100 – 1383 McGill Road, Kamloops, BC V2C 6K7
www.westrekgeotech.com

TECHNICAL MEMORANDUM

Date: July 22, 2021

To: **McElhanney**
Jaime Sanderson (JSanderson@mcelhanney.com)

Re: **Preliminary Geotechnical Assessment**
Proposed Weather Stations
Waterton Lakes National Park, AB

1 Introduction and Scope

At the request of McElhanney, Westrek Geotechnical Services Ltd. (Westrek) has conducted a preliminary geotechnical assessment of four proposed weather station sites in Waterton Lakes National Park, AB (the Park). The data provided by the weather stations will supplement current weather data available to Parks Canada Agency (PCA) and help to inform snow avalanche forecasting within the Park. As a result, weather stations are required at valley bottom, mid-mountain, and ridgetop locations to cover a range of environmental conditions.

It is our understanding that McElhanney and PCA will tender a design-build contract for supply and installation of the weather stations. The purpose of our assessment is to provide preliminary geotechnical information that others could use in preparation of their tender responses. The scope of work for the assessment included:

- Observe and describe the general surficial and bedrock geology conditions around the proposed weather stations. The exact location of the stations is not known at this time and will be determined by others.
- Characterise the geological parameters that could be used by others for preliminary design of the weather station foundations.
- Identify any potential hazards that might affect the sites or worker safety.
- Provide documentation of the site that can be included in the contract tender.

The services provided by Westrek are carried out under the *Agreement for Subconsultant Services* dated April 15, 2021 between McElhanney and Westrek. The work is subject to the terms and

conditions set out in the *Interpretation and Use of Study and Report and Limitations*, which is attached in Appendix A and incorporated herein by reference.

2 Project Description

The project will include construction of three new weather stations and replacement of an existing station within the Park. The approximate locations of the stations are shown in the attached Figure 1. Select photographs of the proposed locations are also attached.

The approximate locations of the new stations include:

- Bertha Peak mid-mountain – Southwest of the Waterton townsite, located off a faint ridge on the east flank of Bertha Peak, near elevation 1,600 m.
- Bertha Peak ridgetop – West southwest of the Waterton Townsite, located on a sharp ridgeline roughly 1 km northeast of the Bertha Peak, near elevation 2,180 m.
- Mount Rowe ridgetop – Northwest of the Akamina Parkway, located on the broad ridge just west of the summit of Mount Rowe, near elevation 2,430 m.

The existing station to be replaced is referred to as Little Prairie. It is located adjacent to a parking lot along the Akamina Parkway. Replacement will require construction of new pads for the weather tower and a precipitation gauge to the southwest of the existing weather station.

3 Setting

3.1 Physiography

The Park is within the Rocky Mountain Range near the Canada / USA border. It includes high relief, largely bedrock-controlled slopes downcut by glaciation and large rivers with prominent alluvial fans. The higher peaks in the range have a relatively uniform elevation with long, and sometimes sharp, bedrock-controlled ridges. Rounded ridges and dome-shaped mountains are present in the lower elevations, where the bedrock was overridden by ice. Truncated valley spurs, hanging valleys, and glaciated rock surfaces are common.

Bertha Peak rises above the Waterton townsite to an approximate elevation of 2,415 m. The slopes on the east flank above the townsite are mostly planar, with broad draws that funnel runoff and snow avalanches. Near the proposed Bertha mid-mountain site, the overall slope is moderately steep (50% - 70%) and generally concave in profile.

Mount Rowe rises above the Akamina Parkway to an approximate elevation of 2,430 m. The southern slopes are planar, uniform, and moderately steep (upper slopes typically 50%). There is a broad bowl to the east of the summit with a ridgetop elevation near 2,410 m. The upper reaches of the bowl exceed 60% and taper substantially below. The bowl funnels runoff and snow avalanches towards the Akamina Parkway in close proximity to the existing Little Prairie weather station.

