```
diary on          % begin recording

% FEMA appeal for The Town of Harpswell, Cumberland county, Maine
% TRANSECT ID: CM-129-1
% calculation by SJH, Ransom Consulting, Inc. 20-Feb-2020
% 100-year wave runup using TAW methodology
% including berm and weighted average with foreshore if necessary
%
% chk nld 20200220
%
% This script assumes that the incident wave conditions provided
% as input in the configuration section below are the
% appropriate values located at the end of the foreshore
% or toe of the slope on which the run-up is being calculated
% the script does not attempt to apply a depth limit or any other
% transformation to the incident wave conditions other than
% conversion of the peak wave period to the spectral mean wave
% as recommended in the references below
%
% references:
%
% Van der Meer, J.W., 2002. Technical Report Wave Run-up and
% Wave Overtopping at Dikes. TAW Technical Advisory Committee on
% Flood Defence, The Netherlands.
%
% FEMA. 2007,  Atlantic Ocean and Gulf of Mexico Coastal Guidelines Update
%
%
%


%-------------------------------------------------------------------------
% CONFIG
%-------------------------------------------------------------------------
fname='inpfiles/CM-129-1sta_ele_include.csv';   % file with station, elevation, include
                                     % third colunm is 0 for excluded points
imgname='logfiles/CM-129-1-runup';
SWEL=8.8189;  % 100-yr still water level including wave setup.
H0=5.7154;    % significant wave height at toe of structure
Tp=12.3322;    % peak period, 1/fma,
T0=Tp/1.1;

gamma_berm=0.6;   % this may get changed automatically below
gamma_rough=0.6;
gamma_beta=1;
gamma_perm=1;

setupAtToe=-0.018871;
maxSetup=0.45369;   % only used in case of berm/shallow foreshore weighted average

plotTitle='Iterative TAW for CM-129-1'

plotTitle =

Iterative TAW for CM-129-1



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

SWEL=SWEL+setupAtToe

SWEL =

                8.800029

SWEL_fore=SWEL+maxSetup

SWEL_fore =

                9.253719



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

L0 =

          643.12716977951


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

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

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

Ztoe =

         0.226928999999998


% 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 =

                17.373129


% 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 =

         6.74104459975011

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

top_sta =

         328.799614395887


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

top_sta =

         328.799614395887

toe_sta

toe_sta =

         6.74104459975011



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

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

ans =

-!!- Location of SWEL-1.5*H0 is 339.1 ft landward of toe of slope

ans =

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

ans =

-!!-   setup is adjusted to 0.02 feet

ans =

-!!-   SWEL is adjusted to 8.84 feet

k =

     1
     2
     3
     4
     5
     6
     7
     8
     9
    10
    11
    12
    13
    14
    15
    16
    17
    18
    19
    20
    21
    22
    23
    24
    25
    26
    27
    28
    29
    30
    31
    32
    33


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

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

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

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

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

% check validity
TAW_VALID=1;
if (Irb*gamma_berm < 0.5 | Irb*gamma_berm > 10 )
```

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

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


        % check to see if we need to evaluate a shallow foreshore
        if berm_width > 0.25 * L0;
            disp ('!   Berm_width is greater than 1/4 wave length')
            disp ('!   Runup will be weighted average with foreshore calculation assuming depth limited wave height on ber
            % do the foreshore calculation
            fore_H0=0.78*(SWEL_fore-min(Berm_Heights))
            % get upper slope
            fore_toe_sta=-999;
            fore_toe_dep=-999;
            for kk=length(dep)-1:-1:1
                ddep=dep(kk+1)-dep(kk);
                dsta=sta(kk+1)-sta(kk);
                s=ddep/dsta;
                if s < 1/15
                    break
                end
                fore_toe_sta=sta(kk);
                fore_toe_dep=dep(kk);
                upper_slope=(Z2-fore_toe_dep)/(top_sta-fore_toe_sta)
            end
            fore_Irb=upper_slope/(sqrt(fore_H0/L0));
            fore_gamma=gamma_perm*gamma_beta*gamma_rough;
            if (fore_Irb < 1.8)
                fore_R2=fore_gamma*fore_H0*1.77*fore_Irb;
            else
                fore_R2=fore_gamma*fore_H0*(4.3-(1.6/sqrt(fore_Irb)));
            end
            if berm_width >= L0
                R2_new=fore_R2
                disp ('berm is wider than one wavelength, use full shallow foreshore solution');
            else
                w2=(berm_width-0.25*L0)/(0.75*L0)
                w1=1-w2
                R2_new=w2*fore_R2 + w1*R2_new
            end
        end % end berm width check
        % convergence criterion
        R2del=abs(R2-R2_new)
        R2_all(iter)=R2_new;
        % get the new top station (for plot purposes)
        Z2=R2_new+SWEL
        top_sta=-999;
        for kk=1:length(sta)-1
            if ((Z2  > dep(kk)) & (Z2 <= dep(kk+1)))    % here is the intersection of z2 with profile
                top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
                break;
            end
        end
        if top_sta==-999
            dy=Z2-dep(end);
            top_sta=sta(end)+dy/S(end);
        end
        topStaAll(iter)=top_sta;
end
ans =
!---------------- STARTING ITERATION 1 ----------------!
Ztoe =
        0.226928999999998
toe_sta =
        6.74104459975011
top_sta =
        328.799614395887
Z2 =
                17.373129
H0 =
                    5.7154
Tp =
```

```
                          12.3322
T0 =
          11.2110909090909
R2 =
                          17.1462
Z2 =
          25.9890730071834
top_sta =
          343.371296183168
Lslope =
          336.630251583418
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 1
dh =
          8.53413200718341
rdh_sum =
        0.849745993595662
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 2
dh =
          8.50452200718341
rdh_sum =
          1.69657260925671
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 3
dh =
           8.4749070071834
rdh_sum =
           2.5404563797064
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 4
dh =
          8.4452920071834
rdh_sum =
          3.3813745236441
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 5
dh =
          8.41567750718341
rdh_sum =
          4.21930450687379
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 6
dh =
          8.3860630071834
rdh_sum =
          5.05422394327186
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 7
dh =
          8.3564530071834
rdh_sum =
          5.88611110865488
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 8
dh =
          8.3268380071834
rdh_sum =
          6.71494350629483
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 9
dh =
          8.29481500718341
rdh_sum =
          7.54044824566786
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 10
dh =
          8.25927450718341
rdh_sum =
          8.36223029887695
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 11
dh =
           8.2226940071834
rdh_sum =
          9.18014867324218
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 12
dh =
          8.18618100718341
rdh_sum =
          9.99417845342053
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 13
dh =
           8.1496680071834
rdh_sum =
          10.804288016054
ans =
```

```
Berm Factor Calculation: Iteration 1, Profile Segment: 14
dh =
          8.1131550071834
rdh_sum =
        11.6104461325576
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 15
dh =
         8.07663500718341
rdh_sum =
         12.412621205881
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 16
dh =
          8.0401220071834
rdh_sum =
        13.2107835669669
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 17
dh =
         8.00360900718341
rdh_sum =
         14.0049031903346
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 18
dh =
         7.96708900718341
rdh_sum =
         14.7949496740792
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 19
dh =
         7.93057600718341
rdh_sum =
         15.5808945878995
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 20
dh =
         7.89399600718341
rdh_sum =
         16.3627015313542
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 21
dh =
          7.8574160071834
rdh_sum =
         17.1403420217407
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 22
dh =
         7.82090300718341
rdh_sum =
         17.9137957055424
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 23
dh =
         7.78438300718341
rdh_sum =
         18.6830342349309
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 24
dh =
          7.7478700071834
rdh_sum =
         19.4480313024238
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 25
dh =
         7.71135700718341
rdh_sum =
         20.2087602223446
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 26
dh =
         7.67483700718341
rdh_sum =
         20.9651939130463
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 27
dh =
          7.6383240071834
rdh_sum =
          21.717307371988
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 28
dh =
         7.60181100718341
rdh_sum =
         22.4650752108956
ans =
```

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Berm Factor Calculation: Iteration 1, Profile Segment: 29
dh =
          7.5652980071834
rdh_sum =
          23.2084724791065
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 30
dh =
          7.52878500718341
rdh_sum =
          23.9474746660825
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 31
dh =
          7.49219800718341
rdh_sum =
          24.6820487235595
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 32
dh =
          7.45561800718341
rdh_sum =
          25.4121717876562
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 33
dh =
          7.41910500718341
rdh_sum =
          26.1378288154829
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 34
dh =
          7.3825850071834
rdh_sum =
          26.8589962202736
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 35
dh =
          7.34607200718341
rdh_sum =
          27.575652588465
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 36
dh =
          7.30955900718341
rdh_sum =
          28.2877761023752
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 37
dh =
          7.2730460071834
rdh_sum =
          28.9953454007886
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 38
dh =
          7.23653300718341
rdh_sum =
          29.6983395811073
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 39
dh =
          7.20001300718341
rdh_sum =
          30.3967373184992
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 40
dh =
          7.16350000718341
rdh_sum =
          31.0905195130409
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 41
dh =
          7.1269870071834
rdh_sum =
          31.7796666505205
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 42
dh =
          7.09039950718341
rdh_sum =
          32.4641501682408
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 43
dh =
          7.0538190071834
rdh_sum =
          33.1439523100719
ans =
```

```
Berm Factor Calculation: Iteration 1, Profile Segment: 44
dh =
         7.01730600718341
rdh_sum =
         33.8190635908787
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 45
dh =
          6.9807930071834
rdh_sum =
         34.4894663766434
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 46
dh =
         6.94428000718341
rdh_sum =
          35.155143507502
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 47
dh =
         6.90776000718341
rdh_sum =
         35.8160773887376
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 48
dh =
          6.8712470071834
rdh_sum =
         36.4722527216039
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 49
dh =
         6.83473400718341
rdh_sum =
         37.1236537789669
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 50
dh =
          6.7982140071834
rdh_sum =
         37.7702643948281
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 51
dh =
          6.7617010071834
rdh_sum =
         38.4120707220032
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 52
dh =
          6.7251210071834
rdh_sum =
          39.049049625619
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 53
dh =
          6.6885410071834
rdh_sum =
         39.6811872609871
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 54
dh =
          6.6520280071834
rdh_sum =
         40.3084791763822
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 55
dh =
         6.61550800718341
rdh_sum =
         40.9309116206413
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 56
dh =
          6.5789950071834
rdh_sum =
         41.5484731948291
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 57
dh =
          6.5424820071834
rdh_sum =
         42.1611520602858
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 58
dh =
         6.50596200718341
rdh_sum =
         42.7689359307408
ans =
```

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Berm Factor Calculation: Iteration 1, Profile Segment: 59
dh =
          6.46944900718341
rdh_sum =
          43.3718148893465
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 60
dh =
           6.4329360071834
rdh_sum =
          43.9697785760086
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 61
dh =
           6.3964230071834
rdh_sum =
          44.5628171256095
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 62
dh =
          6.35991000718341
rdh_sum =
          45.1509211690015
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 63
dh =
          6.32332300718341
rdh_sum =
          45.7340718066554
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 64
dh =
          6.28674300718341
rdh_sum =
          46.3122615812694
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 65
dh =
          6.25023000718341
rdh_sum =
