

A Prairie Oasis A Plan for Bighill Creek

By Vivian Pharis, *Vice President of Bighill Creek Preservation Society*



When our little band of mostly retirees undertook a watershed plan for Bighill Creek in 2015, eager to be its proponents and advocates, we did not anticipate becoming its defenders. Our group of seven was thinking in positive terms, like “needed”, “doable” and “challenging.” Something worthwhile that we could sink our teeth into and enjoy doing. Far from our minds were the words “adversarial”, “combative” and “controversial.” We had retired from all of that and who wouldn’t support a watershed plan? Especially so, when such plans had been identified as needed for all three creeks feeding the Bow River at Cochrane. By 2015, Jumping Pound Creek already had a citizen-developed plan and one was underway for Horse Creek. Only Bighill Creek lacked a group of proponents. But we had no idea how gravel and its politics

would come to dominate our efforts.

In 2015, we identified our mission for Bighill Creek as “to ensure the natural and historical values of Bighill Creek Watershed are preserved for this and future generations.” Over the next six years, our society planned and diligently raised grant monies and donations to hire professionals to carry out assessments of water and sediment quality, riparian and stream health, fish habitat and suitability to reintroduce native trout. We were one of the first streams in Alberta to be assessed for e-DNA, or environmental DNA. We studied levels of phosphorous and E. coli. We studied benthic and terrestrial insects. Along with Trout Unlimited, we installed 12 temperature loggers to understand annual temperature variations throughout the creek. We undertook the stewardship of 40 acres of environmental reserve in the creek

bottom, maintained its trails and built a footbridge.

We identified areas for further study of the watershed’s rich geology, archaeology and history, and began finding experts to help us. A whole different study was designed and ready to launch in 2020, before it was halted by Covid19. We hope to pick up this work once students are allowed back into the field.

We were busy, and paid only peripheral attention to growing gravel interests in Rocky View County, and how closely they were converging on Big Hill Springs Provincial Park, the tiny, 70+ acre park in the heart of Bighill’s 174 km² water basin.

Aggravating aggregates

Aggregates, mainly sand and gravel, underpin modern cities like Calgary. They are the stuff of roads, rail beds, interchanges, bridges, homes and our increasingly vertical living/working spaces. Like many cities, Calgary relies on constant growth for its success. This means needing a constant supply of sand and gravel (the cheaper, the better) to maintain physical growth. Luckily for Calgary, it sits between counties Rocky View and Foothills that are both underlain by huge deposits of glacial alluvium left behind when the Cordilleran and Laurentian ice sheets collided, halted and melted at the end of the last ice age. An Alberta Geological Survey in 1980, suggested more than 100 million m³ of gravel lie within a short haul (or 30-90 km) of Calgary. Another Alberta Geological Survey noted in 2003, that there were 446 developable deposits in Foothills County alone. The price to the city in 2003 was under \$6.00/tonne. Rocky View County (RVC) currently operates about 20 pits



The main spring at Big Hill Springs. Pure crystal clear water from an ancient aquifer inspires its defenders. Photo ©Tobi McLeod



Dedicated volunteers share a vision of this prairie oasis and hope to make a difference in the conservation of this vital ecosystem. Photo ©V.Pharis

and with Royalty rates at \$0.45/tonne, this forms the county's second greatest source of income after taxes. But the total annual income contributed to RVC from gravel assets amounts to around \$1million, hardly enough to justify the horrendous toll gravel hauling takes on county roads alone.

Conflicts are increasing between gravel mines and residents in counties like Foothills and Rocky View and throughout many of Alberta's 69 municipal districts. Citizens are even taking their councils to court to gain control over gravel decisions that may be made with limited, or no public input. Decisions made showcase aggravatingly archaic protections for ground and surface waters in Alberta.

Gravel and sand, unlike oil/gas and timber, are the only public resources not directly administered by the province. Instead, primary decisions over mining these occur at the county level through land-use zoning changes. Most municipalities lack technical staff able to evaluate and advise councilors and the public on technical issues like hydrogeology and ground water, that are often impacted by gravel mines. Alberta's Environment and Parks Department (AEP) administers Alberta's Water Act and has the technical expertise to evaluate the impact of gravel mines on hydrogeology. But in Alberta, AEP is a secondary, restricted player in gravel decisions. AEP is only allowed to review applications after municipal approval, through AEP's Code of Practice for Pits.

