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diary on          % begin recording

% FEMA appeal for The Town of Harpswell, Cumberland county, Maine
% TRANSECT ID: CM-159-1
% 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-159-1sta_ele_include.csv'; % file with station, elevation, include
% third column is 0 for excluded points
imgname='logfiles/CM-159-1-runup';
SWEL=8.811; % 100-yr still water level including wave setup.
H0=5.2342; % significant wave height at toe of structure
Tp=13.5919; % peak period, 1/fma,
T0=Tp/1.1;

gamma_berm=0.6; % this may get changed automatically below
gamma_rough=0.8;
gamma_beta=1;
gamma_perm=1;

setupAtToe=-0.01229;
maxSetup=0.75187; % only used in case of berm/shallow foreshore weighted average

plotTitle='Iterative TAW for CM-159-1'

plotTitle =

Iterative TAW for CM-159-1

% END CONFIG
%-----

SWEL=SWEL+setupAtToe

SWEL =

8.79871

SWEL_fore=SWEL+maxSetup

SWEL_fore =

9.55058

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

L0 =

781.224904904769

% 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

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

Ztoe =

    0.94741

% 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 =

    16.65001

% 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 =

    12.5371395555078

top_sta =

    320.612962556562

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

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

top_sta =

    320.612962556562

toe_sta

toe_sta =

    12.5371395555078

% 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')

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    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 302.4 ft landward of toe of slope

ans =

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

ans =

-!!!-      setup is adjusted to 0.26 feet

ans =

-!!!-      SWEL is adjusted to 9.07 feet

k =

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

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

% loop over profile segments to determine berm factor
% re-calculate influence of depth of berm based on this run-up elevation
% check for berm, berm width, berm height
berm_width=0;
rdh_sum=0;
Berm_Segs=[];
Berm_Heights=[];
for kk=1:length(sta)-1
    ddep=dep(kk+1)-dep(kk);
    dsta=sta(kk+1)-sta(kk);
    s=ddep/dsta;
    if (s < 1/15) % count it as a berm if slope is flatter than 1:15 (see TAW manual)
        sprintf('Berm Factor Calculation: Iteration %d, Profile Segment: %d',iter, kk)
        berm_width=berm_width+dsta; % tally the width of all berm segments
        % compute the rdh for this segment and weight it by the segment length
        dh=SWEL-(dep(kk)+dep(kk+1))/2
        if dh < 0
            chi=R2;
        else
            chi=2* H0;
        end
        if (dh <= R2 & dh >=-2*H0)
            rdh=(0.5-0.5*cos(3.14159*dh/chi)) ;
        else
            rdh=1;
        end
        rdh_sum=rdh_sum + rdh * dsta
        Berm_Segs=[Berm_Segs, kk];
        Berm_Heights=[Berm_Heights, (dep(kk)+dep(kk+1))/2];
    end
    if dep(kk) >= Z2 % jump out of loop if we reached limit of run-up for this iteration
        break
    end
end
sprintf('!----- End Berm Factor Calculation, Iter: %d -----!',iter)
berm_width
rB=berm_width/Lslope
if (berm_width > 0)
    rdh_mean=rdh_sum/berm_width
else
    rdh_mean=1
end
gamma_berm=1- rB * (1-rdh_mean)
if gamma_berm > 1
    gamma_berm=1
end
if gamma_berm < 0.6
    gamma_berm =0.6
end
% Iribarren number
slope=(Z2-Ztoe)/(Lslope-berm_width)
Irb=(slope/(sqrt(H0/L0)))
% runup height
gamma_berm
gamma_perm
gamma_beta
gamma_rough
gamma=gamma_berm*gamma_perm*gamma_beta*gamma_rough
% check validity
TAW_VALID=1;
if (Irb*gamma_berm < 0.5 | Irb*gamma_berm > 10 )
    sprintf('!!! - - Iribarren number: %6.2f is outside the valid range (0.5-10), TAW NOT VALID - - !!!\n', Irb*gamma_berm)
    TAW_VALID=0;
else
    sprintf('!!! - - Iribarren number: %6.2f is in the valid range (0.5-10), TAW RECOMMENDED - - !!!\n', Irb*gamma_berm)
end
islope=1/slope;
if (slope < 1/8 | slope > 1)
    sprintf('!!! - - slope: 1:%3.1f V:H is outside the valid range (1:8 - 1:1), TAW NOT VALID - - !!!\n', islope)
    TAW_VALID=0;
else
    sprintf('!!! - - slope: 1:%3.1f V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!\n', islope)
end

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if TAW_VALID == 0
    TAW_ALWAYS_VALID=0;
end

if (Irb*gamma_berm < 1.8)
    R2_new=gamma*H0*1.77*Irb
else
    R2_new=gamma*H0*(4.3-(1.6/sqrt(Irb)))
end
% check to see if we need to evaluate a shallow foreshore
if berm_width > 0.25 * L0;
    disp('!   Berm_width is greater than 1/4 wave length')
    disp('!   Runup will be weighted average with foreshore calculation assuming depth limited wave height on berm')
    % do the foreshore calculation
    fore_H0=0.78*(SWEL_fore-min(Berm_Heights))
    % get upper slope
    fore_toe_sta=-999;
    fore_toe_dep=-999;
    for kk=length(dep)-1:-1:1
        ddep=dep(kk+1)-dep(kk);
        dsta=sta(kk+1)-sta(kk);
        s=ddep/dsta;
        if s < 1/15
            break
        end
        fore_toe_sta=sta(kk);
        fore_toe_dep=dep(kk);
        upper_slope=(Z2-fore_toe_dep)/(top_sta-fore_toe_sta)
    end
    fore_Irb=upper_slope/(sqrt(fore_H0/L0));
    fore_gamma=gamma_perm*gamma_beta*gamma_rough;
    if (fore_Irb < 1.8)
        fore_R2=fore_gamma*fore_H0*1.77*fore_Irb;
    else
        fore_R2=fore_gamma*fore_H0*(4.3-(1.6/sqrt(fore_Irb)));
    end
    if berm_width >= L0
        R2_new=fore_R2
        disp('berm is wider than one wavelength, use full shallow foreshore solution');
    else
        w2=(berm_width-0.25*L0)/(0.75*L0)
        w1=1-w2
        R2_new=w2*fore_R2 + w1*R2_new
    end
end % end berm width check
% convergence criterion
R2del=abs(R2-R2_new)
R2_all(iter)=R2_new;
% get the new top station (for plot purposes)
Z2=R2_new+SWEL
top_sta=-999;
for kk=1:length(sta)-1
    if ((Z2 > dep(kk)) & (Z2 <= dep(kk+1))) % here is the intersection of z2 with profile
        top_sta=interp1(dep(kk:kk+1),sta(kk:kk+1),Z2)
        break;
    end
end
if top_sta== -999
    dy=Z2-dep(end);
    top_sta=sta(end)+dy/S(end);
end
topStaAll(iter)=top_sta;
end
ans =
!----- STARTING ITERATION 1 -----!
Ztoe =
    0.94741
toe_sta =
    12.5371395555078
top_sta =
    320.612962556562
Z2 =
    16.65001
H0 =
    5.2342
Tp =
    13.5919
T0 =
    12.3562727272727
R2 =
    15.7026
Z2 =
    24.7730988293135
top_sta =
    409.091260868219
Lslope =
    396.554121312712
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 32
dh =

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4.19996582931351
rdh_sum = 0.34729103989654
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 33
dh = 4.16210982931351
rdh_sum = 0.689183131478468
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 34
dh = 4.12425382931351
rdh_sum = 1.02569668069317
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 35
dh = 4.08639782931351
rdh_sum = 1.3568527876611
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 36
dh = 4.04854232931351
rdh_sum = 1.68267331427858
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 37
dh = 4.01068682931351
rdh_sum = 2.00318074015032
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 38
dh = 3.97283082931351
rdh_sum = 2.31839816087574
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 39
dh = 3.93497482931351
rdh_sum = 2.62834942512647
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 40
dh = 3.89711882931351
rdh_sum = 2.93305906124232
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 41
dh = 3.85926282931351
rdh_sum = 3.23255227406553
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 42
dh = 3.82140682931351
rdh_sum = 3.5268549416878
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 43
dh = 3.78355132931351
rdh_sum = 3.81599368013784
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 44
dh = 3.74660082931351
rdh_sum = 4.10011818245487
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 45
dh = 3.71146032931351
rdh_sum = 4.3794986850822
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 46
dh = 3.67722582931351
rdh_sum = 4.6542810892491
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 47
dh =
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3.64299132931351
rdh_sum = 4.924489166909
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 48
dh = 3.60875632931351
rdh_sum = 5.19014710656527
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 49
dh = 3.57452132931351
rdh_sum = 5.45127964399068
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 50
dh = 3.54028632931351
rdh_sum = 5.70791199263286
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 51
dh = 3.50605132931351
rdh_sum = 5.960069840953
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 52
dh = 3.47181632931351
rdh_sum = 6.20777934971427
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 53
dh = 3.43758182931351
rdh_sum = 6.4510672136025
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 54
dh = 3.40334732931351
rdh_sum = 6.68996052885288
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 55
dh = 3.36911232931351
rdh_sum = 6.92448679197281
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 56
dh = 3.34018382931351
rdh_sum = 7.15534473042837
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 57
dh = 3.31656182931351
rdh_sum = 7.3832227554551
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 58
dh = 3.29293982931351
rdh_sum = 7.60813310254311
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 59
dh = 3.26931782931351
rdh_sum = 7.83009103572924
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 60
dh = 3.24569582931351
rdh_sum = 8.04911004780645
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 61
dh = 3.22207382931351
rdh_sum = 8.26520425916959
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 62
dh =
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3.19845182931351
rdh_sum = 8.47838793719619
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 63
dh = 3.17482932931351
rdh_sum = 8.68867543438173
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 64
dh = 3.15120682931351
rdh_sum = 8.8960813105302
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 65
dh = 3.12758482931351
rdh_sum = 9.10062033078974
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 66
dh = 3.10396282931351
rdh_sum = 9.30230734323149
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 67
dh = 3.08034082931351
rdh_sum = 9.50115733925113
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 68
dh = 3.03570482931351
rdh_sum = 9.69468795656988
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 88
dh = 0.98227582931351
rdh_sum = 9.71625537312226
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 89
dh = 1.03286432931351
rdh_sum = 9.74008323016519
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 90
dh = 1.08345282931351
rdh_sum = 9.7662812759583
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 91
dh = 1.13404082931351
rdh_sum = 9.79495868743633
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 92
dh = 1.18462932931351
rdh_sum = 9.82622411909927
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 93
dh = 1.23521782931351
rdh_sum = 9.86018560499294
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 94
dh = 1.28580632931351
rdh_sum = 9.89695055777596
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 95
dh = 1.33639482931351
rdh_sum = 9.9366257439633
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 96
dh =
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1.38698332931351
rdh_sum =
9.97931725931872
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 97
dh =
1.43757182931351
rdh_sum =
10.0251305044017
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 98
dh =
1.48815982931351
rdh_sum =
10.0741701278713
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 99
dh =
1.53874832931351
rdh_sum =
10.1265400985462
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 100
dh =
1.58933682931351
rdh_sum =
10.1823435862936
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 101
dh =
1.63992532931351
rdh_sum =
10.2416829696226
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 102
dh =
1.69051382931351
rdh_sum =
10.3046598120887
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 103
dh =
1.71211932931351
rdh_sum =
10.3692208971279
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 104
dh =
1.67575882931351
rdh_sum =
10.4311263700036
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 105
dh =
1.61041532931351
rdh_sum =
10.4883907490733
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 106
dh =
1.54507232931351
rdh_sum =
10.5411843126416
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 107
dh =
1.47972882931351
rdh_sum =
10.5896789897535
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 108
dh =
1.41438532931351
rdh_sum =
10.634048397365
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 109
dh =
1.34904182931351
rdh_sum =
10.6744677387184
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 110
dh =
1.28369832931351
rdh_sum =
10.7111137359718
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 111
dh =
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1.21835532931351
rdh_sum =
10.7441645890685
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 112
dh =
1.15301182931351
rdh_sum =
10.7737998253717
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 113
dh =
1.08766832931351
rdh_sum =
10.800200313842
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 114
dh =
1.02232482931351
rdh_sum =
10.8235481672951
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 115
dh =
0.967712329313509
rdh_sum =
10.8444852638338
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 116
dh =
0.934562329313509
rdh_sum =
10.8640217417262
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 117
dh =
0.91214332931351
rdh_sum =
10.8826379409497
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 118
dh =
0.889724329313509
rdh_sum =
10.9003556516786
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 119
dh =
0.867305329313508
rdh_sum =
10.9171967047576
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 120
dh =
0.844886329313509
rdh_sum =
10.9331829707141
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 121
dh =
0.822467329313509
rdh_sum =
10.9483363587682
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 122
dh =
0.80004832931351
rdh_sum =
10.9626788158405
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 123
dh =
0.777629329313509
rdh_sum =
10.9762323255591
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 124
dh =
0.755209829313509
rdh_sum =
10.9890188904057
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 125
dh =
0.732790329313509
rdh_sum =
11.0010605654208
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 126
dh =
```

```
0.710371329313508
rdh_sum = 11.0123794552374
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 127
dh = 0.691291829313508
rdh_sum = 11.0231006469349
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 128
dh = 0.67889132931351
rdh_sum = 11.0334419712337
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 129
dh = 0.669829829313509
rdh_sum = 11.0435100003683
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 130
dh = 0.660768329313509
rdh_sum = 11.0533083573869
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 131
dh = 0.651707329313508
rdh_sum = 11.0628406819117
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 132
dh = 0.642645829313508
rdh_sum = 11.0721105861723
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 133
dh = 0.633584329313509
rdh_sum = 11.0811216991189
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 134
dh = 0.62452332931351
rdh_sum = 11.0898776655947
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 135
dh = 0.615461829313508
rdh_sum = 11.0983821041707
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 136
dh = 0.606400329313509
rdh_sum = 11.106638649458
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 137
dh = 0.597338829313509
rdh_sum = 11.1146509379004
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 138
dh = 0.604589329313509
rdh_sum = 11.1228583760436
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 139
dh = 0.628151829313508
rdh_sum = 11.1317160806177
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 140
dh = 0.651714329313508
rdh_sum = 11.1412486092642
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 141
dh =
```

```
0.675276829313509
rdh_sum = 11.1514804858827
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 142
dh = 0.698838829313511
rdh_sum = 11.1624361837851
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 143
dh = 0.722401329313509
rdh_sum = 11.1741401708112
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 144
dh = 0.745963829313508
rdh_sum = 11.1866168622854
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 145
dh = 0.769526329313509
rdh_sum = 11.199890634896
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 146
dh = 0.793088829313509
rdh_sum = 11.2139858254762
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 147
dh = 0.816650829313508
rdh_sum = 11.2289267115841
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 148
dh = 0.840213329313508
rdh_sum = 11.2447375643841
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 149
dh = 0.83501132931351
rdh_sum = 11.2603542666909
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 150
dh = 0.80104482931351
rdh_sum = 11.2747323021676
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 151
dh = 0.76707882931351
rdh_sum = 11.2879221464582
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 152
dh = 0.733112329313508
rdh_sum = 11.2999743636841
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 153
dh = 0.69914582931351
rdh_sum = 11.3109396540344
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 154
dh = 0.665179829313509
rdh_sum = 11.3208688455127
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 155
dh = 0.631213329313509
rdh_sum = 11.3298128432749
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 156
dh =
```

```
0.597246829313509
rdh_sum = 11.3378226704693
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 157
dh = 0.567179329313509
rdh_sum = 11.3450482120678
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 158
dh = 0.544908329313509
rdh_sum = 11.351718694948
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 159
dh = 0.526535329313509
rdh_sum = 11.3579478566655
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 160
dh = 0.508162329313508
rdh_sum = 11.3637507086783
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 161
dh = 0.48978982931351
rdh_sum = 11.3691422863933
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 162
dh = 0.471417329313509
rdh_sum = 11.3741376259143
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 163
dh = 0.453044329313508
rdh_sum = 11.3787517652215
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 164
dh = 0.43467182931351
rdh_sum = 11.3829997746316
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 165
dh = 0.416299329313508
rdh_sum = 11.3868967250129
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 166
dh = 0.39792632931351
rdh_sum = 11.3904576889675
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 167
dh = 0.379553329313509
rdh_sum = 11.3936977590714
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 168
dh = 0.361180829313509
rdh_sum = 11.3966320457723
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 169
dh = 0.34280832931351
rdh_sum = 11.3992756598757
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 170
dh = 0.316685829313508
rdh_sum = 11.4015320217426
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 171
dh =
```

```
0.282813329313509
rdh_sum = 11.4033317935143
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 172
dh = 0.24894082931351
rdh_sum = 11.4047264545435
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 173
dh = 0.215068329313509
rdh_sum = 11.4057675260437
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 174
dh = 0.181195829313509
rdh_sum = 11.4065065657648
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 175
dh = 0.14732332931351
rdh_sum = 11.4069951626658
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 176
dh = 0.113450829313509
rdh_sum = 11.4072849315842
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 177
dh = 0.0795783293135095
rdh_sum = 11.4074275079026
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 178
dh = 0.0457058293135102
rdh_sum = 11.407474542213
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 179
dh = 0.0118338293135078
rdh_sum = 11.4074776952462
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 180
dh = -0.0220386706864915
rdh_sum = 11.4074825555786
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 181
dh = -0.0559111706864908
rdh_sum = 11.4075138371476
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 182
dh = -0.0897836706864901
rdh_sum = 11.4075945009929
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 183
dh = -0.123656170686489
rdh_sum = 11.4077475058862
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 184
dh = -0.15752867068649
rdh_sum = 11.4079958072773
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 185
dh = -0.191401170686492
rdh_sum = 11.4083623562391
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 186
dh =
```

```
-0.225273670686491
rdh_sum = 11.4088700984141
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 187
dh = -0.25914617068649
rdh_sum = 11.4095419729608
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 188
dh = -0.300954670686492
rdh_sum = 11.4104480535946
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 189
dh = -0.358635670686491
rdh_sum = 11.4117345735307
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 190
dh = -0.424252170686492
rdh_sum = 11.4135346181709
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 191
dh = -0.489868670686491
rdh_sum = 11.4159340452541
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 192
dh = -0.55548567068649
rdh_sum = 11.419018614771
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 193
dh = -0.621102670686492
rdh_sum = 11.4228739643954
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 194
dh = -0.686719670686491
rdh_sum = 11.4275855989665
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 195
dh = -0.752336170686492
rdh_sum = 11.433238868252
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 196
dh = -0.817952670686491
rdh_sum = 11.4399189659417
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 197
dh = -0.883569670686491
rdh_sum = 11.4477109175616
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 198
dh = -0.94918667068649
rdh_sum = 11.4566995495225
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 199
dh = -1.01480367068649
rdh_sum = 11.4669694820009
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 200
dh = -1.08042017068649
rdh_sum = 11.4786051036284
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 201
dh =
```



```
-1.13097467068649
rdh_sum = 11.4913503400628
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 202
dh = -1.16646767068649
rdh_sum = 11.5049043975112
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 203
dh = -1.20196067068649
rdh_sum = 11.5192918046467
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 204
dh = -1.23745317068649
rdh_sum = 11.5345370358644
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 205
dh = -1.27294567068649
rdh_sum = 11.5506645338725
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 206
dh = -1.30843867068649
rdh_sum = 11.5676987098371
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 207
dh = -1.34393117068649
rdh_sum = 11.5856639036619
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 208
dh = -1.37942367068649
rdh_sum = 11.6045844209069
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 209
dh = -1.41491667068649
rdh_sum = 11.6244845329324
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 210
dh = -1.45040967068649
rdh_sum = 11.6453884484165
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 211
dh = -1.48590217068649
rdh_sum = 11.6673203107699
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 228
dh = -2.68392767068649
rdh_sum = 11.7376886200839
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 229
dh = -2.74339617068649
rdh_sum = 11.8111303147931
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 230
dh = -2.79876017068649
rdh_sum = 11.8874875537352
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 231
dh = -2.85412417068649
rdh_sum = 11.9668123133042
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 232
dh =
```

```
-2.90948817068649
rdh_sum = 12.0491562058113
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 233
dh = -2.96485267068649
rdh_sum = 12.134570501112
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 234
dh = -3.02021717068649
rdh_sum = 12.2231060653157
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 235
dh = -3.07558117068649
rdh_sum = 12.3148133527084
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 236
dh = -3.13094517068649
rdh_sum = 12.4097424563985
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 237
dh = -3.18630917068649
rdh_sum = 12.5079430742128
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 238
dh = -3.24167317068649
rdh_sum = 12.6094645025983
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 239
dh = -3.29703767068649
rdh_sum = 12.7143556612265
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 240
dh = -3.35240217068649
rdh_sum = 12.8226650265628
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 241
dh = -3.40776617068649
rdh_sum = 12.9344406241685
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 242
dh = -3.46313017068649
rdh_sum = 13.0497300849872
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 243
dh = -3.51849417068649
rdh_sum = 13.1685806088495
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 244
dh = -3.55666817068649
rdh_sum = 13.2899137836578
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 245
dh = -3.56046167068649
rdh_sum = 13.4114948781261
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 246
dh = -3.54706467068649
rdh_sum = 13.5322014030267
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 247
dh =
```

```
-3.53366817068649
rdh_sum = 13.6520361157193
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 248
dh = -3.52027167068649
rdh_sum = 13.7710017471354
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 249
dh = -3.50687467068649
rdh_sum = 13.8891010021656
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 250
dh = -3.49347767068649
rdh_sum = 14.0063366244129
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 251
dh = -3.48008117068649
rdh_sum = 14.1227113957626
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 252
dh = -3.46668467068649
rdh_sum = 14.2382280720007
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 253
dh = -3.45328767068649
rdh_sum = 14.352889383205
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 254
dh = -3.43989067068649
rdh_sum = 14.4666980976769
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 255
dh = -3.42649417068649
rdh_sum = 14.5796570215078
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 260
dh = -4.12631567068649
rdh_sum = 14.7405784989938
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 261
dh = -4.18136067068649
rdh_sum = 14.9055671853158
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 262
dh = -4.23640567068649
rdh_sum = 15.0746637104637
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 263
dh = -4.29145117068649
rdh_sum = 15.2479082440893
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 264
dh = -4.34649667068649
rdh_sum = 15.4253404156378
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 265
dh = -4.40154167068649
rdh_sum = 15.606999308101
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 266
dh =
```

```
-4.45658667068649
rdh_sum = 15.7929235297151
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 267
dh = -4.51163167068649
rdh_sum = 15.9831511714195
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 268
dh = -4.56667717068649
rdh_sum = 16.1777198418376
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 269
dh = -4.61806067068649
rdh_sum = 16.3763741855412
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 270
dh = -4.66578167068649
rdh_sum = 16.578851516845
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 271
dh = -4.71350317068649
rdh_sum = 16.7851789963559
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 272
dh = -4.76122467068649
rdh_sum = 16.9953833938083
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 273
dh = -4.80894567068649
rdh_sum = 17.2094910845017
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 274
dh = -4.85666667068649
rdh_sum = 17.4275281284185
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 275
dh = -4.90438817068649
rdh_sum = 17.6495202689412
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 276
dh = -4.95210967068649
rdh_sum = 17.8754928478912
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 277
dh = -4.99983067068649
rdh_sum = 18.1054708021563
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 278
dh = -5.04755217068649
rdh_sum = 18.3394787874469
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 279
dh = -5.09527367068649
rdh_sum = 18.5775410502793
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 280
dh = -5.13723517068649
rdh_sum = 18.8191879783637
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 281
dh =
```

```

-5.17343767068649
rdh_sum = 19.0639422354364
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 282
dh = -5.20964017068649
rdh_sum = 19.3118172117758
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 283
dh = -5.24584217068649
rdh_sum = 19.5628260905723
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 284
dh = -5.28204467068649
rdh_sum = 19.8169819771773
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 285
dh = -5.31824717068649
rdh_sum = 20.0742977686568
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 286
dh = -5.35444967068649
rdh_sum = 20.3347861963068
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 287
dh = -5.39065217068649
rdh_sum = 20.5984598249859
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 288
dh = -5.42685417068649
rdh_sum = 20.8653310082083
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 289
dh = -5.46305667068649
rdh_sum = 21.1354120200685
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 290
dh = -5.49925917068649
rdh_sum = 21.4087149221949
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 291
dh = -5.53546117068649
rdh_sum = 21.6852515624504
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 292
dh = -5.57166367068649
rdh_sum = 21.9650337083798
ans =
Berm Factor Calculation: Iteration 1, Profile Segment: 293
dh = -5.60786617068649
rdh_sum = 22.2480729126864
ans =
!----- End Berm Factor Calculation, Iter: 1 -----!
berm_width =
223
rB = 0.562344426687091
rdh_mean = 0.0997671431062171
gamma_berm = 0.493759070205184
gamma_berm = 0.6
slope = 0.137281031698372
Irb =

```