           46.885491697791
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 66
dh =
           6.2137170071834
rdh_sum =
           47.453754781817
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 67
dh =
           6.1772040071834
rdh_sum =
          48.0170439591334
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 68
dh =
          6.14068400718341
rdh_sum =
          48.5753519010462
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 69
dh =
          6.10417100718341
rdh_sum =
          49.1286736900291
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 70
dh =
           6.0676580071834
rdh_sum =
          49.6770039564831
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 71
dh =
          6.03113800718341
rdh_sum =
          50.2203368751593
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 72
dh =
          5.99462500718341
rdh_sum =
          50.7586690397757
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 73
dh =
          5.95804500718341
rdh_sum =
           51.291987403695
ans =
```

```
Berm Factor Calculation: Iteration 1, Profile Segment: 74
dh =
        5.92146500718341
rdh_sum =
        51.8202885993738
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 75
dh =
        5.88495200718341
rdh_sum =
         52.343578963363
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 76
dh =
         5.8628940071834
rdh_sum =
        52.8638410470743
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 77
dh =
        5.8552985071834
rdh_sum =
        53.3830601881378
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 78
dh =
        5.84770300718341
rdh_sum =
        53.9012363028023
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 79
dh =
        5.84010750718341
rdh_sum =
        54.4183693118615
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 80
dh =
        5.83251200718341
rdh_sum =
        54.9344591406546
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 81
dh =
         5.8249165071834
rdh_sum =
        55.4495057190669
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 82
dh =
        5.81732150718341
rdh_sum =
        55.9635090502117
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 83
dh =
        5.80972600718341
rdh_sum =
        56.4764690043887
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 84
dh =
         5.8021305071834
rdh_sum =
        56.9883855251222
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 85
dh =
         5.7945350071834
rdh_sum =
        57.4992585604835
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 86
dh =
         5.7869395071834
rdh_sum =
        58.0090880630911
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 87
dh =
        5.77934400718341
rdh_sum =
        58.5178739901108
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 88
dh =
        5.77174850718341
rdh_sum =
        59.0256163032561
ans =
```

```
Berm Factor Calculation: Iteration 1, Profile Segment: 89
dh =
          5.76415300718341
rdh_sum =
          59.5323149687883
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 90
dh =
          5.75655750718341
rdh_sum =
          60.0379699575164
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 91
dh =
          5.74896250718341
rdh_sum =
          60.5425813135037
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 92
dh =
          5.74136700718341
rdh_sum =
          61.0461489479507
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 93
dh =
          5.73377150718341
rdh_sum =
          61.5486728453108
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 94
dh =
           5.7261760071834
rdh_sum =
          62.0501529945854
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 95
dh =
           5.7185805071834
rdh_sum =
          62.5505893893246
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 96
dh =
          5.71098500718341
rdh_sum =
          63.0499820276265
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 97
dh =
          5.70338950718341
rdh_sum =
          63.5483309121381
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 98
dh =
           5.6957945071834
rdh_sum =
          64.0456361187622
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 99
dh =
          5.68819900718341
rdh_sum =
          64.5418975905334
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 100
dh =
          5.68060350718341
rdh_sum =
          65.0371153437432
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 101
dh =
          5.67300800718341
rdh_sum =
          65.5312893992312
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 102
dh =
           5.6654125071834
rdh_sum =
          66.0244197823851
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 103
dh =
           5.6578170071834
rdh_sum =
          66.5165065231409
ans =
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```
Berm Factor Calculation: Iteration 1, Profile Segment: 104
dh =
          5.6502215071834
rdh_sum =
       67.0075496559821
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 105
dh =
          5.6426265071834
rdh_sum =
       67.4975492886354
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 106
dh =
          5.6350310071834
rdh_sum =
       67.9865053959816
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 107
dh =
          5.6274355071834
rdh_sum =
       68.4744180261467
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 108
dh =
          5.6198400071834
rdh_sum =
       68.9612872318041
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 109
dh =
          5.61224450718341
rdh_sum =
       69.4471130701738
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 110
dh =
          5.60464900718341
rdh_sum =
       69.9318956030229
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 111
dh =
          5.59705350718341
rdh_sum =
       70.4156348966646
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 112
dh =
          5.58945850718341
rdh_sum =
       70.8983310906261
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 113
dh =
          5.58186300718341
rdh_sum =
       71.3799841916398
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 114
dh =
          5.57426750718341
rdh_sum =
       71.8605942796563
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 115
dh =
          5.5666720071834
rdh_sum =
        72.340161439171
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 116
dh =
          5.5590765071834
rdh_sum =
       72.8186857592244
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 117
dh =
          5.5514810071834
rdh_sum =
       73.2961673334013
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 118
dh =
          5.54388550718341
rdh_sum =
       73.7726062598304
ans =
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Berm Factor Calculation: Iteration 1, Profile Segment: 119
dh =
          5.5362905071834
rdh_sum =
        74.2480027098098
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 120
dh =
          5.5286950071834
rdh_sum =
        74.7223567219221
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 121
dh =
          5.52109950718341
rdh_sum =
        75.1956684079249
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 122
dh =
          5.51350400718341
rdh_sum =
        75.6679378841182
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 123
dh =
          5.50590850718341
rdh_sum =
        76.1391652713437
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 124
dh =
          5.49831300718341
rdh_sum =
         76.609350694984
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 125
dh =
          5.4907175071834
rdh_sum =
        77.0784942849624
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 126
dh =
          5.4831225071834
rdh_sum =
        77.5465962443112
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 127
dh =
          5.4755270071834
rdh_sum =
        78.0136566434547
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 128
dh =
          5.4679315071834
rdh_sum =
        78.4796756259343
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 129
dh =
          5.4603360071834
rdh_sum =
        78.9446553398294
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 130
dh =
          5.45274050718341
rdh_sum =
        79.4085899377569
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 131
dh =
          5.44514500718341
rdh_sum =
        79.8714855768707
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 132
dh =
          5.43754950718341
rdh_sum =
        80.3333404188608
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 133
dh =
          5.42995450718341
rdh_sum =
        80.7941546984504
ans =
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Berm Factor Calculation: Iteration 1, Profile Segment: 134
dh =
        5.42235900718341
rdh_sum =
        81.2539285178908
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 135
dh =
        5.41476350718341
rdh_sum =
         81.712662052476
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 136
dh =
        5.4071680071834
rdh_sum =
        82.1703554820333
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 137
dh =
        5.3995725071834
rdh_sum =
        82.6270089909226
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 138
dh =
        5.3919770071834
rdh_sum =
        83.0826227680352
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 139
dh =
        5.3843815071834
rdh_sum =
        83.5371970067934
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 140
dh =
        5.3767865071834
rdh_sum =
        83.9907319735611
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 141
dh =
        5.3691910071834
rdh_sum =
        84.4432278023948
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 142
dh =
        5.3615955071834
rdh_sum =
        84.8946847003037
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 143
dh =
        5.35400000718341
rdh_sum =
        85.3451028788247
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 144
dh =
        5.34640450718341
rdh_sum =
         85.794482554021
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 145
dh =
        5.33880900718341
rdh_sum =
        86.2428239464813
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 146
dh =
        5.3312135071834
rdh_sum =
        86.6901272813188
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 147
dh =
        5.3236180071834
rdh_sum =
        87.1363927881704
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 148
dh =
        5.3160225071834
rdh_sum =
        87.5816207011953
ans =
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Berm Factor Calculation: Iteration 1, Profile Segment: 149
dh =
          5.3084275071834
rdh_sum =
          88.0258113273539
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 150
dh =
          5.3008320071834
rdh_sum =
          88.468964841552
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 151
dh =
          5.2932365071834
rdh_sum =
          88.9110814915101
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 152
dh =
          5.28564100718341
rdh_sum =
          89.352161529467
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 153
dh =
          5.27804550718341
rdh_sum =
          89.7922052121788
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 154
dh =
          5.27045000718341
rdh_sum =
          90.2312128009179
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 155
dh =
          5.26285450718341
rdh_sum =
          90.6691845614713
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 156
dh =
          5.25525950718341
rdh_sum =
          91.1061208323005
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 157
dh =
          5.24766400718341
rdh_sum =
          91.5420218200406
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 158
dh =
          5.24006850718341
rdh_sum =
          91.9768878040168
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 159
dh =
          5.2324730071834
rdh_sum =
          92.410719068064
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 160
dh =
          5.2248775071834
rdh_sum =
          92.8435159005265
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 161
dh =
          5.21728200718341
rdh_sum =
          93.2752785942562
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 162
dh =
          5.20968650718341
rdh_sum =
          93.7060074466115
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 163
dh =
          5.2020915071834
rdh_sum =
          94.1357028274823
ans =
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Berm Factor Calculation: Iteration 1, Profile Segment: 164
dh =
          5.19449600718341
rdh_sum =
          94.5643649751894
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 165
dh =
          5.18690050718341
rdh_sum =
          94.9919942006025
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 166
dh =
          5.17930500718341
rdh_sum =
          95.4185908190924
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 167
dh =
           5.1717095071834
rdh_sum =
          95.8441551505299
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 168
dh =
           5.1641140071834
rdh_sum =
          96.2686875192839
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 169
dh =
           5.1565185071834
rdh_sum =
          96.6921882542206
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 170
dh =
           5.1489235071834
rdh_sum =
          97.1146577565793
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 171
dh =
           5.1413280071834
rdh_sum =
          97.5360962963157
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 172
dh =
           5.1337325071834
rdh_sum =
          97.9565042157778
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 173
dh =
           5.1261370071834
rdh_sum =
          98.3758818618047
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 174
dh =
          5.11854150718341
rdh_sum =
          98.7942295857254
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 175
dh =
          5.11094600718341
rdh_sum =
          99.2115477433568
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 176
dh =
          5.10335050718341
rdh_sum =
          99.6278366950024
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 177
dh =
          5.09575550718341
rdh_sum =
          100.043096873166
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 178
dh =
          5.08816000718341
rdh_sum =
          100.457328579379
ans =
```

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Berm Factor Calculation: Iteration 1, Profile Segment: 179
dh =
          5.08056450718341
rdh_sum =