Although the Code does include provisions under the Water Act, its strongest groundwater protective language is: "aquifer disturbance may require pit registration holders to take extra precautions." AEP is only required to examine a gravel mine proposal under the Water Act if the proponent states that it may/will disturb ground or surface water. Environmental impact assessments of gravel/sand mines are municipal and rare.

In fact, in 2016 an earlier RVC council began to develop a forward-thinking Aggregate Resource Plan that would have included environmental assessments. For no known reason, except for what seems to be expediency for gravel pit approvals, council scrapped the almost-completed plan in 2019.

Park vs gravel

Bighill Creek Preservation Society (BCPS) learned a lot about gravel on a fast-tracked basis, made necessary when gravel interests purchased eight quarter sections, or about 1300 acres, of land on the immediate north and west boundaries of Big Hill Springs Provincial Park. The first new mine, called Mountain Ash Limited Partnership's Summit Pit (MALP), had by 2020 already sought and won preliminary land zoning changes from RVC. A county hearing on a "Master Site Development Plan" was set for March 2, 2021, this being the only opportunity for public input into the mine.

Suddenly BCPS was forced to reduce

its focus from the broad watershed to the 70-acre park, along with its main spring and aquifer. Many in the Calgary-Airdrie-Cochrane area will know Big Hill Springs Provincial Park as it is one of their closest parks. It is also one of Alberta's oldest provincial parks, designated in 1957 after land was gifted from the estate of Senator Patrick Burns, once a major land holder in the Calgary region. The land was gifted either for a fish hatchery, predicated on the year-around flowing creek, or as park land to help protect the area that was already, in the 1950s, attracting large numbers of campers, fishermen, picnickers and partiers.

The original park did not include the main springs that supply 50 percent of the water to the creek and whose special attributes have allowed the buildup over 10,000 years, of the exceptional tufa rock formations that make the park such an attraction. The springs site was purchased in the late 1970s from the Boothby family that continues to be a main land holder in the region. AEP closed the park for over a year in 2020 in order to carry out new boundary fencing and renovations needed because of over-use. Before closure, the park was receiving 250,000 annual visitors and since re-opening, that number is likely to be well exceeded, showing the dire need for parks in the Calgary area.

Big Hill Springs Provincial Park is recognized not just for its nationally significant thermal spring and tufa formations, but as a prairie oasis where ecological regions meet and intermingle. Foothills with prairie, aspen parkland with foothills. Early management goals were to have the park become a special-interest interpretive site that explored and explained the diverse biotics and geological features. Ancient indigenous use is obvious with a buffalo jump dominating the eastern view. Alberta's first commercial creamery occupied the site for nearly 20 years, starting in 1891 and supplying Calgary, forestry and mining camps in the broader region. The remnants of an early 1950s fish hatchery are part of the park.

Park management plans from 1976 and 1998 were being constrained by the limited size of the park and with degradation due to heavy human use. The 1976 plan called for acquisition of the spring itself, which subsequently happened, but with the land

owner refusing to allow the creek between the spring and the park to be included. Both plans cite the buffalo jump or cliff area to the east as a natural feature that should be within the park. The 1998 plan discusses the need for a much-expanded park and recommends including the decommissioned roadway and the valley between the park and Cochrane. More recently, RVC commissioned a major recreational plan, released in 2011, that again calls for park expansion and the roadway between Cochrane and the park to be opened as a foot trail. In 2022, the park faces a very uncertain future as gravel interests threaten to foreclose on its west and north flanks and with RVC and AEP showing no interest in park expansion.