3.2 Bedrock Geology

The bedrock comprising Bertha Peak is Mesoproterozoic-aged rocks of the Purcell Supergroup (Douglas, 1952)[1]. The lower portions of the slope are comprised of the Waterton Formation, which include various colored dolomite, limestone, and fissile argillite. Above this is a sequence of exposures mapped as the Altyn Formation. These include finely laminated grey dolomite, sandy and gritty dolomites, algal dolomite and fissile black argillite. The sequencing is a result of various faults associated with the Mount Crandell Thrust. The faults generally strike northwest to southeast. Also mapped are anticlines and synclines, indicating folding, with a plunge parallel to faulting.

Bertha Peak exhibits differential weathering of the various sedimentary units at the hillslope scale. More competent units are resistant to weathering and form cliffs, while recessive units tend to form sloping ledges. The prominent cliffs near the top of the mountain are slightly more massive and resistant dolomites of the Altyn Formation (Douglas, 1952).

The bedrock comprising Mount Rowe is also Mesoproterozoic-aged rocks of the Purcell Supergroup (Stockmal et al. 2015)[2]. Rock near the summit and towards the west is of the Phillips Formations, which is primarily fine to coarse grained sandstone, typically thinly bedded. Rock to the east of the summit comprises the Gateway Formation, which includes sandstone, siltstone, and argillite.

3.3 Surficial Geology

Regional surficial geology mapping indicates the area is largely comprised of bedrock exposures locally covered by colluvium and isolated drift deposits. Throughout the lower bottom and lower flanks of the valleys are glacial, as well as alluvial sediments (Fenton et al., 2013)[3].

Except for the Little Prairie site, the proposed weather stations are located in areas identified as shallow, bedrock-controlled slopes. In proximity to the Little Prairie site, Harrison and Perron (1976)[4] mapped morainal deposits predominately comprised of till, as well as modern stream deposits. An excerpt from their map, along with the approximate location of the Little Prairie site, is shown in Figure 2 below.

[1] Douglas, R.J.W. 1952. Waterton West of Fourth Meridian Alberta: Geological Survey of Canada, Preliminary Map 52-10, scale 1:47,520.

2 Stockmal, G.S. and Fallas, K.M. (comp.), 2015. Geology, Chinook South, Alberta–British Columbia; Geological Survey of Canada, Open File 7476, 1 .zip file. doi:10.4095/297169.

[3] Fenton, M.M., E.J. Waters, S.M. Pawley, N. Atkinson, D.J. Utting, and K. Mckay. 2013. Surficial Geology of Alberta: Alberta Geological Survey, Map 604, scale 1:1,000,000.

[4] Harrison, J.E., and R.R. Perron. 1976. Quaternary Geology Waterton Lakes National Park, Alberta: Geological Survey of Canada, Map 1422A, scale 1:50,000.

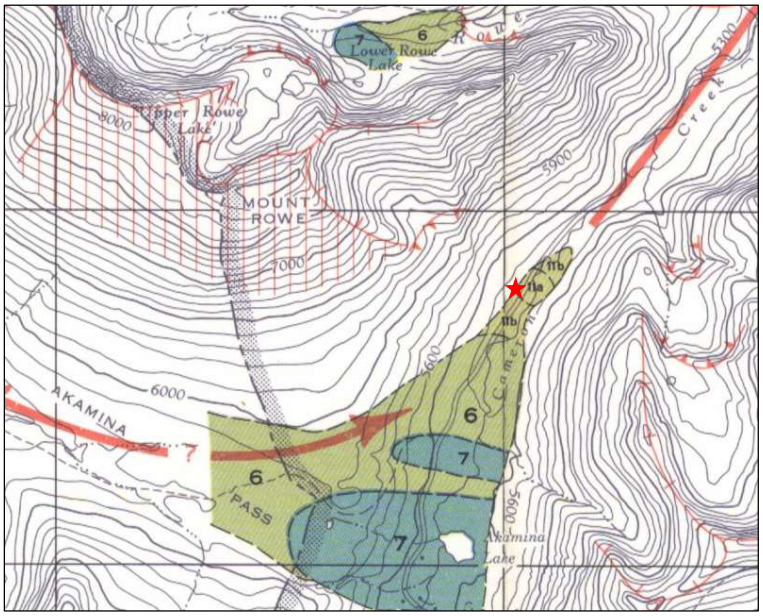

Figure 2: *Surficial geology in proximity to the Little Prairie weather station (red star). Unit 6 – hummocky moraine; Unit 7 – morain ridges; Unit 11 – Modern stream alluvium, fine to coarse.*