```

1.67715583583191
gamma_berm =
0.6
gamma_perm =
1
gamma_beta =
1
gamma_rough =
0.8
gamma =
0.48
ans =
!!! - - Iribaren number: 1.01 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:7.3 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
7.45827228689431
! 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 =
3.65043666
upper_slope =
0.0902230000000017
upper_slope =
0.09137134319549
upper_slope =
0.0924939073598073
upper_slope =
0.0935915620233916
upper_slope =
0.0946651055998504
upper_slope =
0.0957153343999376
upper_slope =
0.0967430105180589
upper_slope =
0.0977488317665857
upper_slope =
0.0987334981531549
upper_slope =
0.0996976805461189
upper_slope =
0.100641991276395
upper_slope =
0.101567048288818
upper_slope =
0.101690429014869
w2 =
0.0472655588251012
w1 =
0.952734441174899
R2_new =
7.46920614758068
R2del =
8.23339385241932
Z2 =
16.5397049768942
top_sta =
320.036602067562
ans =
!----- STARTING ITERATION 2 -----!
Ztoe =
0.94741
toe_sta =
12.5371395555078
top_sta =
320.036602067562
Z2 =
16.5397049768942
H0 =
5.2342
Tp =
13.5919
T0 =
12.3562727272727
R2 =
7.46920614758068
Z2 =
16.5397049768942
top_sta =
320.036602067562
Lslope =
307.499462512054
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 32
dh =
4.19996582931351
rdh_sum =
0.34729103989654
ans =

```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 33
dh =
    4.16210982931351
rdh_sum =
    0.689183131478468
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 34
dh =
    4.12425382931351
rdh_sum =
    1.02569668069317
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 35
dh =
    4.08639782931351
rdh_sum =
    1.3568527876611
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 36
dh =
    4.04854232931351
rdh_sum =
    1.68267331427858
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 37
dh =
    4.01068682931351
rdh_sum =
    2.00318074015032
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 38
dh =
    3.97283082931351
rdh_sum =
    2.31839816087574
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 39
dh =
    3.93497482931351
rdh_sum =
    2.62834942512647
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 40
dh =
    3.89711882931351
rdh_sum =
    2.93305906124232
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 41
dh =
    3.85926282931351
rdh_sum =
    3.23255227406553
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 42
dh =
    3.82140682931351
rdh_sum =
    3.5268549416878
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 43
dh =
    3.78355132931351
rdh_sum =
    3.81599368013784
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 44
dh =
    3.74660082931351
rdh_sum =
    4.10011818245487
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 45
dh =
    3.71146032931351
rdh_sum =
    4.3794986850822
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 46
dh =
    3.67722582931351
rdh_sum =
    4.6542810892491
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 47
dh =
    3.64299132931351
rdh_sum =
    4.924489166909
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 48
dh =
    3.60875632931351
rdh_sum =
    5.19014710656527
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 49
dh =
    3.57452132931351
rdh_sum =
    5.45127964399068
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 50
dh =
    3.54028632931351
rdh_sum =
    5.70791199263286
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 51
dh =
    3.50605132931351
rdh_sum =
    5.960069840953
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 52
dh =
    3.47181632931351
rdh_sum =
    6.20777934971427
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 53
dh =
    3.43758182931351
rdh_sum =
    6.4510672136025
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 54
dh =
    3.40334732931351
rdh_sum =
    6.68996052885288
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 55
dh =
    3.36911232931351
rdh_sum =
    6.92448679197281
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 56
dh =
    3.34018382931351
rdh_sum =
    7.15534473042837
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 57
dh =
    3.31656182931351
rdh_sum =
    7.38322227554551
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 58
dh =
    3.29293982931351
rdh_sum =
    7.60813310254311
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 59
dh =
    3.26931782931351
rdh_sum =
    7.83009103572924
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 60
dh =
    3.24569582931351
rdh_sum =
    8.04911004780645
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 61
dh =
    3.22207382931351
rdh_sum =
    8.26520425916959
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 62
dh =
    3.19845182931351
rdh_sum =
    8.47838793719619
ans =
```



```
Berm Factor Calculation: Iteration 2, Profile Segment: 63
dh =
    3.17482932931351
rdh_sum =
    8.68867543438173
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 64
dh =
    3.15120682931351
rdh_sum =
    8.8960813105302
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 65
dh =
    3.12758482931351
rdh_sum =
    9.10062033078974
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 66
dh =
    3.10396282931351
rdh_sum =
    9.30230734323149
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 67
dh =
    3.08034082931351
rdh_sum =
    9.50115733925113
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 68
dh =
    3.03570482931351
rdh_sum =
    9.69468795656988
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 88
dh =
    0.98227582931351
rdh_sum =
    9.71625537312226
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 89
dh =
    1.03286432931351
rdh_sum =
    9.74008323016519
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 90
dh =
    1.08345282931351
rdh_sum =
    9.7662812759583
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 91
dh =
    1.13404082931351
rdh_sum =
    9.79495868743633
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 92
dh =
    1.18462932931351
rdh_sum =
    9.82622411909927
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 93
dh =
    1.23521782931351
rdh_sum =
    9.86018560499294
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 94
dh =
    1.28580632931351
rdh_sum =
    9.89695055777596
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 95
dh =
    1.33639482931351
rdh_sum =
    9.9366257439633
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 96
dh =
    1.38698332931351
rdh_sum =
    9.97931725931872
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 97
dh =
    1.43757182931351
rdh_sum =
    10.0251305044017
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 98
dh =
    1.48815982931351
rdh_sum =
    10.0741701278713
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 99
dh =
    1.53874832931351
rdh_sum =
    10.1265400985462
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 100
dh =
    1.58933682931351
rdh_sum =
    10.1823435862936
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 101
dh =
    1.63992532931351
rdh_sum =
    10.2416829696226
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 102
dh =
    1.69051382931351
rdh_sum =
    10.3046598120887
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 103
dh =
    1.71211932931351
rdh_sum =
    10.3692208971279
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 104
dh =
    1.67575882931351
rdh_sum =
    10.4311263700036
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 105
dh =
    1.61041532931351
rdh_sum =
    10.4883907490733
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 106
dh =
    1.54507232931351
rdh_sum =
    10.5411843126416
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 107
dh =
    1.47972882931351
rdh_sum =
    10.5896789897535
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 108
dh =
    1.41438532931351
rdh_sum =
    10.634048397365
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 109
dh =
    1.34904182931351
rdh_sum =
    10.6744677387184
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 110
dh =
    1.28369832931351
rdh_sum =
    10.7111137359718
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 111
dh =
    1.21835532931351
rdh_sum =
    10.7441645890685
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 112
dh =
    1.15301182931351
rdh_sum =
    10.7737998253717
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 113
dh =
    1.08766832931351
rdh_sum =
    10.800200313842
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 114
dh =
    1.02232482931351
rdh_sum =
    10.8235481672951
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 115
dh =
    0.967712329313509
rdh_sum =
    10.8444852638338
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 116
dh =
    0.934562329313509
rdh_sum =
    10.8640217417262
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 117
dh =
    0.91214332931351
rdh_sum =
    10.8826379409497
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 118
dh =
    0.889724329313509
rdh_sum =
    10.9003556516786
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 119
dh =
    0.867305329313508
rdh_sum =
    10.9171967047576
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 120
dh =
    0.844886329313509
rdh_sum =
    10.9331829707141
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 121
dh =
    0.822467329313509
rdh_sum =
    10.9483363587682
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 122
dh =
    0.80004832931351
rdh_sum =
    10.9626788158405
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 123
dh =
    0.777629329313509
rdh_sum =
    10.9762323255591
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 124
dh =
    0.755209829313509
rdh_sum =
    10.9890188904057
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 125
dh =
    0.732790329313509
rdh_sum =
    11.0010605654208
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 126
dh =
    0.710371329313508
rdh_sum =
    11.0123794552374
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 127
dh =
    0.691291829313508
rdh_sum =
    11.0231006469349
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 128
dh =
    0.67889132931351
rdh_sum =
    11.0334419712337
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 129
dh =
    0.669829829313509
rdh_sum =
    11.0435100003683
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 130
dh =
    0.660768329313509
rdh_sum =
    11.0533083573869
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 131
dh =
    0.651707329313508
rdh_sum =
    11.0628406819117
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 132
dh =
    0.642645829313508
rdh_sum =
    11.0721105861723
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 133
dh =
    0.633584329313509
rdh_sum =
    11.0811216991189
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 134
dh =
    0.62452332931351
rdh_sum =
    11.0898776655947
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 135
dh =
    0.615461829313508
rdh_sum =
    11.0983821041707
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 136
dh =
    0.606400329313509
rdh_sum =
    11.106638649458
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 137
dh =
    0.597338829313509
rdh_sum =
    11.1146509379004
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 138
dh =
    0.604589329313509
rdh_sum =
    11.1228583760436
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 139
dh =
    0.628151829313508
rdh_sum =
    11.1317160806177
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 140
dh =
    0.651714329313508
rdh_sum =
    11.1412486092642
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 141
dh =
    0.675276829313509
rdh_sum =
    11.1514804858827
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 142
dh =
    0.698838829313511
rdh_sum =
    11.1624361837851
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 143
dh =
    0.722401329313509
rdh_sum =
    11.1741401708112
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 144
dh =
    0.745963829313508
rdh_sum =
    11.1866168622854
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 145
dh =
    0.769526329313509
rdh_sum =
    11.199890634896
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 146
dh =
    0.793088829313509
rdh_sum =
    11.2139858254762
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 147
dh =
    0.816650829313508
rdh_sum =
    11.2289267115841
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 148
dh =
    0.840213329313508
rdh_sum =
    11.2447375643841
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 149
dh =
    0.83501132931351
rdh_sum =
    11.2603542666909
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 150
dh =
    0.80104482931351
rdh_sum =
    11.2747323021676
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 151
dh =
    0.76707882931351
rdh_sum =
    11.2879221464582
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 152
dh =
    0.733112329313508
rdh_sum =
    11.2999743636841
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 153
dh =
    0.69914582931351
rdh_sum =
    11.3109396540344
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 154
dh =
    0.665179829313509
rdh_sum =
    11.3208688455127
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 155
dh =
    0.631213329313509
rdh_sum =
    11.3298128432749
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 156
dh =
    0.597246829313509
rdh_sum =
    11.3378226704693
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 157
dh =
    0.567179329313509
rdh_sum =
    11.3450482120678
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 158
dh =
    0.544908329313509
rdh_sum =
    11.351718694948
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 159
dh =
    0.526535329313509
rdh_sum =
    11.3579478566655
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 160
dh =
    0.508162329313508
rdh_sum =
    11.3637507086783
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 161
dh =
    0.48978982931351
rdh_sum =
    11.3691422863933
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 162
dh =
    0.471417329313509
rdh_sum =
    11.3741376259143
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 163
dh =
    0.453044329313508
rdh_sum =
    11.3787517652215
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 164
dh =
    0.43467182931351
rdh_sum =
    11.3829997746316
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 165
dh =
    0.416299329313508
rdh_sum =
    11.3868967250129
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 166
dh =
    0.39792632931351
rdh_sum =
    11.3904576889675
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 167
dh =
    0.379553329313509
rdh_sum =
    11.3936977590714
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 168
dh =
    0.361180829313509
rdh_sum =
    11.3966320457723
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 169
dh =
    0.34280832931351
rdh_sum =
    11.3992756598757
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 170
dh =
    0.316685829313508
rdh_sum =
    11.4015320217426
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 171
dh =
    0.282813329313509
rdh_sum =
    11.4033317935143
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 172
dh =
    0.24894082931351
rdh_sum =
    11.4047264545435
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 173
dh =
    0.215068329313509
rdh_sum =
    11.4057675260437
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 174
dh =
    0.181195829313509
rdh_sum =
    11.4065065657648
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 175
dh =
    0.14732332931351
rdh_sum =
    11.4069951626658
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 176
dh =
    0.113450829313509
rdh_sum =
    11.4072849315842
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 177
dh =
    0.0795783293135095
rdh_sum =
    11.4074275079026
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 178
dh =
    0.0457058293135102
rdh_sum =
    11.407474542213
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 179
dh =
    0.0118338293135078
rdh_sum =
    11.4074776952462
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 180
dh =
    -0.0220386706864915
rdh_sum =
    11.4074991764102
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 181
dh =
    -0.0559111706864908
rdh_sum =
    11.407637427093
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 182
dh =
    -0.0897836706864901
rdh_sum =
    11.4079939055014
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 183
dh =
    -0.123656170686489
rdh_sum =
    11.4086700255477
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 184
dh =
    -0.15752867068649
rdh_sum =
    11.4097671362658
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 185
dh =
    -0.191401170686492
rdh_sum =
    11.41138650124
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 186
dh =
    -0.225273670686491
rdh_sum =
    11.4136292780515
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 187
dh =
    -0.25914617068649
rdh_sum =
    11.4165964977459
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 188
dh =
    -0.300954670686492
rdh_sum =
    11.4205969797722
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 189
dh =
    -0.358635670686491
rdh_sum =
    11.4262746928959
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 190
dh =
    -0.424252170686492
rdh_sum =
    11.4342140543362
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 191
dh =
    -0.489868670686491
rdh_sum =
    11.4447898362357
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 192
dh =
    -0.55548567068649
rdh_sum =
    11.4583748270835
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 193
dh =
    -0.621102670686492
rdh_sum =
    11.4753395047411
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 194
dh =
    -0.686719670686491
rdh_sum =
    11.4960517729329
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 195
dh =
    -0.752336170686492
rdh_sum =
    11.5208766483105
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 196
dh =
    -0.817952670686491
rdh_sum =
    11.5501760423652
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 197
dh =
    -0.883569670686491
rdh_sum =
    11.5843084968091
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 198
dh =
    -0.94918667068649
rdh_sum =
    11.6236288395337
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 199
dh =
    -1.01480367068649
rdh_sum =
    11.6684879470769
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 200
dh =
    -1.08042017068649
rdh_sum =
    11.7192324312214
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 201
dh =
    -1.13097467068649
rdh_sum =
    11.7747449403343
ans =
```



```
Berm Factor Calculation: Iteration 2, Profile Segment: 202
dh =
  -1.16646767068649
rdh_sum =
  11.8337251600679
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 203
dh =
  -1.20196067068649
rdh_sum =
  11.8962713750372
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 204
dh =
  -1.23745317068649
rdh_sum =
  11.9624810228565
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 205
dh =
  -1.27294567068649
rdh_sum =
  12.0324507742842
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 206
dh =
  -1.30843867068649
rdh_sum =
  12.1062765171259
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 207
dh =
  -1.34393117068649
rdh_sum =
  12.1840531712354
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 208
dh =
  -1.37942367068649
rdh_sum =
  12.2658748296482
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 209
dh =
  -1.41491667068649
rdh_sum =
  12.3518347429142
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 210
dh =
  -1.45040967068649
rdh_sum =
  12.4420251830182
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 211
dh =
  -1.48590217068649
rdh_sum =
  12.5365374176182
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 228
dh =
  -2.68392767068649
rdh_sum =
  12.8226989314909
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 229
dh =
  -2.74339617068649
rdh_sum =
  13.1202310797134
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 230
dh =
  -2.79876017068649
rdh_sum =
  13.4284630658131
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 231
dh =
  -2.85412417068649
rdh_sum =
  13.7474988726084
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 232
dh =
  -2.90948817068649
rdh_sum =
  14.077436624737
ans =
```

```
Berm Factor Calculation: Iteration 2, Profile Segment: 233
dh =
  -2.96485267068649
rdh_sum =
  14.4183686351374
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 234
dh =
  -3.02021717068649
rdh_sum =
  14.7703811571753
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 235
dh =
  -3.07558117068649
rdh_sum =
  15.1335543347585
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 236
dh =
  -3.13094517068649
rdh_sum =
  15.507962359815
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 237
dh =
  -3.18630917068649
rdh_sum =
  15.8936733323748
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 238
dh =
  -3.24167317068649
rdh_sum =
  16.2907492236445
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 239
dh =
  -3.29703767068649
rdh_sum =
  16.6992459457799
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 240
dh =
  -3.35240217068649
rdh_sum =
  17.1192131157133
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 241
dh =
  -3.40776617068649
rdh_sum =
  17.5506940264577
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 242
dh =
  -3.46313017068649
rdh_sum =
  17.9937258312791
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 243
dh =
  -3.51849417068649
rdh_sum =
  18.4483394201751
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 244
dh =
  -3.55666817068649
rdh_sum =
  18.9109534720326
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 245
dh =
  -3.56046167068649
rdh_sum =
  19.3743631215656
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 246
dh =
  -3.54706467068649
rdh_sum =
  19.8349634945681
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 247
dh =
  -3.53366817068649
rdh_sum =
  20.2927559468129
ans =
```

Berm Factor Calculation: Iteration 2, Profile Segment: 248  
dh =  
-3.52027167068649  
rdh\_sum =  
20.7477418183524  
ans =  
Berm Factor Calculation: Iteration 2, Profile Segment: 249  
dh =  
-3.50687467068649  
rdh\_sum =  
21.1999224336763  
ans =  
Berm Factor Calculation: Iteration 2, Profile Segment: 250  
dh =  
-3.49347767068649  
rdh\_sum =  
21.6492993111209  
ans =  
Berm Factor Calculation: Iteration 2, Profile Segment: 251  
dh =  
-3.48008117068649  
rdh\_sum =  
22.0958741625954  
ans =  
Berm Factor Calculation: Iteration 2, Profile Segment: 252  
dh =  
-3.46668467068649  
rdh\_sum =  
22.539648684301  
ans =  
Berm Factor Calculation: Iteration 2, Profile Segment: 253  
dh =  
-3.45328767068649  
rdh\_sum =  
22.9806245569309  
ans =  
Berm Factor Calculation: Iteration 2, Profile Segment: 254  
dh =  
-3.43989067068649  
rdh\_sum =  
23.418803654589  
ans =  
Berm Factor Calculation: Iteration 2, Profile Segment: 255  
dh =  
-3.42649417068649  
rdh\_sum =  
23.8541880444507  
ans =  
Berm Factor Calculation: Iteration 2, Profile Segment: 260  
dh =  
-4.12631567068649  
rdh\_sum =  
24.4361934642331  
ans =  
Berm Factor Calculation: Iteration 2, Profile Segment: 261  
dh =  
-4.18136067068649  
rdh\_sum =  
25.0295952466222  
ans =  
Berm Factor Calculation: Iteration 2, Profile Segment: 262  
dh =  
-4.23640567068649  
rdh\_sum =  
25.6343433280687  
ans =  
Berm Factor Calculation: Iteration 2, Profile Segment: 263  
dh =  
-4.29145117068649  
rdh\_sum =  
26.2503816656638  
ans =  
Berm Factor Calculation: Iteration 2, Profile Segment: 264  
dh =  
-4.34649667068649  
rdh\_sum =  
26.8776480614877  
ans =  
Berm Factor Calculation: Iteration 2, Profile Segment: 265  
dh =  
-4.40154167068649  
rdh\_sum =  
27.5160741982075  
ans =  
Berm Factor Calculation: Iteration 2, Profile Segment: 266  
dh =  
-4.45658667068649  
rdh\_sum =  
28.1655858791264  
ans =

```
Berm Factor Calculation: Iteration 2, Profile Segment: 267
dh =
  -4.51163167068649
rdh_sum =
  28.8261029656729
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 268
dh =
  -4.56667717068649
rdh_sum =
  29.4975395191327
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 269
dh =
  -4.61806067068649
rdh_sum =
  30.1790862934755
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 270
dh =
  -4.66578167068649
rdh_sum =
  30.8699468106226
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 271
dh =
  -4.71350317068649
rdh_sum =
  31.570044276788
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 272
dh =
  -4.76122467068649
rdh_sum =
  32.2792980789316
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 273
dh =
  -4.80894567068649
rdh_sum =
  32.9976238206129
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 274
dh =
  -4.85666667068649
rdh_sum =
  33.72493354703
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 275
dh =
  -4.90438817068649
rdh_sum =
  34.4611357767676
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 276
dh =
  -4.95210967068649
rdh_sum =
  35.2061353513001
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 277
dh =
  -4.99983067068649
rdh_sum =
  35.9598334773153
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 278
dh =
  -5.04755217068649
rdh_sum =
  36.7221280393986
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 279
dh =
  -5.09527367068649
rdh_sum =
  37.492913367236
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 280
dh =
  -5.13723517068649
rdh_sum =
  38.2710746007514
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 281
dh =
  -5.17343767068649
rdh_sum =
  39.0555298959006
ans =
```

```

Berm Factor Calculation: Iteration 2, Profile Segment: 282
dh =
    -5.20964017068649
rdh_sum =
    39.8462132999386
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 283
dh =
    -5.24584217068649
rdh_sum =
    40.6430573314796
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 284
dh =
    -5.28204467068649
rdh_sum =
    41.4459932509279
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 285
dh =
    -5.31824717068649
rdh_sum =
    42.25495082069
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 286
dh =
    -5.35444967068649
rdh_sum =
    43.0698584070147
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 287
dh =
    -5.39065217068649
rdh_sum =
    43.8906429966024
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 288
dh =
    -5.42685417068649
rdh_sum =
    44.7172301339118
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 289
dh =
    -5.46305667068649
rdh_sum =
    45.5495441783241
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 290
dh =
    -5.49925917068649
rdh_sum =
    46.3875080807431
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 291
dh =
    -5.53546117068649
rdh_sum =
    47.2310434057154
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 292
dh =
    -5.57166367068649
rdh_sum =
    48.0800705799138
ans =
Berm Factor Calculation: Iteration 2, Profile Segment: 293
dh =
    -5.60786617068649
rdh_sum =
    48.934508679198
ans =
!----- End Berm Factor Calculation, Iter: 2 -----!
berm_width =
    223
rB =
    0.725204519638008
rdh_mean =
    0.219437258651112
gamma_berm =
    0.433932372112753
gamma_berm =
    0.6
slope =
    0.184525374639748
Irb =
    2.25433772683246
gamma_berm =
    0.6
gamma_perm =

```

```

1
gamma_beta =
1
gamma_rough =
0.8
gamma =
0.48
ans =
!!! - - Iribaren number: 1.35 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:5.4 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
10.0249864885066
! 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 =
3.65043666
upper_slope =
0.191381999999999
upper_slope =
0.191381999999997
upper_slope =
0.1913820000001
upper_slope =
0.191382964690341
upper_slope =
0.191382491013939
upper_slope =
0.191382329315458
upper_slope =
0.191382495466228
upper_slope =
0.191382397093115
upper_slope =
0.191382331312215
upper_slope =
0.191382426342143
upper_slope =
0.191382373292093
upper_slope =
0.191382331983192
upper_slope =
0.183651694516359
w2 =
0.0472655588251012
w1 =
0.952734441174899
R2_new =
10.0099479510347
R2del =
2.54074180345404
Z2 =
19.0804467803482
ans =
!----- STARTING ITERATION 3 -----!
Ztoe =
0.94741
toe_sta =
12.5371395555078
top_sta =
345.995907699236
Z2 =
19.0804467803482
H0 =
5.2342
Tp =
13.5919
T0 =
12.3562727272727
R2 =
10.0099479510347
Z2 =
19.0804467803482
top_sta =
345.995907699236
Lslope =
333.458768143728
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 32
dh =
4.19996582931351
rdh_sum =
0.34729103989654
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 33
dh =
4.16210982931351
rdh_sum =
0.689183131478468
ans =

```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 34
dh =
    4.12425382931351
rdh_sum =
    1.02569668069317
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 35
dh =
    4.08639782931351
rdh_sum =
    1.3568527876611
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 36
dh =
    4.04854232931351
rdh_sum =
    1.68267331427858
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 37
dh =
    4.01068682931351
rdh_sum =
    2.00318074015032
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 38
dh =
    3.97283082931351
rdh_sum =
    2.31839816087574
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 39
dh =
    3.93497482931351
rdh_sum =
    2.62834942512647
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 40
dh =
    3.89711882931351
rdh_sum =
    2.93305906124232
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 41
dh =
    3.85926282931351
rdh_sum =
    3.23255227406553
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 42
dh =
    3.82140682931351
rdh_sum =
    3.5268549416878
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 43
dh =
    3.78355132931351
rdh_sum =
    3.81599368013784
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 44
dh =
    3.74660082931351
rdh_sum =
    4.10011818245487
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 45
dh =
    3.71146032931351
rdh_sum =
    4.3794986850822
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 46
dh =
    3.67722582931351
rdh_sum =
    4.6542810892491
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 47
dh =
    3.64299132931351
rdh_sum =
    4.924489166909
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 48
dh =
    3.60875632931351
rdh_sum =
    5.19014710656527
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 49
dh =
    3.57452132931351
rdh_sum =
    5.45127964399068
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 50
dh =
    3.54028632931351
rdh_sum =
    5.70791199263286
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 51
dh =
    3.50605132931351
rdh_sum =
    5.960069840953
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 52
dh =
    3.47181632931351
rdh_sum =
    6.20777934971427
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 53
dh =
    3.43758182931351
rdh_sum =
    6.4510672136025
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 54
dh =
    3.40334732931351
rdh_sum =
    6.68996052885288
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 55
dh =
    3.36911232931351
rdh_sum =
    6.92448679197281
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 56
dh =
    3.34018382931351
rdh_sum =
    7.15534473042837
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 57
dh =
    3.31656182931351
rdh_sum =
    7.3832227554551
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 58
dh =
    3.29293982931351
rdh_sum =
    7.60813310254311
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 59
dh =
    3.26931782931351
rdh_sum =
    7.83009103572924
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 60
dh =
    3.24569582931351
rdh_sum =
    8.04911004780645
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 61
dh =
    3.22207382931351
rdh_sum =
    8.26520425916959
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 62
dh =
    3.19845182931351
rdh_sum =
    8.47838793719619
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 63
dh =
    3.17482932931351
rdh_sum =
    8.68867543438173
ans =
```