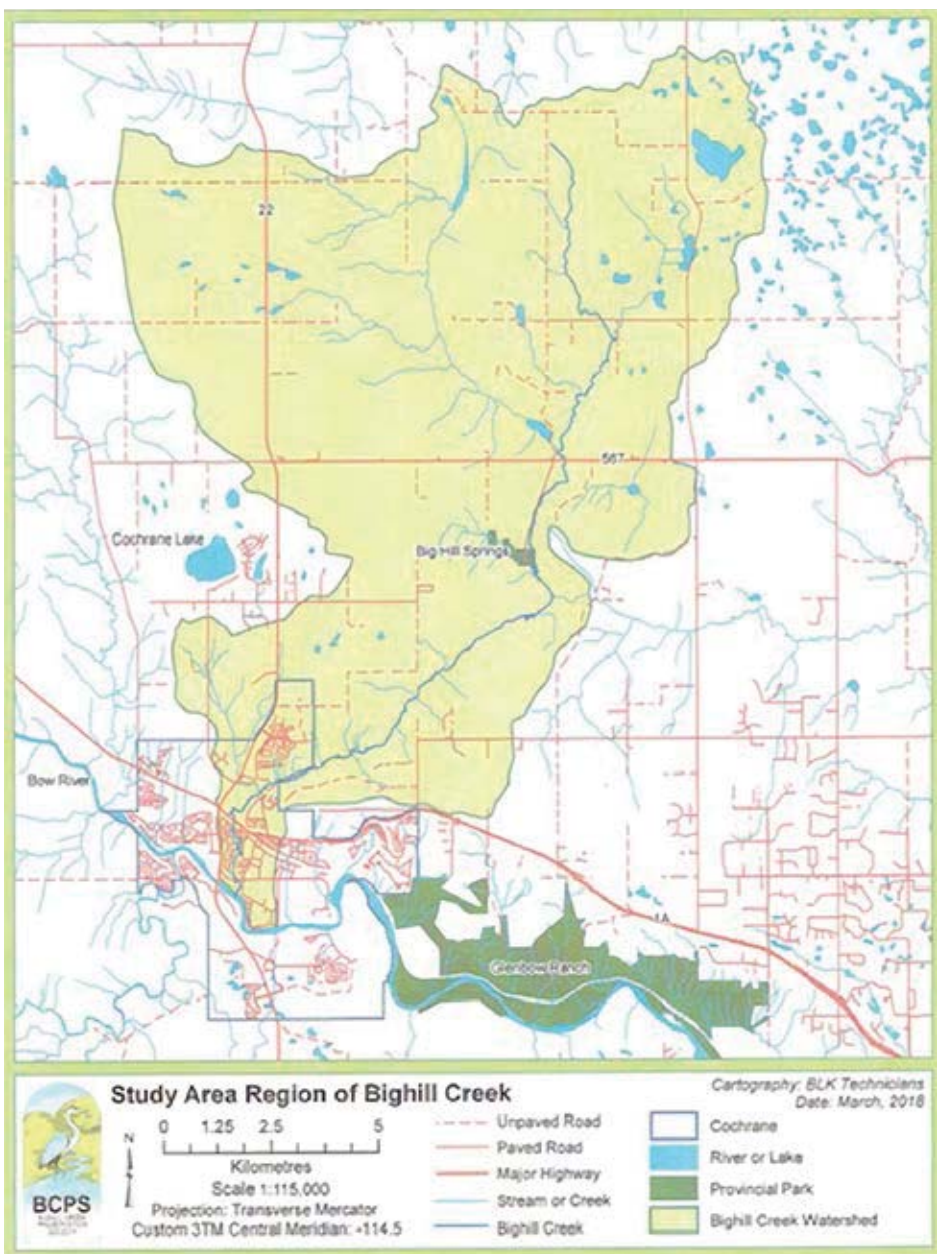
Hearing gives democracy the big boot

It soon came to light that MALP had already sought and been given preliminary approval in the form of a land-use zoning change from agricultural to industrial. This happened without public knowledge or input. BCPS was forced to refocus. Fortunately for us, two University of Calgary student projects examined the unusual aquifer supplying Bighill's main springs; one in 2004 on springs hydrology and the other in 2007 on the aquifer or recharge area. This means we had data on the parameters of the aquifer and how the springs function. We were able to superimpose the aquifer map with proposed gravel developments. This

gave us an easily-understood visual tool. Once word of the proposed new mine was out, a flourish of media stories appeared about the vulnerability of the park. Landowners near the park set up an organization, Friends of Big Hill Springs Provincial Park. Together with BCPS, the "Friends Group" established Facebook and GoFundMe pages and in 2021 a petition to protect the park drew over 10,000 signatures. Despite the petition and local opposition, area MLA Pete Guthrie chose to support gravel interests. Pit politics extended from municipal to provincial.

