name: 2\_swan/swanfiles/YK-14.swn  
swan output name: 2\_swan/swanfiles/YK-14.dat

Boundary Conditions:

TWL- 2.8011 meters  
HS- 3.7979 meters  
PER- 14.0317 seconds

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

SWAN maximum additional wave setup: 1.1359 feet

SWAN output at toe:

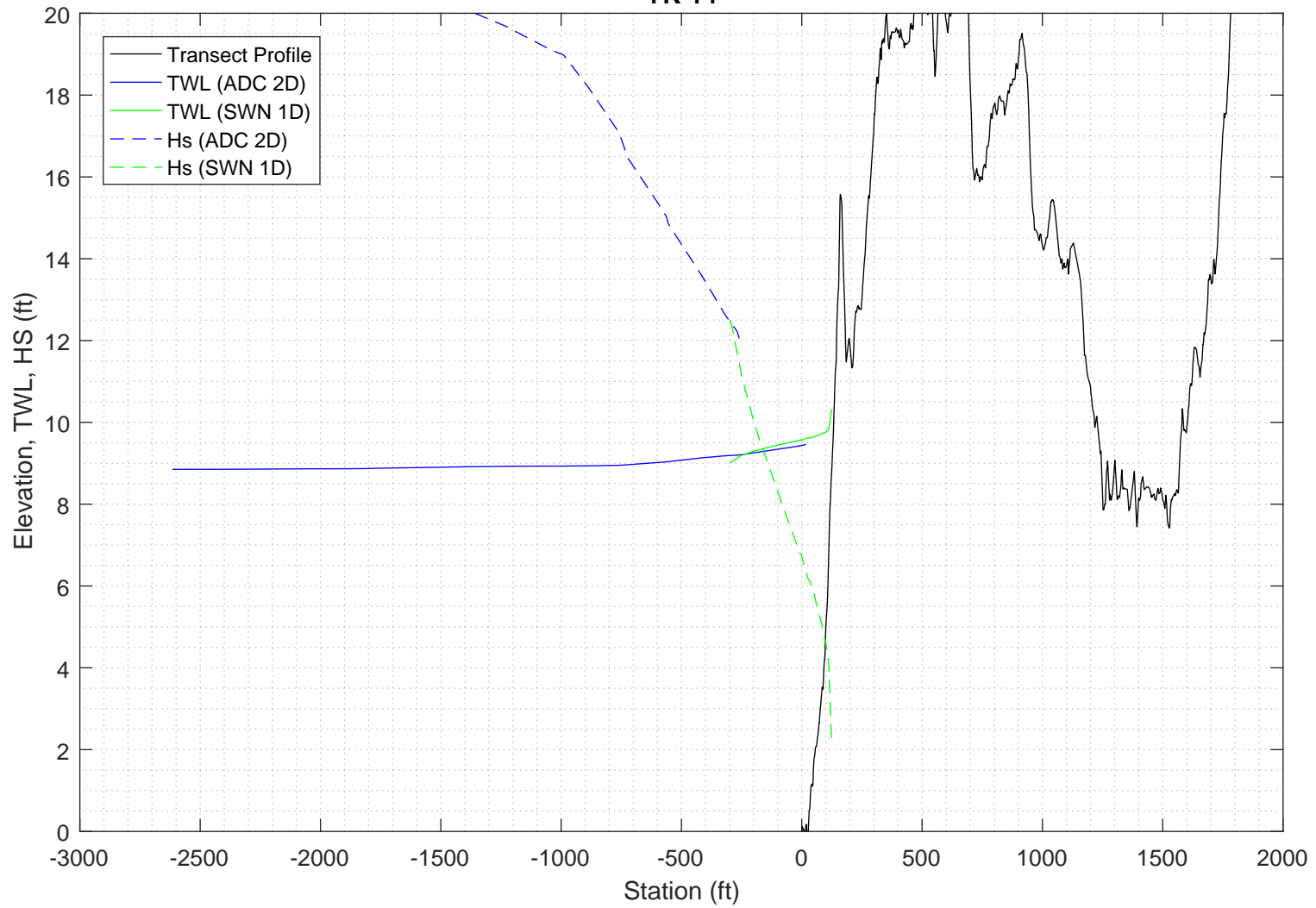
SETUP- 0.5381 feet  
HS- 4.9688 feet  
PER- 13.8709 seconds

PART 2 COMPLETE

---

**REVISED SEP-05-2019**

**2-D ADCIRC+SWAN and SWAN 1-D results, Transect:  
YK-14**



Execution started at 20200206.151504

```

-----
                        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 0 129 0. 129 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 0 129 0 1 1

!READinp BOTtom [fac] 'fname1' [idla] [nhedf] [FREE|FOrmat[form]|UNFormatted]

READ BOTTOM -1. '../gridfiles/YK-14zmeters\_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 3.7979 14.0317 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)
!-- WCAppling KOMen [cds2] [stpm] [powst] [delta] [powk]
    WCAP KOM
!   quadruplet wave interactions
!-- QUADrupl [iquad] [lambda] [Cn14] [Csh1] [Csh2]
! -- BREaking CONstant [alpha] [gamma]
    BREAK      CON      1.      0.73
!-- FRIction JONswap CONstant [cfjon]
    FRIC      JONSWAP CON      0.038
!-- TRIad [itriad] [trfac] [cutfr]   [a] [b] [urcrit] [urslim]
! TRIAD      1      0.65      2.5      0.95 -0.75 0.2      0.01
    TRIAD
!-- VEGETation [height] [diamtr] [nstems] [drag]
!-- MUD [layer] [rhom] [viscm]
!- LIMiter [ursell] [qb] deactivates quadruplets with Ursell number exceeds ursell
!-- OBSTacle -- not in 1-D
!-- SETUP [supcor]
    SETUP      0
!
! ----- N U M E R I C S -----
!
!-- PROP can use BBST or GSE instead of default
! -- NUMeric -- lots of options
!     NUM ACCUR npnts=100. stat 30
    NUMERIC STOPC
!
! -----O U T P U T -----
!
!OUTPUT OPTIOns "comment" (TABLE [field]) (BLOck [ndec] [len]) (SPEC [ndec])
    OUTPUT OPTIONS '%' TABLE 16
    $BLOCK 9 1000 SPEC 8
!CURve 'sname' [xp1] [yp1] <[int] [xp] [yp] >
    CURVE 'curve' 0      0      129 129      0
!TABLE 'sname' < HEADER|NOHEADER|INDEXed > 'fname' <output parameters> (output time)
    Table 'curve'      HEADER 'YK-14.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      130 MYC      1
                   : MCGRD      131
                   : 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 EDMMLPM  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 8.47 % 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 0.77 % 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 13.08 % 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 29.24 % 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 81.54 % of wet grid points ( 99.50 % required)

iteration    7; sweep 1
iteration    7; sweep 2
iteration    7; sweep 3
iteration    7; sweep 4
accuracy OK in 98.47 % of wet grid points ( 99.50 % required)

iteration    8; sweep 1
iteration    8; sweep 2
iteration    8; sweep 3
iteration    8; sweep 4
accuracy OK in 98.47 % of wet grid points ( 99.50 % required)

iteration    9; sweep 1
iteration    9; sweep 2
iteration    9; sweep 3
iteration    9; sweep 4
accuracy OK in 98.47 % of wet grid points ( 99.50 % required)

iteration   10; sweep 1
iteration   10; sweep 2
iteration   10; sweep 3
iteration   10; sweep 4
accuracy OK in 99.24 % of wet grid points ( 99.50 % required)

iteration   11; sweep 1
iteration   11; sweep 2
iteration   11; sweep 3
iteration   11; sweep 4
accuracy OK in 100.00 % of wet grid points ( 99.50 % required)
```

STOP

Run:1	Table:curve	SWAN version:41.20A							
Xp [m]	Yp [m]	Hsig [m]	TPsmoo [sec]	RTpeak [sec]	Tm_10 [sec]	Dir [degr]	Dspr [degr]	Depth [m]	Setup [m]
0.	0.	3.80981	13.8195	13.8874	12.6704	0.001	31.5736	4.7134	-0.056649
1.	0.	3.79277	13.8284	13.8874	12.2051	0.001	31.5408	4.7175	-0.052457
2.	0.	3.77092	13.8362	13.8874	11.8315	0.001	31.4855	4.7218	-0.048233
3.	0.	3.74526	13.8422	13.8874	11.5431	0.001	31.4165	4.7260	-0.044008
4.	0.	3.71604	13.8467	13.8874	11.3234	0.001	31.3120	4.7302	-0.039821
5.	0.	3.68621	13.8500	13.8874	11.1544	0.001	31.1993	4.7241	-0.035915
6.	0.	3.65436	13.8524	13.8874	11.0208	0.001	31.1159	4.7281	-0.031907
7.	0.	3.62234	13.8542	13.8874	10.9138	0.001	31.0456	4.7320	-0.028035
8.	0.	3.59438	13.8553	13.8874	10.7960	0.001	31.0001	4.7357	-0.024265
9.	0.	3.56721	13.8559	13.8874	10.6864	0.001	30.9610	4.7394	-0.020598
10.	0.	3.53731	13.8560	13.8874	10.5992	359.990	30.9385	4.7431	-0.016855
11.	0.	3.51019	13.8557	13.8874	10.5264	359.967	31.1074	4.7468	-0.013236
12.	0.	3.47842	13.8551	13.8874	10.4593	359.918	31.5363	4.8315	-0.008464
13.	0.	3.44632	13.8542	13.8874	10.3993	359.867	31.9115	4.9362	-0.003813
14.	0.	3.41378	13.8532	13.8874	10.3500	359.820	31.9342	5.0100	0.000000
15.	0.	3.38906	13.8522	13.8874	10.3158	359.774	31.7225	4.9821	0.002094
16.	0.	3.36588	13.8511	13.8874	10.2773	359.763	31.4676	4.9540	0.004018
17.	0.	3.34209	13.8500	13.8874	10.2387	359.763	31.1950	4.9360	0.006018
18.	0.	3.31976	13.8489	13.8874	10.2033	359.767	30.9266	4.9078	0.007822
19.	0.	3.29670	13.8477	13.8874	10.1694	359.771	30.6712	4.8897	0.009742
20.	0.	3.27445	13.8466	13.8874	10.1296	359.747	30.4503	4.8617	0.011742
21.	0.	3.25496	13.8457	13.8874	10.0721	359.751	30.2356	4.8437	0.013746
22.	0.	3.23706	13.8449	13.8874	10.0139	359.761	30.0174	4.8156	0.015559
23.	0.	3.21256	13.8443	13.8874	9.9857	359.768	29.8544	4.7877	0.017707
24.	0.	3.18599	13.8437	13.8874	9.9638	359.774	29.6974	4.7700	0.020010
25.	0.	3.16470	13.8434	13.8874	9.9280	359.759	29.5321	4.7419	0.021924
26.	0.	3.14195	13.8431	13.8874	9.8951	359.703	29.3646	4.7240	0.023967
27.	0.	3.12059	13.8429	13.8874	9.8643	359.648	29.1975	4.6958	0.025819
28.	0.	3.09844	13.8429	13.8874	9.8334	359.595	29.0331	4.6778	0.027781
29.	0.	3.07716	13.8428	13.8874	9.8056	359.546	28.8565	4.6496	0.029571
30.	0.	3.05608	13.8429	13.8874	9.7792	359.500	28.6903	4.6213	0.031343
31.	0.	3.03421	13.8430	13.8874	9.7528	359.457	28.5298	4.6032	0.033232
32.	0.	3.01555	13.8431	13.8874	9.7203	359.452	28.3689	4.5748	0.034849
33.	0.	2.99653	13.8432	13.8874	9.6854	359.460	28.2103	4.5566	0.036562
34.	0.	2.97857	13.8434	13.8874	9.6532	359.471	28.0527	4.5281	0.038112
35.	0.	2.95961	13.8436	13.8874	9.6213	359.482	27.8981	4.5098	0.039792
36.	0.	2.94254	13.8438	13.8874	9.5857	359.496	27.7469	4.4813	0.041325
37.	0.	2.92486	13.8440	13.8874	9.5475	359.513	27.5997	4.4630	0.042985
38.	0.	2.90858	13.8443	13.8874	9.5093	359.546	27.4412	4.4345	0.044458
39.	0.	2.89231	13.8446	13.8874	9.4722	359.580	27.2909	4.4059	0.045927
40.	0.	2.87493	13.8450	13.8874	9.4356	359.615	27.1467	4.3875	0.047537
41.	0.	2.85846	13.8453	13.8874	9.4020	359.659	27.0088	4.3590	0.048997
42.	0.	2.84116	13.8457	13.8874	9.3675	359.707	26.8747	4.3406	0.050580
43.	0.	2.82466	13.8461	13.8874	9.3366	359.756	26.7458	4.3120	0.052021
44.	0.	2.80717	13.8465	13.8874	9.3053	359.807	26.6216	4.2936	0.053597
45.	0.	2.79086	13.8470	13.8874	9.2751	359.865	26.4866	4.2650	0.055000
46.	0.	2.77504	13.8474	13.8874	9.2436	359.931	26.3578	4.2364	0.056380
47.	0.	2.75842	13.8478	13.8874	9.2109	0.003	26.2357	4.2179	0.057892
48.	0.	2.74263	13.8483	13.8874	9.1814	0.074	26.1143	4.1893	0.059259
49.	0.	2.72577	13.8487	13.8874	9.1516	0.144	25.9943	4.1708	0.060767
50.	0.	2.70975	13.8492	13.8874	9.1249	0.213	25.8739	4.1421	0.062127
51.	0.	2.69272	13.8496	13.8874	9.0978	0.280	25.7545	4.1236	0.063624
52.	0.	2.67645	13.8500	13.8874	9.0737	0.347	25.6242	4.0950	0.064971
53.	0.	2.66019	13.8505	13.8874	9.0500	0.414	25.5014	4.0663	0.066327
54.	0.	2.64306	13.8509	13.8874	9.0247	0.476	25.3826	4.0478	0.067829
55.	0.	2.62683	13.8513	13.8874	9.0022	0.537	25.2641	4.0192	0.069183
56.	0.	2.60951	13.8518	13.8874	8.9794	0.594	25.1473	4.0007	0.070683
57.	0.	2.59291	13.8522	13.8874	8.9605	0.647	25.0304	3.9720	0.072040

58.	0.	2.57520	13.8526	13.8874	8.9415	0.697	24.9151	3.9535	0.073543
59.	0.	2.55823	13.8530	13.8874	8.9258	0.745	24.7892	3.9249	0.074894
60.	0.	2.54126	13.8534	13.8874	8.9110	0.793	24.6701	3.8962	0.076249
61.	0.	2.52337	13.8538	13.8874	8.8952	0.839	24.5546	3.8777	0.077745
62.	0.	2.50644	13.8542	13.8874	8.8821	0.883	24.4392	3.8491	0.079089
63.	0.	2.48863	13.8546	13.8874	8.8679	0.925	24.3253	3.8306	0.080569
64.	0.	2.47186	13.8550	13.8874	8.8560	0.967	24.2101	3.8019	0.081893
65.	0.	2.45433	13.8554	13.8874	8.8422	1.007	24.0951	3.7833	0.083347
66.	0.	2.43780	13.8557	13.8874	8.8304	1.047	23.9683	3.7546	0.084642
67.	0.	2.42131	13.8561	13.8874	8.8191	1.087	23.8481	3.7259	0.085940
68.	0.	2.40401	13.8565	13.8874	8.8061	1.126	23.7316	3.7074	0.087374
69.	0.	2.38773	13.8568	13.8874	8.7954	1.165	23.6155	3.6787	0.088657
70.	0.	2.37068	13.8572	13.8874	8.7829	1.202	23.5007	3.6601	0.090073
71.	0.	2.35462	13.8575	13.8874	8.7727	1.238	23.3857	3.6313	0.091338
72.	0.	2.33773	13.8579	13.8874	8.7608	1.274	23.2722	3.6127	0.092738
73.	0.	2.32173	13.8582	13.8874	8.7513	1.307	23.1499	3.5840	0.093990
74.	0.	2.30576	13.8585	13.8874	8.7422	1.341	23.0360	3.5552	0.095248
75.	0.	2.28896	13.8588	13.8874	8.7313	1.374	22.9266	3.5366	0.096645
76.	0.	2.27315	13.8591	13.8874	8.7228	1.407	22.8184	3.5079	0.097894
77.	0.	2.25667	13.8594	13.8874	8.7117	1.442	22.7115	3.4893	0.099273
78.	0.	2.24121	13.8597	13.8874	8.7026	1.477	22.6046	3.4605	0.100501
79.	0.	2.22488	13.8600	13.8874	8.6918	1.512	22.4991	3.4419	0.101869
80.	0.	2.20943	13.8603	13.8874	8.6835	1.545	22.3835	3.4131	0.103089
81.	0.	2.19395	13.8606	13.8874	8.6756	1.577	22.2742	3.3843	0.104318
82.	0.	2.17757	13.8609	13.8874	8.6660	1.609	22.1685	3.3657	0.105691
83.	0.	2.16217	13.8611	13.8874	8.6590	1.639	22.0630	3.3369	0.106916
84.	0.	2.14586	13.8614	13.8874	8.6502	1.668	21.9592	3.3183	0.108283
85.	0.	2.13053	13.8617	13.8874	8.6440	1.697	21.8549	3.2895	0.109501
86.	0.	2.11430	13.8619	13.8874	8.6361	1.724	21.7519	3.2709	0.110862
87.	0.	2.09898	13.8622	13.8874	8.6306	1.749	21.6386	3.2421	0.112072
88.	0.	2.08364	13.8624	13.8874	8.6255	1.774	21.5317	3.2133	0.113293
89.	0.	2.06612	13.8627	13.8874	8.6179	1.785	21.2481	3.1946	0.114633
90.	0.	2.06529	13.8631	13.8874	8.6491	1.799	20.8030	2.9831	0.113144
91.	0.	2.05003	13.8635	13.8874	8.6551	1.826	20.5177	2.8940	0.113952
92.	0.	2.02608	13.8639	13.8874	8.6443	1.860	20.4158	2.8863	0.116348
93.	0.	2.00036	13.8642	13.8874	8.6280	1.895	20.3948	2.9091	0.119139
94.	0.	1.97834	13.8645	13.8874	8.6177	1.931	20.4149	2.9114	0.121410
95.	0.	1.95441	13.8648	13.8874	8.6013	1.958	20.3770	2.9440	0.123956
96.	0.	1.93987	13.8651	13.8874	8.6062	1.983	20.2786	2.8850	0.124990
97.	0.	1.92041	13.8654	13.8874	8.5981	2.018	20.3503	2.8870	0.126986
98.	0.	1.89509	13.8655	13.8874	8.5722	2.054	20.4453	2.9699	0.129947
99.	0.	1.88058	13.8657	13.8874	8.5719	2.061	20.2836	2.9410	0.131050
100.	0.	1.87428	13.8661	13.8874	8.5945	2.069	20.0079	2.8108	0.130759
101.	0.	1.85835	13.8663	13.8874	8.5980	2.072	19.7090	2.7619	0.131865
102.	0.	1.84807	13.8667	13.8874	8.6176	2.083	19.3929	2.6420	0.132008
103.	0.	1.82931	13.8669	13.8874	8.6197	2.102	19.1995	2.5936	0.133577
104.	0.	1.80655	13.8672	13.8874	8.6123	2.125	19.0943	2.5859	0.135882
105.	0.	1.78387	13.8674	13.8874	8.6050	2.133	18.8641	2.5781	0.138071
106.	0.	1.77502	13.8678	13.8874	8.6304	2.147	18.5365	2.4279	0.137923
107.	0.	1.75294	13.8681	13.8874	8.6310	2.162	18.2979	2.3800	0.139956
108.	0.	1.73042	13.8684	13.8874	8.6314	2.184	18.1182	2.3321	0.142111
109.	0.	1.70456	13.8687	13.8874	8.6250	2.209	17.9951	2.3149	0.144880
110.	0.	1.67927	13.8689	13.8874	8.6194	2.229	17.8482	2.2976	0.147550
111.	0.	1.65864	13.8692	13.8874	8.6237	2.247	17.6557	2.2394	0.149436
112.	0.	1.63614	13.8694	13.8874	8.6258	2.264	17.4593	2.1916	0.151628
113.	0.	1.61298	13.8697	13.8874	8.6279	2.277	17.2257	2.1439	0.153907
114.	0.	1.59237	13.8700	13.8874	8.6369	2.291	16.9503	2.0657	0.155728
115.	0.	1.56886	13.8703	13.8874	8.6427	2.304	16.6698	1.9980	0.158028
116.	0.	1.54397	13.8706	13.8874	8.6481	2.323	16.4204	1.9306	0.160588
117.	0.	1.51449	13.8709	13.8874	8.6463	2.348	16.2447	1.8940	0.164013
118.	0.	1.48253	13.8711	13.8874	8.6407	2.353	15.9736	1.8778	0.167806
119.	0.	1.46529	13.8715	13.8874	8.6629	2.369	15.5916	1.7390	0.168997
120.	0.	1.43427	13.8718	13.8874	8.6665	2.355	15.1210	1.6726	0.172571
121.	0.	1.41541	13.8723	13.8874	8.6885	2.367	14.5701	1.4939	0.173866
122.	0.	1.37844	13.8728	13.8874	8.6859	2.386	14.1010	1.3888	0.178800



123.	0.	1.33202	13.8733	13.8874	8.6854	2.375	13.5812	1.3057	0.185678
124.	0.	1.29601	13.8741	13.8874	8.7108	2.280	12.8252	1.1505	0.190530
125.	0.	1.25855	13.8749	13.8874	8.8598	2.064	11.9605	0.9257	0.195749
126.	0.	1.07835	13.8915	13.8874	9.5607	0.700	11.7692	0.7272	0.237248
127.	0.	0.92001	13.9146	13.8874	9.9700	359.600	11.4090	0.6175	0.277500
128.	0.	0.76325	13.9511	13.8874	10.4593	359.029	11.1313	0.5083	0.318308
129.	0.	0.65902	13.9563	13.8874	10.6939	359.163	11.5036	0.4362	0.346213