```
Berm Factor Calculation: Iteration 3, Profile Segment: 64
dh =
    3.15120682931351
rdh_sum =
    8.8960813105302
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 65
dh =
    3.12758482931351
rdh_sum =
    9.10062033078974
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 66
dh =
    3.10396282931351
rdh_sum =
    9.30230734323149
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 67
dh =
    3.08034082931351
rdh_sum =
    9.50115733925113
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 68
dh =
    3.03570482931351
rdh_sum =
    9.69468795656988
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 88
dh =
    0.98227582931351
rdh_sum =
    9.71625537312226
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 89
dh =
    1.03286432931351
rdh_sum =
    9.74008323016519
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 90
dh =
    1.08345282931351
rdh_sum =
    9.7662812759583
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 91
dh =
    1.13404082931351
rdh_sum =
    9.79495868743633
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 92
dh =
    1.18462932931351
rdh_sum =
    9.82622411909927
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 93
dh =
    1.23521782931351
rdh_sum =
    9.86018560499294
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 94
dh =
    1.28580632931351
rdh_sum =
    9.89695055777596
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 95
dh =
    1.33639482931351
rdh_sum =
    9.9366257439633
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 96
dh =
    1.38698332931351
rdh_sum =
    9.97931725931872
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 97
dh =
    1.43757182931351
rdh_sum =
    10.0251305044017
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 98
dh =
    1.48815982931351
rdh_sum =
    10.0741701278713
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 99
dh =
    1.53874832931351
rdh_sum =
    10.1265400985462
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 100
dh =
    1.58933682931351
rdh_sum =
    10.1823435862936
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 101
dh =
    1.63992532931351
rdh_sum =
    10.2416829696226
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 102
dh =
    1.69051382931351
rdh_sum =
    10.3046598120887
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 103
dh =
    1.71211932931351
rdh_sum =
    10.3692208971279
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 104
dh =
    1.67575882931351
rdh_sum =
    10.4311263700036
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 105
dh =
    1.61041532931351
rdh_sum =
    10.4883907490733
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 106
dh =
    1.54507232931351
rdh_sum =
    10.5411843126416
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 107
dh =
    1.47972882931351
rdh_sum =
    10.5896789897535
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 108
dh =
    1.41438532931351
rdh_sum =
    10.634048397365
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 109
dh =
    1.34904182931351
rdh_sum =
    10.6744677387184
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 110
dh =
    1.28369832931351
rdh_sum =
    10.7111137359718
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 111
dh =
    1.21835532931351
rdh_sum =
    10.7441645890685
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 112
dh =
    1.15301182931351
rdh_sum =
    10.7737998253717
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 113
dh =
    1.08766832931351
rdh_sum =
    10.800200313842
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 114
dh =
    1.02232482931351
rdh_sum =
    10.8235481672951
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 115
dh =
    0.967712329313509
rdh_sum =
    10.8444852638338
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 116
dh =
    0.934562329313509
rdh_sum =
    10.8640217417262
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 117
dh =
    0.91214332931351
rdh_sum =
    10.8826379409497
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 118
dh =
    0.889724329313509
rdh_sum =
    10.9003556516786
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 119
dh =
    0.867305329313508
rdh_sum =
    10.9171967047576
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 120
dh =
    0.844886329313509
rdh_sum =
    10.9331829707141
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 121
dh =
    0.822467329313509
rdh_sum =
    10.9483363587682
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 122
dh =
    0.80004832931351
rdh_sum =
    10.9626788158405
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 123
dh =
    0.777629329313509
rdh_sum =
    10.9762323255591
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 124
dh =
    0.755209829313509
rdh_sum =
    10.9890188904057
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 125
dh =
    0.732790329313509
rdh_sum =
    11.0010605654208
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 126
dh =
    0.710371329313508
rdh_sum =
    11.0123794552374
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 127
dh =
    0.691291829313508
rdh_sum =
    11.0231006469349
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 128
dh =
    0.67889132931351
rdh_sum =
    11.0334419712337
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 129
dh =
    0.669829829313509
rdh_sum =
    11.0435100003683
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 130
dh =
    0.660768329313509
rdh_sum =
    11.0533083573869
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 131
dh =
    0.651707329313508
rdh_sum =
    11.0628406819117
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 132
dh =
    0.642645829313508
rdh_sum =
    11.0721105861723
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 133
dh =
    0.633584329313509
rdh_sum =
    11.0811216991189
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 134
dh =
    0.62452332931351
rdh_sum =
    11.0898776655947
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 135
dh =
    0.615461829313508
rdh_sum =
    11.0983821041707
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 136
dh =
    0.606400329313509
rdh_sum =
    11.106638649458
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 137
dh =
    0.597338829313509
rdh_sum =
    11.1146509379004
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 138
dh =
    0.604589329313509
rdh_sum =
    11.1228583760436
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 139
dh =
    0.628151829313508
rdh_sum =
    11.1317160806177
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 140
dh =
    0.651714329313508
rdh_sum =
    11.1412486092642
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 141
dh =
    0.675276829313509
rdh_sum =
    11.1514804858827
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 142
dh =
    0.698838829313511
rdh_sum =
    11.1624361837851
ans =
```

```
Berm Factor Calculation: Iteration 3, Profile Segment: 143
dh =
    0.722401329313509
rdh_sum =
    11.1741401708112
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 144
dh =
    0.745963829313508
rdh_sum =
    11.1866168622854
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 145
dh =
    0.769526329313509
rdh_sum =
    11.199890634896
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 146
dh =
    0.793088829313509
rdh_sum =
    11.2139858254762
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 147
dh =
    0.816650829313508
rdh_sum =
    11.2289267115841
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 148
dh =
    0.840213329313508
rdh_sum =
    11.2447375643841
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 149
dh =
    0.83501132931351
rdh_sum =
    11.2603542666909
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 150
dh =
    0.80104482931351
rdh_sum =
    11.2747323021676
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 151
dh =
    0.76707882931351
rdh_sum =
    11.2879221464582
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 152
dh =
    0.733112329313508
rdh_sum =
    11.2999743636841
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 153
dh =
    0.69914582931351
rdh_sum =
    11.3109396540344
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 154
dh =
    0.665179829313509
rdh_sum =
    11.3208688455127
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 155
dh =
    0.631213329313509
rdh_sum =
    11.3298128432749
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 156
dh =
    0.597246829313509
rdh_sum =
    11.3378226704693
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 157
dh =
    0.567179329313509
rdh_sum =
    11.3450482120678
ans =
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Berm Factor Calculation: Iteration 3, Profile Segment: 158
dh =
    0.544908329313509
rdh_sum =
    11.351718694948
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 159
dh =
    0.526535329313509
rdh_sum =
    11.3579478566655
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 160
dh =
    0.508162329313508
rdh_sum =
    11.3637507086783
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 161
dh =
    0.48978982931351
rdh_sum =
    11.3691422863933
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 162
dh =
    0.471417329313509
rdh_sum =
    11.3741376259143
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 163
dh =
    0.453044329313508
rdh_sum =
    11.3787517652215
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 164
dh =
    0.43467182931351
rdh_sum =
    11.3829997746316
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 165
dh =
    0.416299329313508
rdh_sum =
    11.3868967250129
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 166
dh =
    0.39792632931351
rdh_sum =
    11.3904576889675
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 167
dh =
    0.379553329313509
rdh_sum =
    11.3936977590714
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 168
dh =
    0.361180829313509
rdh_sum =
    11.3966320457723
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 169
dh =
    0.34280832931351
rdh_sum =
    11.3992756598757
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 170
dh =
    0.316685829313508
rdh_sum =
    11.4015320217426
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 171
dh =
    0.282813329313509
rdh_sum =
    11.4033317935143
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 172
dh =
    0.24894082931351
rdh_sum =
    11.4047264545435
ans =
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Berm Factor Calculation: Iteration 3, Profile Segment: 173
dh =
    0.215068329313509
rdh_sum =
    11.4057675260437
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 174
dh =
    0.181195829313509
rdh_sum =
    11.4065065657648
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 175
dh =
    0.14732332931351
rdh_sum =
    11.4069951626658
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 176
dh =
    0.113450829313509
rdh_sum =
    11.4072849315842
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 177
dh =
    0.0795783293135095
rdh_sum =
    11.4074275079026
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 178
dh =
    0.0457058293135102
rdh_sum =
    11.407474542213
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 179
dh =
    0.0118338293135078
rdh_sum =
    11.4074776952462
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 180
dh =
    -0.0220386706864915
rdh_sum =
    11.4074896556115
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 181
dh =
    -0.0559111706864908
rdh_sum =
    11.4075666326873
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 182
dh =
    -0.0897836706864901
rdh_sum =
    11.4077651239339
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 183
dh =
    -0.123656170686489
rdh_sum =
    11.4081416130786
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 184
dh =
    -0.15752867068649
rdh_sum =
    11.4087525637329
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 185
dh =
    -0.191401170686492
rdh_sum =
    11.4096544130113
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 186
dh =
    -0.225273670686491
rdh_sum =
    11.4109035651532
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 187
dh =
    -0.25914617068649
rdh_sum =
    11.4125563851483
ans =
```

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Berm Factor Calculation: Iteration 3, Profile Segment: 188
dh =
  -0.300954670686492
rdh_sum =
  11.4147851007526
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 189
dh =
  -0.358635670686491
rdh_sum =
  11.4179490083659
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 190
dh =
  -0.424252170686492
rdh_sum =
  11.4223747066208
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 191
dh =
  -0.489868670686491
rdh_sum =
  11.4282723578718
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 192
dh =
  -0.55548567068649
rdh_sum =
  11.4358515138592
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 193
dh =
  -0.621102670686492
rdh_sum =
  11.4453210028066
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 194
dh =
  -0.686719670686491
rdh_sum =
  11.4568888512757
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 195
dh =
  -0.752336170686492
rdh_sum =
  11.4707621775915
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 196
dh =
  -0.817952670686491
rdh_sum =
  11.4871471375733
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 197
dh =
  -0.883569670686491
rdh_sum =
  11.506248843391
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 198
dh =
  -0.94918667068649
rdh_sum =
  11.5282712367292
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 199
dh =
  -1.01480367068649
rdh_sum =
  11.553417020653
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 200
dh =
  -1.08042017068649
rdh_sum =
  11.5818875475467
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 201
dh =
  -1.13097467068649
rdh_sum =
  11.6130560946695
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 202
dh =
  -1.16646767068649
rdh_sum =
  11.6461894101615
ans =
```



```
Berm Factor Calculation: Iteration 3, Profile Segment: 203
dh =
  -1.20196067068649
rdh_sum =
  11.6813454247771
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 204
dh =
  -1.23745317068649
rdh_sum =
  11.718581788574
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 205
dh =
  -1.27294567068649
rdh_sum =
  11.7579559215655
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 206
dh =
  -1.30843867068649
rdh_sum =
  11.7995250098315
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 207
dh =
  -1.34393117068649
rdh_sum =
  11.8433459052591
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 208
dh =
  -1.37942367068649
rdh_sum =
  11.8894752108486
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 209
dh =
  -1.41491667068649
rdh_sum =
  11.93796927688
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 210
dh =
  -1.45040967068649
rdh_sum =
  11.9888841280819
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 211
dh =
  -1.48590217068649
rdh_sum =
  12.0422754535237
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 228
dh =
  -2.68392767068649
rdh_sum =
  12.2094169602546
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 229
dh =
  -2.74339617068649
rdh_sum =
  12.3835796136605
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 230
dh =
  -2.79876017068649
rdh_sum =
  12.5643808873884
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 231
dh =
  -2.85412417068649
rdh_sum =
  12.7519171511403
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 232
dh =
  -2.90948817068649
rdh_sum =
  12.9462827412486
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 233
dh =
  -2.96485267068649
rdh_sum =
  13.1475699951153
ans =
```

Berm Factor Calculation: Iteration 3, Profile Segment: 234  
dh =  
-3.02021717068649  
rdh\_sum =  
13.3558690991223  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 235  
dh =  
-3.07558117068649  
rdh\_sum =  
13.5712680581458  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 236  
dh =  
-3.13094517068649  
rdh\_sum =  
13.7938527964555  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 237  
dh =  
-3.18630917068649  
rdh\_sum =  
14.0237070688534  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 238  
dh =  
-3.24167317068649  
rdh\_sum =  
14.2609124353869  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 239  
dh =  
-3.29703767068649  
rdh\_sum =  
14.505548304182  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 240  
dh =  
-3.35240217068649  
rdh\_sum =  
14.7576917739476  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 241  
dh =  
-3.40776617068649  
rdh\_sum =  
15.0174176079139  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 242  
dh =  
-3.46313017068649  
rdh\_sum =  
15.2847983475663  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 243  
dh =  
-3.51849417068649  
rdh\_sum =  
15.5599042232879  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 244  
dh =  
-3.55666817068649  
rdh\_sum =  
15.840376342948  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 245  
dh =  
-3.56046167068649  
rdh\_sum =  
16.1213834612178  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 246  
dh =  
-3.54706467068649  
rdh\_sum =  
16.4005025887153  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 247  
dh =  
-3.53366817068649  
rdh\_sum =  
16.677737700567  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 248  
dh =  
-3.52027167068649  
rdh\_sum =  
16.9530927346683  
ans =

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Berm Factor Calculation: Iteration 3, Profile Segment: 249
dh =
    -3.50687467068649
rdh_sum =
    17.2265715922016
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 250
dh =
    -3.49347767068649
rdh_sum =
    17.4981782777618
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 251
dh =
    -3.48008117068649
rdh_sum =
    17.7679168986877
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 252
dh =
    -3.46668467068649
rdh_sum =
    18.0357915253928
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 253
dh =
    -3.45328767068649
rdh_sum =
    18.301806191901
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 254
dh =
    -3.43989067068649
rdh_sum =
    18.5659650347644
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 255
dh =
    -3.42649417068649
rdh_sum =
    18.8282722923723
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 260
dh =
    -4.12631567068649
rdh_sum =
    19.1921305376022
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 261
dh =
    -4.18136067068649
rdh_sum =
    19.564320169616
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 262
dh =
    -4.23640567068649
rdh_sum =
    19.9448793324293
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 263
dh =
    -4.29145117068649
rdh_sum =
    20.3338437487381
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 264
dh =
    -4.34649667068649
rdh_sum =
    20.7312465568555
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 265
dh =
    -4.40154167068649
rdh_sum =
    21.1371182996169
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 266
dh =
    -4.45658667068649
rdh_sum =
    21.5514870688723
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 267
dh =
    -4.51163167068649
rdh_sum =
    21.9743784206001
ans =
```

Berm Factor Calculation: Iteration 3, Profile Segment: 268  
dh =  
-4.56667717068649  
rdh\_sum =  
22.4058154450003  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 269  
dh =  
-4.61806067068649  
rdh\_sum =  
22.8452481428875  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 270  
dh =  
-4.66578167068649  
rdh\_sum =  
23.2921207520795  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 271  
dh =  
-4.71350317068649  
rdh\_sum =  
23.7464452676518  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 272  
dh =  
-4.76122467068649  
rdh\_sum =  
24.2082319352323  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 273  
dh =  
-4.80894567068649  
rdh\_sum =  
24.6774892482746  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 274  
dh =  
-4.85666667068649  
rdh\_sum =  
25.1542241026341  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 275  
dh =  
-4.90438817068649  
rdh\_sum =  
25.6384417953103  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 276  
dh =  
-4.95210967068649  
rdh\_sum =  
26.1301458664882  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 277  
dh =  
-4.99983067068649  
rdh\_sum =  
26.6293380985949  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 278  
dh =  
-5.04755217068649  
rdh\_sum =  
27.1360187512746  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 279  
dh =  
-5.09527367068649  
rdh\_sum =  
27.6501863259666  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 280  
dh =  
-5.13723517068649  
rdh\_sum =  
28.1709345788981  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 281  
dh =  
-5.17343767068649  
rdh\_sum =  
28.6973574962573  
ans =  
Berm Factor Calculation: Iteration 3, Profile Segment: 282  
dh =  
-5.20964017068649  
rdh\_sum =  
29.2294516669904  
ans =

```

Berm Factor Calculation: Iteration 3, Profile Segment: 283
dh =
    -5.24584217068649
rdh_sum =
    29.767212869678
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 284
dh =
    -5.28204467068649
rdh_sum =
    30.3106363078554
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 285
dh =
    -5.31824717068649
rdh_sum =
    30.8597163757945
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 286
dh =
    -5.35444967068649
rdh_sum =
    31.4144467375272
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 287
dh =
    -5.39065217068649
rdh_sum =
    31.9748203276634
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 288
dh =
    -5.42685417068649
rdh_sum =
    32.5408292745283
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 289
dh =
    -5.46305667068649
rdh_sum =
    33.1124651346157
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 290
dh =
    -5.49925917068649
rdh_sum =
    33.6897186601283
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 291
dh =
    -5.53546117068649
rdh_sum =
    34.2725798006822
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 292
dh =
    -5.57166367068649
rdh_sum =
    34.8610379368771
ans =
Berm Factor Calculation: Iteration 3, Profile Segment: 293
dh =
    -5.60786617068649
rdh_sum =
    35.4550816492521
ans =
!----- End Berm Factor Calculation, Iter: 3 -----!
berm_width =
    223
rB =
    0.668748347033663
rdh_mean =
    0.158991397530278
gamma_berm =
    0.437576887257282
gamma_berm =
    0.6
slope =
    0.164161135282204
Irb =
    2.00554878302685
gamma_berm =
    0.6
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =

```

```

0.48
ans =
!!! - - Iribaren number: 1.20 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:6.1 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
8.91862794672521
! 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 =
3.65043666
upper_slope =
0.0902230000000017
upper_slope =
0.0942700224653267
upper_slope =
0.098005686503614
upper_slope =
0.1014646297826
upper_slope =
0.104676433849944
upper_slope =
0.107666702926857
upper_slope =
0.110457626872635
upper_slope =
0.113068435173931
upper_slope =
0.115516047086123
upper_slope =
0.117815330791406
upper_slope =
0.119979316817591
upper_slope =
0.122019632039475
upper_slope =
0.121791088503132
w2 =
0.0472655588251012
w1 =
0.952734441174899
R2_new =
8.93237934579823
R2del =
1.07756860523648
Z2 =
18.0028781751117
ans =
!----- STARTING ITERATION 4 -----!
Ztoe =
0.94741
toe_sta =
12.5371395555078
top_sta =
334.052516266492
Z2 =
18.0028781751117
H0 =
5.2342
Tp =
13.5919
T0 =
12.3562727272727
R2 =
8.93237934579823
Z2 =
18.0028781751117
top_sta =
334.052516266492
Lslope =
321.515376710984
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 32
dh =
4.19996582931351
rdh_sum =
0.34729103989654
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 33
dh =
4.16210982931351
rdh_sum =
0.689183131478468
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 34
dh =
4.12425382931351
rdh_sum =
1.02569668069317
ans =

```

```
Berm Factor Calculation: Iteration 4, Profile Segment: 35
dh =
    4.08639782931351
rdh_sum =
    1.3568527876611
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 36
dh =
    4.04854232931351
rdh_sum =
    1.68267331427858
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 37
dh =
    4.01068682931351
rdh_sum =
    2.00318074015032
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 38
dh =
    3.97283082931351
rdh_sum =
    2.31839816087574
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 39
dh =
    3.93497482931351
rdh_sum =
    2.62834942512647
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 40
dh =
    3.89711882931351
rdh_sum =
    2.93305906124232
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 41
dh =
    3.85926282931351
rdh_sum =
    3.23255227406553
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 42
dh =
    3.82140682931351
rdh_sum =
    3.5268549416878
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 43
dh =
    3.78355132931351
rdh_sum =
    3.81599368013784
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 44
dh =
    3.74660082931351
rdh_sum =
    4.10011818245487
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 45
dh =
    3.71146032931351
rdh_sum =
    4.3794986850822
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 46
dh =
    3.67722582931351
rdh_sum =
    4.6542810892491
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 47
dh =
    3.64299132931351
rdh_sum =
    4.924489166909
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 48
dh =
    3.60875632931351
rdh_sum =
    5.19014710656527
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 49
dh =
    3.57452132931351
rdh_sum =
    5.45127964399068
ans =
```

```
Berm Factor Calculation: Iteration 4, Profile Segment: 50
dh =
    3.54028632931351
rdh_sum =
    5.70791199263286
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 51
dh =
    3.50605132931351
rdh_sum =
    5.960069840953
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 52
dh =
    3.47181632931351
rdh_sum =
    6.20777934971427
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 53
dh =
    3.43758182931351
rdh_sum =
    6.4510672136025
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 54
dh =
    3.40334732931351
rdh_sum =
    6.68996052885288
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 55
dh =
    3.36911232931351
rdh_sum =
    6.92448679197281
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 56
dh =
    3.34018382931351
rdh_sum =
    7.15534473042837
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 57
dh =
    3.31656182931351
rdh_sum =
    7.3832227554551
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 58
dh =
    3.29293982931351
rdh_sum =
    7.60813310254311
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 59
dh =
    3.26931782931351
rdh_sum =
    7.83009103572924
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 60
dh =
    3.24569582931351
rdh_sum =
    8.04911004780645
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 61
dh =
    3.22207382931351
rdh_sum =
    8.26520425916959
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 62
dh =
    3.19845182931351
rdh_sum =
    8.47838793719619
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 63
dh =
    3.17482932931351
rdh_sum =
    8.68867543438173
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 64
dh =
    3.15120682931351
rdh_sum =
    8.8960813105302
ans =
```



```
Berm Factor Calculation: Iteration 4, Profile Segment: 65
dh =
    3.12758482931351
rdh_sum =
    9.10062033078974
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 66
dh =
    3.10396282931351
rdh_sum =
    9.30230734323149
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 67
dh =
    3.08034082931351
rdh_sum =
    9.50115733925113
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 68
dh =
    3.03570482931351
rdh_sum =
    9.69468795656988
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 88
dh =
    0.98227582931351
rdh_sum =
    9.71625537312226
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 89
dh =
    1.03286432931351
rdh_sum =
    9.74008323016519
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 90
dh =
    1.08345282931351
rdh_sum =
    9.7662812759583
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 91
dh =
    1.13404082931351
rdh_sum =
    9.79495868743633
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 92
dh =
    1.18462932931351
rdh_sum =
    9.82622411909927
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 93
dh =
    1.23521782931351
rdh_sum =
    9.86018560499294
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 94
dh =
    1.28580632931351
rdh_sum =
    9.89695055777596
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 95
dh =
    1.33639482931351
rdh_sum =
    9.9366257439633
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 96
dh =
    1.38698332931351
rdh_sum =
    9.97931725931872
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 97
dh =
    1.43757182931351
rdh_sum =
    10.0251305044017
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 98
dh =
    1.48815982931351
rdh_sum =
    10.0741701278713
ans =
```

```
Berm Factor Calculation: Iteration 4, Profile Segment: 99
dh =
    1.53874832931351
rdh_sum =
    10.1265400985462
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 100
dh =
    1.58933682931351
rdh_sum =
    10.1823435862936
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 101
dh =
    1.63992532931351
rdh_sum =
    10.2416829696226
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 102
dh =
    1.69051382931351
rdh_sum =
    10.3046598120887
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 103
dh =
    1.71211932931351
rdh_sum =
    10.3692208971279
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 104
dh =
    1.67575882931351
rdh_sum =
    10.4311263700036
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 105
dh =
    1.61041532931351
rdh_sum =
    10.4883907490733
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 106
dh =
    1.54507232931351
rdh_sum =
    10.5411843126416
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 107
dh =
    1.47972882931351
rdh_sum =
    10.5896789897535
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 108
dh =
    1.41438532931351
rdh_sum =
    10.634048397365
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 109
dh =
    1.34904182931351
rdh_sum =
    10.6744677387184
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 110
dh =
    1.28369832931351
rdh_sum =
    10.7111137359718
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 111
dh =
    1.21835532931351
rdh_sum =
    10.7441645890685
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 112
dh =
    1.15301182931351
rdh_sum =
    10.7737998253717
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 113
dh =
    1.08766832931351
rdh_sum =
    10.800200313842
ans =
```