Approval of a Master Site Development Plan for MALP required a "public hearing", scheduled March 2, 2021 that was conducted "virtually" with only the proponent allowed interaction with RVC council members. BCPS and Friends of Big Hill Springs Provincial Park (BHSPP) had joined forces to commission Dr. Jon Fennell, one of Alberta's foremost hydrological engineers, and one with superior credentials to those of SNL Engineering's Vancouver Island-based engineering expert, to review MALP's application. Jon Fennell did a masterful job explaining how this gravel pit could alter the spring's chemistry when buried sediments are excavated and exposed, and made a number of pertinent recommendations that became the backbone of the two groups' submissions at the hearing. He contended that extracting 25 metres of gravel, leaving only a 1-metre buffer, would not protect the aquifer, groundwater and spring. His primary recommendation, to set gravel developments back 1 mile or 1.6 km from the park boundary, was essentially echoed by Alberta Parks and the mayor of Cochrane in letters to the RVC hearing.

How did these influence RVC's decision? Very little, it would seem. RVC essentially dismissed around 100 citizen submissions opposing MALP's application. They also dismissed Jon Fennell's report because, incredibly, it lacked the page with his professional credentials and was therefore apparently inadmissible. After the hearing, it came to light that it is standard practice for RVC staff to pull the signed page with credentials from professional reports, for security reasons. Also dismissed was the powerful letter from Alberta Parks, because it arrived the day of the hearing instead of



Bighill Creek Watershed



Bighill Creek Valley looking east across Big Hill Springs Provincial Park. Bighill Creek meanders through the valley blanketed by Buffalo Jump cliffs seen in the background. Photo ©Tobi McLeod

the day before. Over-ruled was eloquent testimony by our local councilor who made an impassioned plea to save the park.

March 2, 2021 proved to be a sad day for municipal democracy. RVC's council sealed the park's fate in a defiant 6:3 decision. Just the week before, Bears paw residents had swamped a similar hearing and forced RVC to back down from approving another large gravel mine on the City's outskirts near Spy Hill. It seems Council gravel hawks were not going to lose another pit!

MALP's Modus Operandi

So, who is behind Mountain Ash Limited Partnership? MALP's owner is a Calgary-based oil and gas entrepreneur. Bruce Waterman is linked with the who's who of Calgary's oil and gas scene, including most recently being an independent director of Ovintiv. He's also a retired executive of Agrium, a large agriculture company.

In a virtual meeting with BCPS, Mr. Waterman told us that he had originally bought land near the park in order to build a country residence. In fact, in 2008, Mr. Waterman opposed a nearby gravel pit application. In a letter to Rocky View Planning Services, he stated he was "extremely OPPOSED" to a nearby pit

because it would be incompatible with existing agriculture/ranching activities, would cause increased traffic and risk of road accidents, and disrupt the quiet enjoyment of his property. Why the sharp turnaround from country residential to gravel mine, who knows, but since his property lies just east of the operating Hillstone gravel pit, the constant noise and silica dust would be a deterrent. If you can't beat 'em, join 'em?

MALP hired SNL Engineering to develop its application for a gravel mine, which was adopted as approved following the RVC hearing in March 2021. But a prior hydrological report had gone to RVC that BCPS was able to obtain through a freedom of information application, indicating SNL had advised MALP that although its pit operation might "slightly increase discharge", it claimed this "would not alter" groundwater, therefore there was no need for AEP to examine the mine under the Water Act. This is despite the fact that Alberta's Water Act can be triggered by any "activity" that "disturbs or alters" water or a water body. MALP could not avoid triggering AEP's Code of Practice for Pits, since it must remove 13 of the 20+ wetlands on the property. Thus, a public

notification was triggered and a chance for a second round of public input, restricted to "wetland disturbance" and to comments from only those who could prove they would be "directly affected" by the proposal. In early January 2022, AEP allowed a seven-day window for submitting "Statements of Concern" regarding wetlands removal.