4 Site Characterization

Wesley Ashwood PEng, representing Westrek, carried out a review of the proposed weather station sites on June 15, 2021, accompanied by Jaime Sanderson and Georgia Turcot of McElhanney, Chris Argue of Dynamic Avalanche Consulting Ltd., JJ Shade of Kainai First Nation, and Marcus Waring, Fynley Kuijit, Joseph Many Fingers, Lindsay Howes, and Britney Ambrose of PCA. The weather was clear with moderate to strong wind, and the ground was free of snow at all sites.

The Bertha mid-mountain and Rowe ridgetop sites were reviewed on foot. The Bertha ridgetop site was reviewed only by helicopter because no suitable landing site was available. The Little Prairie site was not reviewed in the field. Comments included here are based on photographs provided by PCA and background data reviewed.

Slope angles were measured with a handheld clinometer and heights were approximated. Geological discontinuities were measured using a Freiberger geological compass and assessed visually and by hand for surface characteristics. Rock mass characteristics are described using ISRM (1978)[5] nomenclature.

All soil thicknesses are estimated based on the visible terrain conditions. All rock strengths are estimated solely from the use of a rock hammer. No testing was conducted during this assessment.

[5] International Society for Rock Mechanics. 1978. Suggested Methods for the Quantitative Description of Discontinuities in Rock Masses. International Journal of Rock Mechanics, Mining Science and Geomechanics Abstracts. Vol 15, No. 6, pp. 319 to 369.

4.1 Bertha Mid-Mountain

The approximate location for the proposed Bertha mid-mountain weather station is shown on Figure 1. The site was accessed from the Bertha Lakes trail, then a cross-country hike up the broad, southeast trending ridge to near elevation 1,600 m. Multiple bands of bedded sedimentary rock (mostly limestone and dolostone) dipping towards the southwest were crossed accessing the site.

The site is on a bench, gently sloping towards the east-southeast at 12% (Photo 1). The forest throughout the bench was completely burned in the 2017 Kenow Wildfire. It is approximately 20 m from the toe of a steep slope (average 85%) comprised of bedrock and shallow colluvium (Photo 2). Blocks up to 0.5 m were scattered near the toe of the steep slope, but none in proximity to the proposed site.

A shallow probe hole was dug to 0.5 m using a hand shovel (Photo 3). The upper 0.3 m of ground is humus enriched silt and sand, with some sub-angular gravel and organics (roots and rootlets), dark brown, dry to moist. The upper 0.1 m is black, containing charcoal and ash from the wildfire. The limited amount of the subgrade observed between 0.3 to 0.5 m is sand and silt, with some clay and sub-angular gravel, well graded, tan and brown, and moist. There were small pockets (less than 10 cm) of low plasticity clay with moisture content near the plastic limit inferred to be weather blocks of argillite. The hole could not be dug by hand beyond 0.5 m because of the compactness of the ground. No seepage was observed in the hole or in the surrounding area.

4.2 Bertha Ridgetop

The site for the proposed Bertha ridgetop weather station was not reviewed on the ground due to limited access for helicopter landing. Observations are based on a series of helicopter flybys, as well as bedrock geology observations made lower on Bertha Peak, but still within the upper Altyn Formation.

The proposed site for the weather station and a helipad for access is on the ridgeline northeast of Bertha Peak near elevation 2,180 m (Figure 1). The width of the ridge is controlled by the sequencing of sedimentary rock. Weaker units, more susceptible to erosion, form a slightly broader ridge, as seen by the potential helipad location indicated in Photos 4 and 5. Stronger, more competent units typically form a narrow, blocky ridgeline that can be “knife-edge” in sections.