```
Berm Factor Calculation: Iteration 4, Profile Segment: 114
dh =
    1.02232482931351
rdh_sum =
    10.8235481672951
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 115
dh =
    0.967712329313509
rdh_sum =
    10.8444852638338
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 116
dh =
    0.934562329313509
rdh_sum =
    10.8640217417262
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 117
dh =
    0.91214332931351
rdh_sum =
    10.8826379409497
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 118
dh =
    0.889724329313509
rdh_sum =
    10.9003556516786
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 119
dh =
    0.867305329313508
rdh_sum =
    10.9171967047576
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 120
dh =
    0.844886329313509
rdh_sum =
    10.9331829707141
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 121
dh =
    0.822467329313509
rdh_sum =
    10.9483363587682
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 122
dh =
    0.80004832931351
rdh_sum =
    10.9626788158405
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 123
dh =
    0.777629329313509
rdh_sum =
    10.9762323255591
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 124
dh =
    0.755209829313509
rdh_sum =
    10.9890188904057
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 125
dh =
    0.732790329313509
rdh_sum =
    11.0010605654208
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 126
dh =
    0.710371329313508
rdh_sum =
    11.0123794552374
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 127
dh =
    0.691291829313508
rdh_sum =
    11.0231006469349
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 128
dh =
    0.67889132931351
rdh_sum =
    11.0334419712337
ans =
```

```
Berm Factor Calculation: Iteration 4, Profile Segment: 129
dh =
    0.669829829313509
rdh_sum =
    11.0435100003683
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 130
dh =
    0.660768329313509
rdh_sum =
    11.0533083573869
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 131
dh =
    0.651707329313508
rdh_sum =
    11.0628406819117
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 132
dh =
    0.642645829313508
rdh_sum =
    11.0721105861723
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 133
dh =
    0.633584329313509
rdh_sum =
    11.0811216991189
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 134
dh =
    0.62452332931351
rdh_sum =
    11.0898776655947
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 135
dh =
    0.615461829313508
rdh_sum =
    11.0983821041707
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 136
dh =
    0.606400329313509
rdh_sum =
    11.106638649458
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 137
dh =
    0.597338829313509
rdh_sum =
    11.1146509379004
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 138
dh =
    0.604589329313509
rdh_sum =
    11.1228583760436
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 139
dh =
    0.628151829313508
rdh_sum =
    11.1317160806177
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 140
dh =
    0.651714329313508
rdh_sum =
    11.1412486092642
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 141
dh =
    0.675276829313509
rdh_sum =
    11.1514804858827
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 142
dh =
    0.698838829313511
rdh_sum =
    11.1624361837851
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 143
dh =
    0.722401329313509
rdh_sum =
    11.1741401708112
ans =
```

```
Berm Factor Calculation: Iteration 4, Profile Segment: 144
dh =
    0.745963829313508
rdh_sum =
    11.1866168622854
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 145
dh =
    0.769526329313509
rdh_sum =
    11.199890634896
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 146
dh =
    0.793088829313509
rdh_sum =
    11.2139858254762
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 147
dh =
    0.816650829313508
rdh_sum =
    11.2289267115841
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 148
dh =
    0.840213329313508
rdh_sum =
    11.2447375643841
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 149
dh =
    0.83501132931351
rdh_sum =
    11.2603542666909
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 150
dh =
    0.80104482931351
rdh_sum =
    11.2747323021676
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 151
dh =
    0.76707882931351
rdh_sum =
    11.2879221464582
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 152
dh =
    0.733112329313508
rdh_sum =
    11.2999743636841
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 153
dh =
    0.69914582931351
rdh_sum =
    11.3109396540344
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 154
dh =
    0.665179829313509
rdh_sum =
    11.3208688455127
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 155
dh =
    0.631213329313509
rdh_sum =
    11.3298128432749
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 156
dh =
    0.597246829313509
rdh_sum =
    11.3378226704693
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 157
dh =
    0.567179329313509
rdh_sum =
    11.3450482120678
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 158
dh =
    0.544908329313509
rdh_sum =
    11.351718694948
ans =
```

```
Berm Factor Calculation: Iteration 4, Profile Segment: 159
dh =
    0.526535329313509
rdh_sum =
    11.3579478566655
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 160
dh =
    0.508162329313508
rdh_sum =
    11.3637507086783
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 161
dh =
    0.48978982931351
rdh_sum =
    11.3691422863933
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 162
dh =
    0.471417329313509
rdh_sum =
    11.3741376259143
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 163
dh =
    0.453044329313508
rdh_sum =
    11.3787517652215
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 164
dh =
    0.43467182931351
rdh_sum =
    11.3829997746316
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 165
dh =
    0.416299329313508
rdh_sum =
    11.3868967250129
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 166
dh =
    0.39792632931351
rdh_sum =
    11.3904576889675
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 167
dh =
    0.379553329313509
rdh_sum =
    11.3936977590714
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 168
dh =
    0.361180829313509
rdh_sum =
    11.3966320457723
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 169
dh =
    0.34280832931351
rdh_sum =
    11.3992756598757
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 170
dh =
    0.316685829313508
rdh_sum =
    11.4015320217426
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 171
dh =
    0.282813329313509
rdh_sum =
    11.4033317935143
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 172
dh =
    0.24894082931351
rdh_sum =
    11.4047264545435
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 173
dh =
    0.215068329313509
rdh_sum =
    11.4057675260437
ans =
```

```
Berm Factor Calculation: Iteration 4, Profile Segment: 174
dh =
    0.181195829313509
rdh_sum =
    11.4065065657648
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 175
dh =
    0.14732332931351
rdh_sum =
    11.4069951626658
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 176
dh =
    0.113450829313509
rdh_sum =
    11.4072849315842
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 177
dh =
    0.0795783293135095
rdh_sum =
    11.4074275079026
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 178
dh =
    0.0457058293135102
rdh_sum =
    11.407474542213
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 179
dh =
    0.0118338293135078
rdh_sum =
    11.4074776952462
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 180
dh =
    -0.0220386706864915
rdh_sum =
    11.4074927153634
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 181
dh =
    -0.0559111706864908
rdh_sum =
    11.4075893845089
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 182
dh =
    -0.0897836706864901
rdh_sum =
    11.407838650672
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 183
dh =
    -0.123656170686489
rdh_sum =
    11.4083114401848
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 184
dh =
    -0.15752867068649
rdh_sum =
    11.4090786476562
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 185
dh =
    -0.191401170686492
rdh_sum =
    11.4102111259103
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 186
dh =
    -0.225273670686491
rdh_sum =
    11.4117796759309
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 187
dh =
    -0.25914617068649
rdh_sum =
    11.4138550368126
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 188
dh =
    -0.300954670686492
rdh_sum =
    11.4166533824819
ans =
```

```
Berm Factor Calculation: Iteration 4, Profile Segment: 189
dh =
  -0.358635670686491
rdh_sum =
  11.4206256253057
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 190
dh =
  -0.424252170686492
rdh_sum =
  11.4261814293641
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 191
dh =
  -0.489868670686491
rdh_sum =
  11.4335841176761
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 192
dh =
  -0.55548567068649
rdh_sum =
  11.4430960467459
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 193
dh =
  -0.621102670686492
rdh_sum =
  11.4549784366844
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 194
dh =
  -0.686719670686491
rdh_sum =
  11.4694912451623
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 195
dh =
  -0.752336170686492
rdh_sum =
  11.486893005968
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 196
dh =
  -0.817952670686491
rdh_sum =
  11.5074407333938
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 197
dh =
  -0.883569670686491
rdh_sum =
  11.5313897931912
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 198
dh =
  -0.94918667068649
rdh_sum =
  11.5589937166626
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 199
dh =
  -1.01480367068649
rdh_sum =
  11.590504088633
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 200
dh =
  -1.08042017068649
rdh_sum =
  11.6261703808501
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 201
dh =
  -1.13097467068649
rdh_sum =
  11.6652073955797
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 202
dh =
  -1.16646767068649
rdh_sum =
  11.7066980423705
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 203
dh =
  -1.20196067068649
rdh_sum =
  11.7507137696497
ans =
```



```
Berm Factor Calculation: Iteration 4, Profile Segment: 204
dh =
  -1.23745317068649
rdh_sum =
  11.7973255952957
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 205
dh =
  -1.27294567068649
rdh_sum =
  11.846604167724
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 206
dh =
  -1.30843867068649
rdh_sum =
  11.8986197588588
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 207
dh =
  -1.34393117068649
rdh_sum =
  11.9534421370196
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 208
dh =
  -1.37942367068649
rdh_sum =
  12.011140671227
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 209
dh =
  -1.41491667068649
rdh_sum =
  12.0717843243015
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 210
dh =
  -1.45040967068649
rdh_sum =
  12.1354415601026
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 211
dh =
  -1.48590217068649
rdh_sum =
  12.2021803290023
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 228
dh =
  -2.68392767068649
rdh_sum =
  12.4088872052807
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 229
dh =
  -2.74339617068649
rdh_sum =
  12.6241272281632
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 230
dh =
  -2.79876017068649
rdh_sum =
  12.8474234871855
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 231
dh =
  -2.85412417068649
rdh_sum =
  13.0788808933223
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 232
dh =
  -2.90948817068649
rdh_sum =
  13.3186012632866
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 233
dh =
  -2.96485267068649
rdh_sum =
  13.5666833568769
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 234
dh =
  -3.02021717068649
rdh_sum =
  13.8232226893559
ans =
```

```
Berm Factor Calculation: Iteration 4, Profile Segment: 235
dh =
  -3.07558117068649
rdh_sum =
  14.0883114917861
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 236
dh =
  -3.13094517068649
rdh_sum =
  14.362038829688
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 237
dh =
  -3.18630917068649
rdh_sum =
  14.6444904933205
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 238
dh =
  -3.24167317068649
rdh_sum =
  14.9357489651538
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 239
dh =
  -3.29703767068649
rdh_sum =
  15.2358934691939
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 240
dh =
  -3.35240217068649
rdh_sum =
  15.5449997811192
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 241
dh =
  -3.40776617068649
rdh_sum =
  15.8631401968125
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 242
dh =
  -3.46313017068649
rdh_sum =
  16.1903836675147
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 243
dh =
  -3.51849417068649
rdh_sum =
  16.5267956930845
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 244
dh =
  -3.55666817068649
rdh_sum =
  16.8695658608907
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 245
dh =
  -3.56046167068649
rdh_sum =
  17.2129694292121
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 246
dh =
  -3.54706467068649
rdh_sum =
  17.5541373547924
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 247
dh =
  -3.53366817068649
rdh_sum =
  17.893073247155
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 248
dh =
  -3.52027167068649
rdh_sum =
  18.2297806818706
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 249
dh =
  -3.50687467068649
rdh_sum =
  18.5642632010112
ans =
```

```
Berm Factor Calculation: Iteration 4, Profile Segment: 250
dh =
  -3.49347767068649
rdh_sum =
  18.8965244792851
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 251
dh =
  -3.48008117068649
rdh_sum =
  19.2265683234069
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 252
dh =
  -3.46668467068649
rdh_sum =
  19.5543985063475
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 253
dh =
  -3.45328767068649
rdh_sum =
  19.8800187678146
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 254
dh =
  -3.43989067068649
rdh_sum =
  20.2034329792704
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 255
dh =
  -3.42649417068649
rdh_sum =
  20.5246451432679
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 260
dh =
  -4.12631567068649
rdh_sum =
  20.9650185039651
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 261
dh =
  -4.18136067068649
rdh_sum =
  21.4150132467213
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 262
dh =
  -4.23640567068649
rdh_sum =
  21.8746481129587
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 263
dh =
  -4.29145117068649
rdh_sum =
  22.3439383188481
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 264
dh =
  -4.34649667068649
rdh_sum =
  22.8228953742929
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 265
dh =
  -4.40154167068649
rdh_sum =
  23.3115270781969
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 266
dh =
  -4.45658667068649
rdh_sum =
  23.809837691273
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 267
dh =
  -4.51163167068649
rdh_sum =
  24.3178278466849
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 268
dh =
  -4.56667717068649
rdh_sum =
  24.835494637682
ans =
```

```
Berm Factor Calculation: Iteration 4, Profile Segment: 269
dh =
  -4.61806067068649
rdh_sum =
  25.3621884060423
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 270
dh =
  -4.66578167068649
rdh_sum =
  25.8972579839437
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 271
dh =
  -4.71350317068649
rdh_sum =
  26.4406935801828
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 272
dh =
  -4.76122467068649
rdh_sum =
  26.9924829590698
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 273
dh =
  -4.80894567068649
rdh_sum =
  27.5526114443879
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 274
dh =
  -4.85666667068649
rdh_sum =
  28.1210620984606
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 275
dh =
  -4.90438817068649
rdh_sum =
  28.697815726213
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 276
dh =
  -4.95210967068649
rdh_sum =
  29.2828507063561
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 277
dh =
  -4.99983067068649
rdh_sum =
  29.8761429983833
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 278
dh =
  -5.04755217068649
rdh_sum =
  30.4776664087547
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 279
dh =
  -5.09527367068649
rdh_sum =
  31.0873923386006
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 280
dh =
  -5.13723517068649
rdh_sum =
  31.7043052793845
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 281
dh =
  -5.17343767068649
rdh_sum =
  32.3273984468576
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 282
dh =
  -5.20964017068649
rdh_sum =
  32.9566518851851
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 283
dh =
  -5.24584217068649
rdh_sum =
  33.5920445551886
ans =
```

```

Berm Factor Calculation: Iteration 4, Profile Segment: 284
dh =
    -5.28204467068649
rdh_sum =
    34.2335545919792
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 285
dh =
    -5.31824717068649
rdh_sum =
    34.8811590539839
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 286
dh =
    -5.35444967068649
rdh_sum =
    35.5348340116027
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 287
dh =
    -5.39065217068649
rdh_sum =
    36.1945545510885
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 288
dh =
    -5.42685417068649
rdh_sum =
    36.8602946956298
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 289
dh =
    -5.46305667068649
rdh_sum =
    37.5320276587945
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 290
dh =
    -5.49925917068649
rdh_sum =
    38.209725599276
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 291
dh =
    -5.53546117068649
rdh_sum =
    38.8933596269444
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 292
dh =
    -5.57166367068649
rdh_sum =
    39.5829000532821
ans =
Berm Factor Calculation: Iteration 4, Profile Segment: 293
dh =
    -5.60786617068649
rdh_sum =
    40.2783161500409
ans =
!----- End Berm Factor Calculation, Iter: 4 -----!
berm_width =
    223
rB =
    0.693590466127094
rdh_mean =
    0.180620251793905
gamma_berm =
    0.431686018506634
gamma_berm =
    0.6
slope =
    0.173124934853039
Irb =
    2.11505909610844
gamma_berm =
    0.6
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.48
ans =
!!! - - Iribaren number: 1.27 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:5.8 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =

```

```

9.40561771579483
!   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 =
3.65043666
upper_slope =
0.0902230000000015
upper_slope =
0.097973153145544
upper_slope =
0.10462027918924
upper_slope =
0.110384280321987
upper_slope =
0.11543007615445
upper_slope =
0.119884077115868
upper_slope =
0.123844684148631
upper_slope =
0.127389481849192
upper_slope =
0.130580728139701
upper_slope =
0.133468851872305
upper_slope =
0.136094998812992
upper_slope =
0.138493305381693
upper_slope =
0.137466373101177
w2 =
0.0472655588251012
w1 =
0.952734441174899
R2_new =
9.39885567394788
R2del =
0.466476328149648
Z2 =
18.4693545032614
ans =
!----- STARTING ITERATION 5 -----!
Ztoe =
0.94741
toe_sta =
12.5371395555078
top_sta =
339.222775825026
Z2 =
18.4693545032614
H0 =
5.2342
Tp =
13.5919
T0 =
12.3562727272727
R2 =
9.39885567394788
Z2 =
18.4693545032614
top_sta =
339.222775825026
Lslope =
326.685636269519
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 32
dh =
4.19996582931351
rdh_sum =
0.34729103989654
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 33
dh =
4.16210982931351
rdh_sum =
0.689183131478468
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 34
dh =
4.12425382931351
rdh_sum =
1.02569668069317
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 35
dh =
4.08639782931351
rdh_sum =
1.3568527876611
ans =

```

```
Berm Factor Calculation: Iteration 5, Profile Segment: 36
dh =
    4.04854232931351
rdh_sum =
    1.68267331427858
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 37
dh =
    4.01068682931351
rdh_sum =
    2.00318074015032
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 38
dh =
    3.97283082931351
rdh_sum =
    2.31839816087574
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 39
dh =
    3.93497482931351
rdh_sum =
    2.62834942512647
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 40
dh =
    3.89711882931351
rdh_sum =
    2.93305906124232
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 41
dh =
    3.85926282931351
rdh_sum =
    3.23255227406553
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 42
dh =
    3.82140682931351
rdh_sum =
    3.5268549416878
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 43
dh =
    3.78355132931351
rdh_sum =
    3.81599368013784
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 44
dh =
    3.74660082931351
rdh_sum =
    4.10011818245487
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 45
dh =
    3.71146032931351
rdh_sum =
    4.3794986850822
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 46
dh =
    3.67722582931351
rdh_sum =
    4.6542810892491
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 47
dh =
    3.64299132931351
rdh_sum =
    4.924489166909
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 48
dh =
    3.60875632931351
rdh_sum =
    5.19014710656527
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 49
dh =
    3.57452132931351
rdh_sum =
    5.45127964399068
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 50
dh =
    3.54028632931351
rdh_sum =
    5.70791199263286
ans =
```

```
Berm Factor Calculation: Iteration 5, Profile Segment: 51
dh =
    3.50605132931351
rdh_sum =
    5.960069840953
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 52
dh =
    3.47181632931351
rdh_sum =
    6.20777934971427
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 53
dh =
    3.43758182931351
rdh_sum =
    6.4510672136025
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 54
dh =
    3.40334732931351
rdh_sum =
    6.68996052885288
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 55
dh =
    3.36911232931351
rdh_sum =
    6.92448679197281
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 56
dh =
    3.34018382931351
rdh_sum =
    7.15534473042837
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 57
dh =
    3.31656182931351
rdh_sum =
    7.38322227554551
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 58
dh =
    3.29293982931351
rdh_sum =
    7.60813310254311
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 59
dh =
    3.26931782931351
rdh_sum =
    7.83009103572924
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 60
dh =
    3.24569582931351
rdh_sum =
    8.04911004780645
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 61
dh =
    3.22207382931351
rdh_sum =
    8.26520425916959
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 62
dh =
    3.19845182931351
rdh_sum =
    8.47838793719619
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 63
dh =
    3.17482932931351
rdh_sum =
    8.68867543438173
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 64
dh =
    3.15120682931351
rdh_sum =
    8.8960813105302
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 65
dh =
    3.12758482931351
rdh_sum =
    9.10062033078974
ans =
```



```
Berm Factor Calculation: Iteration 5, Profile Segment: 66
dh =
    3.10396282931351
rdh_sum =
    9.30230734323149
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 67
dh =
    3.08034082931351
rdh_sum =
    9.50115733925113
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 68
dh =
    3.03570482931351
rdh_sum =
    9.69468795656988
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 88
dh =
    0.98227582931351
rdh_sum =
    9.71625537312226
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 89
dh =
    1.03286432931351
rdh_sum =
    9.74008323016519
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 90
dh =
    1.08345282931351
rdh_sum =
    9.7662812759583
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 91
dh =
    1.13404082931351
rdh_sum =
    9.79495868743633
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 92
dh =
    1.18462932931351
rdh_sum =
    9.82622411909927
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 93
dh =
    1.23521782931351
rdh_sum =
    9.86018560499294
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 94
dh =
    1.28580632931351
rdh_sum =
    9.89695055777596
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 95
dh =
    1.33639482931351
rdh_sum =
    9.9366257439633
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 96
dh =
    1.38698332931351
rdh_sum =
    9.97931725931872
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 97
dh =
    1.43757182931351
rdh_sum =
    10.0251305044017
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 98
dh =
    1.48815982931351
rdh_sum =
    10.0741701278713
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 99
dh =
    1.53874832931351
rdh_sum =
    10.1265400985462
ans =
```

```
Berm Factor Calculation: Iteration 5, Profile Segment: 100
dh =
    1.58933682931351
rdh_sum =
    10.1823435862936
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 101
dh =
    1.63992532931351
rdh_sum =
    10.2416829696226
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 102
dh =
    1.69051382931351
rdh_sum =
    10.3046598120887
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 103
dh =
    1.71211932931351
rdh_sum =
    10.3692208971279
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 104
dh =
    1.67575882931351
rdh_sum =
    10.4311263700036
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 105
dh =
    1.61041532931351
rdh_sum =
    10.4883907490733
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 106
dh =
    1.54507232931351
rdh_sum =
    10.5411843126416
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 107
dh =
    1.47972882931351
rdh_sum =
    10.5896789897535
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 108
dh =
    1.41438532931351
rdh_sum =
    10.634048397365
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 109
dh =
    1.34904182931351
rdh_sum =
    10.6744677387184
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 110
dh =
    1.28369832931351
rdh_sum =
    10.7111137359718
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 111
dh =
    1.21835532931351
rdh_sum =
    10.7441645890685
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 112
dh =
    1.15301182931351
rdh_sum =
    10.7737998253717
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 113
dh =
    1.08766832931351
rdh_sum =
    10.800200313842
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 114
dh =
    1.02232482931351
rdh_sum =
    10.8235481672951
ans =
```

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Berm Factor Calculation: Iteration 5, Profile Segment: 115
dh =
    0.967712329313509
rdh_sum =
    10.8444852638338
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 116
dh =
    0.934562329313509
rdh_sum =
    10.8640217417262
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 117
dh =
    0.91214332931351
rdh_sum =
    10.8826379409497
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 118
dh =
    0.889724329313509
rdh_sum =
    10.9003556516786
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 119
dh =
    0.867305329313508
rdh_sum =
    10.9171967047576
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 120
dh =
    0.844886329313509
rdh_sum =
    10.9331829707141
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 121
dh =
    0.822467329313509
rdh_sum =
    10.9483363587682
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 122
dh =
    0.80004832931351
rdh_sum =
    10.9626788158405
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 123
dh =
    0.777629329313509
rdh_sum =
    10.9762323255591
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 124
dh =
    0.755209829313509
rdh_sum =
    10.9890188904057
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 125
dh =
    0.732790329313509
rdh_sum =
    11.0010605654208
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 126
dh =
    0.710371329313508
rdh_sum =
    11.0123794552374
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 127
dh =
    0.691291829313508
rdh_sum =
    11.0231006469349
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 128
dh =
    0.67889132931351
rdh_sum =
    11.0334419712337
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 129
dh =
    0.669829829313509
rdh_sum =
    11.0435100003683
ans =
```

```
Berm Factor Calculation: Iteration 5, Profile Segment: 130
dh =
    0.660768329313509
rdh_sum =
    11.0533083573869
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 131
dh =
    0.651707329313508
rdh_sum =
    11.0628406819117
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 132
dh =
    0.642645829313508
rdh_sum =
    11.0721105861723
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 133
dh =
    0.633584329313509
rdh_sum =
    11.0811216991189
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 134
dh =
    0.62452332931351
rdh_sum =
    11.0898776655947
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 135
dh =
    0.615461829313508
rdh_sum =
    11.0983821041707
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 136
dh =
    0.606400329313509
rdh_sum =
    11.106638649458
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 137
dh =
    0.597338829313509
rdh_sum =
    11.1146509379004
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 138
dh =
    0.604589329313509
rdh_sum =
    11.1228583760436
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 139
dh =
    0.628151829313508
rdh_sum =
    11.1317160806177
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 140
dh =
    0.651714329313508
rdh_sum =
    11.1412486092642
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 141
dh =
    0.675276829313509
rdh_sum =
    11.1514804858827
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 142
dh =
    0.698838829313511
rdh_sum =
    11.1624361837851
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 143
dh =
    0.722401329313509
rdh_sum =
    11.1741401708112
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 144
dh =
    0.745963829313508
rdh_sum =
    11.1866168622854
ans =
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Berm Factor Calculation: Iteration 5, Profile Segment: 145
dh =
    0.769526329313509
rdh_sum =
    11.199890634896
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 146
dh =
    0.793088829313509
rdh_sum =
    11.2139858254762
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 147
dh =
    0.816650829313508
rdh_sum =
    11.2289267115841
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 148
dh =
    0.840213329313508
rdh_sum =
    11.2447375643841
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 149
dh =
    0.83501132931351
rdh_sum =
    11.2603542666909
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 150
dh =
    0.80104482931351
rdh_sum =
    11.2747323021676
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 151
dh =
    0.76707882931351
rdh_sum =
    11.2879221464582
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 152
dh =
    0.733112329313508
rdh_sum =
    11.2999743636841
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 153
dh =
    0.69914582931351
rdh_sum =
    11.3109396540344
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 154
dh =
    0.665179829313509
rdh_sum =
    11.3208688455127
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 155
dh =
    0.631213329313509
rdh_sum =
    11.3298128432749
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 156
dh =
    0.597246829313509
rdh_sum =
    11.3378226704693
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 157
dh =
    0.567179329313509
rdh_sum =
    11.3450482120678
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 158
dh =
    0.544908329313509
rdh_sum =
    11.351718694948
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 159
dh =
    0.526535329313509
rdh_sum =
    11.3579478566655
ans =
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Berm Factor Calculation: Iteration 5, Profile Segment: 160
dh =
    0.508162329313508
rdh_sum =
    11.3637507086783
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 161
dh =
    0.48978982931351
rdh_sum =
    11.3691422863933
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 162
dh =
    0.471417329313509
rdh_sum =
    11.3741376259143
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 163
dh =
    0.453044329313508
rdh_sum =
    11.3787517652215
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 164
dh =
    0.43467182931351
rdh_sum =
    11.3829997746316
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 165
dh =
    0.416299329313508
rdh_sum =
    11.3868967250129
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 166
dh =
    0.39792632931351
rdh_sum =
    11.3904576889675
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 167
dh =
    0.379553329313509
rdh_sum =
    11.3936977590714
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 168
dh =
    0.361180829313509
rdh_sum =
    11.3966320457723
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 169
dh =
    0.34280832931351
rdh_sum =
    11.3992756598757
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 170
dh =
    0.316685829313508
rdh_sum =
    11.4015320217426
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 171
dh =
    0.282813329313509
rdh_sum =
    11.4033317935143
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 172
dh =
    0.24894082931351
rdh_sum =
    11.4047264545435
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 173
dh =
    0.215068329313509
rdh_sum =
    11.4057675260437
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 174
dh =
    0.181195829313509
rdh_sum =
    11.4065065657648
ans =
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Berm Factor Calculation: Iteration 5, Profile Segment: 175
dh =
    0.14732332931351
rdh_sum =
    11.4069951626658
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 176
dh =
    0.113450829313509
rdh_sum =
    11.4072849315842
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 177
dh =
    0.0795783293135095
rdh_sum =
    11.4074275079026
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 178
dh =
    0.0457058293135102
rdh_sum =
    11.407474542213
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 179
dh =
    0.0118338293135078
rdh_sum =
    11.4074776952462
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 180
dh =
    -0.0220386706864915
rdh_sum =
    11.407491261436
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 181
dh =
    -0.0559111706864908
rdh_sum =
    11.4075785733664
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 182
dh =
    -0.0897836706864901
rdh_sum =
    11.4078037125971
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 183
dh =
    -0.123656170686489
rdh_sum =
    11.4082307430205
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 184
dh =
    -0.15752867068649
rdh_sum =
    11.4089237026491
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 185
dh =
    -0.191401170686492
rdh_sum =
    11.4099465954073
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 186
dh =
    -0.225273670686491
rdh_sum =
    11.411363382927
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 187
dh =
    -0.25914617068649
rdh_sum =
    11.4132379763483
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 188
dh =
    -0.300954670686492
rdh_sum =
    11.4157656731169
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 189
dh =
    -0.358635670686491
rdh_sum =
    11.4193538669574
ans =
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Berm Factor Calculation: Iteration 5, Profile Segment: 190
dh =
    -0.424252170686492
rdh_sum =
    11.4243727757424
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 191
dh =
    -0.489868670686491
rdh_sum =
    11.4310604923322
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 192
dh =
    -0.55548567068649
rdh_sum =
    11.4396543222933
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 193
dh =
    -0.621102670686492
rdh_sum =
    11.450390642501
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 194
dh =
    -0.686719670686491
rdh_sum =
    11.4635047992467
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 195
dh =
    -0.752336170686492
rdh_sum =
    11.4792309742389
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 196
dh =
    -0.817952670686491
rdh_sum =
    11.4978021099924
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 197
dh =
    -0.883569670686491
rdh_sum =
    11.5194498048777
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 198
dh =
    -0.94918667068649
rdh_sum =
    11.5444041565819
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 199
dh =
    -1.01480367068649
rdh_sum =
    11.5728936722192
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 200
dh =
    -1.08042017068649
rdh_sum =
    11.605145128889
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 201
dh =
    -1.13097467068649
rdh_sum =
    11.6404485383956
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 202
dh =
    -1.16646767068649
rdh_sum =
    11.6779739770494
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 203
dh =
    -1.20196067068649
rdh_sum =
    11.7177865352928
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 204
dh =
    -1.23745317068649
rdh_sum =
    11.7599509480839
ans =
```