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PART 3: WHAFIS

WHAFIS input: YK-14.dat

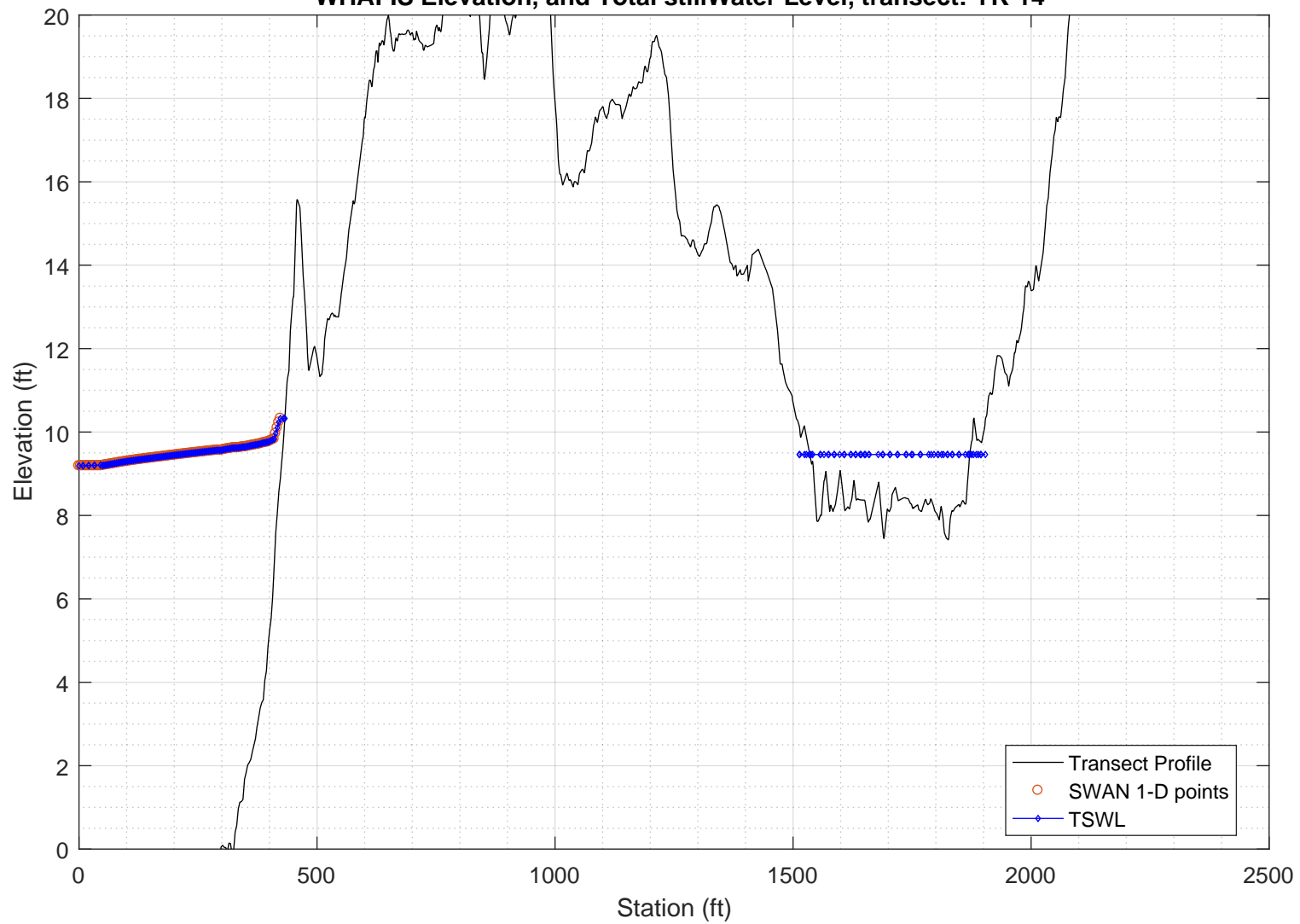
WHAFIS output: YK-14.out

PART 3 COMPLETE

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REVISED SEP-05-2019

WHAFFIS Elevation, and Total stillWater Level, transect: YK-14







	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	55.800	-6.981	0.000	9.210	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	59.100	-6.897	0.000	9.216	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	62.300	-6.812	0.000	9.222	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	65.600	-6.728	0.000	9.229	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	68.900	-6.644	0.000	9.235	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	72.200	-6.559	0.000	9.241	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	75.500	-6.475	0.000	9.248	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	78.700	-6.391	0.000	9.256	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	82.000	-6.306	0.000	9.262	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	85.300	-6.222	0.000	9.269	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	88.600	-6.138	0.000	9.275	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	91.900	-6.054	0.000	9.281	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	95.100	-5.969	0.000	9.287	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	98.400	-5.885	0.000	9.293	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	101.700	-5.801	0.000	9.299	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	105.000	-5.716	0.000	9.304	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	108.300	-5.632	0.000	9.310	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	111.500	-5.548	0.000	9.315	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	114.800	-5.464	0.000	9.321	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	118.100	-5.379	0.000	9.326	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	121.400	-5.295	0.000	9.331	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	124.700	-5.211	0.000	9.336	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	128.000	-5.126	0.000	9.341	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	131.200	-5.042	0.000	9.346	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	134.500	-4.958	0.000	9.351	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	137.800	-4.873	0.000	9.356	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	141.100	-4.789	0.000	9.361	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	144.400	-4.705	0.000	9.366	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	147.600	-4.620	0.000	9.370	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	150.900	-4.536	0.000	9.375	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	154.200	-4.452	0.000	9.380	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	157.500	-4.367	0.000	9.384	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	160.800	-4.283	0.000	9.389	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	164.000	-4.199	0.000	9.394	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	167.300	-4.115	0.000	9.399	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	170.600	-4.030	0.000	9.403	0.000	0.000	0.000	0.000		0.025	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES

OF	173.900	-3.946	0.000	9.408	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	177.200	-3.862	0.000	9.413	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	180.400	-3.777	0.000	9.417	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	183.700	-3.693	0.000	9.422	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	187.000	-3.609	0.000	9.426	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	190.300	-3.524	0.000	9.431	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	193.600	-3.440	0.000	9.436	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	196.800	-3.356	0.000	9.440	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	200.100	-3.272	0.000	9.445	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	203.400	-3.187	0.000	9.450	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	206.700	-3.103	0.000	9.454	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	210.000	-3.019	0.000	9.459	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	213.300	-2.934	0.000	9.464	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	216.500	-2.850	0.000	9.468	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	219.800	-2.766	0.000	9.472	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	223.100	-2.681	0.000	9.477	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	226.400	-2.597	0.000	9.481	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	229.700	-2.513	0.000	9.486	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	232.900	-2.428	0.000	9.490	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	236.200	-2.344	0.000	9.494	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	239.500	-2.260	0.000	9.498	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	242.800	-2.176	0.000	9.502	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	246.100	-2.091	0.000	9.507	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	249.300	-2.007	0.000	9.511	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	252.600	-1.923	0.000	9.516	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	255.900	-1.838	0.000	9.520	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	259.200	-1.754	0.000	9.524	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	262.500	-1.670	0.000	9.528	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	265.700	-1.586	0.000	9.532	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	269.000	-1.501	0.000	9.537	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	272.300	-1.417	0.000	9.541	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	275.600	-1.333	0.000	9.545	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	278.900	-1.248	0.000	9.549	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	282.200	-1.164	0.000	9.554	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	285.400	-1.080	0.000	9.558	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	288.700	-0.995	0.000	9.562	0.000	0.000	0.000	0.000	0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
OF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	292.000	-0.911	0.000	9.566	0.000	0.000	0.000	0.000	0.115	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE





	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	416.700	8.066	0.000	10.101	0.000	0.000	0.000	0.000		0.151	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	419.900	8.580	0.000	10.234	0.000	0.000	0.000	0.000		0.129	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	423.200	8.906	0.000	10.326	0.000	0.000	0.000	0.000		0.128	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	430.000	9.877	0.000	10.326	0.000	0.000	0.000	0.000		0.148	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	431.000	10.058	0.000	10.326	0.000	0.000	0.000	0.000		0.180	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	432.500	10.326	0.000	10.326	0.000	0.000	0.000	0.000		0.178	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
AS	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1535.100	9.461	0.000	9.461	0.000	0.000	0.000	0.000		-0.059	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1538.000	9.289	0.000	9.461	0.000	0.000	0.000	0.000		-0.028	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1541.000	9.298	0.000	9.461	0.000	0.000	0.000	0.000		-0.069	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1557.000	7.984	0.000	9.461	0.000	0.000	0.000	0.000		-0.076	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1558.000	8.012	0.000	9.461	0.000	0.000	0.000	0.000		0.106	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1565.000	8.829	0.000	9.461	0.000	0.000	0.000	0.000		0.027	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1574.000	8.451	0.000	9.461	0.000	0.000	0.000	0.000		-0.050	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1575.000	8.328	0.000	9.461	0.000	0.000	0.000	0.000		-0.023	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1586.000	8.180	0.000	9.461	0.000	0.000	0.000	0.000		-0.012	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1587.000	8.190	0.000	9.461	0.000	0.000	0.000	0.000		0.067	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1598.000	8.989	0.000	9.461	0.000	0.000	0.000	0.000		0.004	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1607.000	8.280	0.000	9.461	0.000	0.000	0.000	0.000		-0.082	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1608.000	8.165	0.000	9.461	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
	1621.000	8.296	0.000	9.461	0.000	0.000	0.000	0.000		0.012	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1622.000	8.332	0.000	9.461	0.000	0.000	0.000	0.000		0.023	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1631.000	8.524	0.000	9.461	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
	1632.000	8.411	0.000	9.461	0.000	0.000	0.000	0.000		-0.015	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1641.000	8.375	0.000	9.461	0.000	0.000	0.000	0.000		-0.004	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1643.000	8.371	0.000	9.461	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
	1650.000	8.368	0.000	9.461	0.000	0.000	0.000	0.000		-0.011	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1652.000	8.269	0.000	9.461	0.000	0.000	0.000	0.000		-0.056	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1659.000	7.863	0.000	9.461	0.000	0.000	0.000	0.000		-0.048	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1660.000	7.886	0.000	9.461	0.000	0.000	0.000	0.000		0.045	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1679.000	8.753	0.000	9.461	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
	1688.000	7.717	0.000	9.461	0.000	0.000	0.000	0.000		-0.116	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1689.000	7.595	0.000	9.461	0.000	0.000	0.000	0.000		0.026	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1703.000	8.110	0.000	9.461	0.000	0.000	0.000	0.000		0.036	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1704.000	8.140	0.000	9.461	0.000	0.000	0.000	0.000		0.022	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1719.000	8.459	0.000	9.461	0.000	0.000	0.000	0.000		0.017	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1720.000	8.406	0.000	9.461	0.000	0.000	0.000	0.000		-0.003	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES

IF	1737.000	8.413	0.000	9.461	0.000	0.000	0.000	0.000	0.000	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1738.000	8.411	0.000	9.461	0.000	0.000	0.000	0.000	-0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1749.000	8.263	0.000	9.461	0.000	0.000	0.000	0.000	-0.019	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1751.000	8.171	0.000	9.461	0.000	0.000	0.000	0.000	-0.008	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1767.000	8.113	0.000	9.461	0.000	0.000	0.000	0.000	-0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1768.000	8.103	0.000	9.461	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1785.000	8.276	0.000	9.461	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1790.000	8.391	0.000	9.461	0.000	0.000	0.000	0.000	-0.008	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1796.000	8.189	0.000	9.461	0.000	0.000	0.000	0.000	-0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1804.000	7.986	0.000	9.461	0.000	0.000	0.000	0.000	-0.026	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1805.000	7.956	0.000	9.461	0.000	0.000	0.000	0.000	0.022	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1812.000	8.159	0.000	9.461	0.000	0.000	0.000	0.000	-0.014	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1816.000	7.802	0.000	9.461	0.000	0.000	0.000	0.000	-0.060	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1824.000	7.438	0.000	9.461	0.000	0.000	0.000	0.000	-0.042	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1825.000	7.426	0.000	9.461	0.000	0.000	0.000	0.000	0.068	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1834.000	8.119	0.000	9.461	0.000	0.000	0.000	0.000	0.068	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1835.000	8.110	0.000	9.461	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1848.000	8.262	0.000	9.461	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1849.000	8.255	0.000	9.461	0.000	0.000	0.000	0.000	0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1862.000	8.273	0.000	9.461	0.000	0.000	0.000	0.000	0.040	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1868.000	9.012	0.000	9.461	0.000	0.000	0.000	0.000	0.125	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1869.000	9.150	0.000	9.461	0.000	0.000	0.000	0.000	0.155	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1870.900	9.461	0.000	9.461	0.000	0.000	0.000	0.000	0.164	0.000
-----END OF TRANSECT-----										

NOTE:

SURGE ELEVATION INCLUDES CONTRIBUTIONS FROM ASTRONOMICAL AND STORM TIDES.

1

PART2: CONTROLLING WAVE HEIGHTS, SPECTRAL PEAK WAVE PERIOD, AND WAVE CREST ELEVATIONS				
LOCATION		CONTROLLING WAVE HEIGHT	SPECTRAL PEAK WAVE PERIOD	WAVE CREST ELEVATION
IE	0.00	11.92	14.03	17.53
OF	8.00	11.91	14.03	17.53
OF	9.00	11.91	14.03	17.53
OF	20.00	11.90	14.03	17.53
OF	21.00	11.90	14.03	17.53
OF	32.00	11.89	14.03	17.52
OF	33.00	11.89	14.03	17.52
OF	45.00	12.06	14.03	17.65
OF	49.20	12.04	14.03	17.62
OF	52.50	12.03	14.03	17.62
OF	55.80	12.01	14.03	17.62
OF	59.10	12.00	14.03	17.62
OF	62.30	11.99	14.03	17.61
OF	65.60	11.97	14.03	17.61
OF	68.90	11.96	14.03	17.61
OF	72.20	11.95	14.03	17.60
OF	75.50	11.93	14.03	17.60
OF	78.70	11.91	14.03	17.60
OF	82.00	11.85	14.03	17.56
OF	85.30	11.80	14.03	17.53
OF	88.60	11.74	14.03	17.49
OF	91.90	11.68	14.03	17.46
OF	95.10	11.62	14.03	17.42
OF	98.40	11.56	14.03	17.39
OF	101.70	11.51	14.03	17.35
OF	105.00	11.45	14.03	17.32
OF	108.30	11.39	14.03	17.28
OF	111.50	11.33	14.03	17.25
OF	114.80	11.27	14.03	17.21
OF	118.10	11.21	14.03	17.17
OF	121.40	11.15	14.03	17.14
OF	124.70	11.09	14.03	17.10
OF	128.00	11.03	14.03	17.07
OF	131.20	10.98	14.03	17.03
OF	134.50	10.92	14.03	16.99

OF	137.80	10.86	14.03	16.96
OF	141.10	10.80	14.03	16.92
OF	144.40	10.74	14.03	16.88
OF	147.60	10.68	14.03	16.84
OF	150.90	10.62	14.03	16.81
OF	154.20	10.56	14.03	16.77
OF	157.50	10.50	14.03	16.73
OF	160.80	10.44	14.03	16.70
OF	164.00	10.38	14.03	16.66
OF	167.30	10.32	14.03	16.62
OF	170.60	10.26	14.03	16.59
OF	173.90	10.20	14.03	16.55
OF	177.20	10.14	14.03	16.51
OF	180.40	10.08	14.03	16.48
OF	183.70	10.02	14.03	16.44
OF	187.00	9.96	14.03	16.40
OF	190.30	9.90	14.03	16.36
OF	193.60	9.84	14.03	16.33
OF	196.80	9.79	14.03	16.29
OF	200.10	9.73	14.03	16.25
OF	203.40	9.67	14.03	16.22
OF	206.70	9.61	14.03	16.18
OF	210.00	9.55	14.03	16.14
OF	213.30	9.49	14.03	16.10
OF	216.50	9.43	14.03	16.07
OF	219.80	9.37	14.03	16.03
OF	223.10	9.31	14.03	15.99
OF	226.40	9.25	14.03	15.95
OF	229.70	9.19	14.03	15.92
OF	232.90	9.13	14.03	15.88
OF	236.20	9.07	14.03	15.84
OF	239.50	9.01	14.03	15.80
OF	242.80	8.95	14.03	15.76
OF	246.10	8.89	14.03	15.73
OF	249.30	8.83	14.03	15.69
OF	252.60	8.77	14.03	15.65
OF	255.90	8.70	14.03	15.61
OF	259.20	8.64	14.03	15.58
OF	262.50	8.58	14.03	15.54
OF	265.70	8.52	14.03	15.50
OF	269.00	8.46	14.03	15.46
OF	272.30	8.40	14.03	15.42
OF	275.60	8.34	14.03	15.39
OF	278.90	8.28	14.03	15.35
OF	282.20	8.22	14.03	15.31
OF	285.40	8.16	14.03	15.27
OF	288.70	8.10	14.03	15.23
OF	292.00	8.04	14.03	15.19
OF	295.30	7.53	14.03	14.83
IF	298.60	7.31	14.03	14.68
IF	301.80	7.29	14.03	14.67
IF	305.10	7.30	14.03	14.69
IF	308.40	7.30	14.03	14.70
OF	311.70	7.33	14.03	14.73
IF	315.00	7.27	14.03	14.69
IF	318.20	7.27	14.03	14.70
OF	321.50	7.33	14.03	14.74
OF	324.80	7.31	14.03	14.74
IF	328.10	7.08	14.03	14.57
IF	331.40	6.96	14.03	14.50
IF	334.60	6.67	14.03	14.29
IF	337.90	6.55	14.03	14.21
IF	341.20	6.54	14.03	14.22
IF	344.50	6.50	14.03	14.20
IF	347.80	6.14	14.03	13.94
IF	351.00	6.02	14.03	13.87
IF	354.30	5.89	14.03	13.78
IF	357.60	5.85	14.03	13.76
IF	360.90	5.80	14.03	13.73
IF	364.20	5.66	14.03	13.65
IF	367.50	5.55	14.03	13.58
IF	370.70	5.44	14.03	13.50
IF	374.00	5.22	14.03	13.36
IF	377.30	5.07	14.03	13.25
IF	380.60	4.90	14.03	13.15
IF	383.90	4.80	14.03	13.09
IF	387.10	4.76	14.03	13.07
IF	390.40	4.40	14.03	12.83
IF	393.70	4.25	14.03	12.73
IF	397.00	3.80	14.03	12.42
IF	400.30	3.52	14.03	12.24
IF	403.50	3.32	14.03	12.12
IF	406.80	2.92	14.03	11.86
IF	410.10	2.35	14.03	11.47
IF	413.40	1.84	14.03	11.26
IF	416.70	1.58	14.03	11.21
IF	419.90	1.29	14.03	11.13
IF	423.20	1.11	14.03	11.10
IF	430.00	0.35	14.03	10.57
IF	431.00	0.21	14.03	10.47
IF	432.50	0.01	14.03	10.33
AS	1535.10	0.00	0.00	9.46
IF	1538.00	0.03	0.21	9.48
IF	1541.00	0.05	0.26	9.49
IF	1557.00	0.11	0.39	9.54
IF	1558.00	0.12	0.40	9.54
IF	1565.00	0.14	0.44	9.56
IF	1574.00	0.17	0.48	9.58
IF	1575.00	0.17	0.48	9.58
IF	1586.00	0.20	0.52	9.60
IF	1587.00	0.20	0.52	9.60
IF	1598.00	0.21	0.56	9.61
IF	1607.00	0.25	0.58	9.64
IF	1608.00	0.25	0.59	9.64
IF	1621.00	0.28	0.62	9.66
IF	1622.00	0.28	0.62	9.66
IF	1631.00	0.30	0.64	9.67
IF	1632.00	0.30	0.64	9.67
IF	1641.00	0.32	0.66	9.68
IF	1643.00	0.32	0.67	9.69

IF	1650.00	0.33	0.68	9.70
IF	1652.00	0.34	0.69	9.70
IF	1659.00	0.36	0.70	9.71
IF	1660.00	0.36	0.70	9.71
IF	1679.00	0.34	0.73	9.70
IF	1688.00	0.41	0.75	9.75
IF	1689.00	0.41	0.75	9.75
IF	1703.00	0.43	0.77	9.76
IF	1704.00	0.43	0.77	9.76
IF	1719.00	0.43	0.80	9.76
IF	1720.00	0.43	0.80	9.76
IF	1737.00	0.45	0.82	9.78
IF	1738.00	0.45	0.82	9.78
IF	1749.00	0.48	0.84	9.80
IF	1751.00	0.49	0.84	9.80
IF	1767.00	0.51	0.86	9.82
IF	1768.00	0.52	0.86	9.82
IF	1785.00	0.52	0.88	9.82
IF	1790.00	0.50	0.89	9.81
IF	1796.00	0.54	0.89	9.84
IF	1804.00	0.57	0.90	9.86
IF	1805.00	0.57	0.90	9.86
IF	1812.00	0.56	0.91	9.85
IF	1816.00	0.59	0.92	9.87
IF	1824.00	0.62	0.92	9.89
IF	1825.00	0.62	0.93	9.89
IF	1834.00	0.58	0.94	9.87
IF	1835.00	0.59	0.94	9.87
IF	1848.00	0.57	0.95	9.86
IF	1849.00	0.57	0.95	9.86
IF	1862.00	0.58	0.96	9.87
IF	1868.00	0.30	0.97	9.67
IF	1869.00	0.22	0.97	9.61
IF	1870.90	0.01	0.97	9.47

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE  
BETWEEN 432.50 AND 1535.10

STATION	PART4 LOCATION OF SURGE CHANGES 10-YEAR SURGE	100-YEAR SURGE
8.00	1.00	9.19
20.00	1.00	9.20
32.00	1.00	9.20
33.00	1.00	9.20
45.00	1.00	9.21
49.20	1.00	9.20
52.50	1.00	9.20
55.80	1.00	9.21
59.10	1.00	9.22
62.30	1.00	9.22
65.60	1.00	9.23
68.90	1.00	9.23
72.20	1.00	9.24
75.50	1.00	9.25
78.70	1.00	9.26
82.00	1.00	9.26
85.30	1.00	9.27
88.60	1.00	9.27
91.90	1.00	9.28
95.10	1.00	9.29
98.40	1.00	9.29
101.70	1.00	9.30
105.00	1.00	9.30
108.30	1.00	9.31
111.50	1.00	9.31
114.80	1.00	9.32
118.10	1.00	9.33
121.40	1.00	9.33
124.70	1.00	9.34
128.00	1.00	9.34
131.20	1.00	9.35
134.50	1.00	9.35
137.80	1.00	9.36
141.10	1.00	9.36
144.40	1.00	9.37
147.60	1.00	9.37
150.90	1.00	9.38
154.20	1.00	9.38
157.50	1.00	9.38
160.80	1.00	9.39
164.00	1.00	9.39
167.30	1.00	9.40
170.60	1.00	9.40
173.90	1.00	9.41
177.20	1.00	9.41
180.40	1.00	9.42
183.70	1.00	9.42
187.00	1.00	9.43
190.30	1.00	9.43
193.60	1.00	9.44
196.80	1.00	9.44
200.10	1.00	9.44
203.40	1.00	9.45
206.70	1.00	9.45
210.00	1.00	9.46
213.30	1.00	9.46
216.50	1.00	9.47
219.80	1.00	9.47
223.10	1.00	9.48
226.40	1.00	9.48
229.70	1.00	9.49
232.90	1.00	9.49
236.20	1.00	9.49
239.50	1.00	9.50
242.80	1.00	9.50
246.10	1.00	9.51
249.30	1.00	9.51
252.60	1.00	9.52
255.90	1.00	9.52
259.20	1.00	9.52
262.50	1.00	9.53
265.70	1.00	9.53