          100.870532187396
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 180
dh =
          5.0729690071834
rdh_sum =
          101.282708075449
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 181
dh =
          5.0653735071834
rdh_sum =
          101.693856626252
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 182
dh =
          5.0577780071834
rdh_sum =
          102.103978226992
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 183
dh =
          5.05018250718341
rdh_sum =
          102.513073269335
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 184
dh =
          5.0425875071834
rdh_sum =
          102.921142216954
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 185
dh =
          5.0349920071834
rdh_sum =
          103.328185402895
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 186
dh =
          5.02739650718341
rdh_sum =
          103.734203232237
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 187
dh =
          5.01980100718341
rdh_sum =
          104.139196114527
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 188
dh =
          5.01220550718341
rdh_sum =
          104.543164463779
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 189
dh =
          5.00461000718341
rdh_sum =
          104.946108698469
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 190
dh =
          4.9970145071834
rdh_sum =
          105.348029241541
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 191
dh =
          4.9894195071834
rdh_sum =
          105.74892658774
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 192
dh =
          4.9818240071834
rdh_sum =
          106.148801101553
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 193
dh =
          4.9742285071834
rdh_sum =
          106.547653219299
ans =
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Berm Factor Calculation: Iteration 1, Profile Segment: 194
dh =
          4.9666330071834
rdh_sum =
       106.945483381751
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 195
dh =
       4.95903750718341
rdh_sum =
       107.342292034134
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 196
dh =
       4.95144200718341
rdh_sum =
       107.738079626128
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 197
dh =
       4.94384650718341
rdh_sum =
       108.132846611859
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 198
dh =
       4.93625150718341
rdh_sum =
       108.526593517042
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 199
dh =
       4.92865600718341
rdh_sum =
       108.919320737528
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 200
dh =
       4.92106050718341
rdh_sum =
        109.31102874078
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 201
dh =
         4.9134650071834
rdh_sum =
       109.701717998702
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 202
dh =
         4.9058695071834
rdh_sum =
       110.091388987641
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 203
dh =
         4.8982740071834
rdh_sum =
       110.480042188377
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 204
dh =
         4.8906785071834
rdh_sum =
       110.867678086127
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 205
dh =
       4.88308300718341
rdh_sum =
       111.254297170543
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 206
dh =
       4.87548750718341
rdh_sum =
       111.639899935704
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 207
dh =
         4.8678925071834
rdh_sum =
       112.024486946975
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 208
dh =
       4.86029700718341
rdh_sum =
       112.408058640405
ans =
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Berm Factor Calculation: Iteration 1, Profile Segment: 209
dh =
        4.85270150718341
rdh_sum =
        112.790615523355
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 210
dh =
        4.84510600718341
rdh_sum =
        113.172158107609
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 211
dh =
         4.8375105071834
rdh_sum =
        113.552686909369
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 212
dh =
        4.82991500718341
rdh_sum =
        113.932202449255
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 213
dh =
         4.8223195071834
rdh_sum =
        114.310705252306
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 214
dh =
         4.8147245071834
rdh_sum =
        114.688195914584
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 215
dh =
        4.80712900718341
rdh_sum =
          115.0646749033
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 216
dh =
         4.7995335071834
rdh_sum =
        115.440142756723
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 217
dh =
        4.79193800718341
rdh_sum =
        115.814600017528
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 218
dh =
        4.78434250718341
rdh_sum =
        116.188047232794
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 219
dh =
         4.7767470071834
rdh_sum =
        116.560484954002
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 220
dh =
        4.76915150718341
rdh_sum =
         116.93191373703
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 221
dh =
        4.76155650718341
rdh_sum =
        117.302334208516
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 222
dh =
         4.7539610071834
rdh_sum =
        117.671746866732
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 223
dh =
        4.74636550718341
rdh_sum =
        118.040152280739
ans =
```

```
Berm Factor Calculation: Iteration 1, Profile Segment: 224
dh =
          4.7387700071834
rdh_sum =
       118.407551023989
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 225
dh =
          4.7311745071834
rdh_sum =
       118.773943674319
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 226
dh =
          4.72357900718341
rdh_sum =
       119.139330813952
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 227
dh =
          4.71598350718341
rdh_sum =
       119.503713029492
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 228
dh =
          4.7083885071834
rdh_sum =
       119.867090978014
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 229
dh =
          4.70079300718341
rdh_sum =
       120.229465188747
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 230
dh =
          4.69319750718341
rdh_sum =
       120.590836261422
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 231
dh =
          4.68560200718341
rdh_sum =
       120.951204800145
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 232
dh =
          4.6780065071834
rdh_sum =
       121.310571413389
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 233
dh =
          4.67041100718341
rdh_sum =
       121.668936713993
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 234
dh =
          4.6628155071834
rdh_sum =
       122.026301319161
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 235
dh =
          4.6552205071834
rdh_sum =
       122.382665916269
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 236
dh =
          4.64762500718341
rdh_sum =
       122.738031065384
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 237
dh =
          4.6400295071834
rdh_sum =
       123.092397396784
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 238
dh =
          4.6324340071834
rdh_sum =
       123.445765545097
ans =
```

```
Berm Factor Calculation: Iteration 1, Profile Segment: 239
dh =
          4.62483850718341
rdh_sum =
          123.798136149303
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 240
dh =
           4.6172430071834
rdh_sum =
          124.149509852729
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 241
dh =
          4.60964750718341
rdh_sum =
          124.499887303043
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 242
dh =
          4.60205250718341
rdh_sum =
          124.849269217775
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 243
dh =
           4.5944570071834
rdh_sum =
          125.197656187716
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 244
dh =
          4.58686150718341
rdh_sum =
          125.545048873549
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 245
dh =
           4.5792660071834
rdh_sum =
          125.891447940295
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 246
dh =
           4.5716705071834
rdh_sum =
          126.236854057301
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 247
dh =
           4.5640750071834
rdh_sum =
          126.581267898242
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 248
dh =
          4.55647950718341
rdh_sum =
          126.924690141119
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 249
dh =
          4.5488845071834
rdh_sum =
          127.267121533458
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 250
dh =
          4.5412890071834
rdh_sum =
          127.608562696646
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 251
dh =
          4.53369350718341
rdh_sum =
          127.949014321637
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 252
dh =
          4.52609800718341
rdh_sum =
          128.288477103695
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 253
dh =
          4.5185025071834
rdh_sum =
          128.626951742395
ans =
```

```
Berm Factor Calculation: Iteration 1, Profile Segment: 254
dh =
          4.51090700718341
rdh_sum =
          128.964438941618
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 255
dh =
           4.5033115071834
rdh_sum =
          129.300939409549
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 256
dh =
           4.4957165071834
rdh_sum =
          129.636453923553
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 257
dh =
          4.48812100718341
rdh_sum =
          129.970983135482
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 258
dh =
           4.4805255071834
rdh_sum =
          130.304527766407
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 259
dh =
           4.4729300071834
rdh_sum =
          130.637088541694
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 260
dh =
          4.46533450718341
rdh_sum =
          130.968666190993
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 261
dh =
          4.45773900718341
rdh_sum =
          131.299261448241
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 262
dh =
          4.45014350718341
rdh_sum =
          131.628875051655
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 263
dh =
           4.4425480071834
rdh_sum =
          131.957507743728
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 264
dh =
          4.43495250718341
rdh_sum =
          132.285160271231
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 265
dh =
          4.42735750718341
rdh_sum =
          132.611833449651
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 266
dh =
           4.4197620071834
rdh_sum =
          132.937527969799
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 267
dh =
          4.41216650718341
rdh_sum =
          133.262244591248
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 268
dh =
           4.4045710071834
rdh_sum =
          133.585984077831
ans =
```

```
Berm Factor Calculation: Iteration 1, Profile Segment: 269
dh =
          4.3969755071834
rdh_sum =
        133.908747197642
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 270
dh =
          4.38938000718341
rdh_sum =
        134.230534723026
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 271
dh =
          4.38178450718341
rdh_sum =
        134.551347430583
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 272
dh =
          4.3741895071834
rdh_sum =
        134.871186165251
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 273
dh =
          4.36659400718341
rdh_sum =
        135.190051647977
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 274
dh =
          4.35899850718341
rdh_sum =
        135.507944668092
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 275
dh =
          4.32800000718341
rdh_sum =
        135.821877179628
ans =
!------- End Berm Factor Calculation, Iter: 1 ---------!
berm_width =
   275
rB =
        0.816920044192328
rdh_mean =
        0.493897735198646
gamma_berm =
        0.586554915472641
gamma_berm =
                      0.6
slope =
        0.418011339322766
Irb =
          4.43417854621968
gamma_berm =
                      0.6
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                      0.6
gamma =
                     0.36
ans =
!!! - - Iribaren number:   2.66 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:2.4 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
          7.28406649359505
!   Berm_width is greater than 1/4 wave length
!   Runup will be weighted average with foreshore calculation assuming depth limited wave height on berm
fore_H0 =
             6.97708284
upper_slope =
        0.591280000000001
upper_slope =
        0.591280000000001
upper_slope =
        0.591280035246893
upper_slope =
        0.591280034046847
upper_slope =
        0.58418642721665
upper_slope =
        0.570677599760422
upper_slope =
```

```
         0.558003389946922
upper_slope =
         0.546088737673167
upper_slope =
         0.534867405326031
upper_slope =
         0.524280561027568
upper_slope =
         0.514275843043501
upper_slope =
         0.504806574401893
upper_slope =
         0.495830839707974
upper_slope =
         0.487311083636256
upper_slope =
         0.479213397543815
upper_slope =
         0.471507151258171
upper_slope =
         0.464164677005949
upper_slope =
         0.457160766499722
upper_slope =
         0.449138648664121
upper_slope =
         0.441470151664179
upper_slope =
         0.434132397931349
upper_slope =
         0.427104441663401
upper_slope =
         0.420367069143356
upper_slope =
         0.413902623325299
upper_slope =
         0.407694849314715
upper_slope =
         0.401728757896232
upper_slope =
         0.395990504696518
upper_slope =
          0.39046728293168
upper_slope =
         0.385147227990241
upper_slope =
         0.380019332355453
upper_slope =
         0.375073369583025
upper_slope =
         0.370299826229417
upper_slope =
         0.365689840777235
upper_slope =
         0.361235148732762
w2 =
         0.236797558185952
w1 =
         0.763202441814049
R2_new =
          8.97010981212523
R2del =
          8.17609018787477
Z2 =
          17.8129828193086
ans =
!---------------- STARTING ITERATION 2 -----------------!