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Berm Factor Calculation: Iteration 5, Profile Segment: 205
dh =
    -1.27294567068649
rdh_sum =
    11.8045316511427
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 206
dh =
    -1.30843867068649
rdh_sum =
    11.8515927755131
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 207
dh =
    -1.34393117068649
rdh_sum =
    11.9011980332608
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 208
dh =
    -1.37942367068649
rdh_sum =
    11.9534108128823
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 209
dh =
    -1.41491667068649
rdh_sum =
    12.0082941739551
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 210
dh =
    -1.45040967068649
rdh_sum =
    12.0659107639011
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 211
dh =
    -1.48590217068649
rdh_sum =
    12.1263228056397
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 228
dh =
    -2.68392767068649
rdh_sum =
    12.3143869191639
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 229
dh =
    -2.74339617068649
rdh_sum =
    12.5102795385177
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 230
dh =
    -2.79876017068649
rdh_sum =
    12.7135684070638
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 231
dh =
    -2.85412417068649
rdh_sum =
    12.9243551322203
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 232
dh =
    -2.90948817068649
rdh_sum =
    13.1427387537974
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 233
dh =
    -2.96485267068649
rdh_sum =
    13.3688157799887
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 234
dh =
    -3.02021717068649
rdh_sum =
    13.6026800162026
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 235
dh =
    -3.07558117068649
rdh_sum =
    13.8444225295503
ans =
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Berm Factor Calculation: Iteration 5, Profile Segment: 236
dh =
  -3.13094517068649
rdh_sum =
  14.0941317591689
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 237
dh =
  -3.18630917068649
rdh_sum =
  14.3518934160285
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 238
dh =
  -3.24167317068649
rdh_sum =
  14.6177904535812
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 239
dh =
  -3.29703767068649
rdh_sum =
  14.8919031139032
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 240
dh =
  -3.35240217068649
rdh_sum =
  15.1743087525147
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 241
dh =
  -3.40776617068649
rdh_sum =
  15.4650818090956
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 242
dh =
  -3.46313017068649
rdh_sum =
  15.7642939324896
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 243
dh =
  -3.51849417068649
rdh_sum =
  16.0720138816195
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 244
dh =
  -3.55666817068649
rdh_sum =
  16.3856385861301
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 245
dh =
  -3.56046167068649
rdh_sum =
  16.6998517426384
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 246
dh =
  -3.54706467068649
rdh_sum =
  17.0119880830628
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 247
dh =
  -3.53366817068649
rdh_sum =
  17.3220514517941
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 248
dh =
  -3.52027167068649
rdh_sum =
  17.6300456572078
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 249
dh =
  -3.50687467068649
rdh_sum =
  17.9359744721559
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 250
dh =
  -3.49347767068649
rdh_sum =
  18.2398417882053
ans =
```

```
Berm Factor Calculation: Iteration 5, Profile Segment: 251
dh =
  -3.48008117068649
rdh_sum =
  18.5416516149786
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 252
dh =
  -3.46668467068649
rdh_sum =
  18.8414079263413
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 253
dh =
  -3.45328767068649
rdh_sum =
  19.1391146609146
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 254
dh =
  -3.43989067068649
rdh_sum =
  19.4347758751368
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 255
dh =
  -3.42649417068649
rdh_sum =
  19.728395742576
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 260
dh =
  -4.12631567068649
rdh_sum =
  20.1331977768471
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 261
dh =
  -4.18136067068649
rdh_sum =
  20.5470465936333
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 262
dh =
  -4.23640567068649
rdh_sum =
  20.9699713560419
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 263
dh =
  -4.29145117068649
rdh_sum =
  21.401998237662
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 264
dh =
  -4.34649667068649
rdh_sum =
  21.8431502485473
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 265
dh =
  -4.40154167068649
rdh_sum =
  22.2934472265914
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 266
dh =
  -4.45658667068649
rdh_sum =
  22.7529059968049
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 267
dh =
  -4.51163167068649
rdh_sum =
  23.2215402828325
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 268
dh =
  -4.56667717068649
rdh_sum =
  23.6993607857886
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 269
dh =
  -4.61806067068649
rdh_sum =
  24.1857632140023
ans =
```

```
Berm Factor Calculation: Iteration 5, Profile Segment: 270
dh =
  -4.66578167068649
rdh_sum =
  24.6801395133842
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 271
dh =
  -4.71350317068649
rdh_sum =
  25.1824911983036
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 272
dh =
  -4.76122467068649
rdh_sum =
  25.6928176704218
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 273
dh =
  -4.80894567068649
rdh_sum =
  26.2111162188691
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 274
dh =
  -4.85666667068649
rdh_sum =
  26.7373821880468
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 275
dh =
  -4.90438817068649
rdh_sum =
  27.2716089786161
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 276
dh =
  -4.95210967068649
rdh_sum =
  27.8137878822607
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 277
dh =
  -4.99983067068649
rdh_sum =
  28.3639080842675
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 278
dh =
  -5.04755217068649
rdh_sum =
  28.9219569158277
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 279
dh =
  -5.09527367068649
rdh_sum =
  29.4879196075873
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 280
dh =
  -5.13723517068649
rdh_sum =
  30.0608271543961
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 281
dh =
  -5.17343767068649
rdh_sum =
  30.6397149360731
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 282
dh =
  -5.20964017068649
rdh_sum =
  31.2245714013247
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 283
dh =
  -5.24584217068649
rdh_sum =
  31.8153840427085
ans =
Berm Factor Calculation: Iteration 5, Profile Segment: 284
dh =
  -5.28204467068649
rdh_sum =
  32.4121396451614
ans =
```

Berm Factor Calculation: Iteration 5, Profile Segment: 285

dh = -5.31824717068649

rdh\_sum = 33.0148240410604

ans =

Berm Factor Calculation: Iteration 5, Profile Segment: 286

dh = -5.35444967068649

rdh\_sum = 33.6234221946473

ans =

Berm Factor Calculation: Iteration 5, Profile Segment: 287

dh = -5.39065217068649

rdh\_sum = 34.2379182042311

ans =

Berm Factor Calculation: Iteration 5, Profile Segment: 288

dh = -5.42685417068649

rdh\_sum = 34.8582952234105

ans =

Berm Factor Calculation: Iteration 5, Profile Segment: 289

dh = -5.46305667068649

rdh\_sum = 35.484535707094

ans =

Berm Factor Calculation: Iteration 5, Profile Segment: 290

dh = -5.49925917068649

rdh\_sum = 36.1166211702788

ans =

Berm Factor Calculation: Iteration 5, Profile Segment: 291

dh = -5.53546117068649

rdh\_sum = 36.7545321917781

ans =

Berm Factor Calculation: Iteration 5, Profile Segment: 292

dh = -5.57166367068649

rdh\_sum = 37.3982486583026

ans =

Berm Factor Calculation: Iteration 5, Profile Segment: 293

dh = -5.60786617068649

rdh\_sum = 38.0477495258955

ans =

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

berm\_width =

223

rB =

0.682613421717822

rdh\_mean =

0.170617710878455

gamma\_berm =

0.433852517710582

gamma\_berm =

0.6

slope =

0.168991049615736

Irb =

2.06455561675206

gamma\_berm =

0.6

gamma\_perm =

1

gamma\_beta =

1

gamma\_rough =

0.8

gamma =

0.48

ans =

!!! - - Iribaren number: 1.24 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!

ans =

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

R2\_new =

9.18102993901939

! 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 =

3.65043666

upper\_slope =

```

0.0902230000000018
upper_slope =
0.0957742398863572
upper_slope =
0.100747910753869
upper_slope =
0.105229743022116
upper_slope =
0.109289167561497
upper_slope =
0.112983252993707
upper_slope =
0.116359238172955
upper_slope =
0.119456437369652
upper_slope =
0.122308049068908
upper_slope =
0.124942207687049
upper_slope =
0.127382803485949
upper_slope =
0.129650447069657
upper_slope =
0.129107807069795
w2 =
0.0472655588251012
w1 =
0.952734441174899
R2_new =
9.17992091657826
R2del =
0.218934757369619
Z2 =
18.2504197458918
ans =
!----- STARTING ITERATION 6 -----!
Ztoe =
0.94741
toe_sta =
12.5371395555078
top_sta =
336.796179975081
Z2 =
18.2504197458918
H0 =
5.2342
Tp =
13.5919
T0 =
12.3562727272727
R2 =
9.17992091657826
Z2 =
18.2504197458918
top_sta =
336.796179975081
Lslope =
324.259040419573
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 32
dh =
4.19996582931351
rdh_sum =
0.34729103989654
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 33
dh =
4.16210982931351
rdh_sum =
0.689183131478468
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 34
dh =
4.12425382931351
rdh_sum =
1.02569668069317
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 35
dh =
4.08639782931351
rdh_sum =
1.3568527876611
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 36
dh =
4.04854232931351
rdh_sum =
1.68267331427858
ans =

```

```
Berm Factor Calculation: Iteration 6, Profile Segment: 37
dh =
    4.01068682931351
rdh_sum =
    2.00318074015032
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 38
dh =
    3.97283082931351
rdh_sum =
    2.31839816087574
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 39
dh =
    3.93497482931351
rdh_sum =
    2.62834942512647
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 40
dh =
    3.89711882931351
rdh_sum =
    2.93305906124232
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 41
dh =
    3.85926282931351
rdh_sum =
    3.23255227406553
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 42
dh =
    3.82140682931351
rdh_sum =
    3.5268549416878
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 43
dh =
    3.78355132931351
rdh_sum =
    3.81599368013784
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 44
dh =
    3.74660082931351
rdh_sum =
    4.10011818245487
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 45
dh =
    3.71146032931351
rdh_sum =
    4.3794986850822
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 46
dh =
    3.67722582931351
rdh_sum =
    4.6542810892491
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 47
dh =
    3.64299132931351
rdh_sum =
    4.924489166909
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 48
dh =
    3.60875632931351
rdh_sum =
    5.19014710656527
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 49
dh =
    3.57452132931351
rdh_sum =
    5.45127964399068
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 50
dh =
    3.54028632931351
rdh_sum =
    5.70791199263286
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 51
dh =
    3.50605132931351
rdh_sum =
    5.960069840953
ans =
```

```
Berm Factor Calculation: Iteration 6, Profile Segment: 52
dh =
    ans =
        3.47181632931351
rdh_sum =
    6.20777934971427
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 53
dh =
    ans =
        3.43758182931351
rdh_sum =
    6.4510672136025
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 54
dh =
    ans =
        3.40334732931351
rdh_sum =
    6.68996052885288
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 55
dh =
    ans =
        3.36911232931351
rdh_sum =
    6.92448679197281
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 56
dh =
    ans =
        3.34018382931351
rdh_sum =
    7.15534473042837
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 57
dh =
    ans =
        3.31656182931351
rdh_sum =
    7.3832227554551
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 58
dh =
    ans =
        3.29293982931351
rdh_sum =
    7.60813310254311
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 59
dh =
    ans =
        3.26931782931351
rdh_sum =
    7.83009103572924
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 60
dh =
    ans =
        3.24569582931351
rdh_sum =
    8.04911004780645
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 61
dh =
    ans =
        3.22207382931351
rdh_sum =
    8.26520425916959
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 62
dh =
    ans =
        3.19845182931351
rdh_sum =
    8.47838793719619
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 63
dh =
    ans =
        3.17482932931351
rdh_sum =
    8.68867543438173
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 64
dh =
    ans =
        3.15120682931351
rdh_sum =
    8.8960813105302
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 65
dh =
    ans =
        3.12758482931351
rdh_sum =
    9.10062033078974
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 66
dh =
    ans =
        3.10396282931351
rdh_sum =
    9.30230734323149
ans =
```



```
Berm Factor Calculation: Iteration 6, Profile Segment: 67
dh =
    3.08034082931351
rdh_sum =
    9.50115733925113
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 68
dh =
    3.03570482931351
rdh_sum =
    9.69468795656988
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 88
dh =
    0.98227582931351
rdh_sum =
    9.71625537312226
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 89
dh =
    1.03286432931351
rdh_sum =
    9.74008323016519
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 90
dh =
    1.08345282931351
rdh_sum =
    9.7662812759583
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 91
dh =
    1.13404082931351
rdh_sum =
    9.79495868743633
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 92
dh =
    1.18462932931351
rdh_sum =
    9.82622411909927
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 93
dh =
    1.23521782931351
rdh_sum =
    9.86018560499294
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 94
dh =
    1.28580632931351
rdh_sum =
    9.89695055777596
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 95
dh =
    1.33639482931351
rdh_sum =
    9.9366257439633
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 96
dh =
    1.38698332931351
rdh_sum =
    9.97931725931872
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 97
dh =
    1.43757182931351
rdh_sum =
    10.0251305044017
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 98
dh =
    1.48815982931351
rdh_sum =
    10.0741701278713
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 99
dh =
    1.53874832931351
rdh_sum =
    10.1265400985462
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 100
dh =
    1.58933682931351
rdh_sum =
    10.1823435862936
ans =
```

```
Berm Factor Calculation: Iteration 6, Profile Segment: 101
dh =
    1.63992532931351
rdh_sum =
    10.2416829696226
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 102
dh =
    1.69051382931351
rdh_sum =
    10.3046598120887
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 103
dh =
    1.71211932931351
rdh_sum =
    10.3692208971279
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 104
dh =
    1.67575882931351
rdh_sum =
    10.4311263700036
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 105
dh =
    1.61041532931351
rdh_sum =
    10.4883907490733
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 106
dh =
    1.54507232931351
rdh_sum =
    10.5411843126416
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 107
dh =
    1.47972882931351
rdh_sum =
    10.5896789897535
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 108
dh =
    1.41438532931351
rdh_sum =
    10.634048397365
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 109
dh =
    1.34904182931351
rdh_sum =
    10.6744677387184
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 110
dh =
    1.28369832931351
rdh_sum =
    10.7111137359718
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 111
dh =
    1.21835532931351
rdh_sum =
    10.7441645890685
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 112
dh =
    1.15301182931351
rdh_sum =
    10.7737998253717
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 113
dh =
    1.08766832931351
rdh_sum =
    10.800200313842
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 114
dh =
    1.02232482931351
rdh_sum =
    10.8235481672951
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 115
dh =
    0.967712329313509
rdh_sum =
    10.8444852638338
ans =
```

```
Berm Factor Calculation: Iteration 6, Profile Segment: 116
dh =
    0.934562329313509
rdh_sum =
    10.8640217417262
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 117
dh =
    0.91214332931351
rdh_sum =
    10.8826379409497
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 118
dh =
    0.889724329313509
rdh_sum =
    10.9003556516786
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 119
dh =
    0.867305329313508
rdh_sum =
    10.9171967047576
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 120
dh =
    0.844886329313509
rdh_sum =
    10.9331829707141
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 121
dh =
    0.822467329313509
rdh_sum =
    10.9483363587682
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 122
dh =
    0.80004832931351
rdh_sum =
    10.9626788158405
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 123
dh =
    0.777629329313509
rdh_sum =
    10.9762323255591
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 124
dh =
    0.755209829313509
rdh_sum =
    10.9890188904057
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 125
dh =
    0.732790329313509
rdh_sum =
    11.0010605654208
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 126
dh =
    0.710371329313508
rdh_sum =
    11.0123794552374
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 127
dh =
    0.691291829313508
rdh_sum =
    11.0231006469349
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 128
dh =
    0.67889132931351
rdh_sum =
    11.0334419712337
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 129
dh =
    0.669829829313509
rdh_sum =
    11.0435100003683
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 130
dh =
    0.660768329313509
rdh_sum =
    11.0533083573869
ans =
```

```
Berm Factor Calculation: Iteration 6, Profile Segment: 131
dh =
    0.651707329313508
rdh_sum =
    11.0628406819117
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 132
dh =
    0.642645829313508
rdh_sum =
    11.0721105861723
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 133
dh =
    0.633584329313509
rdh_sum =
    11.0811216991189
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 134
dh =
    0.62452332931351
rdh_sum =
    11.0898776655947
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 135
dh =
    0.615461829313508
rdh_sum =
    11.0983821041707
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 136
dh =
    0.606400329313509
rdh_sum =
    11.106638649458
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 137
dh =
    0.597338829313509
rdh_sum =
    11.1146509379004
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 138
dh =
    0.604589329313509
rdh_sum =
    11.1228583760436
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 139
dh =
    0.628151829313508
rdh_sum =
    11.1317160806177
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 140
dh =
    0.651714329313508
rdh_sum =
    11.1412486092642
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 141
dh =
    0.675276829313509
rdh_sum =
    11.1514804858827
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 142
dh =
    0.698838829313511
rdh_sum =
    11.1624361837851
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 143
dh =
    0.722401329313509
rdh_sum =
    11.1741401708112
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 144
dh =
    0.745963829313508
rdh_sum =
    11.1866168622854
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 145
dh =
    0.769526329313509
rdh_sum =
    11.199890634896
ans =
```

```
Berm Factor Calculation: Iteration 6, Profile Segment: 146
dh =
    0.793088829313509
rdh_sum =
    11.2139858254762
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 147
dh =
    0.816650829313508
rdh_sum =
    11.2289267115841
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 148
dh =
    0.840213329313508
rdh_sum =
    11.2447375643841
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 149
dh =
    0.83501132931351
rdh_sum =
    11.2603542666909
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 150
dh =
    0.80104482931351
rdh_sum =
    11.2747323021676
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 151
dh =
    0.76707882931351
rdh_sum =
    11.2879221464582
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 152
dh =
    0.733112329313508
rdh_sum =
    11.2999743636841
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 153
dh =
    0.69914582931351
rdh_sum =
    11.3109396540344
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 154
dh =
    0.665179829313509
rdh_sum =
    11.3208688455127
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 155
dh =
    0.631213329313509
rdh_sum =
    11.3298128432749
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 156
dh =
    0.597246829313509
rdh_sum =
    11.3378226704693
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 157
dh =
    0.567179329313509
rdh_sum =
    11.3450482120678
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 158
dh =
    0.544908329313509
rdh_sum =
    11.351718694948
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 159
dh =
    0.526535329313509
rdh_sum =
    11.3579478566655
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 160
dh =
    0.508162329313508
rdh_sum =
    11.3637507086783
ans =
```

```
Berm Factor Calculation: Iteration 6, Profile Segment: 161
dh =
    0.48978982931351
rdh_sum =
    11.3691422863933
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 162
dh =
    0.471417329313509
rdh_sum =
    11.3741376259143
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 163
dh =
    0.453044329313508
rdh_sum =
    11.3787517652215
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 164
dh =
    0.43467182931351
rdh_sum =
    11.3829997746316
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 165
dh =
    0.416299329313508
rdh_sum =
    11.3868967250129
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 166
dh =
    0.39792632931351
rdh_sum =
    11.3904576889675
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 167
dh =
    0.379553329313509
rdh_sum =
    11.3936977590714
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 168
dh =
    0.361180829313509
rdh_sum =
    11.3966320457723
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 169
dh =
    0.34280832931351
rdh_sum =
    11.3992756598757
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 170
dh =
    0.316685829313508
rdh_sum =
    11.4015320217426
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 171
dh =
    0.282813329313509
rdh_sum =
    11.4033317935143
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 172
dh =
    0.24894082931351
rdh_sum =
    11.4047264545435
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 173
dh =
    0.215068329313509
rdh_sum =
    11.4057675260437
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 174
dh =
    0.181195829313509
rdh_sum =
    11.4065065657648
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 175
dh =
    0.14732332931351
rdh_sum =
    11.4069951626658
ans =
```

```
Berm Factor Calculation: Iteration 6, Profile Segment: 176
dh =
    0.113450829313509
rdh_sum =
    11.4072849315842
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 177
dh =
    0.0795783293135095
rdh_sum =
    11.4074275079026
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 178
dh =
    0.0457058293135102
rdh_sum =
    11.407474542213
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 179
dh =
    0.0118338293135078
rdh_sum =
    11.4074776952462
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 180
dh =
    -0.0220386706864915
rdh_sum =
    11.4074919162376
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 181
dh =
    -0.0559111706864908
rdh_sum =
    11.4075834423597
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 182
dh =
    -0.0897836706864901
rdh_sum =
    11.4078194476219
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 183
dh =
    -0.123656170686489
rdh_sum =
    11.4082670866194
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 184
dh =
    -0.15752867068649
rdh_sum =
    11.4089934855097
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 185
dh =
    -0.191401170686492
rdh_sum =
    11.4100657329928
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 186
dh =
    -0.225273670686491
rdh_sum =
    11.4115508712957
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 187
dh =
    -0.25914617068649
rdh_sum =
    11.4135158871645
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 188
dh =
    -0.300954670686492
rdh_sum =
    11.416165481429
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 189
dh =
    -0.358635670686491
rdh_sum =
    11.4199266506178
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 190
dh =
    -0.424252170686492
rdh_sum =
    11.4251873834242
ans =
```

