

Report on our drainage situation and proposals

CRYSTAL WATER BEACH COMMUNITY ASSOCIATION

June 1, 1997

Dear Neighbours:

We now know this past winter was the wettest on record. For decades Crystal Beach families have been fighting to control the natural water runoff but this year nature put all our collective work to the supreme test, and we failed. Fortunately the damage to our property was minimal compared with others. As more lots are cleared for building the drainage problem will be worsened. The "Reserve A" lands and private lanes, to which we all have title, are both a blessing and a curse. On one hand we all enjoy the tranquillity of the bluff, the foreshore and the country roads which make our community unique. On the other hand, they are ours to maintain.

We are now faced with consequential decisions which will affect our future. To do nothing simply invites disaster. In order to protect our respective investments we must unify and act with a common purpose against future erosion from unchecked runoff.

Many views have been put forward as to what action might be appropriate. I believe that random action without an overall plan is ineffective. With a view to developing a comprehensive drainage plan for the Crystal Water Beach plat, I have contacted a consulting engineering firm in Bellingham. I requested that they give us a proposal to study our particular problem and prepare a plan which the community could then use as a guide to upgrade our drainage system over time. The proposal is attached for your scrutiny. It is presented in three phases and may be accepted in whole or in part, modified, or rejected. That decision will be made by the members collectively. While some may be reluctant to spend money in this way, without the technical knowledge which would be gained by such a study, even more money could be wasted with ineffective work.

Drainage at Crystal Water Beach is a critical, ongoing issue which will not resolve itself. This is, perhaps, only the first step in a long journey but I believe we must begin now. Please be prepared to discuss your views on this important issue at this year's Annual General Meeting which will be held on Saturday, July 5th at 10:30 a.m. on the bluff. In the event of inclement weather we have arranged to use the community hall (at the library on Gulf Road) in which case the meeting will be held at 11:00 a.m.

On behalf of the Directors,



Don Rathborne
Chairman



May 14, 1997

Crystal Beach Owners
c/o Don Rathborne

13880 Mayfield Place
Richmond, BC
V6A 2E4 Canada

Attn: Don C. Rathborne

Re: Proposal
Drainage Reconnaissance and Remediation
Crystal Beach Development Area
Point Roberts, Washington

Dear Mr. Rathborne:

W.D. Purnell and Associates, Inc., is pleased to present this proposal for drainage remediation within the Crystal Beach Development area in response to our conversation (5/8/97). We understand that there were a number of surface slides and slumps which occurred on January 31, 1996 at the seaside bluff on the southern portion of the property, which is under community ownership.

We understand there are drainage problems within three specific areas in the development:

1. Transmission pipes which carry water from drainage ditches at the top of the bluff to the beach below and associated outfalls,
2. Drainage adjacent to existing roads with developed and undeveloped properties, and
3. Water from the undeveloped property to the northeast which impacts the site as surface runoff and shallow groundwater.

We propose a three-phase study to evaluate these problems and develop remediation strategies for each.

Phase I: Bluff Transport Line and Outfall Remediation

It is our understanding that there are currently three transmission lines, in various states of serviceability, which transport water from the top of the bluff to outfall structures located on the beach. Placement of new or repair of the existing outfall structures will require Hydraulic Project Approval by the Washington State Department of Fisheries and Wildlife (WDFW), which in turn, will require engineered drawings of the proposed facilities. Although we did not specifically discuss the installation cutoff drains at the top of the bluff, we have included that portion in our scope of services, based on information which was provided by Whatcom County's representative (Douglas G. Goldthorp, Geologist) during his visit to the site. Specifically, our scope of services for Phase I will include:

GEOLOGISTS • ENGINEERS • SCIENTISTS

P.O. Box 5346, 2138 Humboldt, Bellingham, WA 98227 Phone: (360) 676-9589 800-859-5597 Fax: (360) 676-4625

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Proposal - Drainage Reconnaissance and Remediation

1. Coordinate with surveyor to perform field survey and make site reconnaissance;
2. Excavate test pits, using a motorized, hand-held auger, along the crest of the bluff to verify soil conditions and determine geotechnical design parameters for a surface water/shallow ground water collection system;
3. Determine and stake general alignments for a water collection system along the crest of the bluff, if required, based on topographic measurements and soil conditions;
4. Design a water collection system (trench or enclosed pipe), based upon soil types, to be installed at the top of the bluff to collect surface and shallow groundwater which has been observed seeping from the bluff;
5. Design new or redesign existing transport (tightlines) to the beach and outfall structures to reduce the velocity of pipe discharge and associated beach erosion;
6. Apply to the Washington State Department of Fisheries for Hydraulic Project Approval;
7. Create a construction drawing which include the following:
 - General Alignment and Relative Elevations,
 - Vicinity Map,
 - Outfall Detail,
 - Collection Trench Detail,
 - Tightline and Tightline Connection Detail,
 - General Notes and Specifications, and;
8. Produce an engineering report which details our scope of work and recommendations to:
 - Construct drainage devices at the top of the bluff,
 - Replace or upgrade existing down-bluff transmission lines, and
 - Replace or upgrade existing outfall structures.

Phase II: Repair and Remediation of Existing Street Drainage

It is our understanding that the roads to the south of Waters Street are privately owned, while those north of Waters Street have been deeded to the County. In light of road and right-of way ownership, it may be economically advantageous to make engineering suggestions to the County which we feel have a reasonable chance of being implemented, and ask the County to perform the maintenance and upgrade tasks. We understand that the Crystal Beach Road to the north of Waters Street is fairly well drained in a north-south direction, but that side roads to the west of Crystal Beach Road (which drain to the south west) have no outlet other than draining through lawns and vacant lots to a drainage swale on the west side of the development. South of Waters Street, we understand that existing ditches and culverts have not been installed using a unified approach and that there may be bottlenecks in the system. Our proposed approach will seek to remediate drainage within the north and south units and tie them directly to the down-bluff transport lines and seaside outfall features designed under Phase I of this proposal. This phase of our proposal assumes that locations and elevations of pertinent structures will be provided by a registered land surveyor.