Ztoe =
         0.226928999999998
toe_sta =
          6.74104459975011
top_sta =
           329.54351545682
Z2 =
          17.8129828193086
H0 =
                    5.7154
Tp =
                   12.3322
T0 =
          11.2110909090909
R2 =
          8.97010981212523
Z2 =
          17.8129828193086
top_sta =
           329.54351545682
Lslope =
           322.80247085707
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 1
dh =
          8.53413200718341
rdh_sum =
        0.849745993595662
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 2
dh =
          8.50452200718341
rdh_sum =
          1.69657260925671
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 3
dh =
          8.4749070071834
rdh_sum =
          2.5404563797064
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 4
dh =
          8.4452920071834
rdh_sum =
          3.3813745236441
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 5
dh =
          8.41567750718341
rdh_sum =
          4.21930450687379
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 6
dh =
          8.3860630071834
rdh_sum =
          5.05422394327186
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 7
dh =
          8.3564530071834
rdh_sum =
          5.88611110865488
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 8
dh =
          8.3268380071834
rdh_sum =
          6.71494350629483
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 9
dh =
          8.29481500718341
rdh_sum =
          7.54044824566786
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 10
dh =
          8.25927450718341
rdh_sum =
          8.36223029887695
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 11
dh =
          8.2226940071834
rdh_sum =
          9.18014867324218
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 12
dh =
          8.18618100718341
rdh_sum =
          9.99417845342053
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 13
dh =
          8.1496680071834
rdh_sum =
          10.804288016054
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 14
dh =
          8.1131550071834
rdh_sum =
          11.6104461325576
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 15
dh =
          8.07663500718341
rdh_sum =
          12.412621205881
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 16
dh =
          8.0401220071834
rdh_sum =
          13.2107835669669
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 17
dh =
          8.00360900718341
rdh_sum =
          14.0049031903346
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 18
dh =
          7.96708900718341
rdh_sum =
          14.7949496740792
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 19
dh =
          7.93057600718341
rdh_sum =
          15.5808945878995
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 20
dh =
          7.89399600718341
rdh_sum =
          16.3627015313542
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 21
dh =
           7.8574160071834
rdh_sum =
          17.1403420217407
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 22
dh =
          7.82090300718341
rdh_sum =
          17.9137957055424
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 23
dh =
          7.78438300718341
rdh_sum =
          18.6830342349309
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 24
dh =
           7.7478700071834
rdh_sum =
          19.4480313024238
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 25
dh =
          7.71135700718341
rdh_sum =
          20.2087602223446
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 26
dh =
          7.67483700718341
rdh_sum =
          20.9651939130463
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 27
dh =
           7.6383240071834
rdh_sum =
           21.717307371988
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 28
dh =
          7.60181100718341
rdh_sum =
          22.4650752108956
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 29
dh =
           7.5652980071834
rdh_sum =
          23.2084724791065
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 30
dh =
          7.52878500718341
rdh_sum =
          23.9474746660825
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 31
dh =
        7.49219800718341
rdh_sum =
        24.6820487235595
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 32
dh =
        7.45561800718341
rdh_sum =
        25.4121717876562
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 33
dh =
        7.41910500718341
rdh_sum =
        26.1378288154829
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 34
dh =
         7.3825850071834
rdh_sum =
        26.8589962202736
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 35
dh =
        7.34607200718341
rdh_sum =
         27.575652588465
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 36
dh =
        7.30955900718341
rdh_sum =
        28.2877761023752
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 37
dh =
         7.2730460071834
rdh_sum =
        28.9953454007886
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 38
dh =
        7.23653300718341
rdh_sum =
        29.6983395811073
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 39
dh =
        7.20001300718341
rdh_sum =
        30.3967373184992
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 40
dh =
        7.16350000718341
rdh_sum =
        31.0905195130409
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 41
dh =
         7.1269870071834
rdh_sum =
        31.7796666505205
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 42
dh =
        7.09039950718341
rdh_sum =
        32.4641501682408
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 43
dh =
         7.0538190071834
rdh_sum =
        33.1439523100719
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 44
dh =
        7.01730600718341
rdh_sum =
        33.8190635908787
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 45
dh =
         6.9807930071834
rdh_sum =
        34.4894663766434
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 46
dh =
          6.94428000718341
rdh_sum =
           35.155143507502
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 47
dh =
          6.90776000718341
rdh_sum =
          35.8160773887376
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 48
dh =
          6.8712470071834
rdh_sum =
          36.4722527216039
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 49
dh =
          6.83473400718341
rdh_sum =
          37.1236537789669
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 50
dh =
          6.7982140071834
rdh_sum =
          37.7702643948281
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 51
dh =
          6.7617010071834
rdh_sum =
          38.4120707220032
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 52
dh =
          6.7251210071834
rdh_sum =
           39.049049625619
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 53
dh =
          6.6885410071834
rdh_sum =
          39.6811872609871
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 54
dh =
          6.6520280071834
rdh_sum =
          40.3084791763822
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 55
dh =
          6.61550800718341
rdh_sum =
          40.9309116206413
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 56
dh =
          6.5789950071834
rdh_sum =
          41.5484731948291
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 57
dh =
          6.5424820071834
rdh_sum =
          42.1611520602858
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 58
dh =
          6.50596200718341
rdh_sum =
          42.7689359307408
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 59
dh =
          6.46944900718341
rdh_sum =
          43.3718148893465
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 60
dh =
          6.4329360071834
rdh_sum =
          43.9697785760086
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 61
dh =
           6.3964230071834
rdh_sum =
         44.5628171256095
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 62
dh =
          6.35991000718341
rdh_sum =
         45.1509211690015
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 63
dh =
          6.32332300718341
rdh_sum =
         45.7340718066554
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 64
dh =
          6.28674300718341
rdh_sum =
         46.3122615812694
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 65
dh =
          6.25023000718341
rdh_sum =
          46.885491697791
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 66
dh =
           6.2137170071834
rdh_sum =
          47.453754781817
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 67
dh =
           6.1772040071834
rdh_sum =
         48.0170439591334
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 68
dh =
          6.14068400718341
rdh_sum =
         48.5753519010462
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 69
dh =
          6.10417100718341
rdh_sum =
         49.1286736900291
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 70
dh =
           6.0676580071834
rdh_sum =
         49.6770039564831
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 71
dh =
          6.03113800718341
rdh_sum =
         50.2203368751593
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 72
dh =
          5.99462500718341
rdh_sum =
         50.7586690397757
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 73
dh =
          5.95804500718341
rdh_sum =
          51.291987403695
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 74
dh =
          5.92146500718341
rdh_sum =
         51.8202885993738
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 75
dh =
          5.88495200718341
rdh_sum =
          52.343578963363
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 76
dh =
           5.8628940071834
rdh_sum =
        52.8638410470743
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 77
dh =
           5.8552985071834
rdh_sum =
        53.3830601881378
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 78
dh =
           5.84770300718341
rdh_sum =
        53.9012363028023
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 79
dh =
           5.84010750718341
rdh_sum =
        54.4183693118615
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 80
dh =
           5.83251200718341
rdh_sum =
        54.9344591406546
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 81
dh =
           5.8249165071834
rdh_sum =
        55.4495057190669
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 82
dh =
           5.81732150718341
rdh_sum =
        55.9635090502117
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 83
dh =
           5.80972600718341
rdh_sum =
        56.4764690043887
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 84
dh =
           5.8021305071834
rdh_sum =
        56.9883855251222
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 85
dh =
           5.7945350071834
rdh_sum =
        57.4992585604835
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 86
dh =
           5.7869395071834
rdh_sum =
        58.0090880630911
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 87
dh =
           5.77934400718341
rdh_sum =
        58.5178739901108
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 88
dh =
           5.77174850718341
rdh_sum =
        59.0256163032561
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 89
dh =
           5.76415300718341
rdh_sum =
        59.5323149687883
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 90
dh =
           5.75655750718341
rdh_sum =
        60.0379699575164
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 91
dh =
          5.74896250718341
rdh_sum =
          60.5425813135037
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 92
dh =
          5.74136700718341
rdh_sum =
          61.0461489479507
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 93
dh =
          5.73377150718341
rdh_sum =
          61.5486728453108
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 94
dh =
           5.7261760071834
rdh_sum =
          62.0501529945854
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 95
dh =
           5.7185805071834
rdh_sum =
          62.5505893893246
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 96
dh =
          5.71098500718341
rdh_sum =
          63.0499820276265
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 97
dh =
          5.70338950718341
rdh_sum =
          63.5483309121381
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 98
dh =
           5.6957945071834
rdh_sum =
          64.0456361187622
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 99
dh =
          5.68819900718341
rdh_sum =
          64.5418975905334
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 100
dh =
          5.68060350718341
rdh_sum =
          65.0371153437432
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 101
dh =
          5.67300800718341
rdh_sum =
          65.5312893992312
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 102
dh =
           5.6654125071834
rdh_sum =
          66.0244197823851
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 103
dh =
           5.6578170071834
rdh_sum =
          66.5165065231409
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 104
dh =
           5.6502215071834
rdh_sum =
          67.0075496559821
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 105
dh =
           5.6426265071834
rdh_sum =
          67.4975492886354
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 106
dh =
            5.6350310071834
rdh_sum =
          67.9865053959816
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 107
dh =
            5.6274355071834
rdh_sum =
          68.4744180261467
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 108
dh =
            5.6198400071834
rdh_sum =
          68.9612872318041
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 109
dh =
            5.61224450718341
rdh_sum =
          69.4471130701738
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 110
dh =
            5.60464900718341
rdh_sum =
          69.9318956030229
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 111
dh =
            5.59705350718341
rdh_sum =
          70.4156348966646
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 112
dh =
            5.58945850718341
rdh_sum =
          70.8983310906261
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 113
dh =
            5.58186300718341
rdh_sum =
          71.3799841916398
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 114
dh =
            5.57426750718341
rdh_sum =
          71.8605942796563
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 115
dh =
            5.5666720071834
rdh_sum =
           72.340161439171
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 116
dh =
            5.5590765071834
rdh_sum =
          72.8186857592244
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 117
dh =
            5.5514810071834
rdh_sum =
          73.2961673334013
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 118
dh =
            5.54388550718341
rdh_sum =
          73.7726062598304
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 119
dh =
            5.5362905071834
rdh_sum =
          74.2480027098098
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 120
dh =
            5.5286950071834
rdh_sum =
          74.7223567219221
ans =
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```
Berm Factor Calculation: Iteration 2, Profile Segment: 121
dh =
        5.52109950718341
rdh_sum =
        75.1956684079249
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 122
dh =
        5.51350400718341
rdh_sum =
        75.6679378841182
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 123
dh =
        5.50590850718341
rdh_sum =
        76.1391652713437
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 124
dh =
        5.49831300718341
rdh_sum =
         76.609350694984
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 125
dh =
         5.4907175071834
rdh_sum =
        77.0784942849624
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 126
dh =
         5.4831225071834
rdh_sum =
        77.5465962443112
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 127
dh =
         5.4755270071834
rdh_sum =
        78.0136566434547
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 128
dh =
         5.4679315071834
rdh_sum =
        78.4796756259343
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 129
dh =
         5.4603360071834
rdh_sum =
        78.9446533398294
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 130
dh =
        5.45274050718341
rdh_sum =
        79.4085899377569
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 131
dh =
        5.44514500718341
rdh_sum =
        79.8714855768707
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 132
dh =
        5.43754950718341
rdh_sum =
        80.3333404188608
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 133
dh =
        5.42995450718341
rdh_sum =
        80.7941546984504
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 134
dh =
        5.42235900718341
rdh_sum =
        81.2539285178908
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 135
dh =
        5.41476350718341
rdh_sum =
         81.712662052476
ans =
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Berm Factor Calculation: Iteration 2, Profile Segment: 136
dh =
          5.4071680071834
rdh_sum =
          82.1703554820333
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 137
dh =
          5.3995725071834
rdh_sum =