```
Berm Factor Calculation: Iteration 6, Profile Segment: 191
dh =
    -0.489868670686491
rdh_sum =
    11.432197142415
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 192
dh =
    -0.55548567068649
rdh_sum =
    11.4412045244113
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 193
dh =
    -0.621102670686492
rdh_sum =
    11.4524571065784
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 194
dh =
    -0.686719670686491
rdh_sum =
    11.4662013339662
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 195
dh =
    -0.752336170686492
rdh_sum =
    11.4826823734569
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 196
dh =
    -0.817952670686491
rdh_sum =
    11.5021440299978
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 197
dh =
    -0.883569670686491
rdh_sum =
    11.5248286310964
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 198
dh =
    -0.94918667068649
rdh_sum =
    11.5509768573437
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 199
dh =
    -1.01480367068649
rdh_sum =
    11.5808276428388
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 200
dh =
    -1.08042017068649
rdh_sum =
    11.6146180237916
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 201
dh =
    -1.13097467068649
rdh_sum =
    11.6516041189331
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 202
dh =
    -1.16646767068649
rdh_sum =
    11.6909167050981
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 203
dh =
    -1.20196067068649
rdh_sum =
    11.7326237507667
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 204
dh =
    -1.23745317068649
rdh_sum =
    11.7767928359888
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 205
dh =
    -1.27294567068649
rdh_sum =
    11.8234912108359
ans =
```



```
Berm Factor Calculation: Iteration 6, Profile Segment: 206
dh =
  -1.30843867068649
rdh_sum =
  11.8727857892688
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 207
dh =
  -1.34393117068649
rdh_sum =
  11.9247430290768
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 208
dh =
  -1.37942367068649
rdh_sum =
  11.9794290313219
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 209
dh =
  -1.41491667068649
rdh_sum =
  12.036909534312
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 210
dh =
  -1.45040967068649
rdh_sum =
  12.0972498260854
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 211
dh =
  -1.48590217068649
rdh_sum =
  12.1605147311005
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 228
dh =
  -2.68392767068649
rdh_sum =
  12.3570101524488
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 229
dh =
  -2.74339617068649
rdh_sum =
  12.5616545039865
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 230
dh =
  -2.79876017068649
rdh_sum =
  12.7739953739704
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 231
dh =
  -2.85412417068649
rdh_sum =
  12.9941360245647
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 232
dh =
  -2.90948817068649
rdh_sum =
  13.2221769180144
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 233
dh =
  -2.96485267068649
rdh_sum =
  13.4582157532449
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 234
dh =
  -3.02021717068649
rdh_sum =
  13.7023472871769
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 235
dh =
  -3.07558117068649
rdh_sum =
  13.9546632972889
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 236
dh =
  -3.13094517068649
rdh_sum =
  14.215252695707
ans =
```

```
Berm Factor Calculation: Iteration 6, Profile Segment: 237
dh =
  -3.18630917068649
rdh_sum =
  14.4842014246254
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 238
dh =
  -3.24167317068649
rdh_sum =
  14.7615924254556
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 239
dh =
  -3.29703767068649
rdh_sum =
  15.0475056863692
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 240
dh =
  -3.35240217068649
rdh_sum =
  15.342018060339
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 241
dh =
  -3.40776617068649
rdh_sum =
  15.6452032347743
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 242
dh =
  -3.46313017068649
rdh_sum =
  15.9571318610912
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 243
dh =
  -3.51849417068649
rdh_sum =
  16.277871452033
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 244
dh =
  -3.55666817068649
rdh_sum =
  16.6047239593907
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 245
dh =
  -3.56046167068649
rdh_sum =
  16.9321855625531
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 246
dh =
  -3.54706467068649
rdh_sum =
  17.2574974098203
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 247
dh =
  -3.53366817068649
rdh_sum =
  17.5806632531875
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 248
dh =
  -3.52027167068649
rdh_sum =
  17.9016868094547
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 249
dh =
  -3.50687467068649
rdh_sum =
  18.2205717607044
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 250
dh =
  -3.49347767068649
rdh_sum =
  18.5373219139992
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 251
dh =
  -3.48008117068649
rdh_sum =
  18.8519412007337
ans =
```

```
Berm Factor Calculation: Iteration 6, Profile Segment: 252
dh =
  -3.46668467068649
rdh_sum =
  19.1644335173445
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 253
dh =
  -3.45328767068649
rdh_sum =
  19.4748027258102
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 254
dh =
  -3.43989067068649
rdh_sum =
  19.7830528121952
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 255
dh =
  -3.42649417068649
rdh_sum =
  20.0891878859719
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 260
dh =
  -4.12631567068649
rdh_sum =
  20.5101845008982
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 261
dh =
  -4.18136067068649
rdh_sum =
  20.9404951257143
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 262
dh =
  -4.23640567068649
rdh_sum =
  21.3801444896513
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 263
dh =
  -4.29145117068649
rdh_sum =
  21.8291540932043
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 264
dh =
  -4.34649667068649
rdh_sum =
  22.2875420306123
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 265
dh =
  -4.40154167068649
rdh_sum =
  22.7553229827796
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 266
dh =
  -4.45658667068649
rdh_sum =
  23.2325083826151
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 267
dh =
  -4.51163167068649
rdh_sum =
  23.7191063258653
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 268
dh =
  -4.56667717068649
rdh_sum =
  24.215121653795
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 269
dh =
  -4.61806067068649
rdh_sum =
  24.719929201001
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 270
dh =
  -4.66578167068649
rdh_sum =
  25.232901004375
ans =
```

```
Berm Factor Calculation: Iteration 6, Profile Segment: 271
dh =
  -4.71350317068649
rdh_sum =
  25.7540336897567
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 272
dh =
  -4.76122467068649
rdh_sum =
  26.283321620843
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 273
dh =
  -4.80894567068649
rdh_sum =
  26.8207569009275
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 274
dh =
  -4.85666667068649
rdh_sum =
  27.3663295458478
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 275
dh =
  -4.90438817068649
rdh_sum =
  27.9200274862298
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 276
dh =
  -4.95210967068649
rdh_sum =
  28.4818364002843
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 277
dh =
  -4.99983067068649
rdh_sum =
  29.0517397182266
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 278
dh =
  -5.04755217068649
rdh_sum =
  29.6297188810275
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 279
dh =
  -5.09527367068649
rdh_sum =
  30.2157530908477
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 280
dh =
  -5.13723517068649
rdh_sum =
  30.8088512133328
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 281
dh =
  -5.17343767068649
rdh_sum =
  31.4080283896672
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 282
dh =
  -5.20964017068649
rdh_sum =
  32.0132693967037
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 283
dh =
  -5.24584217068649
rdh_sum =
  32.6245579971213
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 284
dh =
  -5.28204467068649
rdh_sum =
  33.2418771923757
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 285
dh =
  -5.31824717068649
rdh_sum =
  33.8652089746206
ans =
```

```

Berm Factor Calculation: Iteration 6, Profile Segment: 286
dh =
    -5.35444967068649
rdh_sum =
    34.494534413111
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 287
dh =
    -5.39065217068649
rdh_sum =
    35.1298336571085
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 288
dh =
    -5.42685417068649
rdh_sum =
    35.7710858568581
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 289
dh =
    -5.46305667068649
rdh_sum =
    36.418269413294
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 290
dh =
    -5.49925917068649
rdh_sum =
    37.0713617345558
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 291
dh =
    -5.53546117068649
rdh_sum =
    37.7303392407045
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 292
dh =
    -5.57166367068649
rdh_sum =
    38.3951776110207
ans =
Berm Factor Calculation: Iteration 6, Profile Segment: 293
dh =
    -5.60786617068649
rdh_sum =
    39.065851543728
ans =
!----- End Berm Factor Calculation, Iter: 6 -----!
berm_width =
    223
rB =
    0.687721766250373
rdh_mean =
    0.175183190779049
gamma_berm =
    0.432755527129571
gamma_berm =
    0.6
slope =
    0.17087866598573
Irb =
    2.08761653617829
gamma_berm =
    0.6
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.48
ans =
!!! - - Iribaren number: 1.25 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:5.9 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
    9.28358130162529
! 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 =
    3.65043666
upper_slope =
    0.0902230000000019
upper_slope =
    0.0966270166774252
upper_slope =
    0.102268477025144
upper_slope =

```

```

0.107275985552235
upper_slope =
0.111750618938341
upper_slope =
0.115773181935945
upper_slope =
0.11940893706764
upper_slope =
0.122711032343722
upper_slope =
0.125723421600666
upper_slope =
0.128482670289661
upper_slope =
0.131019324313528
upper_slope =
0.133359309371191
upper_slope =
0.132629119120589
w2 =
0.0472655588251012
w1 =
0.952734441174899
R2_new =
9.27977277880384
R2del =
0.0998518622255808
Z2 =
18.3502716081174
ans =
!----- STARTING ITERATION 7 -----!
Ztoe =
0.94741
toe_sta =
12.5371395555078
top_sta =
337.902902897458
Z2 =
18.3502716081174
H0 =
5.2342
Tp =
13.5919
T0 =
12.3562727272727
R2 =
9.27977277880384
Z2 =
18.3502716081174
top_sta =
337.902902897458
Lslope =
325.36576334195
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 32
dh =
4.19996582931351
rdh_sum =
0.34729103989654
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 33
dh =
4.16210982931351
rdh_sum =
0.689183131478468
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 34
dh =
4.12425382931351
rdh_sum =
1.02569668069317
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 35
dh =
4.08639782931351
rdh_sum =
1.3568527876611
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 36
dh =
4.04854232931351
rdh_sum =
1.68267331427858
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 37
dh =
4.01068682931351
rdh_sum =
2.00318074015032
ans =

```

```
Berm Factor Calculation: Iteration 7, Profile Segment: 38
dh =
    3.97283082931351
rdh_sum =
    2.31839816087574
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 39
dh =
    3.93497482931351
rdh_sum =
    2.62834942512647
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 40
dh =
    3.89711882931351
rdh_sum =
    2.93305906124232
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 41
dh =
    3.85926282931351
rdh_sum =
    3.23255227406553
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 42
dh =
    3.82140682931351
rdh_sum =
    3.5268549416878
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 43
dh =
    3.78355132931351
rdh_sum =
    3.81599368013784
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 44
dh =
    3.74660082931351
rdh_sum =
    4.10011818245487
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 45
dh =
    3.71146032931351
rdh_sum =
    4.3794986850822
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 46
dh =
    3.67722582931351
rdh_sum =
    4.6542810892491
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 47
dh =
    3.64299132931351
rdh_sum =
    4.924489166909
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 48
dh =
    3.60875632931351
rdh_sum =
    5.19014710656527
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 49
dh =
    3.57452132931351
rdh_sum =
    5.45127964399068
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 50
dh =
    3.54028632931351
rdh_sum =
    5.70791199263286
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 51
dh =
    3.50605132931351
rdh_sum =
    5.960069840953
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 52
dh =
    3.47181632931351
rdh_sum =
    6.20777934971427
ans =
```

```
Berm Factor Calculation: Iteration 7, Profile Segment: 53
dh =
    3.43758182931351
rdh_sum =
    6.4510672136025
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 54
dh =
    3.40334732931351
rdh_sum =
    6.68996052885288
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 55
dh =
    3.36911232931351
rdh_sum =
    6.92448679197281
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 56
dh =
    3.34018382931351
rdh_sum =
    7.15534473042837
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 57
dh =
    3.31656182931351
rdh_sum =
    7.3832227554551
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 58
dh =
    3.29293982931351
rdh_sum =
    7.60813310254311
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 59
dh =
    3.26931782931351
rdh_sum =
    7.83009103572924
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 60
dh =
    3.24569582931351
rdh_sum =
    8.04911004780645
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 61
dh =
    3.22207382931351
rdh_sum =
    8.26520425916959
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 62
dh =
    3.19845182931351
rdh_sum =
    8.47838793719619
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 63
dh =
    3.17482932931351
rdh_sum =
    8.68867543438173
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 64
dh =
    3.15120682931351
rdh_sum =
    8.8960813105302
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 65
dh =
    3.12758482931351
rdh_sum =
    9.10062033078974
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 66
dh =
    3.10396282931351
rdh_sum =
    9.30230734323149
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 67
dh =
    3.08034082931351
rdh_sum =
    9.50115733925113
ans =
```



```
Berm Factor Calculation: Iteration 7, Profile Segment: 68
dh =
    3.03570482931351
rdh_sum =
    9.69468795656988
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 88
dh =
    0.98227582931351
rdh_sum =
    9.71625537312226
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 89
dh =
    1.03286432931351
rdh_sum =
    9.74008323016519
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 90
dh =
    1.08345282931351
rdh_sum =
    9.7662812759583
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 91
dh =
    1.13404082931351
rdh_sum =
    9.79495868743633
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 92
dh =
    1.18462932931351
rdh_sum =
    9.82622411909927
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 93
dh =
    1.23521782931351
rdh_sum =
    9.86018560499294
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 94
dh =
    1.28580632931351
rdh_sum =
    9.89695055777596
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 95
dh =
    1.33639482931351
rdh_sum =
    9.9366257439633
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 96
dh =
    1.38698332931351
rdh_sum =
    9.97931725931872
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 97
dh =
    1.43757182931351
rdh_sum =
    10.0251305044017
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 98
dh =
    1.48815982931351
rdh_sum =
    10.0741701278713
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 99
dh =
    1.53874832931351
rdh_sum =
    10.1265400985462
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 100
dh =
    1.58933682931351
rdh_sum =
    10.1823435862936
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 101
dh =
    1.63992532931351
rdh_sum =
    10.2416829696226
ans =
```

```
Berm Factor Calculation: Iteration 7, Profile Segment: 102
dh =
    1.69051382931351
rdh_sum =
    10.3046598120887
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 103
dh =
    1.71211932931351
rdh_sum =
    10.3692208971279
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 104
dh =
    1.67575882931351
rdh_sum =
    10.4311263700036
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 105
dh =
    1.61041532931351
rdh_sum =
    10.4883907490733
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 106
dh =
    1.54507232931351
rdh_sum =
    10.5411843126416
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 107
dh =
    1.47972882931351
rdh_sum =
    10.5896789897535
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 108
dh =
    1.41438532931351
rdh_sum =
    10.634048397365
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 109
dh =
    1.34904182931351
rdh_sum =
    10.6744677387184
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 110
dh =
    1.28369832931351
rdh_sum =
    10.7111137359718
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 111
dh =
    1.21835532931351
rdh_sum =
    10.7441645890685
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 112
dh =
    1.15301182931351
rdh_sum =
    10.7737998253717
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 113
dh =
    1.08766832931351
rdh_sum =
    10.800200313842
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 114
dh =
    1.02232482931351
rdh_sum =
    10.8235481672951
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 115
dh =
    0.967712329313509
rdh_sum =
    10.8444852638338
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 116
dh =
    0.934562329313509
rdh_sum =
    10.8640217417262
ans =
```

```
Berm Factor Calculation: Iteration 7, Profile Segment: 117
dh =
    0.91214332931351
rdh_sum =
    10.8826379409497
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 118
dh =
    0.889724329313509
rdh_sum =
    10.9003556516786
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 119
dh =
    0.867305329313508
rdh_sum =
    10.9171967047576
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 120
dh =
    0.844886329313509
rdh_sum =
    10.9331829707141
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 121
dh =
    0.822467329313509
rdh_sum =
    10.9483363587682
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 122
dh =
    0.80004832931351
rdh_sum =
    10.9626788158405
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 123
dh =
    0.777629329313509
rdh_sum =
    10.9762323255591
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 124
dh =
    0.755209829313509
rdh_sum =
    10.9890188904057
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 125
dh =
    0.732790329313509
rdh_sum =
    11.0010605654208
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 126
dh =
    0.710371329313508
rdh_sum =
    11.0123794552374
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 127
dh =
    0.691291829313508
rdh_sum =
    11.0231006469349
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 128
dh =
    0.67889132931351
rdh_sum =
    11.0334419712337
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 129
dh =
    0.669829829313509
rdh_sum =
    11.0435100003683
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 130
dh =
    0.660768329313509
rdh_sum =
    11.0533083573869
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 131
dh =
    0.651707329313508
rdh_sum =
    11.0628406819117
ans =
```

```
Berm Factor Calculation: Iteration 7, Profile Segment: 132
dh =
    0.642645829313508
rdh_sum =
    11.0721105861723
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 133
dh =
    0.633584329313509
rdh_sum =
    11.0811216991189
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 134
dh =
    0.62452332931351
rdh_sum =
    11.0898776655947
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 135
dh =
    0.615461829313508
rdh_sum =
    11.0983821041707
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 136
dh =
    0.606400329313509
rdh_sum =
    11.106638649458
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 137
dh =
    0.597338829313509
rdh_sum =
    11.1146509379004
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 138
dh =
    0.604589329313509
rdh_sum =
    11.1228583760436
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 139
dh =
    0.628151829313508
rdh_sum =
    11.1317160806177
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 140
dh =
    0.651714329313508
rdh_sum =
    11.1412486092642
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 141
dh =
    0.675276829313509
rdh_sum =
    11.1514804858827
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 142
dh =
    0.698838829313511
rdh_sum =
    11.1624361837851
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 143
dh =
    0.722401329313509
rdh_sum =
    11.1741401708112
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 144
dh =
    0.745963829313508
rdh_sum =
    11.1866168622854
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 145
dh =
    0.769526329313509
rdh_sum =
    11.199890634896
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 146
dh =
    0.793088829313509
rdh_sum =
    11.2139858254762
ans =
```

```
Berm Factor Calculation: Iteration 7, Profile Segment: 147
dh =
    0.816650829313508
rdh_sum =
    11.2289267115841
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 148
dh =
    0.840213329313508
rdh_sum =
    11.2447375643841
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 149
dh =
    0.83501132931351
rdh_sum =
    11.2603542666909
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 150
dh =
    0.80104482931351
rdh_sum =
    11.2747323021676
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 151
dh =
    0.76707882931351
rdh_sum =
    11.2879221464582
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 152
dh =
    0.733112329313508
rdh_sum =
    11.2999743636841
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 153
dh =
    0.69914582931351
rdh_sum =
    11.3109396540344
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 154
dh =
    0.665179829313509
rdh_sum =
    11.3208688455127
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 155
dh =
    0.631213329313509
rdh_sum =
    11.3298128432749
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 156
dh =
    0.597246829313509
rdh_sum =
    11.3378226704693
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 157
dh =
    0.567179329313509
rdh_sum =
    11.3450482120678
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 158
dh =
    0.544908329313509
rdh_sum =
    11.351718694948
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 159
dh =
    0.526535329313509
rdh_sum =
    11.3579478566655
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 160
dh =
    0.508162329313508
rdh_sum =
    11.3637507086783
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 161
dh =
    0.48978982931351
rdh_sum =
    11.3691422863933
ans =
```

```
Berm Factor Calculation: Iteration 7, Profile Segment: 162
dh =
    0.471417329313509
rdh_sum =
    11.3741376259143
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 163
dh =
    0.453044329313508
rdh_sum =
    11.3787517652215
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 164
dh =
    0.43467182931351
rdh_sum =
    11.3829997746316
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 165
dh =
    0.416299329313508
rdh_sum =
    11.3868967250129
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 166
dh =
    0.39792632931351
rdh_sum =
    11.3904576889675
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 167
dh =
    0.379553329313509
rdh_sum =
    11.3936977590714
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 168
dh =
    0.361180829313509
rdh_sum =
    11.3966320457723
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 169
dh =
    0.34280832931351
rdh_sum =
    11.3992756598757
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 170
dh =
    0.316685829313508
rdh_sum =
    11.4015320217426
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 171
dh =
    0.282813329313509
rdh_sum =
    11.4033317935143
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 172
dh =
    0.24894082931351
rdh_sum =
    11.4047264545435
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 173
dh =
    0.215068329313509
rdh_sum =
    11.4057675260437
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 174
dh =
    0.181195829313509
rdh_sum =
    11.4065065657648
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 175
dh =
    0.14732332931351
rdh_sum =
    11.4069951626658
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 176
dh =
    0.113450829313509
rdh_sum =
    11.4072849315842
ans =
```

```
Berm Factor Calculation: Iteration 7, Profile Segment: 177
dh =
    0.0795783293135095
rdh_sum =
    11.4074275079026
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 178
dh =
    0.0457058293135102
rdh_sum =
    11.407474542213
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 179
dh =
    0.0118338293135078
rdh_sum =
    11.4074776952462
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 180
dh =
    -0.0220386706864915
rdh_sum =
    11.4074916118452
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 181
dh =
    -0.0559111706864908
rdh_sum =
    11.4075811789509
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 182
dh =
    -0.0897836706864901
rdh_sum =
    11.407812133017
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 183
dh =
    -0.123656170686489
rdh_sum =
    11.4082501919054
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 184
dh =
    -0.15752867068649
rdh_sum =
    11.4089610462442
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 185
dh =
    -0.191401170686492
rdh_sum =
    11.41001035079
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 186
dh =
    -0.225273670686491
rdh_sum =
    11.4114637157944
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 187
dh =
    -0.25914617068649
rdh_sum =
    11.4133866983765
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 188
dh =
    -0.300954670686492
rdh_sum =
    11.4159796283542
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 189
dh =
    -0.358635670686491
rdh_sum =
    11.4196603903545
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 190
dh =
    -0.424252170686492
rdh_sum =
    11.4248087132189
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 191
dh =
    -0.489868670686491
rdh_sum =
    11.4316687755686
ans =
```

```
Berm Factor Calculation: Iteration 7, Profile Segment: 192
dh =
    -0.55548567068649
rdh_sum =
    11.44048392721
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 193
dh =
    -0.621102670686492
rdh_sum =
    11.4514965411053
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 194
dh =
    -0.686719670686491
rdh_sum =
    11.4649479058887
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 195
dh =
    -0.752336170686492
rdh_sum =
    11.4810780854797
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 196
dh =
    -0.817952670686491
rdh_sum =
    11.5001258396341
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 197
dh =
    -0.883569670686491
rdh_sum =
    11.5223285134064
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 198
dh =
    -0.94918667068649
rdh_sum =
    11.547921873746
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 199
dh =
    -1.01480367068649
rdh_sum =
    11.577140014483
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 200
dh =
    -1.08042017068649
rdh_sum =
    11.6102152105449
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 201
dh =
    -1.13097467068649
rdh_sum =
    11.6464193319559
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 202
dh =
    -1.16646767068649
rdh_sum =
    11.684901415738
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 203
dh =
    -1.20196067068649
rdh_sum =
    11.7257280954618
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 204
dh =
    -1.23745317068649
rdh_sum =
    11.7689656317588
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 205
dh =
    -1.27294567068649
rdh_sum =
    11.8146799697531
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 206
dh =
    -1.30843867068649
rdh_sum =
    11.8629367332565
ans =
```