269.00	1.00	9.54
272.30	1.00	9.54
275.60	1.00	9.55
278.90	1.00	9.55
282.20	1.00	9.55
285.40	1.00	9.56
288.70	1.00	9.56
292.00	1.00	9.57
295.30	1.00	9.56
298.60	1.00	9.56
301.80	1.00	9.57
305.10	1.00	9.58
308.40	1.00	9.59
311.70	1.00	9.60
315.00	1.00	9.60
318.20	1.00	9.61
321.50	1.00	9.62
324.80	1.00	9.62
328.10	1.00	9.62
331.40	1.00	9.62
337.90	1.00	9.63
341.20	1.00	9.64
344.50	1.00	9.64
347.80	1.00	9.64
351.00	1.00	9.65
354.30	1.00	9.66
357.60	1.00	9.66
360.90	1.00	9.67
364.20	1.00	9.68
367.50	1.00	9.69
370.70	1.00	9.69
374.00	1.00	9.70
377.30	1.00	9.71
380.60	1.00	9.72
383.90	1.00	9.73
387.10	1.00	9.74
390.40	1.00	9.74
393.70	1.00	9.76
397.00	1.00	9.76
400.30	1.00	9.78
403.50	1.00	9.80
406.80	1.00	9.81
410.10	1.00	9.83
413.40	1.00	9.97
416.70	1.00	10.10
419.90	1.00	10.23
423.20	1.00	10.33
1535.10	1.00	9.46

PART5 LOCATION OF V ZONES		LOCATION OF ZONE	
STATION OF GUTTER		WINDWARD	
406.13			
PART6 NUMBERED A ZONES AND V ZONES			
STATION OF GUTTER	ELEVATION	ZONE DESIGNATION	FHF
0.00	17.53		
8.00	17.53	V23 EL=18	130
9.00	17.53	V23 EL=18	130
20.00	17.53	V23 EL=18	130
21.00	17.53	V23 EL=18	130
32.00	17.52	V23 EL=18	130
33.00	17.52	V23 EL=18	130
45.00	17.65	V23 EL=18	130
49.20	17.62	V23 EL=18	130
52.50	17.62	V23 EL=18	130
55.80	17.62	V23 EL=18	130
59.10	17.62	V23 EL=18	130
62.30	17.61	V23 EL=18	130
65.60	17.61	V23 EL=18	130
68.90	17.61	V23 EL=18	130
72.20	17.60	V23 EL=18	130
75.50	17.60	V23 EL=18	130
78.70	17.60	V23 EL=18	130
82.00	17.56	V23 EL=18	130
85.30	17.53	V23 EL=18	130
87.87	17.50	V23 EL=17	130
88.60	17.49	V23 EL=17	130
91.90	17.46	V23 EL=17	130
95.10	17.42	V23 EL=17	130
98.40	17.39	V23 EL=17	130
101.70	17.35	V23 EL=17	130
105.00	17.32	V23 EL=17	130
108.30	17.28	V23 EL=17	130
111.50	17.25	V23 EL=17	130

114.80	17.21	V23	EL=17	130
118.10	17.17	V23	EL=17	130
121.40	17.14	V23	EL=17	130
124.70	17.10	V23	EL=17	130
128.00	17.07	V23	EL=17	130
131.20	17.03	V23	EL=17	130
134.50	16.99	V23	EL=17	130
137.80	16.96	V23	EL=17	130
141.10	16.92	V23	EL=17	130
144.40	16.88	V23	EL=17	130
147.60	16.84	V23	EL=17	130
150.90	16.81	V23	EL=17	130
154.20	16.77	V23	EL=17	130
157.50	16.73	V23	EL=17	130
160.80	16.70	V23	EL=17	130
164.00	16.66	V23	EL=17	130
167.30	16.62	V23	EL=17	130
170.60	16.59	V23	EL=17	130
173.90	16.55	V23	EL=17	130
177.20	16.51	V23	EL=17	130
178.34	16.50	V23	EL=16	130
180.40	16.48	V23	EL=16	130
183.70	16.44	V23	EL=16	130
187.00	16.40	V23	EL=16	130
190.30	16.36	V23	EL=16	130
193.60	16.33	V23	EL=16	130
196.80	16.29	V23	EL=16	130
200.10	16.25	V23	EL=16	130
203.40	16.22	V23	EL=16	130
206.70	16.18	V23	EL=16	130
210.00	16.14	V23	EL=16	130
213.30	16.10	V23	EL=16	130
216.50	16.07	V23	EL=16	130
219.80	16.03	V23	EL=16	130
223.10	15.99	V23	EL=16	130
226.40	15.95	V23	EL=16	130
229.70	15.92	V23	EL=16	130
232.90	15.88	V23	EL=16	130
236.20	15.84	V23	EL=16	130
239.50	15.80	V23	EL=16	130
242.80	15.76	V23	EL=16	130
246.10	15.73	V23	EL=16	130
249.30	15.69	V23	EL=16	130
252.60	15.65	V23	EL=16	130
255.90	15.61	V23	EL=16	130
259.20	15.58	V23	EL=16	130
262.50	15.54	V23	EL=16	130
265.59	15.50	V23	EL=15	130
265.70	15.50	V23	EL=15	130
269.00	15.46	V23	EL=15	130
272.30	15.42	V23	EL=15	130
275.60	15.39	V23	EL=15	130
278.90	15.35	V23	EL=15	130
282.20	15.31	V23	EL=15	130
285.40	15.27	V23	EL=15	130

288.70	15.23	V23	EL=15	130
292.00	15.19	V23	EL=15	130
295.30	14.83	V23	EL=15	130
298.60	14.68	V23	EL=15	130
301.80	14.67	V23	EL=15	130
305.10	14.69	V23	EL=15	130
308.40	14.70	V23	EL=15	130
311.70	14.73	V23	EL=15	130
315.00	14.69	V23	EL=15	130
318.20	14.70	V23	EL=15	130
321.50	14.74	V23	EL=15	130
324.80	14.74	V23	EL=15	130
328.10	14.57	V23	EL=15	130
331.29	14.50	V23	EL=14	130
331.40	14.50	V23	EL=14	130
334.60	14.29	V23	EL=14	130
337.90	14.21	V23	EL=14	130
341.20	14.22	V23	EL=14	130
344.50	14.20	V23	EL=14	130
347.80	13.94	V23	EL=14	130
351.00	13.87	V23	EL=14	130
354.30	13.78	V23	EL=14	130
357.60	13.76	V23	EL=14	130
360.90	13.73	V23	EL=14	130
364.20	13.65	V23	EL=14	130
367.50	13.58	V23	EL=14	130
370.68	13.50	V23	EL=13	130
370.70	13.50	V23	EL=13	130
374.00	13.36	V23	EL=13	130
377.30	13.25	V24	EL=13	140
380.60	13.15	V24	EL=13	140
383.90	13.09	V24	EL=13	140
387.10	13.07	V24	EL=13	140
390.40	12.83	V24	EL=13	140
393.70	12.73	V24	EL=13	140
396.15	12.50	V24	EL=12	140
397.00	12.42	V24	EL=12	140
400.30	12.24	V24	EL=12	140
403.50	12.12	V24	EL=12	140
406.13	11.91	A18	EL=12	90
406.80	11.86	A18	EL=12	90
409.87	11.50	A18	EL=11	90
410.10	11.47	A18	EL=11	90
413.40	11.26	A18	EL=11	90
416.70	11.21	A18	EL=11	90
419.90	11.13	A18	EL=11	90
423.20	11.10	A18	EL=11	90
430.72	10.50	A18	EL=10	90
432.50	10.33	A18	EL= 9	90
1535.10	9.46	A18	EL=10	90
1542.82	9.50	A18	EL= 9	90
1870.47	9.50	A18	EL= 9	90
1870.90	9.47			

ZONE TERMINATED AT END OF TRANSECT  
PART 7 POSTSCRIPT NOTES

PS# 1 START(364553.2393,4770947.9307)  
PS# 2 END(363899.1929,4771000.183)

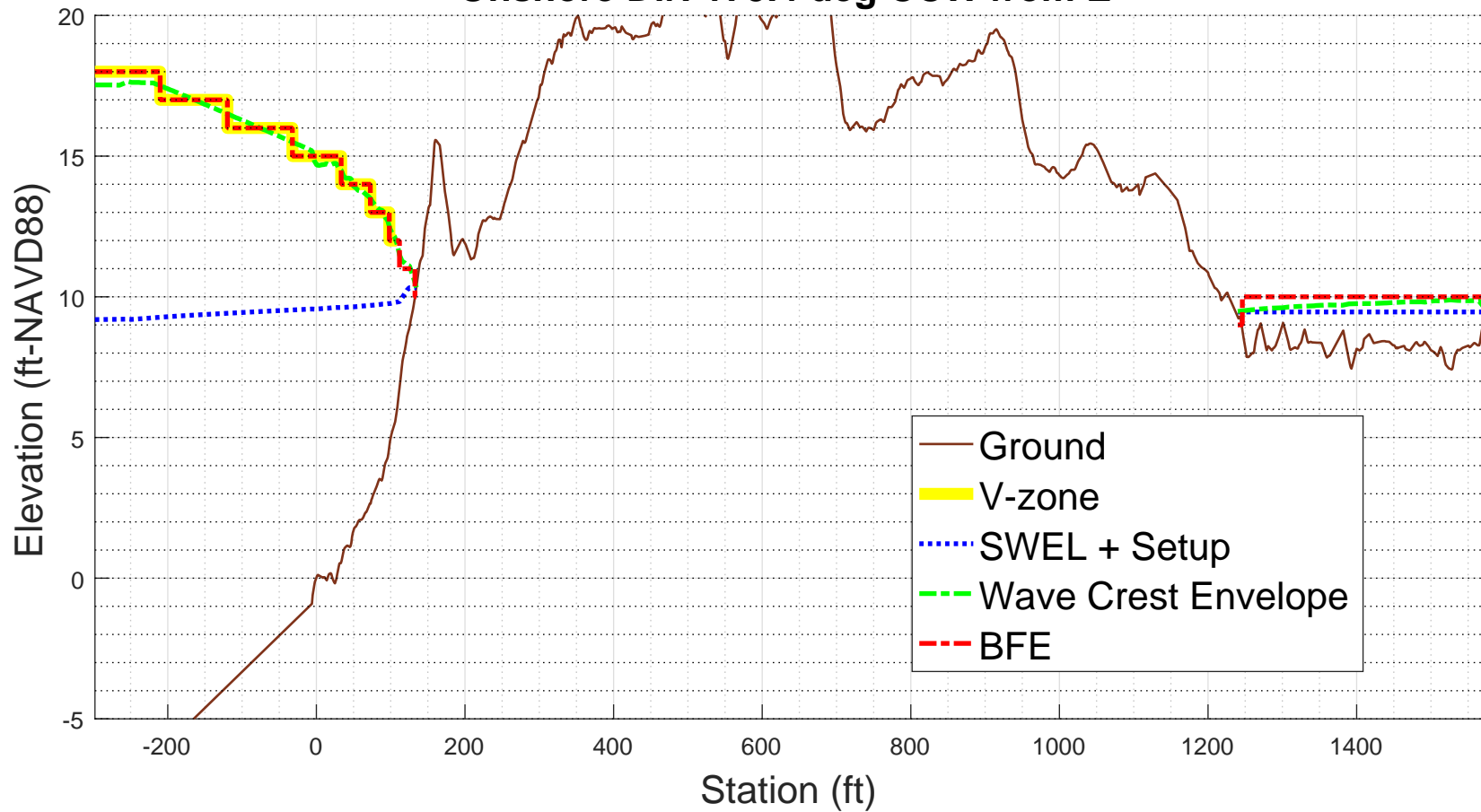
**REVISED SEP-05-2019**

**YK-14**

**100-year WHAFIS Output**

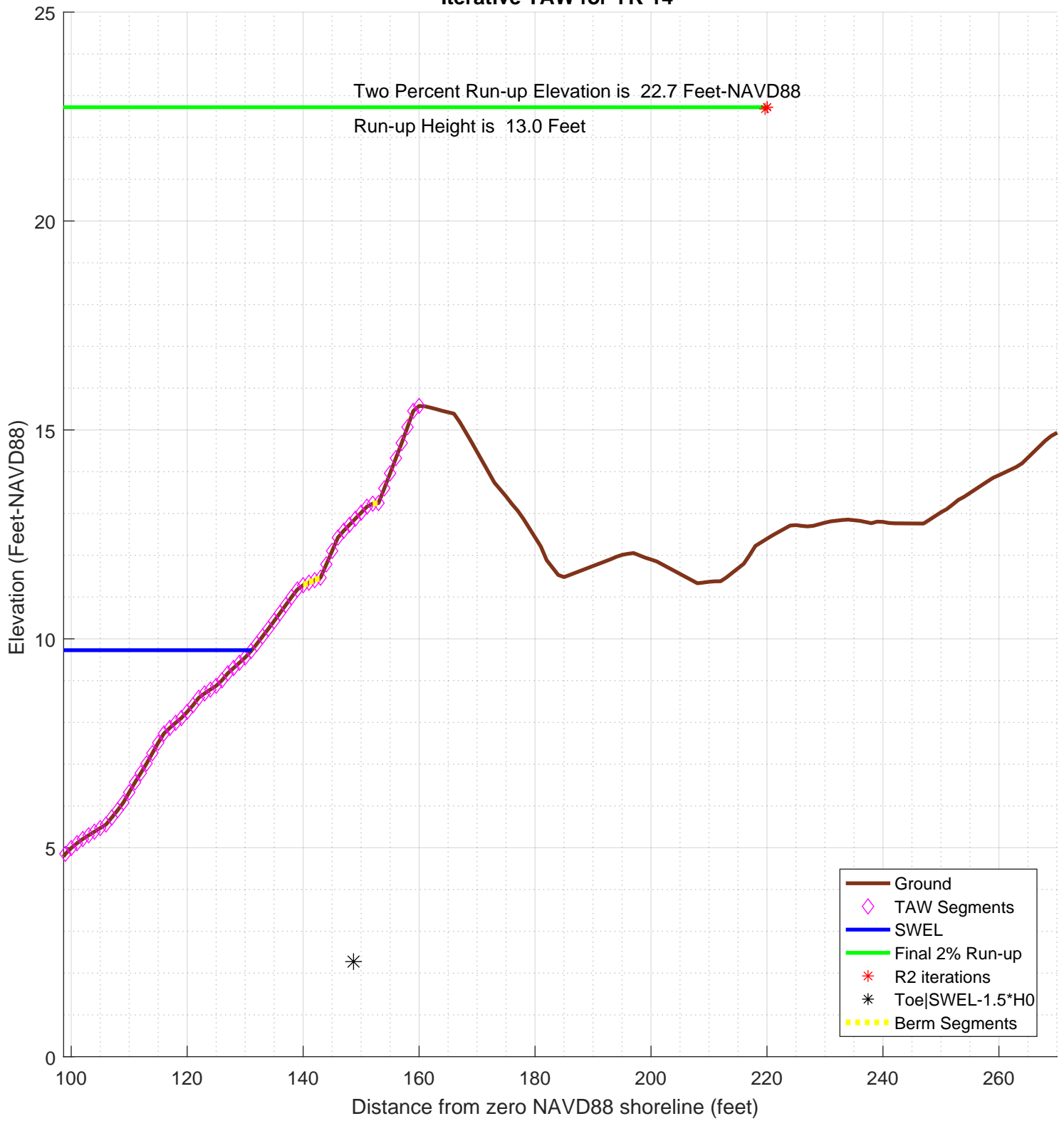
**Zero Station: -70.66498794, 43.07920030**

**Onshore Dir: 175.4 deg CCW from E**





### Iterative TAW for YK-14



```

diary on          % begin recording

% FEMA appeal for The Town of Harpswell, Cumberland county, Maine
% TRANSECT ID: YK-14
% calculation by SJH, Ransom Consulting, Inc. 06-Feb-2020
% 100-year wave runup using TAW methodology
% including berm and weighted average with foreshore if necessary
%
% chk nld 20181015
%
% 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/YK-14sta_ele_include.csv'; % file with station, elevation, include
% third column is 0 for excluded points
imgname='logfiles/YK-14-runup';
SWEL=9.19; % 100-yr still water level including wave setup.
H0=4.9688; % significant wave height at toe of structure
Tp=13.8709; % peak period, 1/fma,
T0=Tp/1.1;

gamma_berm=0.94964; % this may get changed automatically below
gamma_rough=0.8;
gamma_beta=1;
gamma_perm=1;

setupAtToe=0.5381;
maxSetup=1.1359; % only used in case of berm/shallow foreshore weighted average

plotTitle='Iterative TAW for YK-14'

plotTitle =

Iterative TAW for YK-14

% END CONFIG
%-----

SWEL=SWEL+setupAtToe

SWEL =

9.7281

SWEL_fore=SWEL+maxSetup

SWEL_fore =

10.864

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

L0 =

813.626378047832

% 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 =

```

2.2749

```
% 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 =

    17.1813

% determine station at the max runup and -1.5*H0 (i.e. the toe)
top_sta=-999;
toe_sta=-999;
for kk=1:length(sta)-1
    if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1))) % here is the intersection of z2 with profile
        top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
    end
    if ((Ztoe > dep(kk)) & (Ztoe <= dep(kk+1))) % here is the intersection of Ztoe with profile
        toe_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Ztoe)
    end
end
% check to make sure we got them, if not extend the end slopes outward
S=diff(dep)./diff(sta);
if toe_sta== -999
    dy=dep(1)-Ztoe;
    toe_sta=sta(1)-dy/S(1)
end
toe_sta =

    148.690355329948

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

    173.496221662469

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

top_sta =

    173.496221662469

toe_sta

toe_sta =

    148.690355329948

% 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',de
    sprintf('-!!- This may be reasonable for some cases. However the user may want to consider:\n')
    sprintf('-!!- 1) Selecting a starting point that is at or below %4.2f feet elevation, or\n', Ztoe)
    sprintf('-!!- 2) Reducing the incident wave height to a depth limited condition.\n')
```

```

end

ans =

-!!- The User has selected a starting point that is 1.22 feet above the elevation of SWEL-1.5H0

ans =

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

ans =

-!!- 1) Selecting a starting point that is at or below 2.27 feet elevation, or

ans =

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

% now iterate converge on a runup elevation
tol=0.001; % convergence criteria
R2del=999;
R2_new=3*H0; %initial guess
R2=R2_new;
iter=0;
R2_all=[];
topStaAll=[];
Berm_Segs=[];
TAW_ALWAYS_VALID=1;
while(abs(R2del) > tol && iter <= 25)
    iter=iter+1;
    sprintf('!----- STARTING ITERATION %d -----!',iter)
    % elevation of toe of slope
    Ztoe
    % station of toe slope (relative to 0-NAVD88 shoreline)
    toe_sta
    % station of top of slope/extent of 2% run-up
    top_sta
    % elevation of top of slope/extent of 2% run-up
    Z2
    % incident significant wave height
    H0
    % incident spectral peak wave period
    Tp
    % incident spectral mean wave period
    T0

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

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

    % loop over profile segments to determine berm factor
    % re-calculate influence of depth of berm based on this run-up elevation
    % check for berm, berm width, berm height
    berm_width=0;
    rdh_sum=0;
    Berm_Segs=[];
    Berm_Heights=[];
    for kk=1:length(sta)-1
        ddep=dep(kk+1)-dep(kk);
        dsta=sta(kk+1)-sta(kk);
        s=ddep/dsta;
        if (s < 1/15) % count it as a berm if slope is flatter than 1:15 (see TAW manual)
            sprintf('Berm Factor Calculation: Iteration %d, Profile Segment: %d',iter, kk)
            berm_width=berm_width+dsta; % tally the width of all berm segments
            % compute the rdh for this segment and weight it by the segment length
            dh=SWEL-(dep(kk)+dep(kk+1))/2
            if dh < 0
                chi=R2;
            else
                chi=2* H0;
            end
            if (dh <= R2 & dh >=-2*H0)

```

```

        rdh=(0.5-0.5*cos(3.14159*dh/chi)) ;
    else
        rdh=1;
    end
    rdh_sum=rdh_sum + rdh * dsta
    Berm_Segs=[Berm_Segs, kk];
    Berm_Heights=[Berm_Heights, (dep(kk)+dep(kk+1))/2];
end
if dep(kk) >= Z2 % jump out of loop if we reached limit of run-up for this iteration
    break
end
end
sprintf('!----- End Berm Factor Calculation, Iter: %d -----!', iter)
berm_width
rB=berm_width/Lslope
if (berm_width > 0)
    rdh_mean=rdh_sum/berm_width
else
    rdh_mean=1
end
gamma_berm=1- rB * (1-rdh_mean)
if gamma_berm > 1
    gamma_berm=1
end
if gamma_berm < 0.6
    gamma_berm =0.6
end
% Iribarren number
slope=(Z2-Ztoe)/(Lslope-berm_width)
Irb=(slope/(sqrt(H0/L0)))
% runup height
gamma_berm
gamma_perm
gamma_beta
gamma_rough
gamma=gamma_berm*gamma_perm*gamma_beta*gamma_rough

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

```

```

        R2_new=w2*fore_R2 + w1*R2_new
    end
end % end berm width check

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

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

end

ans =

!----- STARTING ITERATION 1 -----!

Ztoe =

        2.2749

toe_sta =

        148.690355329948

top_sta =

        173.496221662469

Z2 =

        17.1813

H0 =

        4.9688

Tp =

        13.8709

T0 =

        12.6099090909091

R2 =

        14.9064

Z2 =

        24.6345

top_sta =

        236.07556675063

Lslope =

        87.3852114206816

ans =

Berm Factor Calculation: Iteration 1, Profile Segment: 1

dh =

        6.24775

rdh_sum =

```

0.696694661749085

ans =

Berm Factor Calculation: Iteration 1, Profile Segment: 7

dh =

5.59575

rdh\_sum =

1.29514584126333

ans =

Berm Factor Calculation: Iteration 1, Profile Segment: 8

dh =

5.53985

rdh\_sum =

1.88491919851846

ans =

Berm Factor Calculation: Iteration 1, Profile Segment: 54

dh =

-1.58515

rdh\_sum =

1.9125625838384

ans =

Berm Factor Calculation: Iteration 1, Profile Segment: 55

dh =

-1.64545

rdh\_sum =

1.94232759962642

ans =

Berm Factor Calculation: Iteration 1, Profile Segment: 56

dh =

-1.7051

rdh\_sum =

1.97426609824767

ans =

Berm Factor Calculation: Iteration 1, Profile Segment: 66

dh =

-3.51485

rdh\_sum =

2.10529161254412

ans =

!----- End Berm Factor Calculation, Iter: 1 -----!

berm\_width =

7

rB =

0.0801050874192117

rdh\_mean =

0.30075594464916

gamma\_berm =

0.943986993818757

slope =

0.278155640880075

Irb =

3.55938219472908

gamma\_berm =

0.943986993818757

gamma\_perm =

1

gamma\_beta =

1

gamma\_rough =

0.8

gamma =

0.755189595055005

ans =

!!! - - Iribaren number: 3.36 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =

!!! - - slope: 1:3.6 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2\_new =

12.9529669019934

R2del =

1.95343309800661

Z2 =

22.6810669019934

ans =

!----- STARTING ITERATION 2 -----!