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Specifically, our scope of services for Phase II will include:

1. Coordinate with surveyor to perform field survey and make site reconnaissance;
2. Perform stormwater runoff modeling to determine efficiency of existing ditches and culverts and make recommendations for resizing of those features which are found to be substandard in all areas of the development;
3. Produce an engineering drawing indicating the recommended upgrades to the drainage system which will include:
 - Vicinity Map
 - General Alignment and Relative Elevations and Slopes
 - Culvert and Culvert Connection Details
 - General Notes and Specifications
4. Produce an engineering report which details our scope of work and recommendations for the upgrade of the drainage system, including:
 - Resizing or otherwise improving the ditch along the west perimeter of the development.
 - Addition of swales to that ditch from the southwest side of Saturna Place and Waldron Place.
 - Methods to conduct surface runoff in the area of East Waldron Place to County ditches adjacent to Crystal Beach Road.
 - Connecting roadside ditches to transport lines for transmission down the bluff to the outfall structure.

Phase III: Remediation of Site Run-on from East of the Development Border.

According to our previous conversation, we understand that fairly large amounts of water run onto the development properties from the undeveloped land to the east of the Crystal Beach Development area, and that this water is in the form of surface water and shallow groundwater. We believe that installation of a surface swale or cutoff drain in this area would limit the amount of water entering the Crystal Beach area.

Whatcom County's Shoreline Master Program, indicates that the shoreline area within Section 11, Twp. 40 N, Rng 3W (the vicinity of the Crystal Beach area) is divided into Rural, Conservancy, and Natural shorelines. The County places more stringent requirements on Natural versus Conservancy versus Rural shorelines. Although it is hard to determine without more precise information, it appears that dividing line between the Conservancy and Natural Shorelines is at the east side of the Crystal Beach Development. In light of the previous information, it may be easier, from a permitting standpoint, to discharge runoff water captured in an off site swale or cutoff drain through the eastmost on-site transmission line (south end of Sylvia Drive). The drainage swale could also be used as a drainage feature to collect water from other cutoff drains or swales extending to the east of the drainage device. Due to the possibility of discharging water via Sylvia drive, and because it is covered in Phase I, if performed, we have not included permitting of an outfall in our scope of services for this phase. We will need permission to perform field measurements and to bore test holes (motorized hand-held auger) prior to commencement of this phase of the work.

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Specifically, our scope of services for Phase III will include:

1. Coordinate with surveyor to make field measurements and site reconnaissance;
2. Excavate shallow test borings to observe soil conditions and collect soil samples;
3. Design an off-site drainage swale or cutoff drain to capture surface and shallow groundwater and conduct it toward the coastal bluff to the south;
4. Design a transmission facility to conduct water to the beach at the foot of the bluff or to drainage features to be improved along Sylvia Drive;
5. Produce construction drawings depicting the recommended work items, which include the following:
 - Vicinity Map
 - General Alignment and Relative Elevations and Slopes
 - Culvert, culvert connection, and outfall detail, if required, and
 - General Notes and Specifications
6. Produce an engineering report which details our scope of work and recommendations for installation of the drainage system, including minimum grade and side slopes (swale) or minimum grade and drainage blanket materials (cutoff drain).

Estimated Costs

We estimate budgets for the three phases of the project as indicated:

- Phase I: \$3,600
- Phase II: \$2,950
- Phase III: \$3,100

Our estimates for each of the three phases assume that each phase will be performed independent of the other two phases. Therefore, significant savings may be realized if the field and survey work for all three phases is performed during a single site visit.

W.D. Purnell & Associates, Inc. is not a registered surveyor with the State of Washington. We suggest, therefore, that a registered surveyor be retained to create easements and make elevation and horizontal measurements of existing features within the development. We will then use the measurements to make stormwater runoff calculations and to produce site drawings. W.D. Purnell & Associates will coordinate surveying services and provide field support as needed. This proposal does not include costs for surveying.

We will be able to begin work on this project within two weeks of acceptance of this proposal. We request a retainer in the amount of \$1,000 prior to initiation of the project. We request monthly payments during the course of the project and total payment for our services at the time the final report and/or engineering drawings are delivered.

The proposed budget will not be exceeded without notifying you. Change orders will be submitted for all work items performed outside the defined scope of services. This proposal is valid for sixty (60) days after receipt.

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Please be advised that our recommended scope of services may change, based upon our recommendations after viewing the site and the willingness of both on- and off-site property owners to place drainage features on their property.

We appreciate the opportunity to submit this proposal to you. If this proposal is acceptable, please sign and return the attached copy and retainer amount to our office in confirmation of our agreement. If you have any questions concerning our proposal, please contact Bob Bailey or Bill Purnell in our office at (360) 676-9589, or toll-free at (800) 859-5597.

Sincerely yours,

W.D. PURNELL & ASSOCIATES INC.
AN ENGINEERING CORPORATION

W. D. Purnell
Willard D. Purnell, P.E.G., President
Professional Engineering Geologist

By RK

Robert P Bailey
Robert P. Bailey, M.S.C.E., P.E.
Civil / Geotechnical Engineer

Attached: Civil Engineering Services Statement of Qualifications

BB:bb

APPROVED: _____

TITLE: _____

DATE: _____