          82.6270089909226
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 138
dh =
          5.3919770071834
rdh_sum =
          83.0826227680352
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 139
dh =
          5.3843815071834
rdh_sum =
          83.5371970067934
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 140
dh =
          5.3767865071834
rdh_sum =
          83.9907319735611
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 141
dh =
          5.3691910071834
rdh_sum =
          84.4432278023948
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 142
dh =
          5.3615955071834
rdh_sum =
          84.8946847003037
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 143
dh =
          5.35400000718341
rdh_sum =
          85.3451028788247
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 144
dh =
          5.34640450718341
rdh_sum =
           85.794482554021
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 145
dh =
          5.33880900718341
rdh_sum =
          86.2428239464813
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 146
dh =
          5.3312135071834
rdh_sum =
          86.6901272813188
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 147
dh =
          5.3236180071834
rdh_sum =
          87.1363927881704
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 148
dh =
          5.3160225071834
rdh_sum =
          87.5816207011953
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 149
dh =
          5.3084275071834
rdh_sum =
          88.0258113273539
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 150
dh =
          5.3008320071834
rdh_sum =
           88.468964841552
ans =
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Berm Factor Calculation: Iteration 2, Profile Segment: 151
dh =
          5.2932365071834
rdh_sum =
          88.9110814915101
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 152
dh =
          5.28564100718341
rdh_sum =
           89.352161529467
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 153
dh =
          5.27804550718341
rdh_sum =
          89.7922052121788
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 154
dh =
          5.27045000718341
rdh_sum =
          90.2312128009179
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 155
dh =
          5.26285450718341
rdh_sum =
          90.6691845614713
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 156
dh =
          5.25525950718341
rdh_sum =
          91.1061208323005
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 157
dh =
          5.24766400718341
rdh_sum =
          91.5420218200406
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 158
dh =
          5.24006850718341
rdh_sum =
          91.9768878040168
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 159
dh =
           5.2324730071834
rdh_sum =
            92.410719068064
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 160
dh =
           5.2248775071834
rdh_sum =
          92.8435159005265
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 161
dh =
          5.21728200718341
rdh_sum =
          93.2752785942562
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 162
dh =
          5.20968650718341
rdh_sum =
          93.7060074466115
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 163
dh =
           5.2020915071834
rdh_sum =
          94.1357028274823
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 164
dh =
          5.19449600718341
rdh_sum =
          94.5643649751894
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 165
dh =
          5.18690050718341
rdh_sum =
          94.9919942006025
ans =
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Berm Factor Calculation: Iteration 2, Profile Segment: 166
dh =
        5.17930500718341
rdh_sum =
        95.4185908190924
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 167
dh =
        5.1717095071834
rdh_sum =
        95.8441551505299
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 168
dh =
        5.1641140071834
rdh_sum =
        96.2686875192839
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 169
dh =
        5.1565185071834
rdh_sum =
        96.6921882542206
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 170
dh =
        5.1489235071834
rdh_sum =
        97.1146577565793
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 171
dh =
        5.1413280071834
rdh_sum =
        97.5360962963157
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 172
dh =
        5.1337325071834
rdh_sum =
        97.9565042157778
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 173
dh =
        5.1261370071834
rdh_sum =
        98.3758818618047
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 174
dh =
        5.11854150718341
rdh_sum =
        98.7942295857254
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 175
dh =
        5.11094600718341
rdh_sum =
        99.2115477433568
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 176
dh =
        5.10335050718341
rdh_sum =
        99.6278366950024
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 177
dh =
        5.09575550718341
rdh_sum =
        100.043096873166
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 178
dh =
        5.08816000718341
rdh_sum =
        100.457328579379
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 179
dh =
        5.08056450718341
rdh_sum =
        100.870532187396
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 180
dh =
        5.0729690071834
rdh_sum =
        101.282708075449
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 181
dh =
          5.0653735071834
rdh_sum =
         101.693856626252
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 182
dh =
          5.0577780071834
rdh_sum =
         102.103978226992
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 183
dh =
          5.05018250718341
rdh_sum =
         102.513073269335
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 184
dh =
          5.0425875071834
rdh_sum =
         102.921142216954
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 185
dh =
          5.0349920071834
rdh_sum =
         103.328185402895
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 186
dh =
          5.02739650718341
rdh_sum =
         103.734203232237
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 187
dh =
          5.01980100718341
rdh_sum =
         104.139196114527
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 188
dh =
          5.01220550718341
rdh_sum =
         104.543164463779
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 189
dh =
          5.00461000718341
rdh_sum =
         104.946108698469
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 190
dh =
          4.9970145071834
rdh_sum =
         105.348029241541
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 191
dh =
          4.9894195071834
rdh_sum =
         105.74892658774
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 192
dh =
          4.9818240071834
rdh_sum =
         106.148801101553
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 193
dh =
          4.9742285071834
rdh_sum =
         106.547653219299
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 194
dh =
          4.9666330071834
rdh_sum =
         106.945483381751
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 195
dh =
          4.95903750718341
rdh_sum =
         107.342292034134
ans =
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Berm Factor Calculation: Iteration 2, Profile Segment: 196
dh =
          4.95144200718341
rdh_sum =
          107.738079626128
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 197
dh =
          4.94384650718341
rdh_sum =
          108.132846611859
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 198
dh =
          4.93625150718341
rdh_sum =
          108.526593517042
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 199
dh =
          4.92865600718341
rdh_sum =
          108.919320737528
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 200
dh =
          4.92106050718341
rdh_sum =
           109.31102874078
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 201
dh =
           4.9134650071834
rdh_sum =
          109.701717998702
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 202
dh =
           4.9058695071834
rdh_sum =
          110.091388987641
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 203
dh =
           4.8982740071834
rdh_sum =
          110.480042188377
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 204
dh =
           4.8906785071834
rdh_sum =
          110.867678086127
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 205
dh =
          4.88308300718341
rdh_sum =
          111.254297170543
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 206
dh =
          4.87548750718341
rdh_sum =
          111.639899935704
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 207
dh =
           4.8678925071834
rdh_sum =
          112.024486946975
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 208
dh =
          4.86029700718341
rdh_sum =
          112.408058640405
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 209
dh =
          4.85270150718341
rdh_sum =
          112.790615523355
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 210
dh =
          4.84510600718341
rdh_sum =
          113.172158107609
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 211
dh =
          4.8375105071834
rdh_sum =
        113.552686909369
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 212
dh =
         4.82991500718341
rdh_sum =
        113.932202449255
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 213
dh =
          4.8223195071834
rdh_sum =
        114.310705252306
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 214
dh =
          4.8147245071834
rdh_sum =
        114.688195914584
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 215
dh =
         4.80712900718341
rdh_sum =
           115.0646749033
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 216
dh =
          4.7995335071834
rdh_sum =
        115.440142756723
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 217
dh =
         4.79193800718341
rdh_sum =
        115.814600017528
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 218
dh =
         4.78434250718341
rdh_sum =
        116.188047232794
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 219
dh =
          4.7767470071834
rdh_sum =
        116.560484954002
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 220
dh =
         4.76915150718341
rdh_sum =
         116.93191373703
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 221
dh =
         4.76155650718341
rdh_sum =
        117.302334208516
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 222
dh =
          4.7539610071834
rdh_sum =
        117.671746866732
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 223
dh =
         4.74636550718341
rdh_sum =
        118.040152280739
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 224
dh =
          4.7387700071834
rdh_sum =
        118.407551023989
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 225
dh =
          4.7311745071834
rdh_sum =
        118.773943674319
ans =
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```
Berm Factor Calculation: Iteration 2, Profile Segment: 226
dh =
          4.72357900718341
rdh_sum =
          119.139330813952
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 227
dh =
          4.71598350718341
rdh_sum =
          119.503713029492
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 228
dh =
           4.7083885071834
rdh_sum =
          119.867090978014
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 229
dh =
          4.70079300718341
rdh_sum =
          120.229465188747
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 230
dh =
          4.69319750718341
rdh_sum =
          120.590836261422
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 231
dh =
          4.68560200718341
rdh_sum =
          120.951204800145
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 232
dh =
           4.6780065071834
rdh_sum =
          121.310571413389
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 233
dh =
          4.67041100718341
rdh_sum =
          121.668936713993
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 234
dh =
           4.6628155071834
rdh_sum =
          122.026301319161
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 235
dh =
           4.6552205071834
rdh_sum =
          122.382665916269
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 236
dh =
          4.64762500718341
rdh_sum =
          122.738031065384
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 237
dh =
           4.6400295071834
rdh_sum =
          123.092397396784
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 238
dh =
           4.6324340071834
rdh_sum =
          123.445765545097
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 239
dh =
          4.62483850718341
rdh_sum =
          123.798136149303
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 240
dh =
           4.6172430071834
rdh_sum =
          124.149509852729
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 241
dh =
        4.60964750718341
rdh_sum =
        124.499887303043
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 242
dh =
        4.60205250718341
rdh_sum =
        124.849269217775
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 243
dh =
         4.5944570071834
rdh_sum =
        125.197656187716
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 244
dh =
        4.58686150718341
rdh_sum =
        125.545048873549
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 245
dh =
         4.5792660071834
rdh_sum =
        125.891447940295
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 246
dh =
         4.5716705071834
rdh_sum =
        126.236854057301
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 247
dh =
         4.5640750071834
rdh_sum =
        126.581267898242
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 248
dh =
        4.55647950718341
rdh_sum =
        126.924690141119
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 249
dh =
         4.5488845071834
rdh_sum =
        127.267121533458
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 250
dh =
         4.5412890071834
rdh_sum =
        127.608562696646
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 251
dh =
        4.53369350718341
rdh_sum =
        127.949014321637
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 252
dh =
        4.52609800718341
rdh_sum =
        128.288477103695
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 253
dh =
         4.5185025071834
rdh_sum =
        128.626951742395
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 254
dh =
        4.51090700718341
rdh_sum =
        128.964438941618
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 255
dh =
         4.5033115071834
rdh_sum =
        129.300939409549
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 256
dh =
          4.4957165071834
rdh_sum =
        129.636453923553
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 257
dh =
          4.48812100718341
rdh_sum =
        129.970983135482
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 258
dh =
          4.4805255071834
rdh_sum =
        130.304527766407
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 259
dh =
          4.4729300071834
rdh_sum =
        130.637088541694
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 260
dh =
          4.46533450718341
rdh_sum =
        130.968666190993
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 261
dh =
          4.45773900718341
rdh_sum =
        131.299261448241
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 262
dh =
          4.45014350718341
rdh_sum =
        131.628875051655
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 263
dh =
          4.4425480071834
rdh_sum =
        131.957507743728
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 264
dh =
          4.43495250718341
rdh_sum =
        132.285160271231
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 265
dh =
          4.42735750718341
rdh_sum =
        132.611833449651
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 266
dh =
          4.4197620071834
rdh_sum =
        132.937527969799
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 267
dh =
          4.41216650718341
rdh_sum =
        133.262244591248
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 268
dh =
          4.4045710071834
rdh_sum =
        133.585984077831
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 269
dh =
          4.3969755071834
rdh_sum =
        133.908747197642
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 270
dh =
          4.38938000718341
rdh_sum =
        134.230534723026
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 271
dh =
          4.38178450718341
rdh_sum =
          134.551347430583
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 272
dh =
           4.3741895071834
rdh_sum =
          134.871186165251
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 273
dh =
          4.36659400718341
rdh_sum =
          135.190051647977
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 274
dh =
          4.35899850718341
rdh_sum =
          135.507944668092
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 275
dh =
          4.32800000718341
rdh_sum =
          135.821877179628
ans =
!------- End Berm Factor Calculation, Iter: 2 ---------!