Ztoe =

2.2749

toe\_sta =



148.690355329948

top\_sta =

219.673945440751

Z2 =

22.6810669019934

H0 =

4.9688

TP =

13.8709

T0 =

12.6099090909091

R2 =

12.9529669019934

Z2 =

22.6810669019934

top\_sta =

219.673945440751

Lslope =

70.9835901108023

ans =

Berm Factor Calculation: Iteration 2, Profile Segment: 1

dh =

6.24775

rdh\_sum =

0.696694661749085

ans =

Berm Factor Calculation: Iteration 2, Profile Segment: 7

dh =

5.59575

rdh\_sum =

1.29514584126333

ans =

Berm Factor Calculation: Iteration 2, Profile Segment: 8

dh =

5.53985

rdh\_sum =

1.88491919851846

ans =

Berm Factor Calculation: Iteration 2, Profile Segment: 54

dh =

-1.58515

rdh\_sum =

1.92141855805693

ans =

Berm Factor Calculation: Iteration 2, Profile Segment: 55

dh =

-1.64545

rdh\_sum =

1.96071001201676

ans =

Berm Factor Calculation: Iteration 2, Profile Segment: 56

dh =

-1.7051

rdh\_sum =

2.00286041802213

ans =

Berm Factor Calculation: Iteration 2, Profile Segment: 66

dh =

-3.51485

rdh\_sum =

2.17380355043182

ans =

!----- End Berm Factor Calculation, Iter: 2 -----!

berm\_width =

7

rB =

0.0986143415551862

rdh\_mean =

0.310543364347402

gamma\_berm =

0.932009687844265

slope =

0.318928132457954

Irb =

4.08112203828527

gamma\_berm =

0.932009687844265

```

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.8

gamma =
    0.745607750275412

ans =
!!! - - Iribaren number: 3.80 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:3.1 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =
    12.996319619657

R2del =
    0.0433527176635842

Z2 =
    22.724419619657

ans =
!----- STARTING ITERATION 3 -----!

Ztoe =
    2.2749

toe_sta =
    148.690355329948

top_sta =
    220.037948107951

Z2 =
    22.724419619657

H0 =
    4.9688

Tp =
    13.8709

T0 =
    12.6099090909091

R2 =
    12.996319619657

Z2 =

```

22.724419619657

top\_sta =

220.037948107951

Lslope =

71.3475927780029

ans =

Berm Factor Calculation: Iteration 3, Profile Segment: 1

dh =

6.24775

rdh\_sum =

0.696694661749085

ans =

Berm Factor Calculation: Iteration 3, Profile Segment: 7

dh =

5.59575

rdh\_sum =

1.29514584126333

ans =

Berm Factor Calculation: Iteration 3, Profile Segment: 8

dh =

5.53985

rdh\_sum =

1.88491919851846

ans =

Berm Factor Calculation: Iteration 3, Profile Segment: 54

dh =

-1.58515

rdh\_sum =

1.92117843923054

ans =

Berm Factor Calculation: Iteration 3, Profile Segment: 55

dh =

-1.64545

rdh\_sum =

1.96021165551224

ans =

Berm Factor Calculation: Iteration 3, Profile Segment: 56

dh =

-1.7051

```

rdh_sum =
    2.00208530851954

ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 66

dh =
    -3.51485

rdh_sum =
    2.17195923757907

ans =
!----- End Berm Factor Calculation, Iter: 3 -----!

berm_width =
    7

rB =
    0.0981112288088038

rdh_mean =
    0.310279891082724

gamma_berm =
    0.932330712579984

slope =
    0.317797740938144

Irb =
    4.06665713138656

gamma_berm =
    0.932330712579984

gamma_perm =
    1

gamma_beta =
    1

gamma_rough =
    0.8

gamma =
    0.745864570063987

ans =
!!! - - Iribaren number: 3.79 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =
!!! - - slope: 1:3.1 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!

R2_new =

```

12.9955805204094

R2del =

0.000739099247571318

Z2 =

22.7236805204094

% final 2% runup elevation

Z2=R2\_new+SWEL

Z2 =

22.7236805204094

diary off

---

PART 5: RUNUP2

for transect: YK-14

Station locations shifted by: -0.20 feet from their  
original location to set the shoreline to  
elevation 0 for RUNUP2 input

---

RUNUP2 INPUT CONVERSIONS

for transect: YK-14

Incident significant wave height: 12.46 feet

Peak wave period: 14.03 seconds

Mean wave height: 7.80 feet

Local Depth below SWEL: 15.66 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

Deep water wavelength,  $L_0$  (m)

$$L_0 = gT^2/\pi$$

$$L_0 = 32.17 \times 11.93^2 / 6.28 = 728.42$$

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

$$C_0 = L_0/T$$

$$C_0 = 728.42 / 11.93 = 61.07$$

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

$$\sigma = \pi/T$$

$$\sigma = 6.28 / 11.93 = 0.53$$

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

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

$$y = 0.53 \times 0.53 \times 15.66 / 32.17 = 0.14$$

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

$$C_{1H} = 21.94$$

Shoaling Coefficient  $K_{sH}$

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

$$K_{sH} = \sqrt{61.07 / 21.94} = 1.67$$

Deepwater Wave Height  $H_{0H}$  (ft)

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

$$H_{0H} = 7.80 / 1.67 = 4.67$$

Deepwater mean wave height: 4.67 feet

---

END RUNUP2 CONVERSIONS

---

RUNUP2 RESULTS

for transect: YK-14

RUNUP2 SWEL:

9.20  
9.20  
9.20  
9.20  
9.20  
9.20  
9.20  
9.20  
9.20

RUNUP2 deepwater mean wave heights:

4.44

4.44  
4.44  
4.67  
4.67  
4.67  
4.91  
4.91  
4.91

RUNUP2 mean wave periods:

11.33  
11.93  
12.52  
11.33  
11.93  
12.52  
11.33  
11.93  
12.52

RUNUP2 runup above SWEL:

5.10  
5.63  
6.06  
5.27  
5.79  
6.33  
5.44  
5.93  
5.91

RUNUP2 Mean runup height above SWEL: 5.72 feet

RUNUP2 2-percent runup height above SWEL: 12.58 feet

RUNUP2 2-percent runup elevation: 21.78 feet-NAVD88

RUNUP2 Messages:

No Messages

\_\_\_\_\_END RUNUP2 RESULTS\_\_\_\_\_

\_\_\_\_\_ACES BEACH RUNUP\_\_\_\_\_

Incident significant wave height: 12.46 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 6.54 feet

Peak wave period: 14.03 seconds

Average beach Slope: 1:20.78 (H:V)

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

ACES Beach 2-percent runup height above SWEL: 8.44 feet

ACES Beach 2-percent runup elevation: 17.64 feet-NAVD88

ACES BEACH RUNUP is valid

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

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



FEMA  
RUNUP2 transect: YK-14

sjh

job 2  
1

3.00  
-6.47 -297.8 1.0  
-6.41 -252.8 1.0  
-0.91 -5.8 1.0  
-0.13 -1.8 1.0  
0.12 2.2 1.0  
0.18 28.2 1.0  
1.00 37.2 1.0  
1.16 46.2 1.0  
1.78 51.2 1.0  
2.65 73.2 1.0  
3.53 85.2 1.0  
3.56 89.2 1.0  
5.56 106.2 1.0  
7.73 116.2 1.0  
9.88 132.2 1.0  
11.18 139.2 1.0  
11.46 143.2 1.0  
12.42 146.2 1.0  
13.25 153.2 1.0  
1 15.57 160.2 1.0  
9.2 4.44 11.33  
9.2 4.44 11.93  
9.2 4.44 12.52  
9.2 4.67 11.33  
9.2 4.67 11.93  
9.2 4.67 12.52  
9.2 4.91 11.33  
9.2 4.91 11.93  
9.2 4.91 12.52



\*\*\*\*\*

CROSS SECTION PROFILE

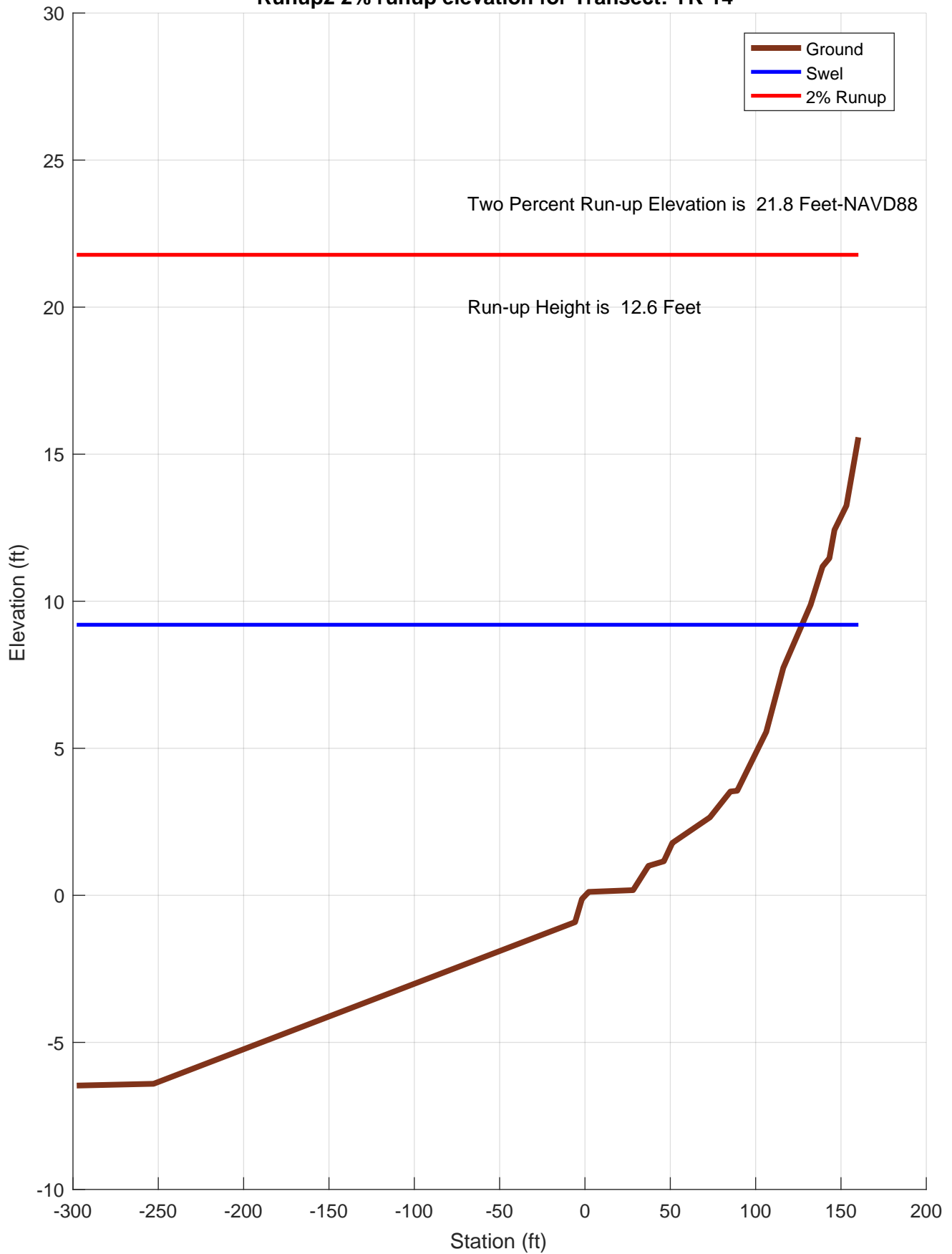
	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-297.8	-6.5		
2	-252.8	-6.4	.00	1.00
3	-5.8	-.9	44.91	1.00
4	-1.8	-.1	5.13	1.00
5	2.2	.1	16.00	1.00
6	28.2	.2	433.33	1.00
7	37.2	1.0	10.98	1.00
8	46.2	1.2	56.25	1.00
9	51.2	1.8	8.06	1.00
10	73.2	2.7	25.29	1.00
11	85.2	3.5	13.64	1.00
12	89.2	3.6	133.33	1.00
13	106.2	5.6	8.50	1.00
14	116.2	7.7	4.61	1.00
15	132.2	9.9	7.44	1.00
16	139.2	11.2	5.38	1.00
17	143.2	11.5	14.29	1.00
18	146.2	12.4	3.13	1.00
19	153.2	13.3	8.43	1.00
20	160.2	15.6	3.02	1.00
	LAST SLOPE		3.00	LAST ROUGHNESS 1.00

\*\*\*\*\*

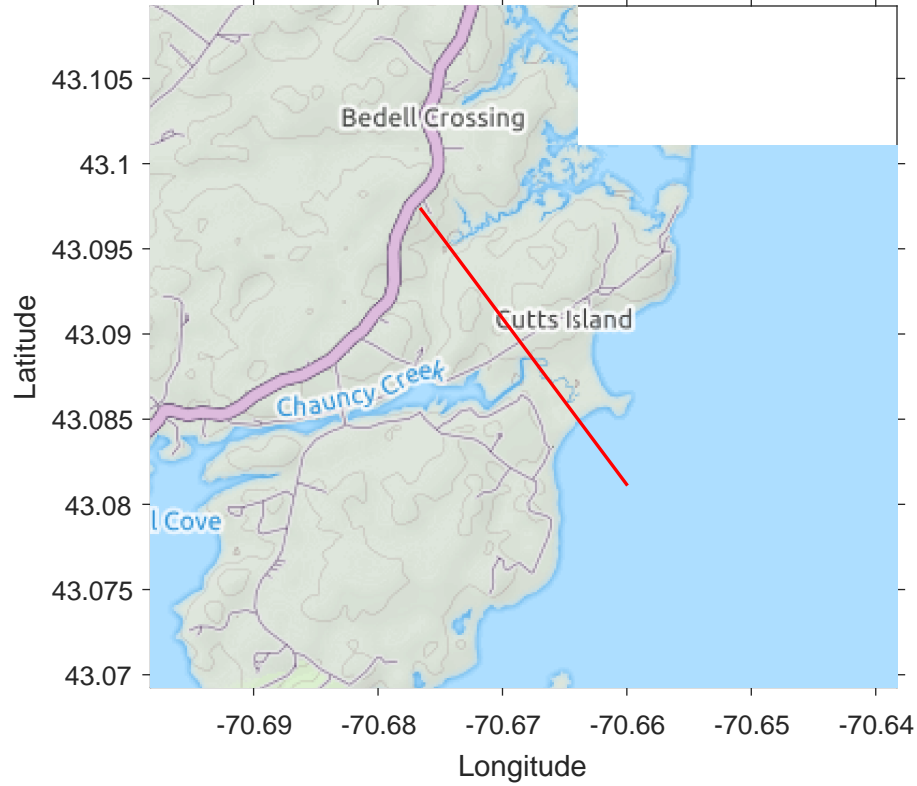
OUTPUT TABLE  
-----

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.)
9.20	4.44	11.33	5	19	5.10	9.34
9.20	4.44	11.93	5	19	5.63	9.57
9.20	4.44	12.52	5	19	6.06	9.79
9.20	4.67	11.33	5	19	5.27	9.71
9.20	4.67	11.93	5	19	5.79	9.94
9.20	4.67	12.52	5	19	6.33	10.17
9.20	4.91	11.33	5	19	5.44	10.10
9.20	4.91	11.93	2	19	5.93	10.26
9.20	4.91	12.52	2	19	5.91	10.49

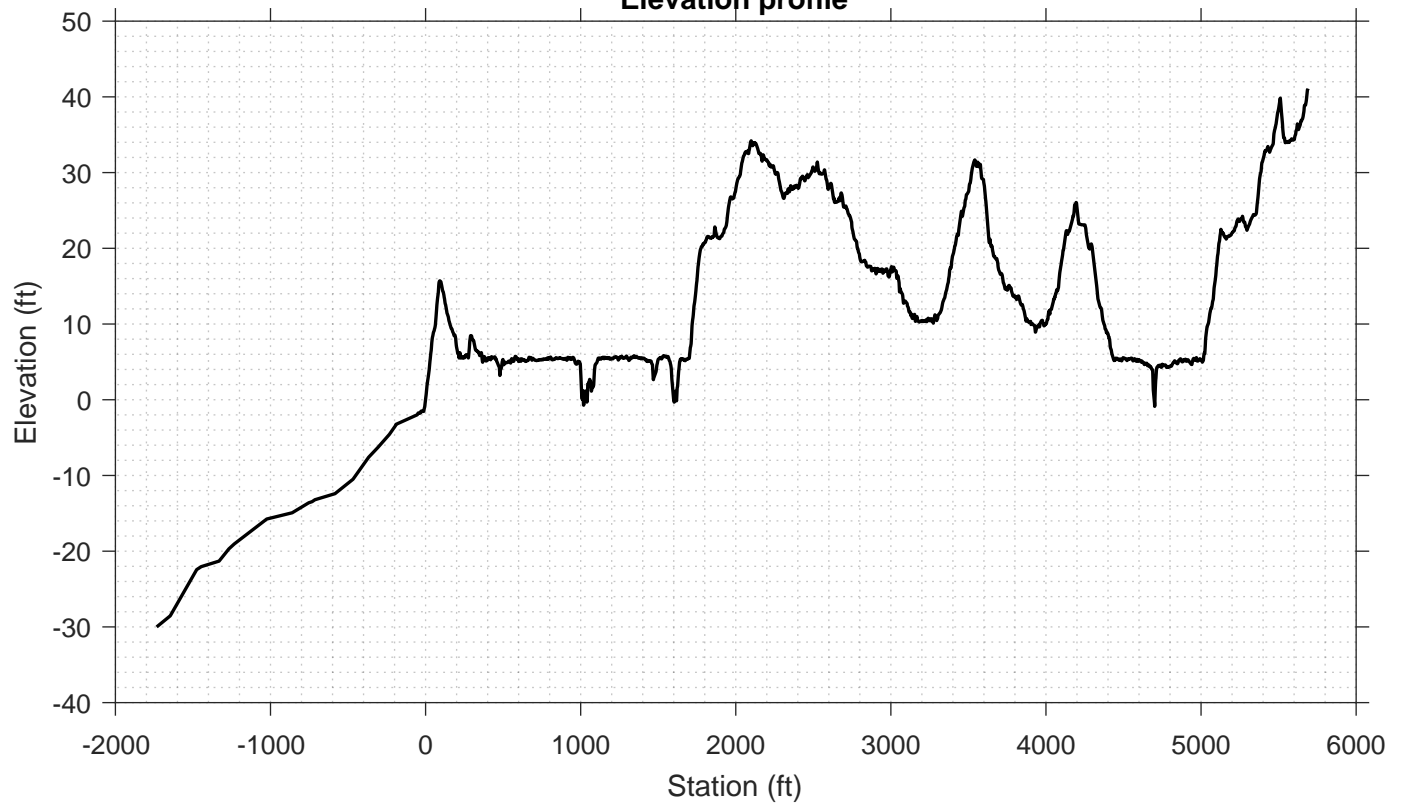
### Runup2 2% runup elevation for Transect: YK-14



**Transect Number: YK-15**



**Elevation profile**



---

DATA LOG FOR TRANSECT ID: YK-15

---

---

PART 1: USER INPUT

---

SWAN 1-D / WHAFIS input

---

station: -228 ft  
LON: -70.6633 deg E  
LAT: 43.0844 deg N  
Bottom ELEV: -4.4141 ft-NAVD88  
TWL: 9.2819 ft-NAVD88  
HS: 8.1833 ft  
TP: 13.0622 sec  
Wave Direction bin: 135 deg CCW from East (90 deg sector)  
Transect Direction: 135.6539 deg CCW from East

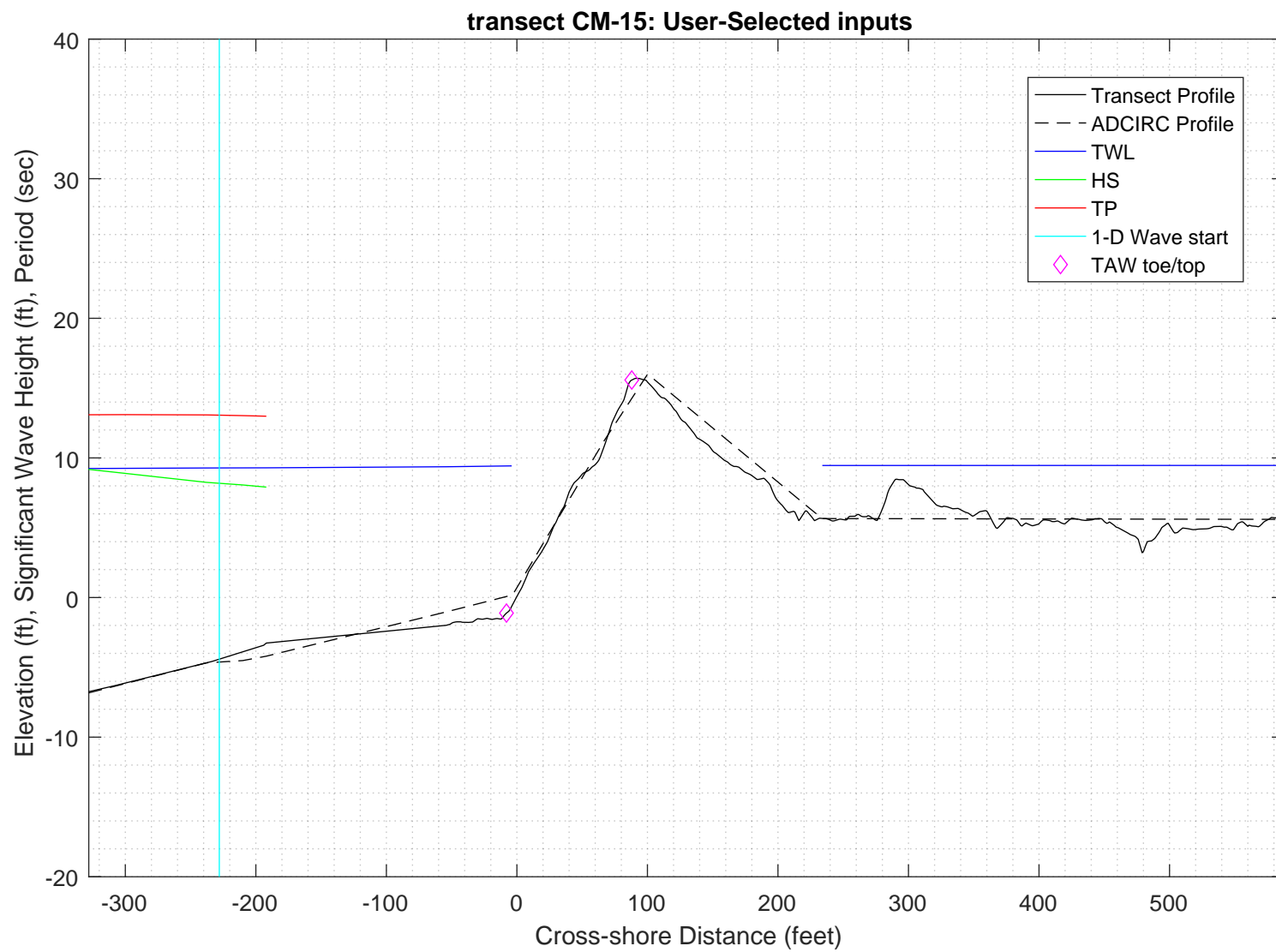
TAW/RUNUP input

---

toe sta: -8 ft  
toe elev: -1.1131 ft-NAVD88  
top sta: 88 ft  
top elev: 15.5799 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/YK-15zmeters\_xmeters.grd  
swan file name: 2\_swan/swanfiles/YK-15.swn  
swan output name: 2\_swan/swanfiles/YK-15.dat