The exact location for the station will be determined during construction. A section of blocky ridgeline adjacent to a potential helipad is highlighted in Photos 4 to 6. The rock is inferred to be slightly weathered, blocky, dolostone. Bedding appears to be moderately spaced (0.2 to 0.6 m) with some beds exceeding 1 m in thickness, and very high persistence (> 20 m). Observations lower on the east flank of Bertha Peak indicate the rock is strong (estimated 50 to 100 MPa), with typical bedding dip slope between 35° and 40° towards the southwest.

Tabular blocks on the south side of the ridge (Photo 5) suggest the presence of two joints sets perpendicular to bedding. The rock along the ridgeline is dilated and loose, resulting in

individual blocks sliding along bedding planes on the south side of the ridge and toppling from near vertical exposures along the north side of the ridge. The extent of dilation within the rock mass is assumed to decrease with depth, but its depth is unknown at this time.

The location of the potential helipad appears to be within a unit of fissile argillite (a type of claystone). These units are typically obscured lower on the slope by vegetation and have not been reviewed directly. The surface appears to be highly, to completely weathered, resulting in a coarse grained, angular, "shaley" rubble and gravel. The depth of weathering to intact rock could not be estimated based on the overview assessment.

Given the location of the proposed weather station and helipad on the ridge crest, rockfall from above does not present a risk during construction or operation.

4.3 Rowe Ridgetop

The location for Rowe ridgetop weather station was reviewed in the field by helicopter and then accessed by foot traverse. The location for the proposed station and helipad is roughly 100 m west of the Rowe Peak summit, near elevation 2,430 m (Figure 1). The site is located on a broad, gently sloping (20%) ridge, with abundant space for a helipad and weather station (Photo 7).

The ridge is comprised of shallow bedrock with a thin veneer of colluvium (estimated to be < 0.1 m thick), including coarse sand and gravel, with rubble (Photo 8). The ridge orientation and slope are controlled by the bedrock bedding, which dips between 22° and 25° towards the south. This results in a gentle slope on the south side of the ridge and a steep drop off north towards Rowe Lakes.

The rock is slightly weathered, strong (estimated 50 to 100 MPa), medium to coarse grained, pink to red, sandstone. The rock mass exhibits variable bed thickness from the cm scale to 0.2 m (Photo 9). A singular joint set perpendicular to bedding (dipping 72° towards the northwest) was measured along the north side of the ridge, which likely controls the ridge orientation. Tabular blocks scattered throughout the surface indicate an additional joint set perpendicular to bedding. Joint and bedding surfaces are rough, planar to undulating, contain no infilling, and are dry. The near surface rock was moderately dilated. This is expected to decrease with depth and distance from the ridge northern crest.

Given the location of the proposed weather station and helipad on the ridge crest, rockfall from above does not present a risk during construction or operation.

4.4 Little Prairie

The proposed site for the new Little Prairie weather station was not reviewed in the field. Comments are based on photographs provided by PCA and limited background review.

The site is located on flat to gently sloping ground, near elevation 1,650 m (Figure 1). The forest throughout the area was completely burned in the 2017 wildfire. Given the site's proximity to the Cameron River, and the presence of sub-rounded cobbles in photos, the site is interpreted to be located within alluvial deposits and can be expected to be well graded, silty sand and gravel.

5 Discussion and Recommendations

Based on our background review and observations made in the field, all proposed sites are considered suitable for construction of the proposed weather stations. In addition, with appropriate siting, there is little to no risk of upslope geological hazards (rockfall or landslide).

The following recommendations are provided as input to respondents of the design-build tender.

5.1 Bertha Mid-Mountain

- A minimum of 0.3 m of topsoil will need to be cleared and grubbed within the footprint of the station foundation. It is likely that this material will need to be removed from the site following any specific requirements of PCA.
- The weather station foundation will require a reinforced concrete footing founded on competent soil. Uplift resistance will likely have to be provided by either mass concrete or soil nails. If shallow bedrock is encountered, the design may need to be modified to include rock anchors and a reinforced concrete pedestal to establish finished grade for the tower.
- Shallow groundwater or perched water table is unlikely to be encountered.