```
Berm Factor Calculation: Iteration 7, Profile Segment: 207
dh =
  -1.34393117068649
rdh_sum =
  11.9138011073873
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 208
dh =
  -1.37942367068649
rdh_sum =
  11.9673379361441
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 209
dh =
  -1.41491667068649
rdh_sum =
  12.0236117166982
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 210
dh =
  -1.45040967068649
rdh_sum =
  12.0826865138698
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 211
dh =
  -1.48590217068649
rdh_sum =
  12.1446259472686
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 228
dh =
  -2.68392767068649
rdh_sum =
  12.3372091677514
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 229
dh =
  -2.74339617068649
rdh_sum =
  12.5377929947375
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 230
dh =
  -2.79876017068649
rdh_sum =
  12.7459343768273
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 231
dh =
  -2.85412417068649
rdh_sum =
  12.961735841211
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 232
dh =
  -2.90948817068649
rdh_sum =
  13.1852972241635
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 233
dh =
  -2.96485267068649
rdh_sum =
  13.4167157073615
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 234
dh =
  -3.02021717068649
rdh_sum =
  13.6560856426721
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 235
dh =
  -3.07558117068649
rdh_sum =
  13.9034985156
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 236
dh =
  -3.13094517068649
rdh_sum =
  14.1590430576292
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 237
dh =
  -3.18630917068649
rdh_sum =
  14.4228051436652
ans =
```

Berm Factor Calculation: Iteration 7, Profile Segment: 238  
dh =  
-3.24167317068649  
rdh\_sum =  
14.6948677618672  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 239  
dh =  
-3.29703767068649  
rdh\_sum =  
14.9753110605347  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 240  
dh =  
-3.35240217068649  
rdh\_sum =  
15.2642121692668  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 241  
dh =  
-3.40776617068649  
rdh\_sum =  
15.5616451690813  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 242  
dh =  
-3.46313017068649  
rdh\_sum =  
15.8676812198619  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 243  
dh =  
-3.51849417068649  
rdh\_sum =  
16.1823884593212  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 244  
dh =  
-3.55666817068649  
rdh\_sum =  
16.5031126633682  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 245  
dh =  
-3.56046167068649  
rdh\_sum =  
16.8244364488398  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 246  
dh =  
-3.54706467068649  
rdh\_sum =  
17.143644096263  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 247  
dh =  
-3.53366817068649  
rdh\_sum =  
17.4607394033436  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 248  
dh =  
-3.52027167068649  
rdh\_sum =  
17.7757261321885  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 249  
dh =  
-3.50687467068649  
rdh\_sum =  
18.0886080097899  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 250  
dh =  
-3.49347767068649  
rdh\_sum =  
18.3993888852066  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 251  
dh =  
-3.48008117068649  
rdh\_sum =  
18.7080727289102  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 252  
dh =  
-3.46668467068649  
rdh\_sum =  
19.0146634760203  
ans =

Berm Factor Calculation: Iteration 7, Profile Segment: 253  
dh =  
-3.45328767068649  
rdh\_sum =  
19.3191650268108  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 254  
dh =  
-3.43989067068649  
rdh\_sum =  
19.6215814027255  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 255  
dh =  
-3.42649417068649  
rdh\_sum =  
19.9219167456954  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 260  
dh =  
-4.12631567068649  
rdh\_sum =  
20.335420861881  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 261  
dh =  
-4.18136067068649  
rdh\_sum =  
20.7581165011092  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 262  
dh =  
-4.23640567068649  
rdh\_sum =  
21.1900305076443  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 263  
dh =  
-4.29145117068649  
rdh\_sum =  
21.6311866086809  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 264  
dh =  
-4.34649667068649  
rdh\_sum =  
22.0816052383814  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 265  
dh =  
-4.40154167068649  
rdh\_sum =  
22.5413035300379  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 266  
dh =  
-4.45658667068649  
rdh\_sum =  
23.0102954785879  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 267  
dh =  
-4.51163167068649  
rdh\_sum =  
23.4885918517077  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 268  
dh =  
-4.56667717068649  
rdh\_sum =  
23.9762002706823  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 269  
dh =  
-4.61806067068649  
rdh\_sum =  
24.4725051830225  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 270  
dh =  
-4.66578167068649  
rdh\_sum =  
24.9768877797063  
ans =  
Berm Factor Calculation: Iteration 7, Profile Segment: 271  
dh =  
-4.71350317068649  
rdh\_sum =  
25.4893470015022  
ans =

```
Berm Factor Calculation: Iteration 7, Profile Segment: 272
dh =
  -4.76122467068649
rdh_sum =
  26.0098795965343
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 273
dh =
  -4.80894567068649
rdh_sum =
  26.5384801212672
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 274
dh =
  -4.85666667068649
rdh_sum =
  27.0751411110764
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 275
dh =
  -4.90438817068649
rdh_sum =
  27.6198530818844
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 276
dh =
  -4.95210967068649
rdh_sum =
  28.1726043637984
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 277
dh =
  -4.99983067068649
rdh_sum =
  28.7333811046453
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 278
dh =
  -5.04755217068649
rdh_sum =
  29.3021675257658
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 279
dh =
  -5.09527367068649
rdh_sum =
  29.8789456737987
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 280
dh =
  -5.13723517068649
rdh_sum =
  30.4627344569421
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 281
dh =
  -5.17343767068649
rdh_sum =
  31.0525581666798
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 282
dh =
  -5.20964017068649
rdh_sum =
  31.6484033106802
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 283
dh =
  -5.24584217068649
rdh_sum =
  32.2502554092774
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 284
dh =
  -5.28204467068649
rdh_sum =
  32.8580992464333
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 285
dh =
  -5.31824717068649
rdh_sum =
  33.4719186230306
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 286
dh =
  -5.35444967068649
rdh_sum =
  34.0916964423722
ans =
```

```

Berm Factor Calculation: Iteration 7, Profile Segment: 287
dh =
-5.39065217068649
rdh_sum =
34.7174147127492
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 288
dh =
-5.42685417068649
rdh_sum =
35.3490544684939
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 289
dh =
-5.46305667068649
rdh_sum =
35.9865960180438
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 290
dh =
-5.49925917068649
rdh_sum =
36.6300187014174
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 291
dh =
-5.53546117068649
rdh_sum =
37.2793008944589
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 292
dh =
-5.57166367068649
rdh_sum =
37.9344202547148
ans =
Berm Factor Calculation: Iteration 7, Profile Segment: 293
dh =
-5.60786617068649
rdh_sum =
38.595353481858
ans =
!----- End Berm Factor Calculation, Iter: 7 -----!
berm_width =
223
rB =
0.685382499097281
rdh_mean =
0.173073333999363
gamma_berm =
0.433238935086301
gamma_berm =
0.6
slope =
0.170006660820607
Irb =
2.07696329054436
gamma_berm =
0.6
gamma_perm =
1
gamma_beta =
1
gamma_rough =
0.8
gamma =
0.48
ans =
!!! - Iribaren number: 1.25 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - slope: 1:5.9 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
9.23620657056007
! 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 =
3.65043666
upper_slope =
0.0902230000000017
upper_slope =
0.0962077116565548
upper_slope =
0.101523848871205
upper_slope =
0.106277571175988
upper_slope =
0.110553551884053
upper_slope =
0.114420404661031
upper_slope =

```

```

0.117934212657135
upper_slope =
0.121141133093016
upper_slope =
0.124079724577419
upper_slope =
0.126782352287117
upper_slope =
0.12927626765902
upper_slope =
0.131584781821143
upper_slope =
0.130947149891356
w2 =
0.0472655588251012
w1 =
0.952734441174899
R2_new =
9.23362221665361
R2del =
0.0461505621502329
Z2 =
18.3041210459671
ans =
!----- STARTING ITERATION 8 -----!
Ztoe =
0.94741
toe_sta =
12.5371395555078
top_sta =
337.391386298029
Z2 =
18.3041210459671
H0 =
5.2342
Tp =
13.5919
T0 =
12.3562727272727
R2 =
9.23362221665361
Z2 =
18.3041210459671
top_sta =
337.391386298029
Lslope =
324.854246742521
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 32
dh =
4.19996582931351
rdh_sum =
0.34729103989654
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 33
dh =
4.16210982931351
rdh_sum =
0.689183131478468
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 34
dh =
4.12425382931351
rdh_sum =
1.02569668069317
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 35
dh =
4.08639782931351
rdh_sum =
1.3568527876611
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 36
dh =
4.04854232931351
rdh_sum =
1.68267331427858
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 37
dh =
4.01068682931351
rdh_sum =
2.00318074015032
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 38
dh =
3.97283082931351
rdh_sum =
2.31839816087574
ans =

```

```
Berm Factor Calculation: Iteration 8, Profile Segment: 39
dh =
    3.93497482931351
rdh_sum =
    2.62834942512647
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 40
dh =
    3.89711882931351
rdh_sum =
    2.93305906124232
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 41
dh =
    3.85926282931351
rdh_sum =
    3.23255227406553
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 42
dh =
    3.82140682931351
rdh_sum =
    3.5268549416878
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 43
dh =
    3.78355132931351
rdh_sum =
    3.81599368013784
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 44
dh =
    3.74660082931351
rdh_sum =
    4.10011818245487
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 45
dh =
    3.71146032931351
rdh_sum =
    4.3794986850822
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 46
dh =
    3.67722582931351
rdh_sum =
    4.6542810892491
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 47
dh =
    3.64299132931351
rdh_sum =
    4.924489166909
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 48
dh =
    3.60875632931351
rdh_sum =
    5.19014710656527
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 49
dh =
    3.57452132931351
rdh_sum =
    5.45127964399068
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 50
dh =
    3.54028632931351
rdh_sum =
    5.70791199263286
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 51
dh =
    3.50605132931351
rdh_sum =
    5.960069840953
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 52
dh =
    3.47181632931351
rdh_sum =
    6.20777934971427
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 53
dh =
    3.43758182931351
rdh_sum =
    6.4510672136025
ans =
```

```
Berm Factor Calculation: Iteration 8, Profile Segment: 54
dh =
    3.40334732931351
rdh_sum =
    6.68996052885288
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 55
dh =
    3.36911232931351
rdh_sum =
    6.92448679197281
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 56
dh =
    3.34018382931351
rdh_sum =
    7.15534473042837
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 57
dh =
    3.31656182931351
rdh_sum =
    7.3832227554551
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 58
dh =
    3.29293982931351
rdh_sum =
    7.60813310254311
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 59
dh =
    3.26931782931351
rdh_sum =
    7.83009103572924
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 60
dh =
    3.24569582931351
rdh_sum =
    8.04911004780645
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 61
dh =
    3.22207382931351
rdh_sum =
    8.26520425916959
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 62
dh =
    3.19845182931351
rdh_sum =
    8.47838793719619
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 63
dh =
    3.17482932931351
rdh_sum =
    8.68867543438173
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 64
dh =
    3.15120682931351
rdh_sum =
    8.8960813105302
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 65
dh =
    3.12758482931351
rdh_sum =
    9.10062033078974
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 66
dh =
    3.10396282931351
rdh_sum =
    9.30230734323149
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 67
dh =
    3.08034082931351
rdh_sum =
    9.50115733925113
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 68
dh =
    3.03570482931351
rdh_sum =
    9.69468795656988
ans =
```



```
Berm Factor Calculation: Iteration 8, Profile Segment: 88
dh =
    0.98227582931351
rdh_sum =
    9.71625537312226
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 89
dh =
    1.03286432931351
rdh_sum =
    9.74008323016519
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 90
dh =
    1.08345282931351
rdh_sum =
    9.7662812759583
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 91
dh =
    1.13404082931351
rdh_sum =
    9.79495868743633
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 92
dh =
    1.18462932931351
rdh_sum =
    9.82622411909927
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 93
dh =
    1.23521782931351
rdh_sum =
    9.86018560499294
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 94
dh =
    1.28580632931351
rdh_sum =
    9.89695055777596
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 95
dh =
    1.33639482931351
rdh_sum =
    9.9366257439633
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 96
dh =
    1.38698332931351
rdh_sum =
    9.97931725931872
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 97
dh =
    1.43757182931351
rdh_sum =
    10.0251305044017
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 98
dh =
    1.48815982931351
rdh_sum =
    10.0741701278713
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 99
dh =
    1.53874832931351
rdh_sum =
    10.1265400985462
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 100
dh =
    1.58933682931351
rdh_sum =
    10.1823435862936
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 101
dh =
    1.63992532931351
rdh_sum =
    10.2416829696226
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 102
dh =
    1.69051382931351
rdh_sum =
    10.3046598120887
ans =
```

```
Berm Factor Calculation: Iteration 8, Profile Segment: 103
dh =
    1.71211932931351
rdh_sum =
    10.3692208971279
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 104
dh =
    1.67575882931351
rdh_sum =
    10.4311263700036
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 105
dh =
    1.61041532931351
rdh_sum =
    10.4883907490733
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 106
dh =
    1.54507232931351
rdh_sum =
    10.5411843126416
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 107
dh =
    1.47972882931351
rdh_sum =
    10.5896789897535
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 108
dh =
    1.41438532931351
rdh_sum =
    10.634048397365
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 109
dh =
    1.34904182931351
rdh_sum =
    10.6744677387184
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 110
dh =
    1.28369832931351
rdh_sum =
    10.7111137359718
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 111
dh =
    1.21835532931351
rdh_sum =
    10.7441645890685
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 112
dh =
    1.15301182931351
rdh_sum =
    10.7737998253717
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 113
dh =
    1.08766832931351
rdh_sum =
    10.800200313842
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 114
dh =
    1.02232482931351
rdh_sum =
    10.8235481672951
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 115
dh =
    0.967712329313509
rdh_sum =
    10.8444852638338
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 116
dh =
    0.934562329313509
rdh_sum =
    10.8640217417262
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 117
dh =
    0.91214332931351
rdh_sum =
    10.8826379409497
ans =
```

```
Berm Factor Calculation: Iteration 8, Profile Segment: 118
dh =
    0.889724329313509
rdh_sum =
    10.9003556516786
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 119
dh =
    0.867305329313508
rdh_sum =
    10.9171967047576
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 120
dh =
    0.844886329313509
rdh_sum =
    10.9331829707141
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 121
dh =
    0.822467329313509
rdh_sum =
    10.9483363587682
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 122
dh =
    0.80004832931351
rdh_sum =
    10.9626788158405
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 123
dh =
    0.777629329313509
rdh_sum =
    10.9762323255591
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 124
dh =
    0.755209829313509
rdh_sum =
    10.9890188904057
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 125
dh =
    0.732790329313509
rdh_sum =
    11.0010605654208
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 126
dh =
    0.710371329313508
rdh_sum =
    11.0123794552374
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 127
dh =
    0.691291829313508
rdh_sum =
    11.0231006469349
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 128
dh =
    0.67889132931351
rdh_sum =
    11.0334419712337
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 129
dh =
    0.669829829313509
rdh_sum =
    11.0435100003683
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 130
dh =
    0.660768329313509
rdh_sum =
    11.0533083573869
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 131
dh =
    0.651707329313508
rdh_sum =
    11.0628406819117
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 132
dh =
    0.642645829313508
rdh_sum =
    11.0721105861723
ans =
```

```
Berm Factor Calculation: Iteration 8, Profile Segment: 133
dh =
    0.633584329313509
rdh_sum =
    11.0811216991189
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 134
dh =
    0.62452332931351
rdh_sum =
    11.0898776655947
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 135
dh =
    0.615461829313508
rdh_sum =
    11.0983821041707
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 136
dh =
    0.606400329313509
rdh_sum =
    11.106638649458
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 137
dh =
    0.597338829313509
rdh_sum =
    11.1146509379004
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 138
dh =
    0.604589329313509
rdh_sum =
    11.1228583760436
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 139
dh =
    0.628151829313508
rdh_sum =
    11.1317160806177
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 140
dh =
    0.651714329313508
rdh_sum =
    11.1412486092642
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 141
dh =
    0.675276829313509
rdh_sum =
    11.1514804858827
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 142
dh =
    0.698838829313511
rdh_sum =
    11.1624361837851
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 143
dh =
    0.722401329313509
rdh_sum =
    11.1741401708112
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 144
dh =
    0.745963829313508
rdh_sum =
    11.1866168622854
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 145
dh =
    0.769526329313509
rdh_sum =
    11.199890634896
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 146
dh =
    0.793088829313509
rdh_sum =
    11.2139858254762
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 147
dh =
    0.816650829313508
rdh_sum =
    11.2289267115841
ans =
```

```
Berm Factor Calculation: Iteration 8, Profile Segment: 148
dh =
    0.840213329313508
rdh_sum =
    11.2447375643841
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 149
dh =
    0.83501132931351
rdh_sum =
    11.2603542666909
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 150
dh =
    0.80104482931351
rdh_sum =
    11.2747323021676
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 151
dh =
    0.76707882931351
rdh_sum =
    11.2879221464582
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 152
dh =
    0.733112329313508
rdh_sum =
    11.2999743636841
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 153
dh =
    0.69914582931351
rdh_sum =
    11.3109396540344
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 154
dh =
    0.665179829313509
rdh_sum =
    11.3208688455127
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 155
dh =
    0.631213329313509
rdh_sum =
    11.3298128432749
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 156
dh =
    0.597246829313509
rdh_sum =
    11.3378226704693
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 157
dh =
    0.567179329313509
rdh_sum =
    11.3450482120678
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 158
dh =
    0.544908329313509
rdh_sum =
    11.351718694948
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 159
dh =
    0.526535329313509
rdh_sum =
    11.3579478566655
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 160
dh =
    0.508162329313508
rdh_sum =
    11.3637507086783
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 161
dh =
    0.48978982931351
rdh_sum =
    11.3691422863933
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 162
dh =
    0.471417329313509
rdh_sum =
    11.3741376259143
ans =
```

```
Berm Factor Calculation: Iteration 8, Profile Segment: 163
dh =
    0.453044329313508
rdh_sum =
    11.3787517652215
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 164
dh =
    0.43467182931351
rdh_sum =
    11.3829997746316
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 165
dh =
    0.416299329313508
rdh_sum =
    11.3868967250129
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 166
dh =
    0.39792632931351
rdh_sum =
    11.3904576889675
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 167
dh =
    0.379553329313509
rdh_sum =
    11.3936977590714
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 168
dh =
    0.361180829313509
rdh_sum =
    11.3966320457723
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 169
dh =
    0.34280832931351
rdh_sum =
    11.3992756598757
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 170
dh =
    0.316685829313508
rdh_sum =
    11.4015320217426
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 171
dh =
    0.282813329313509
rdh_sum =
    11.4033317935143
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 172
dh =
    0.24894082931351
rdh_sum =
    11.4047264545435
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 173
dh =
    0.215068329313509
rdh_sum =
    11.4057675260437
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 174
dh =
    0.181195829313509
rdh_sum =
    11.4065065657648
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 175
dh =
    0.14732332931351
rdh_sum =
    11.4069951626658
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 176
dh =
    0.113450829313509
rdh_sum =
    11.4072849315842
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 177
dh =
    0.0795783293135095
rdh_sum =
    11.4074275079026
ans =
```

```
Berm Factor Calculation: Iteration 8, Profile Segment: 178
dh =
    0.0457058293135102
rdh_sum =
    11.407474542213
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 179
dh =
    0.0118338293135078
rdh_sum =
    11.4074776952462
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 180
dh =
    -0.0220386706864915
rdh_sum =
    11.4074917513053
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 181
dh =
    -0.0559111706864908
rdh_sum =
    11.407582215952
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 182
dh =
    -0.0897836706864901
rdh_sum =
    11.4078154842704
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 183
dh =
    -0.123656170686489
rdh_sum =
    11.4082579323781
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 184
dh =
    -0.15752867068649
rdh_sum =
    11.4089759086108
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 185
dh =
    -0.191401170686492
rdh_sum =
    11.4100357247099
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 186
dh =
    -0.225273670686491
rdh_sum =
    11.4115036470159
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 187
dh =
    -0.25914617068649
rdh_sum =
    11.4134458876667
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 188
dh =
    -0.300954670686492
rdh_sum =
    11.4160647791552
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 189
dh =
    -0.358635670686491
rdh_sum =
    11.4197823809573
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 190
dh =
    -0.424252170686492
rdh_sum =
    11.4249822064821
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 191
dh =
    -0.489868670686491
rdh_sum =
    11.4319108555391
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 192
dh =
    -0.55548567068649
rdh_sum =
    11.4408140823021
ans =
```

```
Berm Factor Calculation: Iteration 8, Profile Segment: 193
dh =
  -0.621102670686492
rdh_sum =
  11.4519366445998
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 194
dh =
  -0.686719670686491
rdh_sum =
  11.4655221941656
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 195
dh =
  -0.752336170686492
rdh_sum =
  11.4818131336688
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 196
dh =
  -0.817952670686491
rdh_sum =
  11.5010505353002
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 197
dh =
  -0.883569670686491
rdh_sum =
  11.5234740279723
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 198
dh =
  -0.94918667068649
rdh_sum =
  11.5493216311453
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 199
dh =
  -1.01480367068649
rdh_sum =
  11.5788296577363
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 200
dh =
  -1.08042017068649
rdh_sum =
  11.6122325657754
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 201
dh =
  -1.13097467068649
rdh_sum =
  11.6487950077628
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 202
dh =
  -1.16646767068649
rdh_sum =
  11.6876576527895
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 203
dh =
  -1.20196067068649
rdh_sum =
  11.7288877466694
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 204
dh =
  -1.23745317068649
rdh_sum =
  11.7725521552174
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 205
dh =
  -1.27294567068649
rdh_sum =
  11.8187174221504
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 206
dh =
  -1.30843867068649
rdh_sum =
  11.8674497631328
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 207
dh =
  -1.34393117068649
rdh_sum =
  11.9188149471682
ans =
```



```
Berm Factor Calculation: Iteration 8, Profile Segment: 208
dh =
    -1.37942367068649
rdh_sum =
    11.9728783950317
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 209
dh =
    -1.41491667068649
rdh_sum =
    12.0297051734167
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 210
dh =
    -1.45040967068649
rdh_sum =
    12.089359908499
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 211
dh =
    -1.48590217068649
rdh_sum =
    12.1519067728721
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 228
dh =
    -2.68392767068649
rdh_sum =
    12.3462839527065
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 229
dh =
    -2.74339617068649
rdh_sum =
    12.5487298303806
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 230
dh =
    -2.79876017068649
rdh_sum =
    12.7587970640234
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 231
dh =
    -2.85412417068649
rdh_sum =
    12.9765885249247
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 232
dh =
    -2.90948817068649
rdh_sum =
    13.2022043437351
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 233
dh =
    -2.96485267068649
rdh_sum =
    13.435741946911
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 234
dh =
    -3.02021717068649
rdh_sum =
    13.6772958799084
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 235
dh =
    -3.07558117068649
rdh_sum =
    13.9269577702215
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 236
dh =
    -3.13094517068649
rdh_sum =
    14.1848164405268
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 237
dh =
    -3.18630917068649
rdh_sum =
    14.4509578051941
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 238
dh =
    -3.24167317068649
rdh_sum =
    14.7254648398036
ans =
```

Berm Factor Calculation: Iteration 8, Profile Segment: 239  
dh =  
-3.29703767068649  
rdh\_sum =  
15.0084176283313  
ans =  
Berm Factor Calculation: Iteration 8, Profile Segment: 240  
dh =  
-3.35240217068649  
rdh\_sum =  
15.2998931828728  
ans =  
Berm Factor Calculation: Iteration 8, Profile Segment: 241  
dh =  
-3.40776617068649  
rdh\_sum =  
15.5999654135365  
ans =  
Berm Factor Calculation: Iteration 8, Profile Segment: 242  
dh =  
-3.46313017068649  
rdh\_sum =  
15.9087052568633  
ans =  
Berm Factor Calculation: Iteration 8, Profile Segment: 243  
dh =  
-3.51849417068649  
rdh\_sum =  
16.2261805740311  
ans =  
Berm Factor Calculation: Iteration 8, Profile Segment: 244  
dh =  
-3.55666817068649  
rdh\_sum =  
16.5497169920948  
ans =  
Berm Factor Calculation: Iteration 8, Profile Segment: 245  
dh =  
-3.56046167068649  
rdh\_sum =  
16.873857368345  
ans =  
Berm Factor Calculation: Iteration 8, Profile Segment: 246  
dh =  
-3.54706467068649  
rdh\_sum =  
17.1958661420609  
ans =  
Berm Factor Calculation: Iteration 8, Profile Segment: 247  
dh =  
-3.53366817068649  
rdh\_sum =  
17.5157470905975  
ans =  
Berm Factor Calculation: Iteration 8, Profile Segment: 248  
dh =  
-3.52027167068649  
rdh\_sum =  
17.833503955891  
ans =  
Berm Factor Calculation: Iteration 8, Profile Segment: 249  
dh =  
-3.50687467068649  
rdh\_sum =  
18.1491404449404  
ans =  
Berm Factor Calculation: Iteration 8, Profile Segment: 250  
dh =  
-3.49347767068649  
rdh\_sum =  
18.4626603881458  
ans =  
Berm Factor Calculation: Iteration 8, Profile Segment: 251  
dh =  
-3.48008117068649  
rdh\_sum =  
18.7740677386571  
ans =  
Berm Factor Calculation: Iteration 8, Profile Segment: 252  
dh =  
-3.46668467068649  
rdh\_sum =  
19.083366414448  
ans =  
Berm Factor Calculation: Iteration 8, Profile Segment: 253  
dh =  
-3.45328767068649  
rdh\_sum =  
19.3905602988195  
ans =

```
Berm Factor Calculation: Iteration 8, Profile Segment: 254
dh =
    -3.43989067068649
rdh_sum =
    19.695653397578
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 255
dh =
    -3.42649417068649
rdh_sum =
    19.9986498383547
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 260
dh =
    -4.12631567068649
rdh_sum =
    20.4155943993163
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 261
dh =
    -4.18136067068649
rdh_sum =
    20.841786974869
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 262
dh =
    -4.23640567068649
rdh_sum =
    21.2772534517857
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 263
dh =
    -4.29145117068649
rdh_sum =
    21.722016548705
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 264
dh =
    -4.34649667068649
rdh_sum =
    22.1760956394386
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 265
dh =
    -4.40154167068649
rdh_sum =
    22.6395067454728
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 266
dh =
    -4.45658667068649
rdh_sum =
    23.1122626997766
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 267
dh =
    -4.51163167068649
rdh_sum =
    23.5943730577633
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 268
dh =
    -4.56667717068649
rdh_sum =
    24.0858441789845
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 269
dh =
    -4.61806067068649
rdh_sum =
    24.5860560872303
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 270
dh =
    -4.66578167068649
rdh_sum =
    25.0943857577575
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 271
dh =
    -4.71350317068649
rdh_sum =
    25.6108310797815
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 272
dh =
    -4.76122467068649
rdh_sum =
    26.1353877180357
ans =
```