Boundary Conditions:

TWL- 2.8291 meters  
HS- 2.4943 meters  
PER- 13.0622 seconds

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

SWAN maximum additional wave setup: 1.0731 feet

SWAN output at toe:

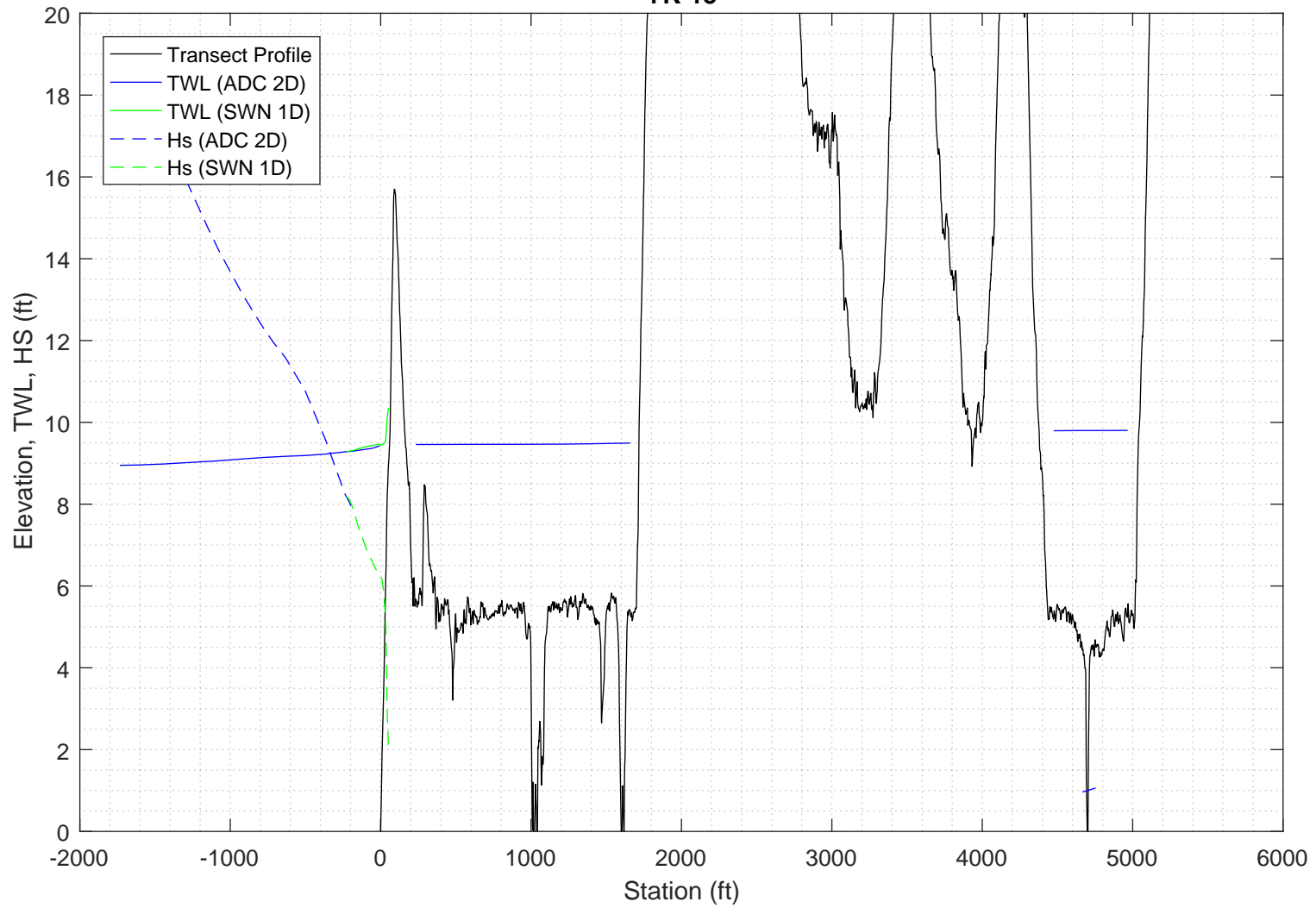
SETUP- 0.18011 feet  
HS- 6.2414 feet  
PER- 12.7769 seconds

PART 2 COMPLETE

---

**REVISED SEP-05-2019**

**2-D ADCIRC+SWAN and SWAN 1-D results, Transect:  
YK-15**



Execution started at 20200206.151504

```

-----
                        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 86 0. 86 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 86 0 1 1

!READinp BOTtom [fac] 'fname1' [idla] [nhedf] [FREE|FOrmat[form]|UNFormatted]

READ BOTTOM -1. '../gridfiles/YK-15zmeters\_xmeters.grd' 1 0 FREE

!-----

! -- WIND [vel] [dir]

WIND 25.1 0

! -- BOUnd SHAPespec

BOUND SHAPE JONSWAP 3.3 PEAK DSPR POWER

! -- BOUNdspec

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

BOUN SIDE W CCW CONSTANT PAR 2.4943 13.0622 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' [xp1] [yp1] <[int] [xp] [yp] >
CURVE 'curve' 0      0      86 86      0
!TABLE 'sname' < HEADER|NOHEADer|INDEXed > 'fname' <output parameters> (output time)
Table 'curve'   HEADER 'YK-15.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      87 MYC      1
                   : MCGRD     88
                   : 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 5.75 % of wet grid points ( 99.50 % required)