5.2 Bertha Ridgetop

- The helipad will be located on loose gravel and rubble resulting from weathered claystone. The foundations will require some form of a footing that extends through the loose rubble and bears on intact bedrock. Considering the sloping terrain, one end of the helipad may need to be supported on short piles, micropiles, or pilasters to create a level platform with uniform bearing. It was not possible to determine the depth to competent rock, so the footings and piles should be designed assuming conservative bearing support conditions. If uplift resistance is required, rock anchors should be viable, but resistance from the weathered rock should be ignored in the anchor design. The thickness of the weathered rock should be determined from the footing excavations.
- Access to the weather station site may require facilitated access, such as a permanently installed via ferrata. However, this depends on the bedding dip slope and must be assessed during construction.
- The weather station will be founded on rock. The foundation will require rock anchors and a grout or reinforced concrete leveling pad depending on site conditions. Uplift resistance will be achieved by the rock anchors.
- The site will require heavy scaling and possible trim blasting to remove loose and dilated rock to prepare a suitable founding surface. Depth to intact, competent rock is expected to be 1.5 to 2 m. The prepared surface should be free of open discontinuities and cleaned prior to installing any leveling pad or reinforced concrete pedestal.

- The tower will be located on top of steeply dipping bedding planes in proximity to a free surface on the north. Therefore, rock anchor design (including location and depth) and stability of the tower must take into account local geological conditions such as joint orientation, spacing, and persistence. Additional rock bolts may be necessary to reduce the potential for future relaxation of the rock mass.
- Intact rock strength, below any weathered or dilated rock, is estimated to be between 50 and 100 MPa.
- Groundwater is not expected at the helipad or weather station site.

5.3 Rowe Ridgetop

- The helipad and weather station will be founded on rock; therefore, uplift resistance should be achieved by rock anchors. Minor scaling will be required to prepare a suitable foundation surface.
- Foundations should be located a minimum of 3 m from the northern edge of the ridgeline.
- The upper 1.5 m of rock should not be considered as contributing to rock anchor design. A free stressing length should be considered for all rock anchors.
- Intact rock strength, below any weathered or dilated rock, is estimated to be between 50 and 100 MPa.
- Groundwater is not expected at the helipad or weather station site.

5.4 Little Prairie

- The depth of overburden and presence of groundwater is not known.
- The weather station foundation will likely require a reinforced concrete footing founded on competent soil. The alluvial deposits should provide ample bearing support, while uplift resistance should be provided by either mass concrete footings or soil nails.

5.5 General

- Subgrade conditions for all foundations should be reviewed by a qualified geotechnical engineer prior to construction.
- The contractor should include anchor testing to prove pullout capacity for rock anchors.

6 Closure

We trust that this report is complete for your present requirements. Please contact the undersigned if you have any questions or require additional review.

Yours truly,

Westrek Geotechnical Services Ltd.

This is an electronic replica of the original signed and sealed report and has been provided for convenience. Westrek has retained the original signed / sealed report on file and can provide an authenticated document if required.

Wesley Ashwood PEng
Geotechnical Engineer

Eric McQuarrie PEng, PGeo
Senior Geotechnical Engineer

Attached: Select Site Photographs
Figure 1 *Proposed Weather Station Locations*
Appendix A *Interpretation and Use of Study and Report and Limitations*

Photo 1 *– View looking north at the proposed location for the Bertha Mid-Mountain weather station.*

Photo 2 *– View west, upslope, from the proposed Bertha Mid-Mountain station location.*