berm_width =
   275
rB =
          0.851914172992078
rdh_mean =
          0.493897735198646
gamma_berm =
          0.568844307632337
gamma_berm =
                         0.6
slope =
          0.367890058902837
Irb =
          3.90250228426186
gamma_berm =
                         0.6
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                         0.6
gamma =
                        0.36
ans =
!!! - - Iribaren number:   2.34 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:2.7 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
          7.18096908069943
!   Berm_width is greater than 1/4 wave length
!   Runup will be weighted average with foreshore calculation assuming depth limited wave height on berm
fore_H0 =
               6.97708284
upper_slope =
          0.591280000000001
upper_slope =
          0.591280000000001
upper_slope =
          0.591280068759167
upper_slope =
          0.591280064335511
upper_slope =
          0.578257314431004
upper_slope =
          0.554438809214106
upper_slope =
          0.533189234928601
upper_slope =
          0.514114200257779
upper_slope =
          0.496896251314169
upper_slope =
          0.481276736848733
upper_slope =
          0.467042899297382
upper_slope =
          0.454018255638716
upper_slope =
```

```
                    0.442054922343806
upper_slope =
                    0.431028330376857
upper_slope =
                    0.420832569728005
upper_slope =
                    0.411377111141526
upper_slope =
                    0.402584216954361
upper_slope =
                    0.394386539284337
upper_slope =
                    0.384787855737291
upper_slope =
                    0.375797771669918
upper_slope =
                    0.367360183787495
upper_slope =
                    0.359425679005785
upper_slope =
                    0.351950566076745
upper_slope =
                    0.344896070682744
upper_slope =
                    0.33822766268651
upper_slope =
                    0.331914490896321
upper_slope =
                    0.325928905820285
upper_slope =
                    0.320246054833865
upper_slope =
                    0.314843537258222
upper_slope =
                    0.309701109254499
upper_slope =
                    0.304800430337495
upper_slope =
                    0.300124844818007
upper_slope =
                    0.295659192684851
upper_slope =
                    0.291389645401677
w2 =
                    0.236797558185952
w1 =
                    0.763202441814049
R2_new =
                    8.79483149783466
R2del =
                    0.175278314290576
Z2 =
                    17.6377045050181
ans =
!---------------- STARTING ITERATION 3 -----------------!
Ztoe =
                    0.226928999999998
toe_sta =
                    6.74104459975011
top_sta =
                    329.247076689585
Z2 =
                    17.6377045050181
H0 =
                              5.7154
Tp =
                              12.3322
T0 =
                    11.2110909090909
R2 =
                    8.79483149783466
Z2 =
                    17.6377045050181
top_sta =
                    329.247076689585
Lslope =
                    322.506032089835
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 1
dh =
                    8.53413200718341
rdh_sum =
                    0.849745993595662
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 2
dh =
                    8.50452200718341
rdh_sum =
                    1.69657260925671
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 3
dh =
          8.4749070071834
rdh_sum =
          2.5404563797064
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 4
dh =
          8.4452920071834
rdh_sum =
          3.3813745236441
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 5
dh =
          8.41567750718341
rdh_sum =
          4.21930450687379
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 6
dh =
          8.3860630071834
rdh_sum =
          5.05422394327186
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 7
dh =
          8.3564530071834
rdh_sum =
          5.88611110865488
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 8
dh =
          8.3268380071834
rdh_sum =
          6.71494350629483
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 9
dh =
          8.29481500718341
rdh_sum =
          7.54044824566786
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 10
dh =
          8.25927450718341
rdh_sum =
          8.36223029887695
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 11
dh =
          8.2226940071834
rdh_sum =
          9.18014867324218
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 12
dh =
          8.18618100718341
rdh_sum =
          9.99417845342053
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 13
dh =
          8.1496680071834
rdh_sum =
          10.804288016054
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 14
dh =
          8.1131550071834
rdh_sum =
          11.6104461325576
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 15
dh =
          8.07663500718341
rdh_sum =
          12.412621205881
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 16
dh =
          8.0401220071834
rdh_sum =
          13.2107835669669
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 17
dh =
          8.00360900718341
rdh_sum =
          14.0049031903346
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 18
dh =
          7.96708900718341
rdh_sum =
          14.7949496740792
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 19
dh =
          7.93057600718341
rdh_sum =
          15.5808945878995
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 20
dh =
          7.89399600718341
rdh_sum =
          16.3627015313542
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 21
dh =
           7.8574160071834
rdh_sum =
          17.1403420217407
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 22
dh =
          7.82090300718341
rdh_sum =
          17.9137957055424
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 23
dh =
          7.78438300718341
rdh_sum =
          18.6830342349309
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 24
dh =
           7.7478700071834
rdh_sum =
          19.4480313024238
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 25
dh =
          7.71135700718341
rdh_sum =
          20.2087602223446
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 26
dh =
          7.67483700718341
rdh_sum =
          20.9651939130463
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 27
dh =
           7.6383240071834
rdh_sum =
           21.717307371988
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 28
dh =
          7.60181100718341
rdh_sum =
          22.4650752108956
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 29
dh =
           7.5652980071834
rdh_sum =
          23.2084724791065
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 30
dh =
          7.52878500718341
rdh_sum =
          23.9474746660825
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 31
dh =
          7.49219800718341
rdh_sum =
          24.6820487235595
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 32
dh =
          7.45561800718341
rdh_sum =
          25.4121717876562
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 33
dh =
          7.41910500718341
rdh_sum =
          26.1378288154829
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 34
dh =
          7.3825850071834
rdh_sum =
          26.8589962202736
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 35
dh =
          7.34607200718341
rdh_sum =
          27.575652588465
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 36
dh =
          7.30955900718341
rdh_sum =
          28.2877761023752
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 37
dh =
          7.2730460071834
rdh_sum =
          28.9953454007886
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 38
dh =
          7.23653300718341
rdh_sum =
          29.6983395811073
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 39
dh =
          7.20001300718341
rdh_sum =
          30.3967373184992
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 40
dh =
          7.16350000718341
rdh_sum =
          31.0905195130409
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 41
dh =
          7.1269870071834
rdh_sum =
          31.7796666505205
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 42
dh =
          7.09039950718341
rdh_sum =
          32.4641501682408
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 43
dh =
          7.0538190071834
rdh_sum =
          33.1439523100719
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 44
dh =
          7.01730600718341
rdh_sum =
          33.8190635908787
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 45
dh =
          6.9807930071834
rdh_sum =
          34.4894663766434
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 46
dh =
          6.94428000718341
rdh_sum =
          35.155143507502
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 47
dh =
          6.90776000718341
rdh_sum =
          35.8160773887376
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 48
dh =
          6.8712470071834
rdh_sum =
        36.4722527216039
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 49
dh =
          6.83473400718341
rdh_sum =
        37.1236537789669
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 50
dh =
          6.7982140071834
rdh_sum =
        37.7702643948281
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 51
dh =
          6.7617010071834
rdh_sum =
        38.4120707220032
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 52
dh =
          6.7251210071834
rdh_sum =
        39.049049625619
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 53
dh =
          6.6885410071834
rdh_sum =
        39.6811872609871
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 54
dh =
          6.6520280071834
rdh_sum =
        40.3084791763822
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 55
dh =
          6.61550800718341
rdh_sum =
        40.9309116206413
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 56
dh =
          6.5789950071834
rdh_sum =
        41.5484731948291
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 57
dh =
          6.5424820071834
rdh_sum =
        42.1611520602858
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 58
dh =
          6.50596200718341
rdh_sum =
        42.7689359307408
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 59
dh =
          6.46944900718341
rdh_sum =
        43.3718148893465
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 60
dh =
          6.4329360071834
rdh_sum =
        43.9697785760086
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 61
dh =
          6.3964230071834
rdh_sum =
        44.5628171256095
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 62
dh =
          6.35991000718341
rdh_sum =
        45.1509211690015
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 63
dh =
          6.32332300718341
rdh_sum =
          45.7340718066554
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 64
dh =
          6.28674300718341
rdh_sum =
          46.3122615812694
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 65
dh =
          6.25023000718341
rdh_sum =
           46.885491697791
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 66
dh =
           6.2137170071834
rdh_sum =
           47.453754781817
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 67
dh =
           6.1772040071834
rdh_sum =
          48.0170439591334
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 68
dh =
          6.14068400718341
rdh_sum =
          48.5753519010462
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 69
dh =
          6.10417100718341
rdh_sum =
          49.1286736900291
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 70
dh =
           6.0676580071834
rdh_sum =
          49.6770039564831
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 71
dh =
          6.03113800718341
rdh_sum =
          50.2203368751593
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 72
dh =
          5.99462500718341
rdh_sum =
          50.7586690397757
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 73
dh =
          5.95804500718341
rdh_sum =
            51.291987403695
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 74
dh =
          5.92146500718341
rdh_sum =
          51.8202885993738
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 75
dh =
          5.88495200718341
rdh_sum =
           52.343578963363
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 76
dh =
           5.8628940071834
rdh_sum =
          52.8638410470743
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 77
dh =
           5.8552985071834
rdh_sum =
          53.3830601881378
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 78
dh =
          5.84770300718341
rdh_sum =
          53.9012363028023
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 79
dh =
          5.84010750718341
rdh_sum =
          54.4183693118615
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 80
dh =
          5.83251200718341
rdh_sum =
          54.9344591406546
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 81
dh =
           5.8249165071834
rdh_sum =
          55.4495057190669
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 82
dh =
          5.81732150718341
rdh_sum =
          55.9635090502117
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 83
dh =
          5.80972600718341