```

```

iteration    3; sweep 1
iteration    3; sweep 2
iteration    3; sweep 3
iteration    3; sweep 4
accuracy OK in 1.15 % 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 5.75 % 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 21.84 % 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 95.41 % 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 97.71 % of wet grid points ( 99.50 % required)

iteration 8; sweep 1  
iteration 8; sweep 2  
iteration 8; sweep 3  
iteration 8; sweep 4  
accuracy OK in 100.00 % of wet grid points ( 99.50 % required)

STOP

SWAN version:41.20A

Xp [m]	Yp [m]	Hsig [m]	TPsmoo [sec]	RTpeak [sec]	Tm_10 [sec]	Dir [degr]	Dspr [degr]	Depth [m]	Setup [m]
0.	0.	2.48968	12.7563	12.4477	11.7873	0.000	31.5057	4.1700	0.000000
1.	0.	2.48939	12.7703	12.4477	11.4939	0.000	31.3051	4.1505	0.000533
2.	0.	2.48872	12.7833	12.4477	11.2360	0.000	31.0752	4.1210	0.000974
3.	0.	2.48630	12.7944	12.4477	11.0193	0.000	30.8664	4.0915	0.001479
4.	0.	2.48227	12.8035	12.4477	10.8388	0.000	30.6653	4.0620	0.002034
5.	0.	2.47684	12.8108	12.4477	10.6877	0.000	30.4599	4.0326	0.002628
6.	0.	2.47077	12.8164	12.4477	10.5541	0.000	30.2539	4.0033	0.003260
7.	0.	2.46388	12.8206	12.4477	10.4373	0.000	30.0470	3.9739	0.003928
8.	0.	2.45618	12.8236	12.4477	10.3350	0.000	29.8396	3.9446	0.004630
9.	0.	2.44775	12.8255	12.4477	10.2449	0.000	29.6320	3.9154	0.005364
10.	0.	2.43798	12.8265	12.4477	10.1653	0.000	29.3715	3.8861	0.006132
11.	0.	2.43118	12.8269	12.4477	10.0959	0.000	29.1273	3.8265	0.006534
12.	0.	2.41917	12.8264	12.4477	10.0298	0.000	28.9799	3.8177	0.007663
13.	0.	2.40758	12.8254	12.4477	9.9707	0.000	28.8830	3.8088	0.008785
14.	0.	2.39500	12.8240	12.4477	9.9173	0.000	28.8045	3.8100	0.010026
15.	0.	2.38343	12.8222	12.4477	9.8703	0.000	28.7150	3.8011	0.011107
16.	0.	2.37469	12.8203	12.4477	9.7975	0.000	28.6344	3.7922	0.012189
17.	0.	2.36616	12.8181	12.4477	9.7226	359.999	28.5572	3.7833	0.013290
18.	0.	2.35210	12.8158	12.4477	9.6795	359.977	28.5094	3.7747	0.014688
19.	0.	2.33740	12.8134	12.4477	9.6428	0.005	28.4450	3.7661	0.016079
20.	0.	2.32374	12.8110	12.4477	9.6038	359.956	28.3714	3.7574	0.017381
21.	0.	2.31071	12.8084	12.4477	9.5644	359.885	28.2870	3.7486	0.018617
22.	0.	2.29799	12.8059	12.4477	9.5263	359.813	28.2014	3.7398	0.019811
23.	0.	2.28543	12.8033	12.4477	9.4903	359.745	28.1156	3.7310	0.020974
24.	0.	2.27298	12.8007	12.4477	9.4564	359.681	28.0301	3.7221	0.022111
25.	0.	2.26062	12.7980	12.4477	9.4245	359.622	27.9450	3.7132	0.023222
26.	0.	2.25038	12.7954	12.4477	9.3847	359.608	27.8752	3.7042	0.024216
27.	0.	2.23978	12.7927	12.4477	9.3433	359.608	27.8116	3.7053	0.025282
28.	0.	2.23018	12.7901	12.4477	9.3051	359.614	27.7337	3.6962	0.026195
29.	0.	2.22269	12.7877	12.4477	9.2484	359.622	27.6588	3.6871	0.027104
30.	0.	2.21543	12.7855	12.4477	9.1894	359.630	27.5847	3.6780	0.028018
31.	0.	2.20503	12.7837	12.4477	9.1490	359.625	27.5347	3.6691	0.029078
32.	0.	2.19366	12.7821	12.4477	9.1158	359.648	27.4806	3.6602	0.030158
33.	0.	2.18256	12.7809	12.4477	9.0829	359.622	27.4150	3.6512	0.031198
34.	0.	2.17186	12.7798	12.4477	9.0497	359.586	27.3455	3.6422	0.032198
35.	0.	2.16130	12.7790	12.4477	9.0176	359.549	27.2747	3.6332	0.033172
36.	0.	2.15077	12.7783	12.4477	8.9871	359.514	27.2032	3.6241	0.034128
37.	0.	2.14026	12.7777	12.4477	8.9583	359.480	27.1314	3.6151	0.035067
38.	0.	2.12973	12.7773	12.4477	8.9313	359.447	27.0580	3.6060	0.035990
39.	0.	2.11938	12.7770	12.4477	8.9057	359.415	26.9983	3.5969	0.036897
40.	0.	2.10946	12.7767	12.4477	8.8736	359.410	26.9431	3.5978	0.037845
41.	0.	2.10084	12.7765	12.4477	8.8421	359.418	26.8737	3.5886	0.038633
42.	0.	2.09234	12.7763	12.4477	8.8111	359.430	26.7992	3.5794	0.039401
43.	0.	2.08383	12.7762	12.4477	8.7815	359.444	26.7245	3.5702	0.040158
44.	0.	2.07585	12.7762	12.4477	8.7486	359.464	26.6517	3.5609	0.040904
45.	0.	2.06799	12.7762	12.4477	8.7157	359.488	26.5813	3.5516	0.041641
46.	0.	2.06033	12.7762	12.4477	8.6828	359.518	26.5119	3.5424	0.042362
47.	0.	2.05265	12.7762	12.4477	8.6511	359.551	26.4428	3.5331	0.043073
48.	0.	2.04499	12.7763	12.4477	8.6202	359.587	26.3741	3.5238	0.043776
49.	0.	2.03737	12.7764	12.4477	8.5902	359.627	26.3053	3.5145	0.044468
50.	0.	2.02958	12.7765	12.4477	8.5622	359.666	26.2387	3.5052	0.045159
51.	0.	2.02168	12.7766	12.4477	8.5358	359.705	26.1739	3.4958	0.045848
52.	0.	2.01377	12.7767	12.4477	8.5112	359.741	26.1228	3.4865	0.046535
53.	0.	2.00493	12.7767	12.4477	8.4856	359.778	26.0520	3.4873	0.047318
54.	0.	1.99790	12.7769	12.4477	8.4667	359.819	25.9210	3.4578	0.047767
55.	0.	1.99179	12.7771	12.4477	8.4482	359.870	25.7943	3.4181	0.048114
56.	0.	1.98364	12.7771	12.4477	8.4243	359.919	25.7360	3.4088	0.048815
57.	0.	1.97463	12.7771	12.4477	8.3957	359.973	25.7211	3.4197	0.049709

58.	0.	1.96662	12.7771	12.4477	8.3703	0.028	25.7019	3.4205	0.050463
59.	0.	1.95806	12.7771	12.4477	8.3456	0.083	25.6000	3.4212	0.051189
60.	0.	1.95400	12.7773	12.4477	8.3332	0.147	25.4552	3.3612	0.051249
61.	0.	1.94576	12.7772	12.4477	8.3115	0.205	25.3669	3.3519	0.051917
62.	0.	1.93767	12.7772	12.4477	8.2908	0.263	25.3095	3.3426	0.052589
63.	0.	1.92917	12.7771	12.4477	8.2690	0.318	25.2955	3.3434	0.053364
64.	0.	1.92008	12.7769	12.4477	8.2461	0.372	25.2792	3.3542	0.054221
65.	0.	1.91259	12.7768	12.4477	8.2276	0.428	25.2336	3.3448	0.054833
66.	0.	1.90411	12.7767	12.4477	8.2086	0.481	25.0520	3.3354	0.055429
67.	0.	1.90237	12.7769	12.4477	8.2092	0.547	24.6986	3.2249	0.054897
68.	0.	1.89748	12.7769	12.4477	8.2069	0.612	24.1939	3.1245	0.054545
69.	0.	1.89725	12.7771	12.4477	8.2204	0.691	23.5289	2.9432	0.053214
70.	0.	1.89318	12.7770	12.4477	8.2303	0.781	22.8321	2.7722	0.052178
71.	0.	1.88670	12.7766	12.4477	8.2380	0.886	22.0244	2.5912	0.051170
72.	0.	1.88033	12.7759	12.4477	8.2475	1.023	21.1575	2.3698	0.049768
73.	0.	1.86206	12.7745	12.4477	8.2377	1.168	20.3645	2.2002	0.050232
74.	0.	1.83358	12.7729	12.4477	8.2169	1.321	19.6593	2.0625	0.052471
75.	0.	1.79975	12.7712	12.4477	8.1900	1.492	18.9631	1.9257	0.055653
76.	0.	1.75726	12.7697	12.4477	8.1827	1.571	18.1782	1.7701	0.060063
77.	0.	1.70692	12.7695	12.4477	8.1979	1.516	17.2337	1.5958	0.065775
78.	0.	1.66485	12.7703	12.4477	8.2182	1.429	16.1666	1.3702	0.070180
79.	0.	1.61533	12.7720	12.4477	8.2035	1.349	15.1680	1.1877	0.077682
80.	0.	1.50447	12.7822	12.4477	8.4256	1.098	14.4615	1.0204	0.100380
81.	0.	1.28161	12.9564	12.4477	8.9049	359.724	13.9675	0.8631	0.153150
82.	0.	1.02798	13.1427	13.8874	9.4934	357.930	13.3858	0.6859	0.215937
83.	0.	0.85824	13.3518	13.8874	9.8036	357.014	12.5588	0.5692	0.259206
84.	0.	0.75452	13.6421	13.8874	9.6524	356.368	11.6195	0.5061	0.286052
85.	0.	0.64427	13.7155	13.8874	9.9763	356.532	11.0816	0.4247	0.314686
86.	0.	0.59816	16.7734	17.2856	9.6518	356.495	11.0111	0.3971	0.327091



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PART 3: WHAFIS

WHAFIS input: YK-15.dat

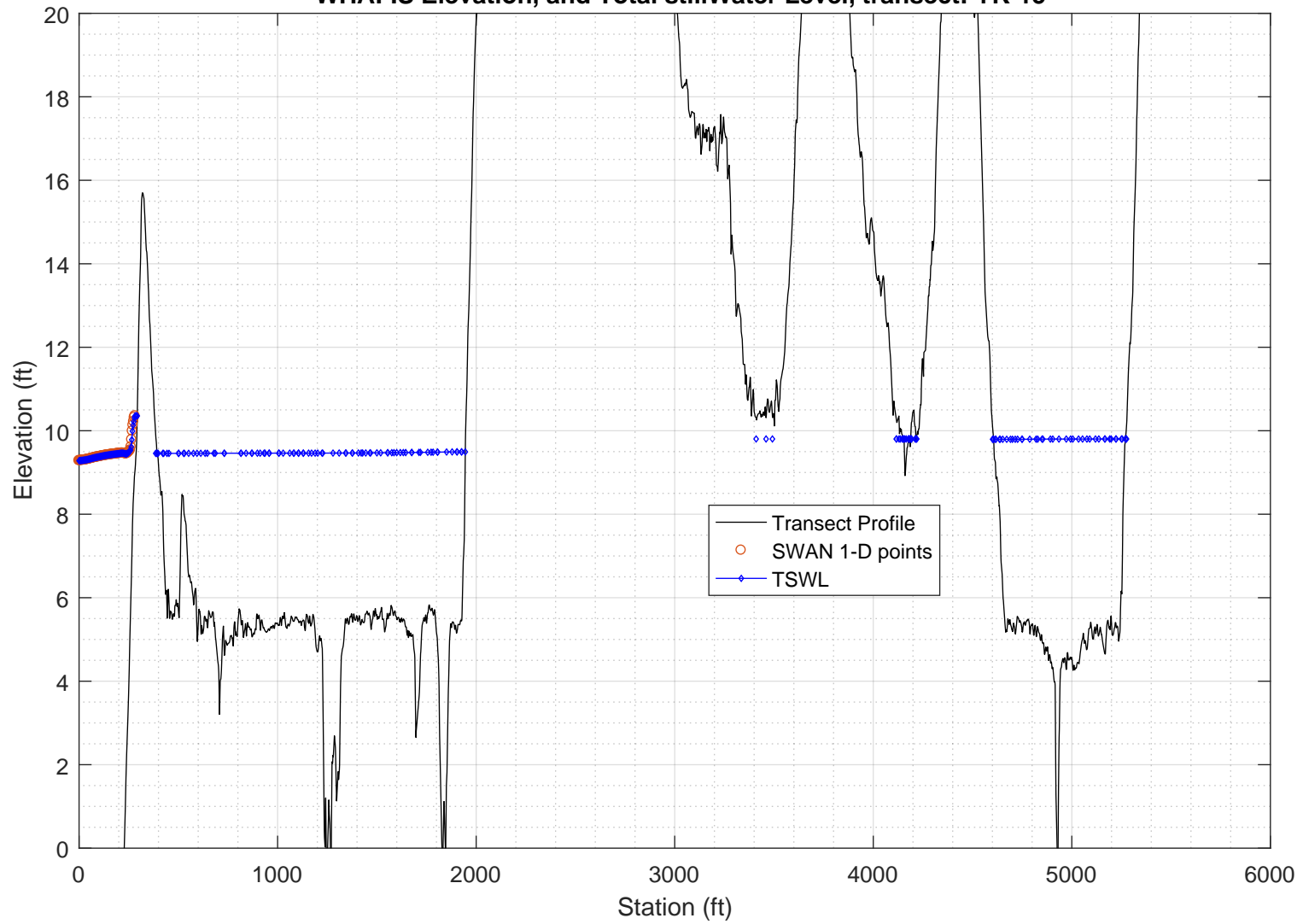
WHAFIS output: YK-15.out

PART 3 COMPLETE

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**REVISED SEP-05-2019**

**WHAFIS Elevation, and Total stillWater Level, transect: YK-15**



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

Executed on: Thu Feb 6 16:14:34 2020

Input file: C:\Users\shayward\Desktop\Kittery\T2\3\_whafis\whafis4\YK-15.dat

Output file: C:\Users\shayward\Desktop\Kittery\T2\3\_whafis\whafis4\YK-15.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	-4.414	1.000	1.000	9.282	13.093	13.062	56.140	0.029	0.000
OF	3.300	-4.318	0.000	9.284	0.000	0.000	0.000	0.000	0.029	0.000
OF	6.600	-4.222	0.000	9.285	0.000	0.000	0.000	0.000	0.030	0.000
OF	9.800	-4.126	0.000	9.287	0.000	0.000	0.000	0.000	0.030	0.000
OF	13.100	-4.030	0.000	9.288	0.000	0.000	0.000	0.000	0.029	0.000
OF	16.400	-3.934	0.000	9.290	0.000	0.000	0.000	0.000	0.029	0.000
OF	19.700	-3.838	0.000	9.293	0.000	0.000	0.000	0.000	0.029	0.000
OF	23.000	-3.742	0.000	9.295	0.000	0.000	0.000	0.000	0.030	0.000
OF	26.200	-3.645	0.000	9.297	0.000	0.000	0.000	0.000	0.030	0.000
OF	29.500	-3.549	0.000	9.300	0.000	0.000	0.000	0.000	0.029	0.000
OF	32.800	-3.453	0.000	9.302	0.000	0.000	0.000	0.000	0.044	0.000
OF	36.100	-3.261	0.000	9.303	0.000	0.000	0.000	0.000	0.034	0.000
OF	39.400	-3.231	0.000	9.307	0.000	0.000	0.000	0.000	0.009	0.000
OF	42.700	-3.201	0.000	9.311	0.000	0.000	0.000	0.000	0.009	0.000
OF	45.900	-3.171	0.000	9.315	0.000	0.000	0.000	0.000	0.009	0.000
OF	49.200	-3.140	0.000	9.318	0.000	0.000	0.000	0.000	0.009	0.000
OF	52.500	-3.110	0.000	9.322	0.000	0.000	0.000	0.000	0.009	0.000
OF	55.800	-3.080	0.000	9.325	0.000	0.000	0.000	0.000	0.009	0.000
OF	59.100	-3.049	0.000	9.330	0.000	0.000	0.000	0.000	0.009	0.000
OF	62.300	-3.019	0.000	9.335	0.000	0.000	0.000	0.000	0.009	0.000
OF	65.600	-2.989	0.000	9.339	0.000	0.000	0.000	0.000	0.009	0.000
OF	68.900	-2.958	0.000	9.343	0.000	0.000	0.000	0.000	0.009	0.000
OF	72.200	-2.928	0.000	9.347	0.000	0.000	0.000	0.000	0.009	0.000
OF	75.500	-2.898	0.000	9.351	0.000	0.000	0.000	0.000	0.009	0.000
OF	78.700	-2.868	0.000	9.354	0.000	0.000	0.000	0.000	0.009	0.000
OF	82.000	-2.837	0.000	9.358	0.000	0.000	0.000	0.000	0.009	0.000
OF	85.300	-2.807	0.000	9.361	0.000	0.000	0.000	0.000	0.009	0.000
OF	88.600	-2.777	0.000	9.365	0.000	0.000	0.000	0.000	0.009	0.000
OF	91.900	-2.746	0.000	9.368	0.000	0.000	0.000	0.000	0.009	0.000
OF	95.100	-2.716	0.000	9.371	0.000	0.000	0.000	0.000	0.009	0.000
OF	98.400	-2.686	0.000	9.374	0.000	0.000	0.000	0.000	0.009	0.000
OF	101.700	-2.655	0.000	9.377	0.000	0.000	0.000	0.000	0.009	0.000
OF	105.000	-2.625	0.000	9.381	0.000	0.000	0.000	0.000	0.009	0.000
OF	108.300	-2.595	0.000	9.384	0.000	0.000	0.000	0.000	0.009	0.000
OF	111.500	-2.565	0.000	9.387	0.000	0.000	0.000	0.000	0.009	0.000
OF	114.800	-2.534	0.000	9.391	0.000	0.000	0.000	0.000	0.009	0.000
OF	118.100	-2.504	0.000	9.394	0.000	0.000	0.000	0.000	0.009	0.000
OF	121.400	-2.474	0.000	9.397	0.000	0.000	0.000	0.000	0.009	0.000
OF	124.700	-2.443	0.000	9.400	0.000	0.000	0.000	0.000	0.009	0.000
OF	128.000	-2.413	0.000	9.403	0.000	0.000	0.000	0.000	0.009	0.000
OF	131.200	-2.383	0.000	9.406	0.000	0.000	0.000	0.000	0.009	0.000
OF	134.500	-2.352	0.000	9.409	0.000	0.000	0.000	0.000	0.009	0.000
OF	137.800	-2.322	0.000	9.411	0.000	0.000	0.000	0.000	0.009	0.000
OF	141.100	-2.292	0.000	9.414	0.000	0.000	0.000	0.000	0.009	0.000
OF	144.400	-2.261	0.000	9.416	0.000	0.000	0.000	0.000	0.009	0.000
OF	147.600	-2.231	0.000	9.418	0.000	0.000	0.000	0.000	0.009	0.000
OF	150.900	-2.201	0.000	9.421	0.000	0.000	0.000	0.000	0.009	0.000
OF	154.200	-2.171	0.000	9.423	0.000	0.000	0.000	0.000	0.009	0.000
OF	157.500	-2.140	0.000	9.425	0.000	0.000	0.000	0.000	0.009	0.000
OF	160.800	-2.110	0.000	9.428	0.000	0.000	0.000	0.000	0.009	0.000
OF	164.000	-2.080	0.000	9.430	0.000	0.000	0.000	0.000	0.009	0.000
OF	167.300	-2.049	0.000	9.432	0.000	0.000	0.000	0.000	0.009	0.000
OF	170.600	-2.019	0.000	9.434	0.000	0.000	0.000	0.000	0.009	0.000
OF	173.900	-1.989	0.000	9.437	0.000	0.000	0.000	0.000	0.019	0.000
OF	177.200	-1.894	0.000	9.439	0.000	0.000	0.000	0.000	0.035	0.000
OF	180.400	-1.762	0.000	9.440	0.000	0.000	0.000	0.000	0.024	0.000
OF	183.700	-1.740	0.000	9.442	0.000	0.000	0.000	0.000	-0.002	0.000
OF	187.000	-1.775	0.000	9.445	0.000	0.000	0.000	0.000	-0.006	0.000
OF	190.300	-1.781	0.000	9.447	0.000	0.000	0.000	0.000	0.002	0.000
OF	193.600	-1.760	0.000	9.450	0.000	0.000	0.000	0.000	0.031	0.000
OF	196.800	-1.578	0.000	9.450	0.000	0.000	0.000	0.000	0.034	0.000
OF	200.100	-1.541	0.000	9.452	0.000	0.000	0.000	0.000	0.009	0.000
OF	203.400	-1.522	0.000	9.454	0.000	0.000	0.000	0.000	0.002	0.000
OF	206.700	-1.525	0.000	9.457	0.000	0.000	0.000	0.000	-0.004	0.000
OF	210.000	-1.547	0.000	9.460	0.000	0.000	0.000	0.000	0.003	0.000
OF	213.300	-1.507	0.000	9.462	0.000	0.000	0.000	0.000	0.009	0.000
OF	216.500	-1.489	0.000	9.464	0.000	0.000	0.000	0.000	0.058	0.000
OF	219.800	-1.130	0.000	9.462	0.000	0.000	0.000	0.000	0.104	0.000
OF	223.100	-0.804	0.000	9.461	0.000	0.000	0.000	0.000	0.139	0.000
OF	226.400	-0.210	0.000	9.457	0.000	0.000	0.000	0.000	0.177	0.000
IF	229.700	0.363	0.000	9.453	0.000	0.000	0.000	0.000	0.180	0.000
IF	232.900	0.959	0.000	9.450	0.000	0.000	0.000	0.000	0.203	0.000
IF	236.200	1.680	0.000	9.445	0.000	0.000	0.000	0.000	0.192	0.000
IF	239.500	2.229	0.000	9.447	0.000	0.000	0.000	0.000	0.153	0.000
IF	242.800	2.693	0.000	9.454	0.000	0.000	0.000	0.000	0.139	0.000
IF	246.100	3.149	0.000	9.465	0.000	0.000	0.000	0.000	0.149	0.000
IF	249.300	3.661	0.000	9.479	0.000	0.000	0.000	0.000	0.173	0.000
IF	252.600	4.276	0.000	9.498	0.000	0.000	0.000	0.000	0.208	0.000
IF	255.900	5.032	0.000	9.512	0.000	0.000	0.000	0.000	0.209	0.000
IF	259.200	5.656	0.000	9.537	0.000	0.000	0.000	0.000	0.189	0.000
IF	262.500	6.277	0.000	9.611	0.000	0.000	0.000	0.000	0.198	0.000
IF	265.700	6.941	0.000	9.784	0.000	0.000	0.000	0.000	0.226	0.000
IF	269.000	7.749	0.000	9.990	0.000	0.000	0.000	0.000	0.200	0.000
IF	272.300	8.259	0.000	10.132	0.000	0.000	0.000	0.000	0.122	0.000
IF	275.600	8.557	0.000	10.220	0.000	0.000	0.000	0.000	0.098	0.000
IF	278.900	8.906	0.000	10.314	0.000	0.000	0.000	0.000	0.077	0.000
IF	282.200	9.066	0.000	10.355	0.000	0.000	0.000	0.000	0.067	0.000
IF	288.000	9.516	0.000	10.355	0.000	0.000	0.000	0.000	0.082	0.000
IF	289.000	9.625	0.000	10.355	0.000	0.000	0.000	0.000	0.168	0.000
IF	293.000	10.355	0.000	10.355	0.000	0.000	0.000	0.000	0.183	0.000
AS	392.800	9.458	0.000	9.458	0.000	0.000	0.000	0.000	-0.043	0.000
IF	393.000	9.449	0.000	9.458	0.000	0.000	0.000	0.000	-0.023	0.000
IF	398.000	9.338	0.000	9.458	0.000	0.000	0.000	0.000	-0.048	0.000
IF	422.000	8.062	0.000	9.458	0.000	0.000	0.000	0.000	-0.077	0.000
IF	426.000	7.187	0.000	9.458	0.000	0.000	0.000	0.000	-0.112	0.000
IF	443.000	5.713	0.000	9.458	0.000	0.000	0.000	0.000	-0.049	0.000
IF	453.000	5.870	0.000	9.458	0.000	0.000	0.000	0.000	-0.001	0.000
IF	501.000	5.653	0.000	9.458	0.000	0.000	0.000	0.000	-0.006	0.000
IF	502.000	5.593	0.000	9.458	0.000	0.000	0.000	0.000	0.097	0.000
IF	527.000	8.182	0.000	9.458	0.000	0.000	0.000	0.000	0.085	0.000
IF	530.000	7.977	0.000	9.458	0.000	0.000	0.000	0.000	-0.066	0.000

IF	552.000	6.536	0.000	9.459	0.000	0.000	0.000	0.000	-0.045	0.000
IF	576.000	5.898	0.000	9.459	0.000	0.000	0.000	0.000	-0.033	0.000
IF	594.000	5.161	0.000	9.459	0.000	0.000	0.000	0.000	-0.016	0.000
IF	613.000	5.299	0.000	9.460	0.000	0.000	0.000	0.000	0.009	0.000
IF	635.000	5.531	0.000	9.460	0.000	0.000	0.000	0.000	0.000	0.000
IF	646.000	5.312	0.000	9.460	0.000	0.000	0.000	0.000	-0.004	0.000
IF	679.000	5.374	0.000	9.460	0.000	0.000	0.000	0.000	-0.004	0.000
IF	686.000	5.137	0.000	9.460	0.000	0.000	0.000	0.000	-0.013	0.000
IF	731.000	4.722	0.000	9.461	0.000	0.000	0.000	0.000	-0.011	0.000
IF	732.000	4.620	0.000	9.461	0.000	0.000	0.000	0.000	0.009	0.000
IF	815.000	5.469	0.000	9.462	0.000	0.000	0.000	0.000	0.009	0.000
IF	816.000	5.408	0.000	9.462	0.000	0.000	0.000	0.000	-0.010	0.000
IF	841.000	5.215	0.000	9.462	0.000	0.000	0.000	0.000	-0.006	0.000
IF	870.000	5.084	0.000	9.462	0.000	0.000	0.000	0.000	-0.005	0.000
IF	871.000	5.061	0.000	9.462	0.000	0.000	0.000	0.000	0.017	0.000
IF	898.000	5.549	0.000	9.462	0.000	0.000	0.000	0.000	0.006	0.000
IF	912.000	5.311	0.000	9.462	0.000	0.000	0.000	0.000	-0.009	0.000
IF	932.000	5.259	0.000	9.463	0.000	0.000	0.000	0.000	-0.004	0.000
IF	936.000	5.219	0.000	9.463	0.000	0.000	0.000	0.000	-0.001	0.000
IF	957.000	5.232	0.000	9.463	0.000	0.000	0.000	0.000	0.000	0.000
IF	958.000	5.223	0.000	9.463	0.000	0.000	0.000	0.000	0.002	0.000
IF	1006.000	5.340	0.000	9.463	0.000	0.000	0.000	0.000	0.002	0.000
IF	1007.000	5.343	0.000	9.463	0.000	0.000	0.000	0.000	0.008	0.000
IF	1028.000	5.511	0.000	9.463	0.000	0.000	0.000	0.000	0.000	0.000
IF	1061.000	5.361	0.000	9.463	0.000	0.000	0.000	0.000	-0.002	0.000
IF	1081.000	5.431	0.000	9.463	0.000	0.000	0.000	0.000	0.004	0.000
IF	1082.000	5.433	0.000	9.463	0.000	0.000	0.000	0.000	0.000	0.000
IF	1105.000	5.441	0.000	9.463	0.000	0.000	0.000	0.000	0.000	0.000
IF	1106.000	5.424	0.000	9.463	0.000	0.000	0.000	0.000	0.001	0.000
IF	1129.000	5.469	0.000	9.463	0.000	0.000	0.000	0.000	0.002	0.000
IF	1130.000	5.463	0.000	9.463	0.000	0.000	0.000	0.000	-0.002	0.000
IF	1156.000	5.405	0.000	9.463	0.000	0.000	0.000	0.000	-0.002	0.000
IF	1171.000	5.370	0.000	9.463	0.000	0.000	0.000	0.000	-0.007	0.000
IF	1189.000	5.170	0.000	9.463	0.000	0.000	0.000	0.000	-0.022	0.000
IF	1202.000	4.703	0.000	9.464	0.000	0.000	0.000	0.000	-0.010	0.000
IF	1224.000	4.809	0.000	9.464	0.000	0.000	0.000	0.000	-0.023	0.000
IF	1227.000	4.116	0.000	9.464	0.000	0.000	0.000	0.000	-0.047	0.000
IF	1279.000	2.222	0.000	9.465	0.000	0.000	0.000	0.000	-0.028	0.000
IF	1310.000	1.815	0.000	9.466	0.000	0.000	0.000	0.000	0.051	0.000
IF	1343.000	5.462	0.000	9.466	0.000	0.000	0.000	0.000	0.106	0.000
IF	1344.000	5.437	0.000	9.466	0.000	0.000	0.000	0.000	0.001	0.000
IF	1376.000	5.498	0.000	9.467	0.000	0.000	0.000	0.000	0.001	0.000
IF	1377.000	5.460	0.000	9.467	0.000	0.000	0.000	0.000	-0.001	0.000
IF	1407.000	5.469	0.000	9.467	0.000	0.000	0.000	0.000	-0.002	0.000
IF	1421.000	5.384	0.000	9.467	0.000	0.000	0.000	0.000	-0.002	0.000
IF	1428.000	5.434	0.000	9.467	0.000	0.000	0.000	0.000	0.010	0.000
IF	1444.000	5.611	0.000	9.468	0.000	0.000	0.000	0.000	0.004	0.000
IF	1465.000	5.563	0.000	9.468	0.000	0.000	0.000	0.000	-0.009	0.000
IF	1468.000	5.391	0.000	9.468	0.000	0.000	0.000	0.000	0.000	0.000
IF	1500.000	5.555	0.000	9.470	0.000	0.000	0.000	0.000	0.005	0.000
IF	1519.000	5.668	0.000	9.471	0.000	0.000	0.000	0.000	0.000	0.000
IF	1554.000	5.566	0.000	9.473	0.000	0.000	0.000	0.000	-0.004	0.000
IF	1555.000	5.530	0.000	9.473	0.000	0.000	0.000	0.000	0.010	0.000
IF	1575.000	5.778	0.000	9.474	0.000	0.000	0.000	0.000	0.004	0.000
IF	1586.000	5.640	0.000	9.474	0.000	0.000	0.000	0.000	-0.011	0.000
IF	1600.000	5.512	0.000	9.475	0.000	0.000	0.000	0.000	-0.005	0.000
IF	1618.000	5.482	0.000	9.476	0.000	0.000	0.000	0.000	-0.001	0.000
IF	1633.000	5.480	0.000	9.477	0.000	0.000	0.000	0.000	-0.007	0.000
IF	1645.000	5.298	0.000	9.477	0.000	0.000	0.000	0.000	-0.009	0.000
IF	1675.000	5.083	0.000	9.479	0.000	0.000	0.000	0.000	-0.007	0.000
IF	1676.000	5.087	0.000	9.479	0.000	0.000	0.000	0.000	-0.040	0.000
IF	1712.000	3.603	0.000	9.482	0.000	0.000	0.000	0.000	-0.013	0.000
IF	1719.000	4.516	0.000	9.482	0.000	0.000	0.000	0.000	0.046	0.000
IF	1756.000	5.631	0.000	9.484	0.000	0.000	0.000	0.000	0.022	0.000
IF	1773.000	5.710	0.000	9.485	0.000	0.000	0.000	0.000	-0.001	0.000
IF	1783.000	5.613	0.000	9.486	0.000	0.000	0.000	0.000	-0.024	0.000
IF	1805.000	4.925	0.000	9.488	0.000	0.000	0.000	0.000	-0.035	0.000
IF	1806.000	4.817	0.000	9.488	0.000	0.000	0.000	0.000	-0.072	0.000
IF	1851.000	1.607	0.000	9.491	0.000	0.000	0.000	0.000	0.008	0.000
IF	1879.000	5.402	0.000	9.493	0.000	0.000	0.000	0.000	0.069	0.000
IF	1903.000	5.183	0.000	9.494	0.000	0.000	0.000	0.000	-0.008	0.000
IF	1904.000	5.203	0.000	9.494	0.000	0.000	0.000	0.000	0.011	0.000
IF	1926.000	5.441	0.000	9.494	0.000	0.000	0.000	0.000	0.011	0.000
IF	1927.000	5.450	0.000	9.494	0.000	0.000	0.000	0.000	0.210	0.000
IF	1945.300	9.494	0.000	9.494	0.000	0.000	0.000	0.000	0.221	0.000
AS	4155.000	9.803	0.000	9.803	0.000	0.000	0.000	0.000	-0.175	0.000
IF	4159.000	9.101	0.000	9.803	0.000	0.000	0.000	0.000	-0.041	0.000
IF	4166.000	9.353	0.000	9.803	0.000	0.000	0.000	0.000	0.035	0.000
IF	4177.000	9.726	0.000	9.803	0.000	0.000	0.000	0.000	0.035	0.000
IF	4178.800	9.803	0.000	9.803	0.000	0.000	0.000	0.000	0.042	0.000
AS	4606.100	9.795	0.000	9.795	0.000	0.000	0.000	0.000	-0.069	0.000
IF	4616.000	9.111	0.000	9.795	0.000	0.000	0.000	0.000	-0.075	0.000
IF	4617.000	8.983	0.000	9.795	0.000	0.000	0.000	0.000	-0.050	0.000
IF	4636.000	8.107	0.000	9.795	0.000	0.000	0.000	0.000	-0.053	0.000
IF	4639.000	7.817	0.000	9.795	0.000	0.000	0.000	0.000	-0.119	0.000
IF	4652.000	6.199	0.000	9.795	0.000	0.000	0.000	0.000	-0.079	0.000
IF	4672.000	5.225	0.000	9.795	0.000	0.000	0.000	0.000	-0.021	0.000
IF	4691.000	5.385	0.000	9.795	0.000	0.000	0.000	0.000	-0.001	0.000
IF	4701.000	5.201	0.000	9.795	0.000	0.000	0.000	0.000	-0.009	0.000
IF	4715.000	5.158	0.000	9.796	0.000	0.000	0.000	0.000	0.013	0.000
IF	4727.000	5.543	0.000	9.796	0.000	0.000	0.000	0.000	0.001	0.000
IF	4749.000	5.205	0.000	9.796	0.000	0.000	0.000	0.000	-0.016	0.000
IF	4750.000	5.177	0.000	9.796	0.000	0.000	0.000	0.000	-0.001	0.000