BCPS's Modus Operandi

The shocking March 2, 2021 RVC hearing; the jeopardy the park and spring are now in; the exposed weaknesses within AEP to defend groundwater from gravel mines - all of these taken together have pushed BCPS to continue seeking a more ecologically sound and democratic outcome.

We essentially hounded AEP throughout the past year since RVC's decision, in order to achieve a hearing for groundwater issues that could arise from mining the aquifer of one of Canada's "top four thermal springs", as ranked by Parks Canada in 1984. Finally, just before Christmas 2021, BCPS was told there would be a brief window of opportunity for those "directly affected", or those living within the right distance of the proposed mine, to submit Statements

of Concern (SoC) regarding wetlands disturbance on the mine site. No submitter restricted themselves to wetlands as it is groundwater that needs critical attention. Submissions are now being assessed by AEP before they will be turned over to MALP for rebuttal. Apparently there will be no further opportunity for public input after this and before AEP makes its final decision. Once again, it seems the proponent gets the last word in this very unsatisfactory process.

Since BCPS had prior warning of the January SoC window, we used the Christmas period to research and assemble a considerable statement with appropriate appendages. We laid the groundwork for a next and harder step, if we are forced to go there. Local landowners as well as professional geologists and biologists developed so many statements that AEP extended its scrutiny period. The BCPS and other SoCs are available in full on the BCPS website.

This treasure, this park has many outraged defenders. All Albertans should be outraged by what's happening to this old provincial park that truly is a prairie oasis.

A dream, but not just ours...

Looking forward, BCPS dreams of our glacially carved valley with its multiple springs, its rich and varied biology and geology, long history of indigenous use, its more recent and colourful European use and with its gem of a park, protected forever.

We see the need for expansion of the park and for its ecosystems to be protected and interpreted in living laboratory fashion. As called for in earlier management plans, the cliffs to the east make an obvious potential extension. RVC's 2011 Parks and Open Space Master Plan suggests the valley bottom between Hwy 567 and the park could be protected and linked to Nature Conservancy lands north of the highway. At least one landowner expresses similar interest. A far more radical proposal would be to acquire the three quarter sections of land now owned by gravel operator Burnco, on the north and west park boundary, as parkland. These lands contain a small, picture-perfect abandoned ranch nestled into the valley, framed by the

expanse of the Rockies to the west. This is the stuff of park dreams. What a perfect place for contemplative trails and historical interpretation. And, all so close to the 1.5 million people in Airdrie, Cochrane and Calgary. What a boon this could be for Rocky View Country.

Both the more recent park master plan and the RVC Parks and Open Space plan, identify the need to open the decommissioned roadway between Cochrane and Big Hill Springs Park, to foot and bicycle traffic. This could provide a route through a picturesque valley, with the opportunity to continue trails to Glenbow Ranch Provincial Park, and even into the city through Symons Valley. What a boon to nature, human health and enjoyment.

But we were not the first to dream this way. Recent documents have come to light showing the Devonian Foundation sought park protection for the whole lower valley in the early 1970s. BCPS is aware that the Nature Conservancy of Canada continued those endeavours through the 1980s and 1990s. The need to protect park space in RVC is acute. RVC contains three provincial parks, BHSP at 0.40 km², Bragg Creek at

1.28 km² and the larger Glenbow Ranch at 13.48 km², amounting to 15.16 km² in total, or only 0.4 percent of the county's land base. RVC is Alberta's most populous county and it actively seeks more residents by advertising a "country lifestyle", yet it provides few of those lifestyle attractions in terms of trails, parks and nature interpretation.

Tiny Big Hill Springs Provincial Park has the potential to expand and perhaps even merge with Glenbow Ranch Park. What a boon that would be for humans and wildlife if the two protected valleys could be interconnected forever through wildlife and human corridors! 🌲

Please note that I have used two spellings for Bighill throughout my article. This is deliberate. The park is called Big Hill, but when BCPS researched which spelling is most historically correct, we found that Bighill is the historical spelling, so we adopted it for our society and the creek.

Vivian Pharis is currently Vice President of Bighill Creek Preservation Society and has lived on the creek's escarpment for the past 50 years.



Historic Parker Ranch nestled here invites reflection and time to learn from the rich natural resources of Bighill Springs. Photo ©Tobi McLeod