rdh_sum =
          56.4764690043887
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 84
dh =
           5.8021305071834
rdh_sum =
          56.9883855251222
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 85
dh =
           5.7945350071834
rdh_sum =
          57.4992585604835
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 86
dh =
           5.7869395071834
rdh_sum =
          58.0090880630911
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 87
dh =
          5.77934400718341
rdh_sum =
          58.5178739901108
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 88
dh =
          5.77174850718341
rdh_sum =
          59.0256163032561
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 89
dh =
          5.76415300718341
rdh_sum =
          59.5323149687883
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 90
dh =
          5.75655750718341
rdh_sum =
          60.0379699575164
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 91
dh =
          5.74896250718341
rdh_sum =
          60.5425813135037
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 92
dh =
          5.74136700718341
rdh_sum =
          61.0461489479507
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 93
dh =
          5.73377150718341
rdh_sum =
          61.5486728453108
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 94
dh =
           5.7261760071834
rdh_sum =
          62.0501529945854
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 95
dh =
           5.7185805071834
rdh_sum =
          62.5505893893246
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 96
dh =
          5.71098500718341
rdh_sum =
          63.0499820276265
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 97
dh =
          5.70338950718341
rdh_sum =
          63.5483309121381
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 98
dh =
           5.6957945071834
rdh_sum =
          64.0456361187622
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 99
dh =
          5.68819900718341
rdh_sum =
          64.5418975905334
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 100
dh =
          5.68060350718341
rdh_sum =
          65.0371153437432
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 101
dh =
          5.67300800718341
rdh_sum =
          65.5312893992312
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 102
dh =
           5.6654125071834
rdh_sum =
          66.0244197823851
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 103
dh =
           5.6578170071834
rdh_sum =
          66.5165065231409
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 104
dh =
           5.6502215071834
rdh_sum =
          67.0075496559821
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 105
dh =
           5.6426265071834
rdh_sum =
          67.4975492886354
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 106
dh =
           5.6350310071834
rdh_sum =
          67.9865053959816
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 107
dh =
           5.6274355071834
rdh_sum =
          68.4744180261467
ans =
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```
Berm Factor Calculation: Iteration 3, Profile Segment: 108
dh =
          5.6198400071834
rdh_sum =
          68.9612872318041
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 109
dh =
          5.61224450718341
rdh_sum =
          69.4471130701738
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 110
dh =
          5.60464900718341
rdh_sum =
          69.9318956030229
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 111
dh =
          5.59705350718341
rdh_sum =
          70.4156348966646
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 112
dh =
          5.58945850718341
rdh_sum =
          70.8983310906261
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 113
dh =
          5.58186300718341
rdh_sum =
          71.3799841916398
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 114
dh =
          5.57426750718341
rdh_sum =
          71.8605942796563
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 115
dh =
          5.5666720071834
rdh_sum =
          72.340161439171
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 116
dh =
          5.5590765071834
rdh_sum =
          72.8186857592244
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 117
dh =
          5.5514810071834
rdh_sum =
          73.2961673334013
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 118
dh =
          5.54388550718341
rdh_sum =
          73.7726062598304
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 119
dh =
          5.5362905071834
rdh_sum =
          74.2480027098098
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 120
dh =
          5.5286950071834
rdh_sum =
          74.7223567219221
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 121
dh =
          5.52109950718341
rdh_sum =
          75.1956684079249
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 122
dh =
          5.51350400718341
rdh_sum =
          75.6679378841182
ans =
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Berm Factor Calculation: Iteration 3, Profile Segment: 123
dh =
         5.50590850718341
rdh_sum =
         76.1391652713437
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 124
dh =
         5.49831300718341
rdh_sum =
          76.609350694984
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 125
dh =
          5.4907175071834
rdh_sum =
         77.0784942849624
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 126
dh =
          5.4831225071834
rdh_sum =
         77.5465962443112
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 127
dh =
          5.4755270071834
rdh_sum =
         78.0136566434547
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 128
dh =
          5.4679315071834
rdh_sum =
         78.4796756259343
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 129
dh =
          5.4603360071834
rdh_sum =
         78.9446533398294
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 130
dh =
         5.45274050718341
rdh_sum =
         79.4085899377569
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 131
dh =
         5.44514500718341
rdh_sum =
         79.8714855768707
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 132
dh =
         5.43754950718341
rdh_sum =
         80.3333404188608
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 133
dh =
         5.42995450718341
rdh_sum =
         80.7941546984504
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 134
dh =
         5.42235900718341
rdh_sum =
         81.2539285178908
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 135
dh =
         5.41476350718341
rdh_sum =
          81.712662052476
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 136
dh =
          5.4071680071834
rdh_sum =
         82.1703554820333
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 137
dh =
          5.3995725071834
rdh_sum =
         82.6270089909226
ans =
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Berm Factor Calculation: Iteration 3, Profile Segment: 138
dh =
          5.3919770071834
rdh_sum =
          83.0826227680352
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 139
dh =
          5.3843815071834
rdh_sum =
          83.5371970067934
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 140
dh =
          5.3767865071834
rdh_sum =
          83.9907319735611
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 141
dh =
          5.3691910071834
rdh_sum =
          84.4432278023948
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 142
dh =
          5.3615955071834
rdh_sum =
          84.8946847003037
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 143
dh =
          5.35400000718341
rdh_sum =
          85.3451028788247
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 144
dh =
          5.34640450718341
rdh_sum =
          85.794482554021
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 145
dh =
          5.33880900718341
rdh_sum =
          86.2428239464813
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 146
dh =
          5.3312135071834
rdh_sum =
          86.6901272813188
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 147
dh =
          5.3236180071834
rdh_sum =
          87.1363927881704
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 148
dh =
          5.3160225071834
rdh_sum =
          87.5816207011953
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 149
dh =
          5.3084275071834
rdh_sum =
          88.0258113273539
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 150
dh =
          5.3008320071834
rdh_sum =
          88.468964841552
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 151
dh =
          5.2932365071834
rdh_sum =
          88.9110814915101
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 152
dh =
          5.28564100718341
rdh_sum =
          89.352161529467
ans =
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Berm Factor Calculation: Iteration 3, Profile Segment: 153
dh =
          5.27804550718341
rdh_sum =
          89.7922052121788
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 154
dh =
          5.27045000718341
rdh_sum =
          90.2312128009179
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 155
dh =
          5.26285450718341
rdh_sum =
          90.6691845614713
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 156
dh =
          5.25525950718341
rdh_sum =
          91.1061208323005
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 157
dh =
          5.24766400718341
rdh_sum =
          91.5420218200406
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 158
dh =
          5.24006850718341
rdh_sum =
          91.9768878040168
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 159
dh =
          5.2324730071834
rdh_sum =
          92.410719068064
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 160
dh =
          5.2248775071834
rdh_sum =
          92.8435159005265
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 161
dh =
          5.21728200718341
rdh_sum =
          93.2752785942562
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 162
dh =
          5.20968650718341
rdh_sum =
          93.7060074466115
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 163
dh =
          5.2020915071834
rdh_sum =
          94.1357028274823
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 164
dh =
          5.19449600718341
rdh_sum =
          94.5643649751894
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 165
dh =
          5.18690050718341
rdh_sum =
          94.9919942006025
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 166
dh =
          5.17930500718341
rdh_sum =
          95.4185908190924
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 167
dh =
          5.1717095071834
rdh_sum =
          95.8441551505299
ans =
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Berm Factor Calculation: Iteration 3, Profile Segment: 168
dh =
          5.1641140071834
rdh_sum =
        96.2686875192839
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 169
dh =
          5.1565185071834
rdh_sum =
        96.6921882542206
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 170
dh =
          5.1489235071834
rdh_sum =
        97.1146577565793
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 171
dh =
          5.1413280071834
rdh_sum =
        97.5360962963157
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 172
dh =
          5.1337325071834
rdh_sum =
        97.9565042157778
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 173
dh =
          5.1261370071834
rdh_sum =
        98.3758818618047
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 174
dh =
          5.11854150718341
rdh_sum =
        98.7942295857254
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 175
dh =
          5.11094600718341
rdh_sum =
        99.2115477433568
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 176
dh =
          5.10335050718341
rdh_sum =
        99.6278366950024
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 177
dh =
          5.09575550718341
rdh_sum =
        100.043096873166
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 178
dh =
          5.08816000718341
rdh_sum =
        100.457328579379
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 179
dh =
          5.08056450718341
rdh_sum =
        100.870532187396
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 180
dh =
          5.0729690071834
rdh_sum =
        101.282708075449
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 181
dh =
          5.0653735071834
rdh_sum =
        101.693856626252
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 182
dh =
          5.0577780071834
rdh_sum =
        102.103978226992
ans =
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Berm Factor Calculation: Iteration 3, Profile Segment: 183
dh =
          5.05018250718341
rdh_sum =
          102.513073269335
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 184
dh =
           5.0425875071834
rdh_sum =
          102.921142216954
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 185
dh =
           5.0349920071834
rdh_sum =
          103.328185402895
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 186
dh =
          5.02739650718341
rdh_sum =
          103.734203232237
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 187
dh =
          5.01980100718341
rdh_sum =
          104.139196114527
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 188
dh =