IF	4788.000	5.182	0.000	9.797	0.000	0.000	0.000	0.000	-0.001	0.000
IF	4820.000	5.118	0.000	9.798	0.000	0.000	0.000	0.000	0.003	0.000
IF	4828.000	5.291	0.000	9.799	0.000	0.000	0.000	0.000	-0.004	0.000
IF	4850.000	4.997	0.000	9.799	0.000	0.000	0.000	0.000	-0.015	0.000
IF	4854.000	4.911	0.000	9.799	0.000	0.000	0.000	0.000	-0.011	0.000
IF	4892.000	4.519	0.000	9.801	0.000	0.000	0.000	0.000	-0.012	0.000
IF	4904.000	4.324	0.000	9.801	0.000	0.000	0.000	0.000	-0.051	0.000
IF	4935.000	2.332	0.000	9.801	0.000	0.000	0.000	0.000	-0.001	0.000
IF	4972.000	4.280	0.000	9.801	0.000	0.000	0.000	0.000	0.038	0.000
IF	4994.000	4.554	0.000	9.801	0.000	0.000	0.000	0.000	0.001	0.000
IF	5005.000	4.306	0.000	9.801	0.000	0.000	0.000	0.000	-0.003	0.000
IF	5034.000	4.439	0.000	9.801	0.000	0.000	0.000	0.000	0.014	0.000
IF	5054.000	5.017	0.000	9.801	0.000	0.000	0.000	0.000	0.008	0.000
IF	5076.000	4.765	0.000	9.802	0.000	0.000	0.000	0.000	0.007	0.000
IF	5090.000	5.269	0.000	9.802	0.000	0.000	0.000	0.000	0.010	0.000
IF	5119.000	5.193	0.000	9.802	0.000	0				

IF	5166.000	4.664	0.000	9.802	0.000	0.000	0.000	0.000	0.000	-0.015	0.000
IF	5167.000	4.656	0.000	9.802	0.000	0.000	0.000	0.000	0.000	0.025	0.000
IF	5191.000	5.283	0.000	9.803	0.000	0.000	0.000	0.000	0.000	0.029	0.000
IF	5198.000	5.566	0.000	9.803	0.000	0.000	0.000	0.000	0.000	0.003	0.000
IF	5222.000	5.383	0.000	9.803	0.000	0.000	0.000	0.000	0.000	-0.009	0.000
IF	5223.000	5.332	0.000	9.803	0.000	0.000	0.000	0.000	0.000	0.027	0.000
IF	5250.000	6.133	0.000	9.803	0.000	0.000	0.000	0.000	0.000	0.035	0.000
IF	5253.000	6.380	0.000	9.803	0.000	0.000	0.000	0.000	0.000	0.186	0.000
IF	5269.700	9.803	0.000	9.803	0.000	0.000	0.000	0.000	0.000	0.205	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1

	END	END	FETCH	SURGE ELEV	SURGE ELEV	INITIAL	INITIAL		BOTTOM	AVERAGE	
	STATION	ELEVATION	LENGTH	10-YEAR	100-YEAR	WAVE HEIGHT	W. PERIOD		SLOPE	A-ZONES	
IE	0.000	-4.414	1.000	1.000	9.282	13.093	13.062	56.140	0.029	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	3.300	-4.318	0.000	9.284	0.000	0.000	0.000	0.000	0.029	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	6.600	-4.222	0.000	9.285	0.000	0.000	0.000	0.000	0.030	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	9.800	-4.126	0.000	9.287	0.000	0.000	0.000	0.000	0.030	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	13.100	-4.030	0.000	9.288	0.000	0.000	0.000	0.000	0.029	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	16.400	-3.934	0.000	9.290	0.000	0.000	0.000	0.000	0.029	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	19.700	-3.838	0.000	9.293	0.000	0.000	0.000	0.000	0.029	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	23.000	-3.742	0.000	9.295	0.000	0.000	0.000	0.000	0.030	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	26.200	-3.645	0.000	9.297	0.000	0.000	0.000	0.000	0.030	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	29.500	-3.549	0.000	9.300	0.000	0.000	0.000	0.000	0.029	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	32.800	-3.453	0.000	9.302	0.000	0.000	0.000	0.000	0.044	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	36.100	-3.261	0.000	9.303	0.000	0.000	0.000	0.000	0.034	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	39.400	-3.231	0.000	9.307	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	42.700	-3.201	0.000	9.311	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	45.900	-3.171	0.000	9.315	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	49.200	-3.140	0.000	9.318	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	52.500	-3.110	0.000	9.322	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	55.800	-3.080	0.000	9.325	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	59.100	-3.049	0.000	9.330	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	62.300	-3.019	0.000	9.335	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	65.600	-2.989	0.000	9.339	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	68.900	-2.958	0.000	9.343	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	72.200	-2.928	0.000	9.347	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	75.500	-2.898	0.000	9.351	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	78.700	-2.868	0.000	9.354	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	82.000	-2.837	0.000	9.358	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	85.300	-2.807	0.000	9.361	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	88.600	-2.777	0.000	9.365	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	91.900	-2.746	0.000	9.368	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	95.100	-2.716	0.000	9.371	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	98.400	-2.686	0.000	9.374	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	101.700	-2.655	0.000	9.377	0.000	0.000	0.000	0.000	0.009	0.000	
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE	
OF	105.000	-2.625	0.000	9.381	0.000	0.000	0.000	0.000	0.009	0.000	

	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 108.300	ELEVATION -2.595	10-YEAR 0.000	100-YEAR 9.384	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 111.500	ELEVATION -2.565	10-YEAR 0.000	100-YEAR 9.387	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 114.800	ELEVATION -2.534	10-YEAR 0.000	100-YEAR 9.391	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 118.100	ELEVATION -2.504	10-YEAR 0.000	100-YEAR 9.394	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 121.400	ELEVATION -2.474	10-YEAR 0.000	100-YEAR 9.397	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 124.700	ELEVATION -2.443	10-YEAR 0.000	100-YEAR 9.400	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 128.000	ELEVATION -2.413	10-YEAR 0.000	100-YEAR 9.403	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 131.200	ELEVATION -2.383	10-YEAR 0.000	100-YEAR 9.406	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 134.500	ELEVATION -2.352	10-YEAR 0.000	100-YEAR 9.409	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 137.800	ELEVATION -2.322	10-YEAR 0.000	100-YEAR 9.411	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 141.100	ELEVATION -2.292	10-YEAR 0.000	100-YEAR 9.414	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 144.400	ELEVATION -2.261	10-YEAR 0.000	100-YEAR 9.416	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 147.600	ELEVATION -2.231	10-YEAR 0.000	100-YEAR 9.418	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 150.900	ELEVATION -2.201	10-YEAR 0.000	100-YEAR 9.421	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 154.200	ELEVATION -2.171	10-YEAR 0.000	100-YEAR 9.423	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 157.500	ELEVATION -2.140	10-YEAR 0.000	100-YEAR 9.425	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 160.800	ELEVATION -2.110	10-YEAR 0.000	100-YEAR 9.428	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 164.000	ELEVATION -2.080	10-YEAR 0.000	100-YEAR 9.430	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
OF	STATION 167.300	ELEVATION -2.049	10-YEAR 0.000	100-YEAR 9.432	0.000	0.000	0.000	0.000	0.000	SLOPE 0.009	A-ZONES 0.000
	END	END	NEW SURGE	NEW SURGE							

OF	226.400	-0.210	0.000	9.457	0.000	0.000	0.000	0.000	0.177	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	229.700	0.363	0.000	9.453	0.000	0.000	0.000	0.000	0.180	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	232.900	0.959	0.000	9.450	0.000	0.000	0.000	0.000	0.203	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	236.200	1.680	0.000	9.445	0.000	0.000	0.000	0.000	0.192	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	239.500	2.229	0.000	9.447	0.000	0.000	0.000	0.000	0.153	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	242.800	2.693	0.000	9.454	0.000	0.000	0.000	0.000	0.139	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	246.100	3.149	0.000	9.465	0.000	0.000	0.000	0.000	0.149	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	249.300	3.661	0.000	9.479	0.000	0.000	0.000	0.000	0.173	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	252.600	4.276	0.000	9.498	0.000	0.000	0.000	0.000	0.208	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	255.900	5.032	0.000	9.512	0.000	0.000	0.000	0.000	0.209	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	259.200	5.656	0.000	9.537	0.000	0.000	0.000	0.000	0.189	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	262.500	6.277	0.000	9.611	0.000	0.000	0.000	0.000	0.198	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	265.700	6.941	0.000	9.784	0.000	0.000	0.000	0.000	0.226	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	269.000	7.749	0.000	9.990	0.000	0.000	0.000	0.000	0.200	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	272.300	8.259	0.000	10.132	0.000	0.000	0.000	0.000	0.122	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	275.600	8.557	0.000	10.220	0.000	0.000	0.000	0.000	0.098	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	278.900	8.906	0.000	10.314	0.000	0.000	0.000	0.000	0.077	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	282.200	9.066	0.000	10.355	0.000	0.000	0.000	0.000	0.067	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	288.000	9.516	0.000	10.355	0.000	0.000	0.000	0.000	0.082	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	289.000	9.625	0.000	10.355	0.000	0.000	0.000	0.000	0.168	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	293.000	10.355	0.000	10.355	0.000	0.000	0.000	0.000	0.183	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
AS	392.800	9.458	0.000	9.458	0.000	0.000	0.000	0.000	-0.043	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	393.000	9.449	0.000	9.458	0.000	0.000	0.000	0.000	-0.023	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	398.000	9.338	0.000	9.458	0.000	0.000	0.000	0.000	-0.048	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	422.000	8.062	0.000	9.458	0.000	0.000	0.000	0.000	-0.077	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	426.000	7.187	0.000	9.458	0.000	0.000	0.000	0.000	-0.112	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	443.000	5.713	0.000	9.458	0.000	0.000	0.000	0.000	-0.049	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	453.000	5.870	0.000	9.458	0.000	0.000	0.000	0.000	-0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	501.000	5.653	0.000	9.458	0.000	0.000	0.000	0.000	-0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	502.000	5.593	0.000	9.458	0.000	0.000	0.000	0.000	0.097	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	527.000	8.182	0.000	9.458	0.000	0.000	0.000	0.000	0.085	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	530.000	7.977	0.000	9.458	0.000	0.000	0.000	0.000	-0.066	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	552.000	6.536	0.000	9.459	0.000	0.000	0.000	0.000	-0.045	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	576.000	5.898	0.000	9.459	0.000	0.000	0.000	0.000	-0.033	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	594.000	5.161	0.000	9.459	0.000	0.000	0.000	0.000	-0.016	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	613.000	5.299	0.000	9.460	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	635.000	5.531	0.000	9.460	0.000	0.000	0.000	0.000	0.000	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE

	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	646.000	5.312	0.000	9.460	0.000	0.000	0.000	0.000	-0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	679.000	5.374	0.000	9.460	0.000	0.000	0.000	0.000	-0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	686.000	5.137	0.000	9.460	0.000	0.000	0.000	0.000	-0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	731.000	4.722	0.000	9.461	0.000	0.000	0.000	0.000	-0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	732.000	4.620	0.000	9.461	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	815.000	5.469	0.000	9.462	0.000	0.000	0.000	0.000	0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	816.000	5.408	0.000	9.462	0.000	0.000	0.000	0.000	-0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	841.000	5.215	0.000	9.462	0.000	0.000	0.000	0.000	-0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	870.000	5.084	0.000	9.462	0.000	0.000	0.000	0.000	-0.005	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	871.000	5.061	0.000	9.462	0.000	0.000	0.000	0.000	0.017	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	898.000	5.549	0.000	9.462	0.000	0.000	0.000	0.000	0.006	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	912.000	5.311	0.000	9.462	0.000	0.000	0.000	0.000	-0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	932.000	5.259	0.000	9.463	0.000	0.000	0.000	0.000	-0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	936.000	5.219	0.000	9.463	0.000	0.000	0.000	0.000	-0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	957.000	5.232	0.000	9.463	0.000	0.000	0.000	0.000	0.000	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	958.000	5.223	0.000	9.463	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1006.000	5.340	0.000	9.463	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1007.000	5.343	0.000	9.463	0.000	0.000	0.000	0.000	0.008	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1028.000	5.511	0.000	9.463	0.000	0.000	0.000	0.000	0.000	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1061.000	5.361	0.000	9.463	0.000	0.000	0.000	0.000	-0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1081.000	5.431	0.000	9.463	0.000	0.000	0.000	0.000	0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1082.000	5.433	0.000	9.463	0.000	0.000	0.000	0.000	0.000	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1105.000	5.441	0.000	9.463	0.000	0.000	0.000	0.000	0.000	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1106.000	5.424	0.000	9.463	0.000	0.000	0.000	0.000	0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1129.000	5.469	0.000	9.463	0.000	0.000	0.000	0.000	0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1130.000	5.463	0.000	9.463	0.000	0.000	0.000	0.000	-0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1156.000	5.405	0.000	9.463	0.000	0.000	0.000	0.000	-0.002	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1171.000	5.370	0.000	9.463	0.000	0.000	0.000	0.000	-0.007	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1189.000	5.170	0.000	9.463	0.000	0.000	0.000	0.000	-0.022	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1202.000	4.703	0.000	9.464	0.000	0.000	0.000	0.000	-0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1224.000	4.809	0.000	9.464	0.000	0.000	0.000	0.000	-0.023	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1227.000	4.116	0.000	9.464	0.000	0.000	0.000	0.000	-0.047	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1279.000	2.222	0.000	9.465	0.000	0.000	0.000	0.000	-0.028	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1310.000	1.815	0.000	9.466	0.000	0.000	0.000	0.000	0.051	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1343.000	5.462	0.000	9.466	0.000	0.000	0.000	0.000	0.106	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1344.000	5.437	0.000	9.466	0.000	0.000	0.000	0.000	0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	1376.000	5.498	0.000	9.467	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
	1377.000	5.460	0.000	9.467	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
	1407.000	5.469	0.000	9.467	0.000	0.000	0.000	0.000		-0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1421.000	5.384	0.000	9.467	0.000	0.000	0.000	0.000		-0.002	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1428.000	5.434	0.000	9.467	0.000	0.000	0.000	0.000		0.010	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1444.000	5.611	0.000	9.468	0.000	0.000	0.000	0.000		0.004	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1465.000	5.563	0.000	9.468	0.000	0.000	0.000	0.000		-0.009	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1468.000	5.391	0.000	9.468	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1500.000	5.555	0.000	9.470	0.000	0.000	0.000	0.000		0.005	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1519.000	5.668	0.000	9.471	0.000	0.000	0.000	0.000		0.000	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1554.000	5.566	0.000	9.473	0.000	0.000	0.000	0.000		-0.004	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1555.000	5.530	0.000	9.473	0.000	0.000	0.000	0.000		0.010	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1575.000	5.778	0.000	9.474	0.000	0.000	0.000	0.000		0.004	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1586.000	5.640	0.000	9.474	0.000	0.000	0.000	0.000		-0.011	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1600.000	5.512	0.000	9.475	0.000	0.000	0.000	0.000		-0.005	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1618.000	5.482	0.000	9.476	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
	1633.000	5.480	0.000	9.477	0.000	0.000	0.000	0.000		-0.007	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1645.000	5.298	0.000	9.477	0.000	0.000	0.000	0.000		-0.009	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1675.000	5.083	0.000	9.479	0.000	0.000	0.000	0.000		-0.007	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1676.000	5.087	0.000	9.479	0.000	0.000	0.000	0.000		-0.040	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1712.000	3.603	0.000	9.482	0.000	0.000	0.000	0.000		-0.013	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1719.000	4.516	0.000	9.482	0.000	0.000	0.000	0.000		0.046	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1756.000	5.631	0.000	9.484	0.000	0.000	0.000	0.000		0.022	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1773.000	5.710	0.000	9.485	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
	1783.000	5.613	0.000	9.486	0.000	0.000	0.000	0.000		-0.024	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1805.000	4.925	0.000	9.488	0.000	0.000	0.000	0.000		-0.035	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1806.000	4.817	0.000	9.488	0.000	0.000	0.000	0.000		-0.072	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1851.000	1.607	0.000	9.491	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
	1879.000	5.402	0.000	9.493	0.000	0.000	0.000	0.000		0.069	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1903.000	5.183	0.000	9.494	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
	1904.000	5.203	0.000	9.494	0.000	0.000	0.000	0.000		0.011	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1926.000	5.441	0.000	9.494	0.000	0.000	0.000	0.000		0.011	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1927.000	5.450	0.000	9.494	0.000	0.000	0.000	0.000		0.210	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	1945.300	9.494	0.000	9.494	0.000	0.000	0.000	0.000		0.221	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
AS	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	4155.000	9.803	0.000	9.803	0.000	0.000	0.000	0.000		-0.175	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	4159.000	9.101	0.000	9.803	0.000	0.000	0.000	0.000		-0.041	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES
	4166.000	9.353	0.000	9.803	0.000	0.000	0.000	0.000		0.035	0.000
	END	END	NEW SURGE	NEW SURGE						BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR						SLOPE	A-ZONES

IF	4177.000	9.726	0.000	9.803	0.000	0.000	0.000	0.000	0.035	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4178.800	9.803	0.000	9.803	0.000	0.000	0.000	0.000	0.042	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