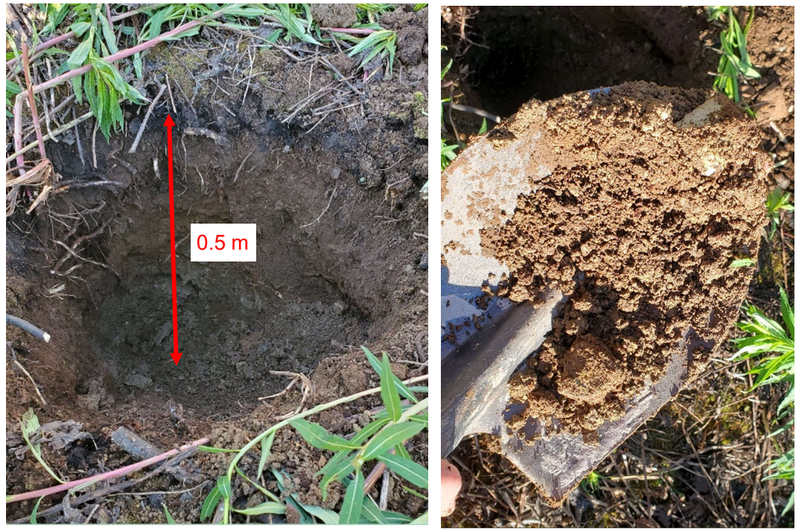

Photo 3 *– Shall probe hole dug at the Bertha Mid-Mountain station site.*

Photo 4 *– Bertha Ridgetop location looking south. Area for proposed weather station is highlighted yellow, a potential helipad location is identified with red arrow.*

Photo 5 *– Closer view of proposed Bertha Ridgetop site. Rock exhibits variable bed thickness dipping towards the southwest.*

Photo 6 *– View of the Bertha Ridgetop site looking north. Proposed helipad would be to the left. Bedding dip angle approximately 35° to 40°.*

Photo 7 – *View looking west from the summit of Rowe Peak at the proposed Rowe Ridgetop weather station.*

Photo 8 – *View looking north at shallow bedrock at the proposed Rowe Ridgetop site.*

Photo 9 – *Example of near surface bedding thickness on the north side of the Rowe Peak.*

Photo 10 – *View looking west from the Akamina Parkway at the proposed site for the Little Prairie weather station relocation.*

CONSULTANT westrek geotechnical services ltd.	CLIENT MCELHANNEY PARKS CANADA AGENCY	PROJECT PROPOSED WEATHER STATIONS WATERTON LAKE NATIONAL PARK, AB TITLE **GEOTECHNICAL ASSESSMENT LOCATIONS**	SCALE AS SHOWN DATE JULY 22, 2021 RVW / CHK WA / EM	PROJECT NO. 021-080 FIGURE 1

APPENDIX A
INTERPRETATION AND USE OF STUDY AND REPORT AND LIMITATIONS

1. STANDARD OF CARE.

This study and Report have been prepared in accordance with generally accepted engineering and geoscience practices. No other warranty, express or implied, is made. Geological and geotechnical studies and reports do not include environmental consulting unless specifically stated in the report.

2. COMPLETE REPORT.

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment are a part of the Report which is of a summary nature and is not intended to stand alone without reference to the instructions given to us by the Client, communications between us and the Client, and to any other reports, writings, proposals or documents prepared by us for the Client relative to the specific site described herein, all of which constitute the Report.

IN ORDER TO UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. WE CANNOT BE RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

3. BASIS OF THE REPORT.

The Report has been prepared for the specific site, development, design objectives and purpose that were described to us by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the document are only valid to the extent that there has been no material alteration to or variation from any of the said descriptions provided to us unless we are specifically requested by the Client to review and revise the Report in light of such alteration or variation.

4. USE OF THE REPORT.

The information and opinions expressed in the Report, or any document forming the Report, are for the sole benefit of the Client. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION THEREOF WITHOUT OUR WRITTEN CONSENT. WE WILL CONSENT TO ANY REASONABLE REQUEST BY THE CLIENT TO APPROVE THE USE OF THIS REPORT BY OTHER PARTIES AS "APPROVED USERS". The contents of the Report remain our copyright property and we authorise only the Client and Approved Users to make copies of the Report only in such quantities as are reasonably necessary for the use of the Report by those parties. The Client and Approved Users may not give, lend, sell or otherwise make the Report or any portion thereof, available to any party without our written permission. Any uses, which a third party makes of the Report, or any portion of the Report, are the sole responsibility of such third parties. Westrek accepts no responsibility for damages suffered by any third party resulting from unauthorised use of the Report.

