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February 1, 2008

Michael Buske, C.E.T.
C.C. Tatham & Associates Ltd.
115 Sandford Fleming Drive, Suite 200
Collingwood, Ontario
L9Y 5A6

Dear Mr. Buske

RE: Shoreline Hazards Review
Cranberry – Bear Estate, Collingwood
Our file 07-1108

We are pleased to present the findings of our shoreline hazards review for the Cranberry - Bear Estates property in Collingwood. We have considered the erosion, flooding and dynamic beach hazards at the site, as defined by MNR.

We visited the site on January 9, 2008. The photographs presented in this letter report ware taken at that time. The water level during our site visit was approximately 176.1 metres IGLD85, as measured by the Canadian Hydrographic Service water level gauge in Collingwood Harbour. Topographic information is based on the site plan you provided. That plan was used to produce Figure 2 of this report.

Existing Conditions

The planned development involves the construction of a banquet hall that will overlook the West Bay of Collingwood Harbour. Figure 1 is a location plan that shows the location of the site within the harbour. Figure 2 is a site plan which shows the location of the proposed building and existing contours. Photo 1 is a roughly westward looking view of the site of the proposed building. The location of the proposed new building with respect to the existing building can be seen in Figure 2. Photos 2 and 3 show more detailed views of the shoreline visible in Photo 1.

The crest elevation of the existing bank is approximately 177.5 metres. The land rises gently until it hits the base of a small “plateau” where it appears as if additional fill was placed to surround the location of the existing structure (and the proposed new structure). The top of the plateau is above elevation 178.25 metres.

This shoreline is artificial in that it was created from placed fill. There are a number of field stones of varying sizes along the edge of the bank, but not enough of them to be considered a protection structure. There is no evidence of filter cloth or a stone filter layer along the shoreline. We are not sure exactly when the “spit” forming the north side of the marina basin (and hence this shoreline) was constructed but the size of the trees suggests that it was a number of decades ago. A 1988 field sheet indicates “high trees”, suggesting that the trees were already mature 20 years ago. We assume that the field stones were placed on the bank when the spit was constructed as there is no evidence that it was carried out as any sort of remedial work. This in turn suggests that there is no real erosion at this site, as is discussed in more detail below.

Dynamic Beach Hazard

There is no dynamic beach at this site so there is no dynamic beach hazard.

Flood Hazard

The Provincial Policy Statement defines the limit of the flood hazard as the 100-year instantaneous water level plus a wave uprush allowance. MNR determined the 100-year instantaneous water level to be 178.0 metres along this section of shoreline. That elevation was determined from a joint probability analysis of mean monthly water levels plus storm surge levels.

The subject property is well sheltered within the West Bay with only a very narrow opening, towards the northeast, through which waves can pass and still reach the site. Using the results of a wave hindcast analysis carried out as part of our 2004 work on the Collingwood Shipyards redevelopment project, we determined that northeasterly offshore wave conditions can have a significant wave height of 3.6 metres with a peak wave period of 7.5 seconds. Figure 3 shows nearshore wave height contours (contour interval 0.1 metres) and wave vectors from the results of a wave transformation analysis of a 3.6 metre 7.5 second wave coming from a deep water direction of 45 degrees. It can be seen from Figure 3 that significant wave heights of 0.4 metres or less can strike the shoreline fronting the proposed new building.

We carried out a wave uprush analysis for a 0.4 metre wave using a profile derived from the site plan. Assuming a water level of 178.0 metres, the wave overtops the existing bank and breaks between the bank and the “plateau” described previously. The limit of wave uprush was determined to correspond with the front edge of the plateau. The limit of the flood hazard may therefore be defined by the 178.25m contour line on Figure 2. That places the proposed new structure at or outside the flood hazard limit.

Considering that the top of the plateau is relatively flat and the wave uprush limit just reaches the crest of the plateau, we recommend that the elevation of the plateau be raised marginally during construction of the new banquet hall. That will provide an extra buffer against possible flooding. The land should also be graded to provide positive drainage away from the structure. A land elevation of 178.3 metres at the edge of the plateau with a grade of 2% or more up to the dwelling would suffice.

We also consider it prudent to not have any openings in the structure below an elevation of 178.3 metres unless those openings are specifically flood-proofed. That is 0.3 metres higher than the design 100-year instantaneous water level for a margin of safety.