AS	4606.100	9.795	0.000	9.795	0.000	0.000	0.000	0.000	-0.069	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4616.000	9.111	0.000	9.795	0.000	0.000	0.000	0.000	-0.075	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4617.000	8.983	0.000	9.795	0.000	0.000	0.000	0.000	-0.050	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4636.000	8.107	0.000	9.795	0.000	0.000	0.000	0.000	-0.053	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4639.000	7.817	0.000	9.795	0.000	0.000	0.000	0.000	-0.119	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4652.000	6.199	0.000	9.795	0.000	0.000	0.000	0.000	-0.079	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4672.000	5.225	0.000	9.795	0.000	0.000	0.000	0.000	-0.021	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4691.000	5.385	0.000	9.795	0.000	0.000	0.000	0.000	-0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4701.000	5.201	0.000	9.795	0.000	0.000	0.000	0.000	-0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4715.000	5.158	0.000	9.796	0.000	0.000	0.000	0.000	0.013	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4727.000	5.543	0.000	9.796	0.000	0.000	0.000	0.000	0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4749.000	5.205	0.000	9.796	0.000	0.000	0.000	0.000	-0.016	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4750.000	5.177	0.000	9.796	0.000	0.000	0.000	0.000	-0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4788.000	5.182	0.000	9.797	0.000	0.000	0.000	0.000	-0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4820.000	5.118	0.000	9.798	0.000	0.000	0.000	0.000	0.003	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4828.000	5.291	0.000	9.799	0.000	0.000	0.000	0.000	-0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4850.000	4.997	0.000	9.799	0.000	0.000	0.000	0.000	-0.015	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4854.000	4.911	0.000	9.799	0.000	0.000	0.000	0.000	-0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4892.000	4.519	0.000	9.801	0.000	0.000	0.000	0.000	-0.012	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4904.000	4.324	0.000	9.801	0.000	0.000	0.000	0.000	-0.051	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4935.000	2.332	0.000	9.801	0.000	0.000	0.000	0.000	-0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4972.000	4.280	0.000	9.801	0.000	0.000	0.000	0.000	0.038	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	4994.000	4.554	0.000	9.801	0.000	0.000	0.000	0.000	0.001	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	5005.000	4.306	0.000	9.801	0.000	0.000	0.000	0.000	-0.003	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	5034.000	4.439	0.000	9.801	0.000	0.000	0.000	0.000	0.014	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	5054.000	5.017	0.000	9.801	0.000	0.000	0.000	0.000	0.008	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	5076.000	4.765	0.000	9.802	0.000	0.000	0.000	0.000	0.007	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	5090.000	5.269	0.000	9.802	0.000	0.000	0.000	0.000	0.010	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	5119.000	5.193	0.000	9.802	0.000	0.000	0.000	0.000	-0.004	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	5136.000	5.108	0.000	9.802	0.000	0.000	0.000	0.000	-0.011	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	5166.000	4.664	0.000	9.802	0.000	0.000	0.000	0.000	-0.015	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	5167.000	4.656	0.000	9.802	0.000	0.000	0.000	0.000	0.025	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	5191.000	5.283	0.000	9.803	0.000	0.000	0.000	0.000	0.029	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	5198.000	5.566	0.000	9.803	0.000	0.000	0.000	0.000	0.003	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
IF	5222.000	5.383	0.000	9.803	0.000	0.000	0.000	0.000	-0.009	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE

IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	5223.000	5.332	0.000	9.803	0.000	0.000	0.000	0.000	0.027	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	5250.000	6.133	0.000	9.803	0.000	0.000	0.000	0.000	0.035	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	5253.000	6.380	0.000	9.803	0.000	0.000	0.000	0.000	0.186	0.000
	END	END	NEW SURGE	NEW SURGE					BOTTOM	AVERAGE
IF	STATION	ELEVATION	10-YEAR	100-YEAR					SLOPE	A-ZONES
	5269.700	9.803	0.000	9.803	0.000	0.000	0.000	0.000	0.205	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	SPECTRAL PEAK	WAVE CREST
	WAVE HEIGHT	WAVE PERIOD	ELEVATION
IE	0.00	10.43	13.06
OF	3.30	10.36	13.06
OF	6.60	10.28	13.06
OF	9.80	10.21	13.06
OF	13.10	10.14	13.06
OF	16.40	10.07	13.06
OF	19.70	10.00	13.06
OF	23.00	9.94	13.06
OF	26.20	9.86	13.06
OF	29.50	9.79	13.06
OF	32.80	9.72	13.06
OF	36.10	9.58	13.06
OF	39.40	9.56	13.06
OF	42.70	9.54	13.06
OF	45.90	9.52	13.06
OF	49.20	9.50	13.06
OF	52.50	9.48	13.06
OF	55.80	9.46	13.06
OF	59.10	9.44	13.06
OF	62.30	9.43	13.06
OF	65.60	9.41	13.06
OF	68.90	9.39	13.06
OF	72.20	9.37	13.06
OF	75.50	9.35	13.06
OF	78.70	9.33	13.06
OF	82.00	9.31	13.06
OF	85.30	9.29	13.06
OF	88.60	9.27	13.06
OF	91.90	9.25	13.06
OF	95.10	9.23	13.06
OF	98.40	9.21	13.06
OF	101.70	9.19	13.06
OF	105.00	9.17	13.06
OF	108.30	9.15	13.06
OF	111.50	9.13	13.06
OF	114.80	9.11	13.06
OF	118.10	9.09	13.06
OF	121.40	9.07	13.06
OF	124.70	9.04	13.06
OF	128.00	9.02	13.06
OF	131.20	9.00	13.06
OF	134.50	8.98	13.06
OF	137.80	8.96	13.06
OF	141.10	8.94	13.06
OF	144.40	8.92	13.06
OF	147.60	8.90	13.06
OF	150.90	8.88	13.06
OF	154.20	8.86	13.06
OF	157.50	8.84	13.06
OF	160.80	8.82	13.06
OF	164.00	8.80	13.06
OF	167.30	8.77	13.06
OF	170.60	8.75	13.06
OF	173.90	8.73	13.06
OF	177.20	8.66	13.06
OF	180.40	8.56	13.06
OF	183.70	8.55	13.06
OF	187.00	8.56	13.06
OF	190.30	8.56	13.06
OF	193.60	8.56	13.06
OF	196.80	8.43	13.06
OF	200.10	8.41	13.06
OF	203.40	8.39	13.06
OF	206.70	8.40	13.06
OF	210.00	8.41	13.06
OF	213.30	8.39	13.06
OF	216.50	8.38	13.06
OF	219.80	8.11	13.06
OF	223.10	7.86	13.06
OF	226.40	7.41	13.06
IF	229.70	6.98	13.06
IF	232.90	6.52	13.06
IF	236.20	5.97	13.06
IF	239.50	5.56	13.06
IF	242.80	5.21	13.06
IF	246.10	4.87	13.06
IF	249.30	4.49	13.06
IF	252.60	4.04	13.06
IF	255.90	3.47	13.06
IF	259.20	3.01	13.06
IF	262.50	2.58	13.06
IF	265.70	2.21	13.06
IF	269.00	1.74	13.06
IF	272.30	1.46	13.06
IF	275.60	1.29	13.06
IF	278.90	1.10	13.06
IF	282.20	1.00	13.06
IF	288.00	0.65	13.06
IF	289.00	0.57	13.06
IF	293.00	0.01	13.06
AS	392.80	0.00	0.00

IF	393.00	0.01	0.12	9.46
IF	398.00	0.04	0.25	9.49
IF	422.00	0.14	0.43	9.55
IF	426.00	0.15	0.45	9.56
IF	443.00	0.20	0.52	9.60
IF	453.00	0.22	0.55	9.61
IF	501.00	0.33	0.67	9.69
IF	502.00	0.33	0.67	9.69
IF	527.00	0.37	0.72	9.72
IF	530.00	0.38	0.72	9.72
IF	552.00	0.42	0.76	9.76
IF	576.00	0.46	0.80	9.78
IF	594.00	0.49	0.82	9.80
IF	613.00	0.52	0.85	9.83
IF	635.00	0.56	0.87	9.85
IF	646.00	0.58	0.89	9.86
IF	679.00	0.62	0.92	9.90
IF	686.00	0.63	0.93	9.90
IF	731.00	0.70	0.98	9.95
IF	732.00	0.70	0.98	9.95
IF	815.00	0.81	1.05	10.03
IF	816.00	0.81	1.05	10.03
IF	841.00	0.84	1.07	10.05
IF	870.00	0.88	1.09	10.08
IF	871.00	0.88	1.10	10.08
IF	898.00	0.91	1.12	10.10
IF	912.00	0.93	1.13	10.11
IF	932.00	0.95	1.14	10.13
IF	936.00	0.95	1.14	10.13
IF	957.00	0.98	1.16	10.15
IF	958.00	0.98	1.16	10.15
IF	1006.00	1.03	1.19	10.18
IF	1007.00	1.03	1.19	10.18
IF	1028.00	1.05	1.20	10.20
IF	1061.00	1.09	1.22	10.22
IF	1081.00	1.11	1.24	10.24
IF	1082.00	1.11	1.24	10.24
IF	1105.00	1.13	1.25	10.25
IF	1106.00	1.13	1.25	10.26
IF	1129.00	1.15	1.26	10.27
IF	1130.00	1.16	1.26	10.27
IF	1156.00	1.18	1.28	10.29
IF	1171.00	1.20	1.29	10.30
IF	1189.00	1.22	1.30	10.31
IF	1202.00	1.24	1.30	10.33
IF	1224.00	1.26	1.31	10.34
IF	1227.00	1.26	1.32	10.35
IF	1279.00	1.32	1.34	10.39
IF	1310.00	1.35	1.36	10.41
IF	1343.00	1.35	1.37	10.41
IF	1344.00	1.35	1.37	10.41
IF	1376.00	1.37	1.39	10.43
IF	1377.00	1.37	1.39	10.43
IF	1407.00	1.40	1.40	10.44
IF	1421.00	1.41	1.41	10.45
IF	1428.00	1.41	1.41	10.46
IF	1444.00	1.42	1.42	10.46
IF	1465.00	1.43	1.43	10.47
IF	1468.00	1.44	1.43	10.48
IF	1500.00	1.46	1.44	10.49
IF	1519.00	1.46	1.45	10.50
IF	1554.00	1.50	1.47	10.52
IF	1555.00	1.50	1.47	10.52
IF	1575.00	1.49	1.48	10.52
IF	1586.00	1.51	1.48	10.53
IF	1600.00	1.53	1.49	10.54
IF	1618.00	1.54	1.49	10.56
IF	1633.00	1.56	1.50	10.57
IF	1645.00	1.57	1.50	10.58
IF	1675.00	1.60	1.52	10.60
IF	1676.00	1.61	1.52	10.60
IF	1712.00	1.67	1.53	10.65
IF	1719.00	1.66	1.53	10.64
IF	1756.00	1.61	1.55	10.61
IF	1773.00	1.61	1.55	10.61
IF	1783.00	1.63	1.56	10.63
IF	1805.00	1.70	1.56	10.68
IF	1806.00	1.71	1.56	10.68
IF	1851.00	1.79	1.58	10.74
IF	1879.00	1.71	1.59	10.69
IF	1903.00	1.75	1.60	10.72
IF	1904.00	1.75	1.60	10.72
IF	1926.00	1.73	1.61	10.71
IF	1927.00	1.73	1.61	10.71
IF	1945.30	0.01	1.61	9.50
AS	4155.00	0.00	0.00	9.80
IF	4159.00	0.04	0.23	9.83
IF	4166.00	0.07	0.32	9.85
IF	4177.00	0.05	0.39	9.84
IF	4178.80	0.01	0.41	9.81
AS	4606.10	0.00	0.00	9.80
IF	4616.00	0.07	0.30	9.84
IF	4617.00	0.07	0.31	9.85
IF	4636.00	0.14	0.44	9.89
IF	4639.00	0.15	0.45	9.90
IF	4652.00	0.19	0.50	9.92
IF	4672.00	0.24	0.57	9.96
IF	4691.00	0.28	0.62	9.99
IF	4701.00	0.30	0.64	10.01
IF	4715.00	0.33	0.67	10.03
IF	4727.00	0.35	0.69	10.04
IF	4749.00	0.39	0.73	10.07
IF	4750.00	0.40	0.74	10.07
IF	4788.00	0.46	0.79	10.12
IF	4820.00	0.51	0.84	10.16
IF	4828.00	0.53	0.85	10.17
IF	4850.00	0.56	0.88	10.19
IF	4854.00	0.57	0.88	10.20
IF	4892.00	0.62	0.92	10.24
IF	4904.00	0.64	0.94	10.25

IF	4935.00	0.69	0.97	10.28
IF	4972.00	0.74	1.00	10.32
IF	4994.00	0.76	1.02	10.34
IF	5005.00	0.78	1.03	10.35
IF	5034.00	0.82	1.06	10.37
IF	5054.00	0.84	1.07	10.39
IF	5076.00	0.87	1.09	10.41
IF	5090.00	0.88	1.10	10.42
IF	5119.00	0.92	1.12	10.45
IF	5136.00	0.94	1.13	10.46
IF	5166.00	0.97	1.15	10.48
IF	5167.00	0.98	1.15	10.49
IF	5191.00	1.00	1.17	10.50
IF	5198.00	1.01	1.18	10.51
IF	5222.00	1.04	1.19	10.53
IF	5223.00	1.04	1.19	10.53
IF	5250.00	1.06	1.21	10.54
IF	5253.00	1.05	1.21	10.54
IF	5269.70	0.01	1.22	9.81

PART3 LOCATION OF AREAS ABOVE 100-YEAR SURGE

BETWEEN 293.00 AND 392.80

BETWEEN 1945.30 AND 4155.00

BETWEEN 4178.80 AND 4606.10

PART4 LOCATION OF SURGE CHANGES

STATION	10-YEAR SURGE	100-YEAR SURGE
3.30	1.00	9.28
6.60	1.00	9.28
9.80	1.00	9.29
13.10	1.00	9.29
16.40	1.00	9.29
19.70	1.00	9.29
23.00	1.00	9.30
26.20	1.00	9.30
29.50	1.00	9.30
32.80	1.00	9.30
36.10	1.00	9.30
39.40	1.00	9.31
42.70	1.00	9.31
45.90	1.00	9.31
49.20	1.00	9.32
52.50	1.00	9.32
55.80	1.00	9.32
59.10	1.00	9.33
62.30	1.00	9.34
65.60	1.00	9.34
68.90	1.00	9.34
72.20	1.00	9.35
75.50	1.00	9.35
78.70	1.00	9.35
82.00	1.00	9.36
85.30	1.00	9.36
88.60	1.00	9.36
91.90	1.00	9.37
95.10	1.00	9.37
98.40	1.00	9.37
101.70	1.00	9.38
105.00	1.00	9.38
108.30	1.00	9.38
111.50	1.00	9.39
114.80	1.00	9.39
118.10	1.00	9.39
121.40	1.00	9.40
124.70	1.00	9.40
128.00	1.00	9.40
131.20	1.00	9.41
134.50	1.00	9.41
137.80	1.00	9.41
141.10	1.00	9.41
144.40	1.00	9.42
147.60	1.00	9.42
150.90	1.00	9.42
154.20	1.00	9.42
157.50	1.00	9.43
160.80	1.00	9.43
164.00	1.00	9.43
167.30	1.00	9.43
170.60	1.00	9.43
173.90	1.00	9.44
177.20	1.00	9.44
180.40	1.00	9.44
183.70	1.00	9.44
187.00	1.00	9.44
190.30	1.00	9.45
193.60	1.00	9.45
200.10	1.00	9.45
203.40	1.00	9.45
206.70	1.00	9.46
210.00	1.00	9.46
213.30	1.00	9.46
216.50	1.00	9.46
219.80	1.00	9.46
223.10	1.00	9.46
226.40	1.00	9.46
229.70	1.00	9.45
232.90	1.00	9.45
236.20	1.00	9.44
239.50	1.00	9.45
242.80	1.00	9.45
246.10	1.00	9.47
249.30	1.00	9.48
252.60	1.00	9.50
255.90	1.00	9.51
259.20	1.00	9.54
262.50	1.00	9.61
265.70	1.00	9.78
269.00	1.00	9.99
272.30	1.00	10.13
275.60	1.00	10.22
278.90	1.00	10.31
282.20	1.00	10.35

392.80	1.00	9.46
552.00	1.00	9.46
613.00	1.00	9.46
731.00	1.00	9.46
815.00	1.00	9.46
932.00	1.00	9.46
1202.00	1.00	9.46
1279.00	1.00	9.47
1310.00	1.00	9.47
1376.00	1.00	9.47
1444.00	1.00	9.47
1500.00	1.00	9.47
1519.00	1.00	9.47
1554.00	1.00	9.47
1575.00	1.00	9.47
1600.00	1.00	9.48
1618.00	1.00	9.48
1633.00	1.00	9.48
1675.00	1.00	9.48
1712.00	1.00	9.48
1756.00	1.00	9.48
1773.00	1.00	9.48
1783.00	1.00	9.49
1805.00	1.00	9.49
1851.00	1.00	9.49
1879.00	1.00	9.49
1903.00	1.00	9.49
4155.00	1.00	9.80
4606.10	1.00	9.80
4715.00	1.00	9.80
4788.00	1.00	9.80
4820.00	1.00	9.80
4828.00	1.00	9.80
4892.00	1.00	9.80
5076.00	1.00	9.80
5191.00	1.00	9.80

PART5 LOCATION OF V ZONES		
STATION OF GUTTER	LOCATION OF ZONE	
259.25	WINDWARD	
PART6 NUMBERED A ZONES AND V ZONES		
STATION OF GUTTER	ELEVATION	ZONE DESIGNATION FHF
0.00	16.58	
3.30	16.53	V23 EL=17 130
5.53	16.50	V23 EL=17 130
6.60	16.48	V23 EL=16 130
9.80	16.44	V23 EL=16 130
13.10	16.39	V23 EL=16 130
16.40	16.34	V23 EL=16 130
19.70	16.30	V23 EL=16 130
23.00	16.25	V23 EL=16 130
26.20	16.20	V23 EL=16 130
29.50	16.16	V23 EL=16 130
32.80	16.11	V23 EL=16 130
36.10	16.01	V23 EL=16 130
39.40	16.00	V23 EL=16 130
42.70	15.99	V23 EL=16 130
45.90	15.98	V23 EL=16 130
49.20	15.97	V23 EL=16 130
52.50	15.96	V23 EL=16 130
55.80	15.95	V23 EL=16 130
59.10	15.94	V23 EL=16 130
62.30	15.93	V23 EL=16 130
65.60	15.92	V23 EL=16 130
68.90	15.91	V23 EL=16 130
72.20	15.90	V23 EL=16 130
75.50	15.89	V23 EL=16 130
78.70	15.88	V23 EL=16 130
82.00	15.87	V23 EL=16 130
85.30	15.86	V23 EL=16 130
88.60	15.85	V23 EL=16 130
91.90	15.84	V23 EL=16 130
95.10	15.83	V23 EL=16 130
98.40	15.82	V23 EL=16 130
101.70	15.81	V23 EL=16 130
105.00	15.80	V23 EL=16 130
108.30	15.79	V23 EL=16 130

111.50	15.77	V23	EL=16	130
114.80	15.76	V23	EL=16	130
118.10	15.75	V23	EL=16	130
121.40	15.74	V23	EL=16	130
124.70	15.73	V23	EL=16	130
128.00	15.72	V23	EL=16	130
131.20	15.71	V23	EL=16	130
134.50	15.70	V23	EL=16	130
137.80	15.68	V23	EL=16	130
141.10	15.67	V23	EL=16	130
144.40	15.66	V23	EL=16	130
147.60	15.65	V23	EL=16	130
150.90	15.64	V23	EL=16	130
154.20	15.62	V23	EL=16	130
157.50	15.61	V23	EL=16	130
160.80	15.60	V23	EL=16	130
164.00	15.59	V23	EL=16	130
167.30	15.57	V23	EL=16	130
170.60	15.56	V23	EL=16	130
173.90	15.55	V23	EL=16	130
177.20	15.50	V23	EL=16	130
177.33	15.50	V23	EL=16	130
180.40	15.44	V23	EL=15	130
183.70	15.43	V23	EL=15	130
187.00	15.44	V23	EL=15	130
190.30	15.44	V23	EL=15	130
193.60	15.44	V23	EL=15	130
196.80	15.35	V23	EL=15	130
200.10	15.34	V23	EL=15	130
203.40	15.33	V23	EL=15	130
206.70	15.34	V23	EL=15	130
210.00	15.35	V23	EL=15	130
213.30	15.33	V23	EL=15	130
216.50	15.33	V23	EL=15	130
219.80	15.14	V23	EL=15	130
223.10	14.96	V23	EL=15	130
226.40	14.64	V23	EL=15	130
227.95	14.50	V23	EL=14	130
229.70	14.34	V23	EL=14	130
232.90	14.02	V23	EL=14	130
236.20	13.63	V23	EL=14	130
237.64	13.50	V23	EL=14	130
239.50	13.34	V23	EL=13	130
242.80	13.10	V23	EL=13	130
246.10	12.87	V23	EL=13	130
249.30	12.62	V23	EL=13	130
250.65	12.50	V23	EL=12	130
252.60	12.32	V23	EL=12	130
255.90	11.94	V23	EL=12	130
259.20	11.64	V23	EL=12	130
259.25	11.67	A19	EL=12	95
261.31	11.50	A19	EL=11	95
262.50	11.42	A19	EL=11	95
265.70	11.33	A19	EL=11	95
269.00	11.21			

272.30	11.15	A19	EL=11	95
275.60	11.13	A19	EL=11	95
278.90	11.08	A19	EL=11	95
282.20	11.06	A19	EL=11	95
291.58	10.50	A19	EL=11	95
293.00	10.36	A19	EL=10	95
392.80	9.46			
402.22	9.50	A19	EL= 9	95
530.00	9.72	A19	EL=10	95
552.00	9.76	A19	EL=10	95
594.00	9.80	A19	EL=10	95
613.00	9.83	A19	EL=10	95
686.00	9.90	A19	EL=10	95
731.00	9.95	A19	EL=10	95
732.00	9.95	A19	EL=10	95
815.00	10.03	A19	EL=10	95
912.00	10.11	A19	EL=10	95
932.00	10.13	A19	EL=10	95
1189.00	10.31	A19	EL=10	95
1202.00	10.33	A19	EL=10	95
1227.00	10.35	A19	EL=10	95
1279.00	10.39	A19	EL=10	95
1310.00	10.41	A19	EL=10	95
1344.00	10.41	A19	EL=10	95
1376.00	10.43	A19	EL=10	95
1428.00	10.46	A19	EL=10	95
1444.00	10.46	A19	EL=10	95
1468.00	10.48	A19	EL=10	95
1500.00	10.49	A19	EL=10	95
1519.00	10.50	A19	EL=10	95
1524.35	10.50	A19	EL=11	95
1554.00	10.52	A19	EL=11	95
1555.00	10.52	A19	EL=11	95
1575.00	10.52	A19	EL=11	95
1586.00	10.53	A19	EL=11	95
1600.00	10.54	A19	EL=11	95
1618.00	10.56	A19	EL=11	95
1633.00	10.57	A19	EL=11	95
1645.00	10.58	A19	EL=11	95
1675.00	10.60	A19	EL=11	95
1676.00	10.60	A19	EL=11	95
1712.00	10.65	A19	EL=11	95
1719.00	10.64	A19	EL=11	95
1756.00	10.61	A19	EL=11	95
1773.00	10.61	A19	EL=11	95
1783.00	10.63	A19	EL=11	95
1805.00	10.68	A19	EL=11	95
1806.00	10.68	A19	EL=11	95
1851.00	10.74	A19	EL=11	95
1879.00	10.69	A19	EL=11	95
1903.00	10.72	A19	EL=11	95
1930.11	10.50	A19	EL=10	95
1945.29	9.50	A19	EL= 9	95
1945.30	9.50			
4155.00	9.80	A19	EL=10	95
4178.80	9.81			



4606.10	9.80			
4701.00	10.01	A19	EL=10	95
4715.00	10.03	A19	EL=10	95
4750.00	10.07	A19	EL=10	95
4788.00	10.12	A19	EL=10	95
4820.00	10.16	A19	EL=10	95
4828.00	10.17	A19	EL=10	95
4854.00	10.20	A19	EL=10	95
4892.00	10.24	A19	EL=10	95
5054.00	10.39	A19	EL=10	95
5076.00	10.41	A19	EL=10	95
5167.00	10.49	A19	EL=10	95
5185.67	10.50	A19	EL=10	95
5191.00	10.50	A19	EL=11	95
5253.95	10.50	A19	EL=11	95
5269.70	9.81	A19	EL=10	95

ZONE TERMINATED AT END OF TRANSECT  
PART 7 POSTSCRIPT NOTES

PS# 1 START(364608.9079,4771531.0929)  
PS# 2 END(363614.9415,4772913.1221)

-1.000000e+00

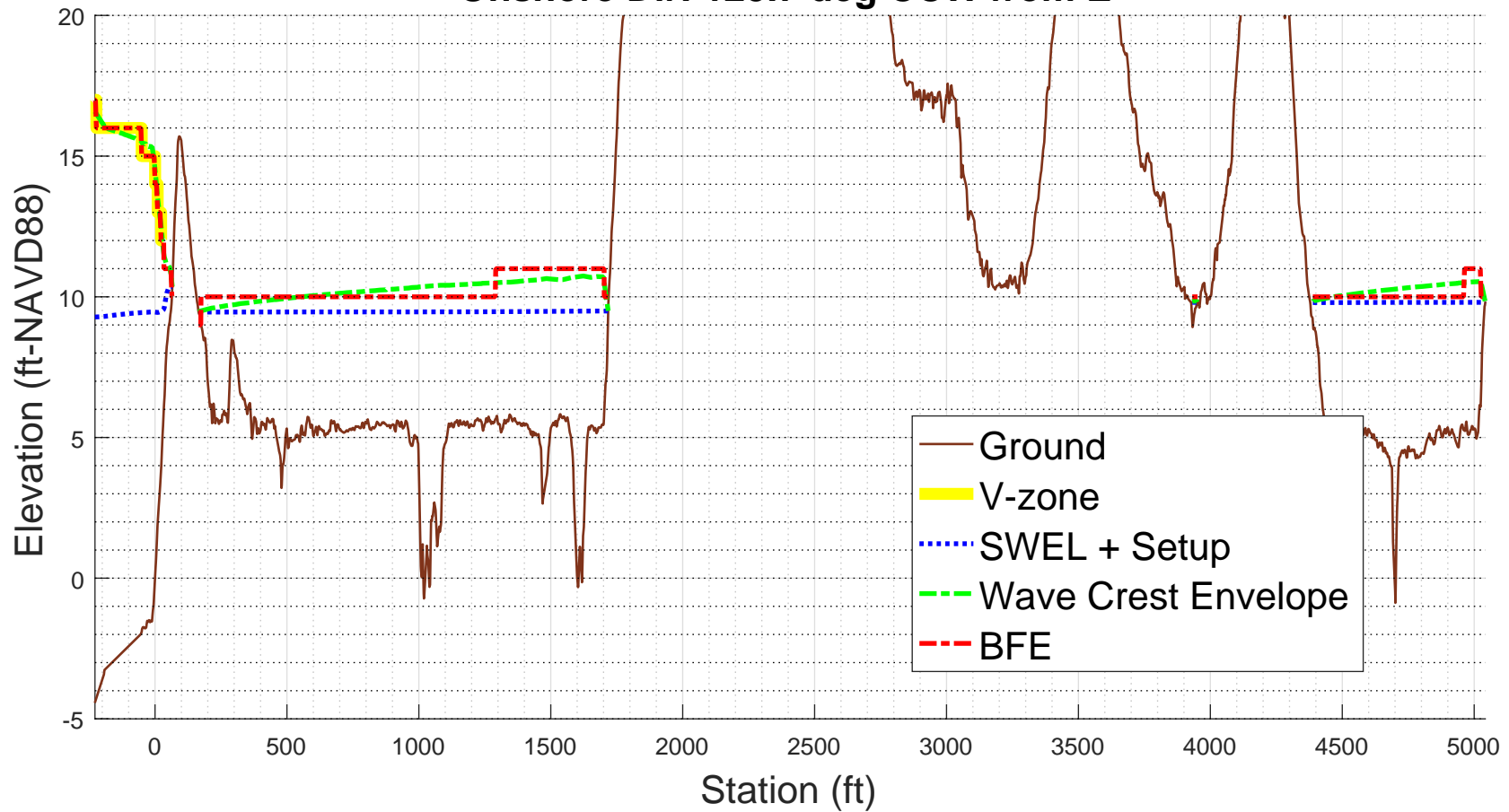
**REVISED SEP-05-2019**

**YK-15**

**100-year WHAFIS Output**

**Zero Station: -70.66384404, 43.08491017**

**Onshore Dir: 125.7 deg CCW from E**



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PART 5: RUNUP2

for transect: YK-15

Station locations shifted by: -0.43 feet from their  
original location to set the shoreline to  
elevation 0 for RUNUP2 input

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RUNUP2 INPUT CONVERSIONS

for transect: YK-15

Incident significant wave height: 8.18 feet

Peak wave period: 13.06 seconds

Mean wave height: 5.12 feet

Local Depth below SWEL: 13.70 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

Deep water wavelength,  $L_0$  (m)

$$L_0 = gT^2/\pi$$

$$L_0 = 32.17 \times 11.10^2 / 6.28 = 631.24$$

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

$$C_0 = L_0/T$$

$$C_0 = 631.24/11.10 = 56.85$$

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

$$\sigma = \pi/T$$

$$\sigma = 6.28/11.10 = 0.57$$

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

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

$$y = 0.57 \times 0.57 \times 13.70 / 32.17 = 0.14$$

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

$$C_{1H} = 20.51$$

Shoaling Coefficient  $K_{sH}$

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

$$K_{sH} = \sqrt{56.85/20.51} = 1.66$$

Deepwater Wave Height  $H_{0H}$  (ft)

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

$$H_{0H} = 5.12/1.66 = 3.08$$

Deepwater mean wave height: 3.08 feet

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END RUNUP2 CONVERSIONS

---

RUNUP2 RESULTS

for transect: YK-15

RUNUP2 SWEL:

9.30  
9.30  
9.30  
9.30  
9.30  
9.30  
9.30  
9.30  
9.30

RUNUP2 deepwater mean wave heights:

2.92

2.92  
2.92  
3.08  
3.08  
3.08  
3.23  
3.23  
3.23

RUNUP2 mean wave periods:

10.55  
11.10  
11.66  
10.55  
11.10  
11.66  
10.55  
11.10  
11.66

RUNUP2 runup above SWEL:

5.41  
5.87  
6.24  
5.77  
6.10  
6.47  
5.98  
6.35  
6.70

RUNUP2 Mean runup height above SWEL: 6.10 feet

RUNUP2 2-percent runup height above SWEL: 13.42 feet

RUNUP2 2-percent runup elevation: 22.72 feet-NAVD88

RUNUP2 Messages:

No Messages

\_\_\_\_\_END RUNUP2 RESULTS\_\_\_\_\_

\_\_\_\_\_ACES BEACH RUNUP\_\_\_\_\_

Incident significant wave height: 8.18 feet

Significant wave height deshoaled using Hunt equation

Deepwater significant wave height: 4.31 feet

Peak wave period: 13.06 seconds

Average beach Slope: 1:15.80 (H:V)

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

ACES Beach 2-percent runup height above SWEL: 7.44 feet

ACES Beach 2-percent runup elevation: 16.74 feet-NAVD88

ACES BEACH RUNUP is valid

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

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

FEMA  
RUNUP2 transect: YK-15

sjh

job 2  
1

5.00  
-4.41 -227.6 1.0  
-3.42 -193.6 1.0  
-3.26 -191.6 1.0  
-1.99 -53.6 1.0  
-1.74 -45.6 1.0  
-1.74 -33.6 1.0  
-1.52 -29.6 1.0  
-1.49 -11.6 1.0  
-0.96 -5.6 1.0  
0.76 4.4 1.0  
1.86 9.4 1.0  
3.93 23.4 1.0  
5.05 28.4 1.0  
6.50 36.4 1.0  
8.23 44.4 1.0  
8.92 51.4 1.0  
9.73 62.4 1.0  
12.55 73.4 1.0  
14.17 82.4 1.0  
1 15.58 88.4 1.0  
9.3 2.92 10.55  
9.3 2.92 11.10  
9.3 2.92 11.66  
9.3 3.08 10.55  
9.3 3.08 11.10  
9.3 3.08 11.66  
9.3 3.23 10.55  
9.3 3.23 11.10  
9.3 3.23 11.66



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CROSS SECTION PROFILE

	LENGTH	ELEV.	SLOPE	ROUGHNESS
1	-227.6	-4.4		
2	-193.6	-3.4	.00	1.00
3	-191.6	-3.3	12.50	1.00
4	-53.6	-2.0	108.66	1.00
5	-45.6	-1.7	32.00	1.00
6	-33.6	-1.7	FLAT	1.00
7	-29.6	-1.5	18.18	1.00
8	-11.6	-1.5	600.00	1.00
9	-5.6	-.9	11.32	1.00
10	4.4	.8	5.81	1.00
11	9.4	1.9	4.55	1.00
12	23.4	3.9	6.76	1.00
13	28.4	5.1	4.46	1.00
14	36.4	6.5	5.52	1.00
15	44.4	8.2	4.62	1.00
16	51.4	8.9	10.14	1.00
17	62.4	9.7	13.58	1.00
18	73.4	12.6	3.90	1.00
19	82.4	14.2	5.56	1.00
20	88.4	15.6	4.26	1.00
	LAST SLOPE		5.00	LAST ROUGHNESS 1.00

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OUTPUT TABLE  
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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.)
9.30	2.92	10.55	11	19	5.41	4.80
9.30	2.92	11.10	11	19	5.87	4.91
9.30	2.92	11.66	11	19	6.24	5.03
9.30	3.08	10.55	11	19	5.77	5.00
9.30	3.08	11.10	11	19	6.10	5.12
9.30	3.08	11.66	11	20	6.47	5.24
9.30	3.23	10.55	11	19	5.98	5.19
9.30	3.23	11.10	11	20	6.35	5.31
9.30	3.23	11.66	11	20	6.70	5.43



Runup2 2% runup elevation for Transect: YK-15