```
Berm Factor Calculation: Iteration 8, Profile Segment: 273
dh =
  -4.80894567068649
rdh_sum =
  26.6680491140955
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 274
dh =
  -4.85666667068649
rdh_sum =
  27.2088066580417
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 275
dh =
  -4.90438817068649
rdh_sum =
  27.7576496903689
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 276
dh =
  -4.95210967068649
rdh_sum =
  28.3145653352226
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 277
dh =
  -4.99983067068649
rdh_sum =
  28.8795385043333
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 278
dh =
  -5.04755217068649
rdh_sum =
  29.4525521541735
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 279
dh =
  -5.09527367068649
rdh_sum =
  30.0335870371028
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 280
dh =
  -5.13723517068649
rdh_sum =
  30.621657407784
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 281
dh =
  -5.17343767068649
rdh_sum =
  31.2157833101094
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 282
dh =
  -5.20964017068649
rdh_sum =
  31.8159504638362
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 283
dh =
  -5.24584217068649
rdh_sum =
  32.4221435890595
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 284
dh =
  -5.28204467068649
rdh_sum =
  33.0343466581006
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 285
dh =
  -5.31824717068649
rdh_sum =
  33.6525426481524
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 286
dh =
  -5.35444967068649
rdh_sum =
  34.2767136271961
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 287
dh =
  -5.39065217068649
rdh_sum =
  34.9068407567219
ans =
```

```

Berm Factor Calculation: Iteration 8, Profile Segment: 288
dh =
    -5.42685417068649
rdh_sum =
    35.5429042127385
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 289
dh =
    -5.46305667068649
rdh_sum =
    36.1848834346047
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 290
dh =
    -5.49925917068649
rdh_sum =
    36.8327568820461
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 291
dh =
    -5.53546117068649
rdh_sum =
    37.4865020396126
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 292
dh =
    -5.57166367068649
rdh_sum =
    38.1460956632228
ans =
Berm Factor Calculation: Iteration 8, Profile Segment: 293
dh =
    -5.60786617068649
rdh_sum =
    38.8115135402461
ans =
!----- End Berm Factor Calculation, Iter: 8 -----!
berm_width =
    223
rB =
    0.686461704706447
rdh_mean =
    0.174042661615453
gamma_berm =
    0.433011917477744
gamma_berm =
    0.6
slope =
    0.170407337946776
Irb =
    2.08185834394049
gamma_berm =
    0.6
gamma_perm =
    1
gamma_beta =
    1
gamma_rough =
    0.8
gamma =
    0.48
ans =
!!! - - Iribaren number: 1.25 is in the valid range (0.5-10), TAW RECOMMENDED - - !!!
ans =
!!! - - slope: 1:5.9 V:H is in the valid range (1:8 - 1:1), TAW RECOMMENDED - - !!!
R2_new =
    9.25797475709777
! 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 =
    3.65043666
upper_slope =
    0.0902230000000016
upper_slope =
    0.0963944731237948
upper_slope =
    0.101856230182631
upper_slope =
    0.106724094321125
upper_slope =
    0.111089842307254
upper_slope =
    0.115027394983626
upper_slope =
    0.118596850649219
upper_slope =
    0.121847437655401
upper_slope =
    0.124820094404285
upper_slope =

```

```

0.12754904571449
upper_slope =
0.130063006690715
upper_slope =
0.132386453917656
upper_slope =
0.131707647313443
w2 =
0.0472655588251012
w1 =
0.952734441174899
R2_new =
9.25482286583838
R2del =
0.0212006491847685
Z2 =
18.3253216951519
ans =
!----- STARTING ITERATION 9 -----!
Ztoe =
0.94741
toe_sta =
12.5371395555078
top_sta =
337.626366837191
Z2 =
18.3253216951519
H0 =
5.2342
Tp =
13.5919
T0 =
12.3562727272727
R2 =
9.25482286583838
Z2 =
18.3253216951519
top_sta =
337.626366837191
Lslope =
325.089227281683
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 32
dh =
4.19996582931351
rdh_sum =
0.34729103989654
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 33
dh =
4.16210982931351
rdh_sum =
0.689183131478468
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 34
dh =
4.12425382931351
rdh_sum =
1.02569668069317
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 35
dh =
4.08639782931351
rdh_sum =
1.3568527876611
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 36
dh =
4.04854232931351
rdh_sum =
1.68267331427858
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 37
dh =
4.01068682931351
rdh_sum =
2.00318074015032
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 38
dh =
3.97283082931351
rdh_sum =
2.31839816087574
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 39
dh =
3.93497482931351
rdh_sum =
2.62834942512647
ans =

```

```
Berm Factor Calculation: Iteration 9, Profile Segment: 40
dh =
    3.89711882931351
rdh_sum =
    2.93305906124232
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 41
dh =
    3.85926282931351
rdh_sum =
    3.23255227406553
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 42
dh =
    3.82140682931351
rdh_sum =
    3.5268549416878
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 43
dh =
    3.78355132931351
rdh_sum =
    3.81599368013784
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 44
dh =
    3.74660082931351
rdh_sum =
    4.10011818245487
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 45
dh =
    3.71146032931351
rdh_sum =
    4.3794986850822
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 46
dh =
    3.67722582931351
rdh_sum =
    4.6542810892491
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 47
dh =
    3.64299132931351
rdh_sum =
    4.924489166909
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 48
dh =
    3.60875632931351
rdh_sum =
    5.19014710656527
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 49
dh =
    3.57452132931351
rdh_sum =
    5.45127964399068
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 50
dh =
    3.54028632931351
rdh_sum =
    5.70791199263286
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 51
dh =
    3.50605132931351
rdh_sum =
    5.960069840953
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 52
dh =
    3.47181632931351
rdh_sum =
    6.20777934971427
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 53
dh =
    3.43758182931351
rdh_sum =
    6.4510672136025
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 54
dh =
    3.40334732931351
rdh_sum =
    6.68996052885288
ans =
```

```
Berm Factor Calculation: Iteration 9, Profile Segment: 55
dh =
    3.36911232931351
rdh_sum =
    6.92448679197281
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 56
dh =
    3.34018382931351
rdh_sum =
    7.15534473042837
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 57
dh =
    3.31656182931351
rdh_sum =
    7.38322227554551
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 58
dh =
    3.29293982931351
rdh_sum =
    7.60813310254311
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 59
dh =
    3.26931782931351
rdh_sum =
    7.83009103572924
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 60
dh =
    3.24569582931351
rdh_sum =
    8.04911004780645
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 61
dh =
    3.22207382931351
rdh_sum =
    8.26520425916959
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 62
dh =
    3.19845182931351
rdh_sum =
    8.47838793719619
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 63
dh =
    3.17482932931351
rdh_sum =
    8.68867543438173
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 64
dh =
    3.15120682931351
rdh_sum =
    8.8960813105302
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 65
dh =
    3.12758482931351
rdh_sum =
    9.10062033078974
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 66
dh =
    3.10396282931351
rdh_sum =
    9.30230734323149
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 67
dh =
    3.08034082931351
rdh_sum =
    9.50115733925113
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 68
dh =
    3.03570482931351
rdh_sum =
    9.69468795656988
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 88
dh =
    0.98227582931351
rdh_sum =
    9.71625537312226
ans =
```



```
Berm Factor Calculation: Iteration 9, Profile Segment: 89
dh =
    1.03286432931351
rdh_sum =
    9.74008323016519
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 90
dh =
    1.08345282931351
rdh_sum =
    9.7662812759583
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 91
dh =
    1.13404082931351
rdh_sum =
    9.79495868743633
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 92
dh =
    1.18462932931351
rdh_sum =
    9.82622411909927
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 93
dh =
    1.23521782931351
rdh_sum =
    9.86018560499294
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 94
dh =
    1.28580632931351
rdh_sum =
    9.89695055777596
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 95
dh =
    1.33639482931351
rdh_sum =
    9.9366257439633
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 96
dh =
    1.38698332931351
rdh_sum =
    9.97931725931872
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 97
dh =
    1.43757182931351
rdh_sum =
    10.0251305044017
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 98
dh =
    1.48815982931351
rdh_sum =
    10.0741701278713
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 99
dh =
    1.53874832931351
rdh_sum =
    10.1265400985462
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 100
dh =
    1.58933682931351
rdh_sum =
    10.1823435862936
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 101
dh =
    1.63992532931351
rdh_sum =
    10.2416829696226
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 102
dh =
    1.69051382931351
rdh_sum =
    10.3046598120887
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 103
dh =
    1.71211932931351
rdh_sum =
    10.3692208971279
ans =
```

```
Berm Factor Calculation: Iteration 9, Profile Segment: 104
dh =
    1.67575882931351
rdh_sum =
    10.4311263700036
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 105
dh =
    1.61041532931351
rdh_sum =
    10.4883907490733
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 106
dh =
    1.54507232931351
rdh_sum =
    10.5411843126416
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 107
dh =
    1.47972882931351
rdh_sum =
    10.5896789897535
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 108
dh =
    1.41438532931351
rdh_sum =
    10.634048397365
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 109
dh =
    1.34904182931351
rdh_sum =
    10.6744677387184
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 110
dh =
    1.28369832931351
rdh_sum =
    10.7111137359718
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 111
dh =
    1.21835532931351
rdh_sum =
    10.7441645890685
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 112
dh =
    1.15301182931351
rdh_sum =
    10.7737998253717
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 113
dh =
    1.08766832931351
rdh_sum =
    10.800200313842
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 114
dh =
    1.02232482931351
rdh_sum =
    10.8235481672951
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 115
dh =
    0.967712329313509
rdh_sum =
    10.8444852638338
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 116
dh =
    0.934562329313509
rdh_sum =
    10.8640217417262
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 117
dh =
    0.91214332931351
rdh_sum =
    10.8826379409497
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 118
dh =
    0.889724329313509
rdh_sum =
    10.9003556516786
ans =
```

```
Berm Factor Calculation: Iteration 9, Profile Segment: 119
dh =
    0.867305329313508
rdh_sum =
    10.9171967047576
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 120
dh =
    0.844886329313509
rdh_sum =
    10.9331829707141
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 121
dh =
    0.822467329313509
rdh_sum =
    10.9483363587682
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 122
dh =
    0.80004832931351
rdh_sum =
    10.9626788158405
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 123
dh =
    0.777629329313509
rdh_sum =
    10.9762323255591
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 124
dh =
    0.755209829313509
rdh_sum =
    10.9890188904057
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 125
dh =
    0.732790329313509
rdh_sum =
    11.0010605654208
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 126
dh =
    0.710371329313508
rdh_sum =
    11.0123794552374
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 127
dh =
    0.691291829313508
rdh_sum =
    11.0231006469349
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 128
dh =
    0.67889132931351
rdh_sum =
    11.0334419712337
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 129
dh =
    0.669829829313509
rdh_sum =
    11.0435100003683
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 130
dh =
    0.660768329313509
rdh_sum =
    11.0533083573869
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 131
dh =
    0.651707329313508
rdh_sum =
    11.0628406819117
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 132
dh =
    0.642645829313508
rdh_sum =
    11.0721105861723
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 133
dh =
    0.633584329313509
rdh_sum =
    11.0811216991189
ans =
```

```
Berm Factor Calculation: Iteration 9, Profile Segment: 134
dh =
    0.62452332931351
rdh_sum =
    11.0898776655947
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 135
dh =
    0.615461829313508
rdh_sum =
    11.0983821041707
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 136
dh =
    0.606400329313509
rdh_sum =
    11.106638649458
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 137
dh =
    0.597338829313509
rdh_sum =
    11.1146509379004
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 138
dh =
    0.604589329313509
rdh_sum =
    11.1228583760436
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 139
dh =
    0.628151829313508
rdh_sum =
    11.1317160806177
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 140
dh =
    0.651714329313508
rdh_sum =
    11.1412486092642
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 141
dh =
    0.675276829313509
rdh_sum =
    11.1514804858827
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 142
dh =
    0.698838829313511
rdh_sum =
    11.1624361837851
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 143
dh =
    0.722401329313509
rdh_sum =
    11.1741401708112
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 144
dh =
    0.745963829313508
rdh_sum =
    11.1866168622854
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 145
dh =
    0.769526329313509
rdh_sum =
    11.199890634896
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 146
dh =
    0.793088829313509
rdh_sum =
    11.2139858254762
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 147
dh =
    0.816650829313508
rdh_sum =
    11.2289267115841
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 148
dh =
    0.840213329313508
rdh_sum =
    11.2447375643841
ans =
```

```
Berm Factor Calculation: Iteration 9, Profile Segment: 149
dh =
    0.83501132931351
rdh_sum =
    11.2603542666909
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 150
dh =
    0.80104482931351
rdh_sum =
    11.2747323021676
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 151
dh =
    0.76707882931351
rdh_sum =
    11.2879221464582
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 152
dh =
    0.733112329313508
rdh_sum =
    11.2999743636841
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 153
dh =
    0.69914582931351
rdh_sum =
    11.3109396540344
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 154
dh =
    0.665179829313509
rdh_sum =
    11.3208688455127
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 155
dh =
    0.631213329313509
rdh_sum =
    11.3298128432749
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 156
dh =
    0.597246829313509
rdh_sum =
    11.3378226704693
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 157
dh =
    0.567179329313509
rdh_sum =
    11.3450482120678
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 158
dh =
    0.544908329313509
rdh_sum =
    11.351718694948
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 159
dh =
    0.526535329313509
rdh_sum =
    11.3579478566655
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 160
dh =
    0.508162329313508
rdh_sum =
    11.3637507086783
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 161
dh =
    0.48978982931351
rdh_sum =
    11.3691422863933
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 162
dh =
    0.471417329313509
rdh_sum =
    11.3741376259143
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 163
dh =
    0.453044329313508
rdh_sum =
    11.3787517652215
ans =
```

```
Berm Factor Calculation: Iteration 9, Profile Segment: 164
dh =
    0.43467182931351
rdh_sum =
    11.3829997746316
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 165
dh =
    0.416299329313508
rdh_sum =
    11.3868967250129
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 166
dh =
    0.39792632931351
rdh_sum =
    11.3904576889675
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 167
dh =
    0.379553329313509
rdh_sum =
    11.3936977590714
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 168
dh =
    0.361180829313509
rdh_sum =
    11.3966320457723
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 169
dh =
    0.34280832931351
rdh_sum =
    11.3992756598757
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 170
dh =
    0.316685829313508
rdh_sum =
    11.4015320217426
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 171
dh =
    0.282813329313509
rdh_sum =
    11.4033317935143
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 172
dh =
    0.24894082931351
rdh_sum =
    11.4047264545435
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 173
dh =
    0.215068329313509
rdh_sum =
    11.4057675260437
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 174
dh =
    0.181195829313509
rdh_sum =
    11.4065065657648
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 175
dh =
    0.14732332931351
rdh_sum =
    11.4069951626658
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 176
dh =
    0.113450829313509
rdh_sum =
    11.4072849315842
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 177
dh =
    0.0795783293135095
rdh_sum =
    11.4074275079026
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 178
dh =
    0.0457058293135102
rdh_sum =
    11.407474542213
ans =
```

```
Berm Factor Calculation: Iteration 9, Profile Segment: 179
dh =
    0.0118338293135078
rdh_sum =
    11.4074776952462
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 180
dh =
    -0.0220386706864915
rdh_sum =
    11.407491686981
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 181
dh =
    -0.0559111706864908
rdh_sum =
    11.4075817376479
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 182
dh =
    -0.0897836706864901
rdh_sum =
    11.407813938546
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 183
dh =
    -0.123656170686489
rdh_sum =
    11.4082543621812
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 184
dh =
    -0.15752867068649
rdh_sum =
    11.4089690535309
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 185
dh =
    -0.191401170686492
rdh_sum =
    11.4100240213129
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 186
dh =
    -0.225273670686491
rdh_sum =
    11.4114852292578
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 187
dh =
    -0.25914617068649
rdh_sum =
    11.4134185873891
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 188
dh =
    -0.300954670686492
rdh_sum =
    11.4160255045018
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 189
dh =
    -0.358635670686491
rdh_sum =
    11.4197261145055
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 190
dh =
    -0.424252170686492
rdh_sum =
    11.4249021852742
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 191
dh =
    -0.489868670686491
rdh_sum =
    11.4317991999374
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 192
dh =
    -0.55548567068649
rdh_sum =
    11.4406618037678
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 193
dh =
    -0.621102670686492
rdh_sum =
    11.4517336547115
ans =
```

```
Berm Factor Calculation: Iteration 9, Profile Segment: 194
dh =
    -0.686719670686491
rdh_sum =
    11.4652573146861
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 195
dh =
    -0.752336170686492
rdh_sum =
    11.4814741078051
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 196
dh =
    -0.817952670686491
rdh_sum =
    11.5006240398737
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 197
dh =
    -0.883569670686491
rdh_sum =
    11.5229456866342
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 198
dh =
    -0.94918667068649
rdh_sum =
    11.5486760288731
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 199
dh =
    -1.01480367068649
rdh_sum =
    11.5780503562905
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 200
dh =
    -1.08042017068649
rdh_sum =
    11.6113021203398
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 201
dh =
    -1.13097467068649
rdh_sum =
    11.6476993023211
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 202
dh =
    -1.16646767068649
rdh_sum =
    11.6863864305404
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 203
dh =
    -1.20196067068649
rdh_sum =
    11.7274304685565
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 204
dh =
    -1.23745317068649
rdh_sum =
    11.770898003194
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 205
dh =
    -1.27294567068649
rdh_sum =
    11.8168553022274
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 206
dh =
    -1.30843867068649
rdh_sum =
    11.8653683084958
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 207
dh =
    -1.34393117068649
rdh_sum =
    11.9165025218608
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 208
dh =
    -1.37942367068649
rdh_sum =
    11.9703230972435
ans =
```



```
Berm Factor Calculation: Iteration 9, Profile Segment: 209
dh =
  -1.41491667068649
rdh_sum =
  12.0268948388379
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 210
dh =
  -1.45040967068649
rdh_sum =
  12.0862821140963
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 211
dh =
  -1.48590217068649
rdh_sum =
  12.1485488407593
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 228
dh =
  -2.68392767068649
rdh_sum =
  12.3420989044397
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 229
dh =
  -2.74339617068649
rdh_sum =
  12.5436862881552
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 230
dh =
  -2.79876017068649
rdh_sum =
  12.7528656285542
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 231
dh =
  -2.85412417068649
rdh_sum =
  12.9697396397643
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 232
dh =
  -2.90948817068649
rdh_sum =
  13.1944083182543
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 233
dh =
  -2.96485267068649
rdh_sum =
  13.42696897922
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 234
dh =
  -3.02021717068649
rdh_sum =
  13.6675160805125
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 235
dh =
  -3.07558117068649
rdh_sum =
  13.9161411858648
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 236
dh =
  -3.13094517068649
rdh_sum =
  14.1729330776664
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 237
dh =
  -3.18630917068649
rdh_sum =
  14.4379776539023
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 238
dh =
  -3.24167317068649
rdh_sum =
  14.7113578978154
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 239
dh =
  -3.29703767068649
rdh_sum =
  14.9931539249533
ans =
```

Berm Factor Calculation: Iteration 9, Profile Segment: 240  
dh =  
-3.35240217068649  
rdh\_sum =  
15.2834428035532  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 241  
dh =  
-3.40776617068649  
rdh\_sum =  
15.582298524538  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 242  
dh =  
-3.46313017068649  
rdh\_sum =  
15.8897921294878  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 243  
dh =  
-3.51849417068649  
rdh\_sum =  
16.2059916091927  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 244  
dh =  
-3.55666817068649  
rdh\_sum =  
16.5282318693026  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 245  
dh =  
-3.56046167068649  
rdh\_sum =  
16.8510740725873  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 246  
dh =  
-3.54706467068649  
rdh\_sum =  
17.1717917930635  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 247  
dh =  
-3.53366817068649  
rdh\_sum =  
17.4903888175974  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 248  
dh =  
-3.52027167068649  
rdh\_sum =  
17.8068688975525  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 249  
dh =  
-3.50687467068649  
rdh\_sum =  
18.1212357492721  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 250  
dh =  
-3.49347767068649  
rdh\_sum =  
18.4334932118848  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 251  
dh =  
-3.48008117068649  
rdh\_sum =  
18.7436452466528  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 252  
dh =  
-3.46668467068649  
rdh\_sum =  
19.0516957795794  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 253  
dh =  
-3.45328767068649  
rdh\_sum =  
19.3576487019148  
ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 254  
dh =  
-3.43989067068649  
rdh\_sum =  
19.6615080267985  
ans =

```
Berm Factor Calculation: Iteration 9, Profile Segment: 255
dh =
  -3.42649417068649
rdh_sum =
  19.9632778885774
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 260
dh =
  -4.12631567068649
rdh_sum =
  20.3786372038503
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 261
dh =
  -4.18136067068649
rdh_sum =
  20.8032185562166
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 262
dh =
  -4.23640567068649
rdh_sum =
  21.2370482765122
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 263
dh =
  -4.29145117068649
rdh_sum =
  21.6801495510121
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 264
dh =
  -4.34649667068649
rdh_sum =
  22.1325422450713
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 265
dh =
  -4.40154167068649
rdh_sum =
  22.5942428954682
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 266
dh =
  -4.45658667068649
rdh_sum =
  23.0652648736156
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 267
dh =
  -4.51163167068649
rdh_sum =
  23.545618296581
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 268
dh =
  -4.56667717068649
rdh_sum =
  24.0353101083994
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 269
dh =
  -4.61806067068649
rdh_sum =
  24.533722369152
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 270
dh =
  -4.66578167068649
rdh_sum =
  25.0402339939816
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 271
dh =
  -4.71350317068649
rdh_sum =
  25.5548433590316
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 272
dh =
  -4.76122467068649
rdh_sum =
  26.077546630649
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 273
dh =
  -4.80894567068649
rdh_sum =
  26.6083377665508
ans =
```

```
Berm Factor Calculation: Iteration 9, Profile Segment: 274
dh =
  -4.85666667068649
rdh_sum =
  27.1472086869843
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 275
dh =
  -4.90438817068649
rdh_sum =
  27.6941492765083
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 276
dh =
  -4.95210967068649
rdh_sum =
  28.249147217412
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 277
dh =
  -4.99983067068649
rdh_sum =
  28.8121879934633
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 278
dh =
  -5.04755217068649
rdh_sum =
  29.3832551464394
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 279
dh =
  -5.09527367068649
rdh_sum =
  29.9623300275624
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 280
dh =
  -5.13723517068649
rdh_sum =
  30.5484290268341
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 281
dh =
  -5.17343767068649
rdh_sum =
  31.1405741356468
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 282
dh =
  -5.20964017068649
rdh_sum =
  31.7387514382468
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 283
dh =
  -5.24584217068649
rdh_sum =
  32.3429460248977
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 284
dh =
  -5.28204467068649
rdh_sum =
  32.9531422433455
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 285
dh =
  -5.31824717068649
rdh_sum =
  33.5693234517578
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 286
dh =
  -5.35444967068649
rdh_sum =
  34.1914721044492
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 287
dh =
  -5.39065217068649
rdh_sum =
  34.819569754531
ans =
Berm Factor Calculation: Iteration 9, Profile Segment: 288
dh =
  -5.42685417068649
rdh_sum =
  35.4535969749388
ans =
```

Berm Factor Calculation: Iteration 9, Profile Segment: 289

dh =  
-5.46305667068649  
rdh\_sum =  
36.093533606914

ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 290

dh =  
-5.49925917068649  
rdh\_sum =  
36.7393585172272

ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 291

dh =  
-5.53546117068649  
rdh\_sum =  
37.3910496025375

ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 292

dh =  
-5.57166367068649  
rdh\_sum =  
38.0485840356322

ans =  
Berm Factor Calculation: Iteration 9, Profile Segment: 293

dh =  
-5.60786617068649  
rdh\_sum =  
38.7119380256622

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

berm\_width =  
223  
rB =  
0.685965517420161

rdh\_mean =  
0.173596134644225

gamma\_berm =  
0.433115444903205

gamma\_berm =  
0.6

slope =  
0.170222776270047

Irb =  
2.07960356271276

gamma\_berm =  
0.6

gamma\_perm =  
1

gamma\_beta =  
1

gamma\_rough =  
0.8

gamma =  
0.48

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

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

R2\_new =  
9.24794779837129

! 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 =  
3.65043666

upper\_slope =  
0.0902230000000016

upper\_slope =  
0.0963072516582605

upper\_slope =  
0.101701145318816

upper\_slope =  
0.1065159251127

upper\_slope =  
0.110840009931419

upper\_slope =  
0.114744817341484

upper\_slope =  
0.118288555558608

upper\_slope =  
0.121519009876234

upper\_slope =  
0.12447600240095

upper\_slope =  
0.127192887032832

upper\_slope =  
0.129697694420277

upper\_slope =  
0.132014356920906

upper\_slope =

```
0.13135479292437
w2 = 0.0472655588251012
w1 = 0.952734441174899
R2_new = 9.24505627957507
R2del = 0.00976658626330895
Z2 = 18.3155551088886
% final 2% runup elevation
Z2=R2_new+SWEL
Z2 = 18.3155551088886
diary off
-1.000000e+00
-1.000000e+00
```