          5.01220550718341
rdh_sum =
          104.543164463779
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 189
dh =
          5.00461000718341
rdh_sum =
          104.946108698469
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 190
dh =
           4.9970145071834
rdh_sum =
          105.348029241541
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 191
dh =
           4.9894195071834
rdh_sum =
           105.74892658774
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 192
dh =
           4.9818240071834
rdh_sum =
          106.148801101553
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 193
dh =
           4.9742285071834
rdh_sum =
          106.547653219299
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 194
dh =
           4.9666330071834
rdh_sum =
          106.945483381751
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 195
dh =
          4.95903750718341
rdh_sum =
          107.342292034134
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 196
dh =
          4.95144200718341
rdh_sum =
          107.738079626128
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 197
dh =
          4.94384650718341
rdh_sum =
          108.132846611859
ans =
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Berm Factor Calculation: Iteration 3, Profile Segment: 198
dh =
        4.93625150718341
rdh_sum =
        108.526593517042
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 199
dh =
        4.92865600718341
rdh_sum =
        108.919320737528
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 200
dh =
        4.92106050718341
rdh_sum =
         109.31102874078
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 201
dh =
         4.9134650071834
rdh_sum =
        109.701717998702
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 202
dh =
         4.9058695071834
rdh_sum =
        110.091388987641
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 203
dh =
         4.8982740071834
rdh_sum =
        110.480042188377
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 204
dh =
         4.8906785071834
rdh_sum =
        110.867678086127
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 205
dh =
        4.88308300718341
rdh_sum =
        111.254297170543
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 206
dh =
        4.87548750718341
rdh_sum =
        111.639899935704
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 207
dh =
         4.8678925071834
rdh_sum =
        112.024486946975
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 208
dh =
        4.86029700718341
rdh_sum =
        112.408058640405
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 209
dh =
        4.85270150718341
rdh_sum =
        112.790615523355
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 210
dh =
        4.84510600718341
rdh_sum =
        113.172158107609
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 211
dh =
         4.8375105071834
rdh_sum =
        113.552686909369
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 212
dh =
        4.82991500718341
rdh_sum =
        113.932202449255
ans =
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Berm Factor Calculation: Iteration 3, Profile Segment: 213
dh =
          4.8223195071834
rdh_sum =
        114.310705252306
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 214
dh =
          4.8147245071834
rdh_sum =
        114.688195914584
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 215
dh =
          4.80712900718341
rdh_sum =
         115.0646749033
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 216
dh =
          4.7995335071834
rdh_sum =
        115.440142756723
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 217
dh =
          4.79193800718341
rdh_sum =
        115.814600017528
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 218
dh =
          4.78434250718341
rdh_sum =
        116.188047232794
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 219
dh =
          4.7767470071834
rdh_sum =
        116.560484954002
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 220
dh =
          4.76915150718341
rdh_sum =
         116.93191373703
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 221
dh =
          4.76155650718341
rdh_sum =
        117.302334208516
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 222
dh =
          4.7539610071834
rdh_sum =
        117.671746866732
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 223
dh =
          4.74636550718341
rdh_sum =
        118.040152280739
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 224
dh =
          4.7387700071834
rdh_sum =
        118.407551023989
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 225
dh =
          4.7311745071834
rdh_sum =
        118.773943674319
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 226
dh =
          4.72357900718341
rdh_sum =
        119.139330813952
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 227
dh =
          4.71598350718341
rdh_sum =
        119.503713029492
ans =
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Berm Factor Calculation: Iteration 3, Profile Segment: 228
dh =
          4.7083885071834
rdh_sum =
        119.867090978014
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 229
dh =
         4.70079300718341
rdh_sum =
        120.229465188747
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 230
dh =
         4.69319750718341
rdh_sum =
        120.590836261422
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 231
dh =
         4.68560200718341
rdh_sum =
        120.951204800145
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 232
dh =
          4.6780065071834
rdh_sum =
        121.310571413389
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 233
dh =
         4.67041100718341
rdh_sum =
        121.668936713993
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 234
dh =
          4.6628155071834
rdh_sum =
        122.026301319161
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 235
dh =
          4.6552205071834
rdh_sum =
        122.382665916269
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 236
dh =
         4.64762500718341
rdh_sum =
        122.738031065384
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 237
dh =
          4.6400295071834
rdh_sum =
        123.092397396784
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 238
dh =
          4.6324340071834
rdh_sum =
        123.445765545097
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 239
dh =
         4.62483850718341
rdh_sum =
        123.798136149303
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 240
dh =
          4.6172430071834
rdh_sum =
        124.149509852729
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 241
dh =
         4.60964750718341
rdh_sum =
        124.499887303043
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 242
dh =
         4.60205250718341
rdh_sum =
        124.849269217775
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 243
dh =
          4.5944570071834
rdh_sum =
        125.197656187716
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 244
dh =
          4.58686150718341
rdh_sum =
        125.545048873549
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 245
dh =
          4.5792660071834
rdh_sum =
        125.891447940295
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 246
dh =
          4.5716705071834
rdh_sum =
        126.236854057301
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 247
dh =
          4.5640750071834
rdh_sum =
        126.581267898242
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 248
dh =
          4.55647950718341
rdh_sum =
        126.924690141119
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 249
dh =
          4.5488845071834
rdh_sum =
        127.267121533458
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 250
dh =
          4.5412890071834
rdh_sum =
        127.608562696646
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 251
dh =
          4.53369350718341
rdh_sum =
        127.949014321637
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 252
dh =
          4.52609800718341
rdh_sum =
        128.288477103695
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 253
dh =
          4.5185025071834
rdh_sum =
        128.626951742395
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 254
dh =
          4.51090700718341
rdh_sum =
        128.964438941618
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 255
dh =
          4.5033115071834
rdh_sum =
        129.300939409549
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 256
dh =
          4.4957165071834
rdh_sum =
        129.636453923553
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 257
dh =
          4.48812100718341
rdh_sum =
        129.970983135482
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 258
dh =
          4.4805255071834
rdh_sum =
        130.304527766407
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 259
dh =
          4.4729300071834
rdh_sum =
        130.637088541694
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 260
dh =
          4.46533450718341
rdh_sum =
        130.968666190993
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 261
dh =
          4.45773900718341
rdh_sum =
        131.299261448241
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 262
dh =
          4.45014350718341
rdh_sum =
        131.628875051655
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 263
dh =
          4.4425480071834
rdh_sum =
        131.957507743728
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 264
dh =
          4.43495250718341
rdh_sum =
        132.285160271231
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 265
dh =
          4.42735750718341
rdh_sum =
        132.611833449651
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 266
dh =
          4.4197620071834
rdh_sum =
        132.937527969799
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 267
dh =
          4.41216650718341
rdh_sum =
        133.262244591248
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 268
dh =
          4.4045710071834
rdh_sum =
        133.585984077831
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 269
dh =
          4.3969755071834
rdh_sum =
        133.908747197642
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 270
dh =
          4.38938000718341
rdh_sum =
        134.230534723026
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 271
dh =
          4.38178450718341
rdh_sum =
        134.551347430583
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 272
dh =
          4.3741895071834
rdh_sum =
        134.871186165251
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 273
dh =
          4.36659400718341
rdh_sum =
          135.190051647977
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 274
dh =
          4.35899850718341
rdh_sum =
          135.507944668092
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 275
dh =
          4.32800000718341
rdh_sum =
          135.821877179628
ans =
!------- End Berm Factor Calculation, Iter: 3 ---------!
berm_width =
   275
rB =
          0.852697229313831
rdh_mean =
          0.493897735198646
gamma_berm =
          0.568448001054431
gamma_berm =
                      0.6
slope =
          0.36649610037087
Irb =
          3.88771545807963
gamma_berm =
                      0.6
gamma_perm =
     1
gamma_beta =
     1
gamma_rough =
                      0.6
gamma =
                     0.36
ans =
!!! - - Iribaren number:   2.33 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:2.7 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
          7.1778029002531
!   Berm_width is greater than 1/4 wave length
!   Runup will be weighted average with foreshore calculation assuming depth limited wave height on berm
fore_H0 =
                6.97708284
upper_slope =
                   0.59128
upper_slope =
                   0.59128
upper_slope =
          0.591280070189838
upper_slope =
          0.591280065586343
upper_slope =
          0.578019706833655
upper_slope =
          0.55380559134324
upper_slope =
          0.532245502676118
upper_slope =
          0.512925711485317
upper_slope =
          0.495514372708364
upper_slope =
          0.47974197363416
upper_slope =
          0.465387459641602
upper_slope =
          0.452267940842998
upper_slope =
          0.440230533423556
upper_slope =
          0.42914673402515
upper_slope =
          0.418907508636221
upper_slope =
          0.409419829954896
upper_slope =
          0.400603950255503
upper_slope =
          0.392390891808502
upper_slope =
```

```
         0.382764113829367
upper_slope =
         0.373753507281228
upper_slope =
         0.365301748695333
upper_slope =
         0.357358411265668
upper_slope =
          0.34987895795094
upper_slope =
         0.342823905977667
upper_slope =
          0.33615812964357
upper_slope =
         0.329850275429892
upper_slope =
         0.323872268867834
upper_slope =
         0.318198896794063
upper_slope =
         0.312807451883228
upper_slope =
         0.307677428888491
upper_slope =
         0.302790264022493
upper_slope =
         0.298129110495992
upper_slope =
         0.293678644493967
upper_slope =
         0.289424896880295
w2 =
         0.236797558185952
w1 =
         0.763202441814049
R2_new =
          8.78920187834023
R2del =
        0.00562961949442276
Z2 =
          17.6320748855236
% final 2% runup elevation
Z2=R2_new+SWEL
Z2 =
          17.6320748855236
diary off
-1.000000e+00
-1.000000e+00
```