5. INTERPRETATION OF THE REPORT.

(i) Nature and Exactness of Soil and Description: Classification and identification of soils, rocks, geological units, and engineering estimates have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature and even comprehensive sampling and testing programs, implemented with the appropriate equipment by experienced personnel, may fail to locate some conditions. All investigations utilising the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarising such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such documents or records should be aware of, and accept, this risk. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. Where special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.

(ii) Reliance on Provided information: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to us. We have relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, we cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of misstatements, omissions, misrepresentations or fraudulent acts of any persons providing representations, information and instructions.

(iii) To avoid misunderstandings, Westrek should be retained to work with the other design professionals to explain relevant geotechnical findings and to review the adequacy of their plans and specifications relative to engineering issues. Further, Westrek should be retained to provide field reviews during the construction, consistent with generally accepted practices.

6. LIMITATIONS OF LIABILITY.

Westrek's liability will be limited as follows:

(a) In recognition of the relative risks and benefits of the Services to be provided to the Client by Westrek, the risks have been allocated such that the Client agrees, to the fullest extent permitted by law, to limit the liability of Westrek, its officers, directors, partners, employees, shareholders, owners, subconsultants and principals for any and all claims, losses, costs, damages of any nature whatsoever or claims expenses from any cause or causes, whether arising in contract or tort including negligence, including legal fees and costs and disbursements (the "Claim"), so that the total aggregate liability of Westrek, its officers, directors, partners, employees, shareholders, owners, subconsultants and principals:

i. if the Claim is satisfied by the re-performance of the Services proven to be in error, shall not exceed and shall be limited to the cost to Westrek in re-performing such Services; or

ii. if the Claim cannot be satisfied by the re-performance of the Services and:

1. if Westrek's professional liability insurance does not apply to the Claim, shall not exceed and shall be limited to Westrek's total fee for services rendered for this matter, whichever is the lesser amount. The Client will indemnify and hold harmless Westrek from third party Claims that exceed such amount; or

2. if Westrek's professional liability insurance applies to the Claim, shall be limited to the coverage amount available under Westrek's professional liability insurance at the time of the Claim. The Client will indemnify and hold harmless Westrek from third party Claims that exceed such coverage amount. Westrek shall maintain professional liability insurance in the amount of $2,000,000 per occurrence, $2,000,000 in the aggregate, for a period of two (2) years from the date of substantial performance of the Services or earlier termination of this Agreement. If the Client wishes to increase the amount of such insurance coverage or duration of such policy or obtain other special or increased insurance coverage, Westrek will cooperate with the Client to obtain such coverage at the Client's expense.

It is intended that this limitation will apply to any and all liability or cause of action however alleged or arising, including negligence, unless otherwise prohibited by law. Notwithstanding the foregoing, it is expressly agreed that there shall be no claim whatsoever against Westrek, its officers, directors, partners, employees, shareholders, owners, subconsultants and principals for loss of income, profit or other consequential damages howsoever arising, including negligence, liability being limited to direct damages.

(b) Westrek is not responsible for any errors, omissions, mistakes or inaccuracies contained in information provided by the Client, including but not limited to the location of underground or buried services, and with respect to such information, Westrek may rely on it without having to verify or test that information. Further, Westrek is not responsible for any errors or omissions committed by persons, consultants or specialists retained directly by the Client and with respect to any information, documents or opinions provided by such persons, consultants or specialists, Westrek may rely on such information, documents or opinions without having to verify or test the same.

(c) Notwithstanding the provisions of the Limitation Act, R.S.B.C. 2012 c. 13, amendments thereto, or new legislation enacted in its place, Westrek's liability for any and all claims, including a Claim as defined herein, of the Client or any third party shall absolutely cease to exist after a period of two (2) years following the date of:

i. Substantial performance of the Services,

ii. Suspension or abandonment of the Services provided under this agreement, or

iii. Termination of Westrek's Services under the agreement,

whichever shall occur first, and following such period, the Client shall have no claim, including a Claim as defined herein, whatsoever against Westrek.