During periods of high lake level there may be a risk of ground-water flooding due to the raised water table. If the lowest floor elevation is at 177.5 metres or higher then normal foundation drainage practices will suffice. If lower elevation floors are planned then we recommend that you consult with a geotechnical engineer to determine the risk of ground water flooding.

Erosion Hazard

Provincial Policy defines the erosion hazard limit as 100 times the average annual recession rate plus a stable slope allowance. In the absence of a site specific geotechnical analysis a stable slope of 3:1 (horizontal: vertical) should be used. At this site the bank is approximately 1.5 metres high, giving a stable slope allowance of 3.5 metres, measured from the toe of the bank.

The flood hazard limit, as described above, is approximately 15 metres back from the top of bank. Assuming a stable slope allowance of 4.5 metres (from the toe of the bank) means that the average annual recession rate must be in excess of 0.1 metres per year for the erosion hazard limit to extend beyond the flood hazard limit.

Provincial Policy requires that the erosion hazard limit be determined using a long-term average annual recession rate calculated for unprotected natural shoreline. The site, however, is not natural as it is part of the constructed spit. As the site is within a protected harbour it not reasonable to apply the default recession rate for open coast shoreline.

Visible evidence suggests that there is no long-term recession at this site. As discussed previously, we believe the shoreline has not been altered since it was constructed a number of decades ago. It appears as it some fines have washed out of the upper part of the bank, allowing the field stones to settle, but there has been no measurable recession. It is certainly not in the order of 0.1 metres per year so the flooding hazard will be the governing hazard limit at this site.

Conclusions

There is no dynamic beach hazard at this site. The erosion hazard limit was not specifically determined as there is no available recession rate data but evidence suggests that erosion is either negligible or non-existent. The average annual recession rate is certainly less than 0.1 metres per year so the flood hazard limit will govern at this site.

The flood hazard limit was found to follow the edge of a small plateau of fill placed at the location of the existing structure. The proposed new structure is also located on that plateau so it is outside the erosion hazard limit. Because of the proximity of the proposed structure to the flood hazard limit and the limited slope on the plateau, we recommend that the plateau elevation be marginally increased to provide an additional buffer against flooding. Structural openings should be kept above elevation 178.3 metres unless they are specifically flood-proofed. If floor elevations are to be below elevation 177.5 metres then further analysis of the risk of ground-water flooding is recommended.

We trust that these comments adequately describe the shoreline hazards at this site. Do not hesitate to call should you have any questions regarding this letter report.

Yours truly

*Shore***plan** *Engineering Limited*

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Figures 1-3 and Photos 1-3 follow:

Figure 1 Location Plan

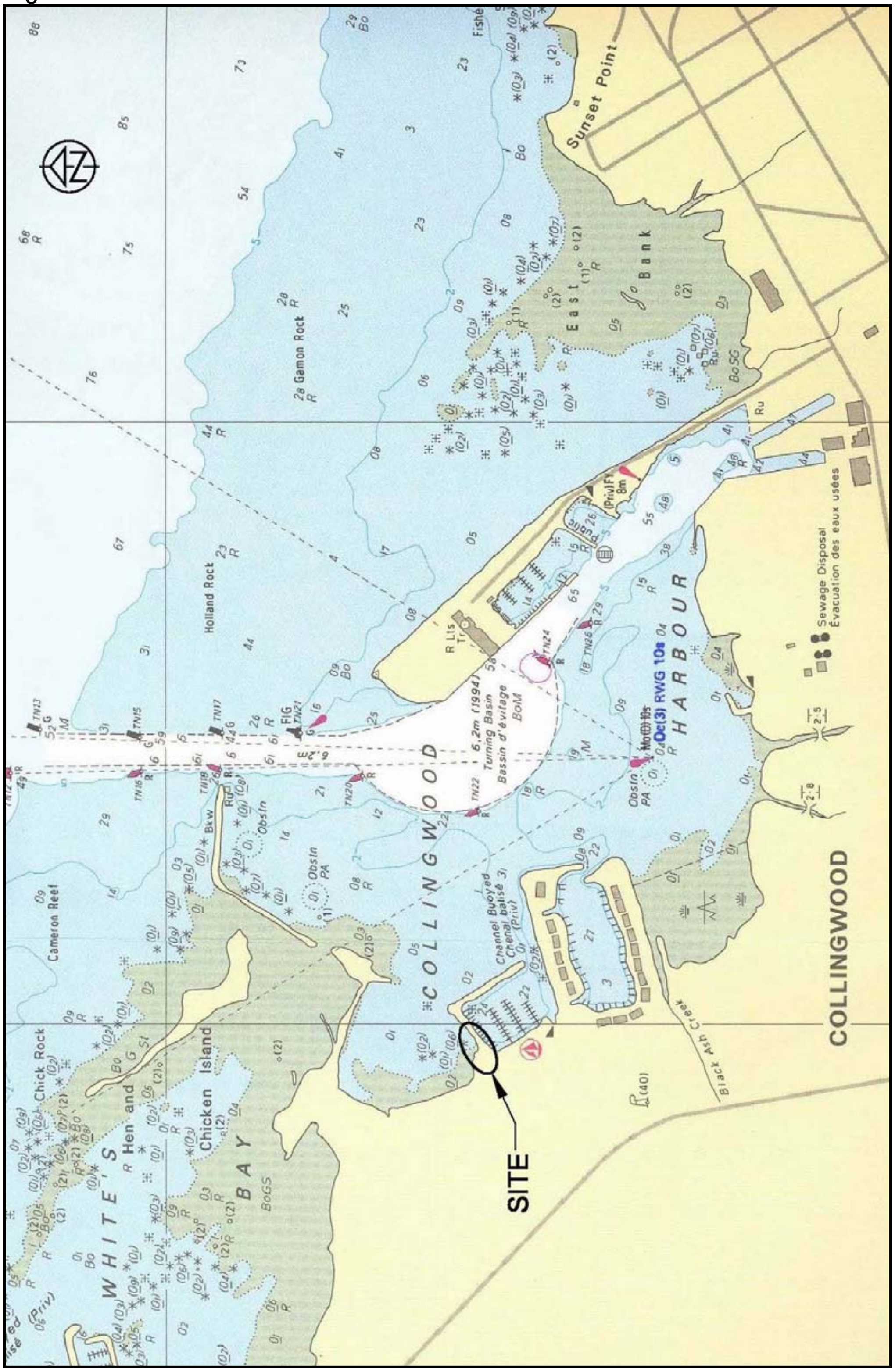

Figure 2 Site Plan

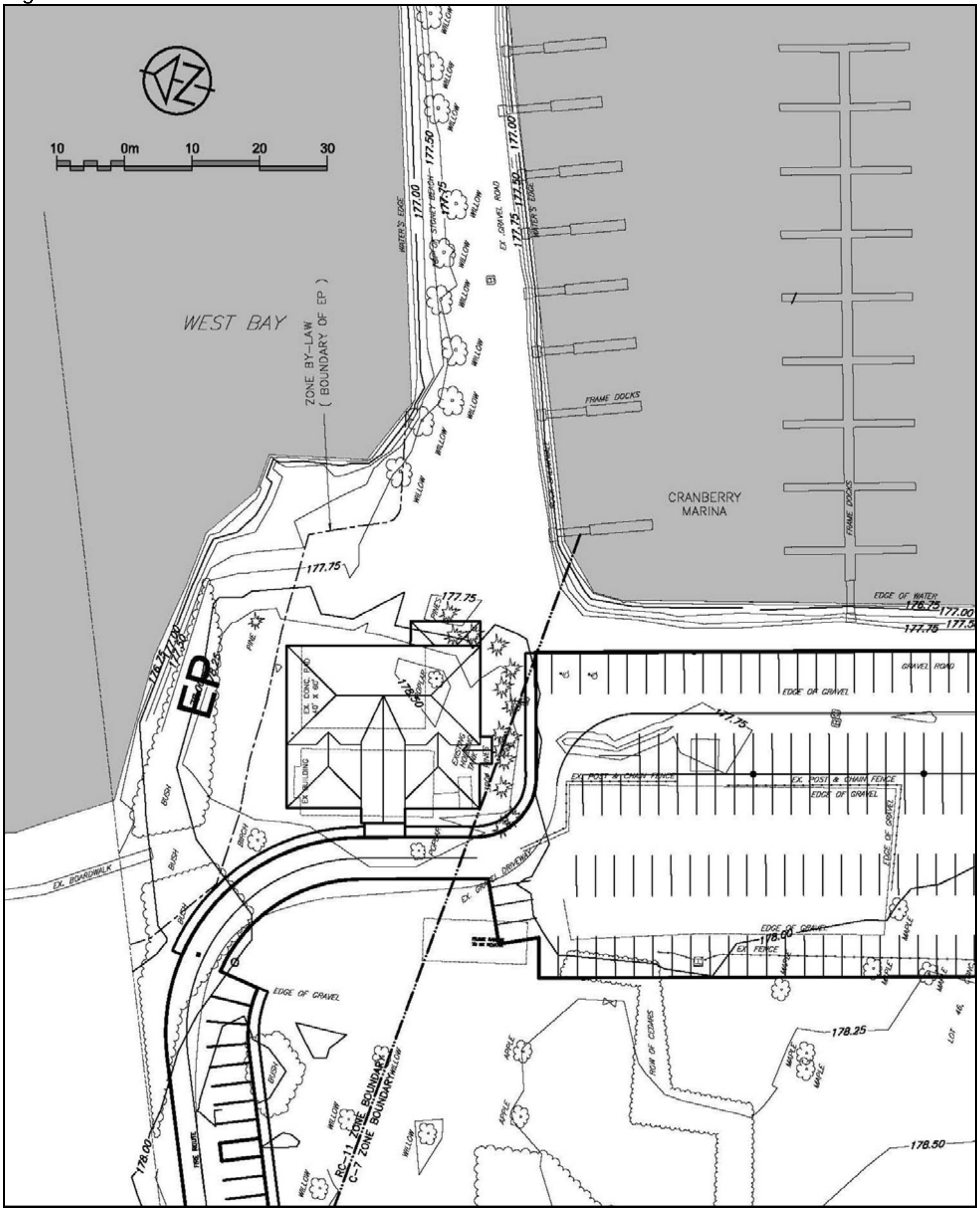

Figure 3 Nearshore Wave Height Contour and Vector Diagram

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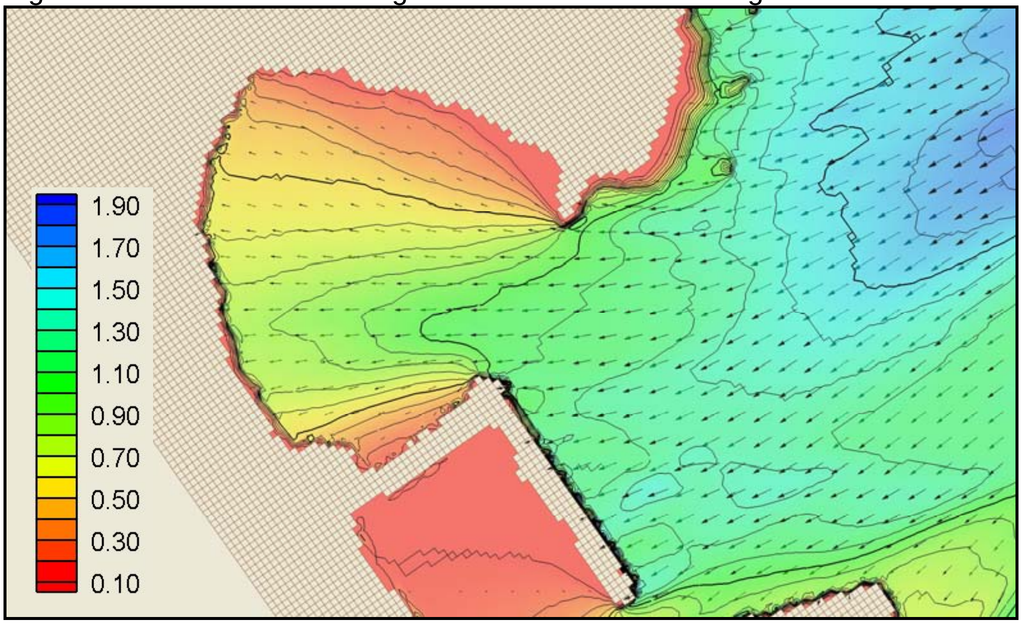

Photo 1 Westward Looking View of Proposed Development Site

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Photo 2 Eastward Looking View of Shoreline in Photo 1

Photo 3 Northward Looking View of Shoreline in Photo 1