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IN THE SUPREME COURT OF BRITISH COLUMBIA

Citation: *Highlands District Community Association v. British Columbia (Attorney General),* 2020 BCSC 1386

Date: 20200917
Docket: S205990
Registry: Vancouver

Between:

Highlands District Community Association

Petitioner

And

The Attorney General for British Columbia, The Minister of Mines, Energy & Petroleum Resources, Donald Harrison in his capacity as delegate of the Chief Inspector of Mines, and O.K. Industries Ltd.

Respondents

Before: The Honourable Mr. Justice Funt

Reasons for Judgment

Counsel for the Petitioner, appearing in person August 31, 2020 and by teleconference September 3, 2020:	I. Knapp
Counsel for the Respondents, The Attorney General for British Columbia, The Minister of Mines, Energy & Petroleum Resources, and Donald Harrison in his capacity as delegate of the Chief Inspector of Mines, appearing by teleconference:	J.M. Patrick
Counsel for the Respondent, O.K. Industries Ltd., appearing in person August 31, 2020 and by teleconference September 3, 2020:	M.S. Oulton B. Duong
Place and Dates of Hearing:	Vancouver, B.C. August 31 and September 3, 2020
Place and Date of Judgment:	Vancouver, B.C. September 17, 2020

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1. INTRODUCTION

[1] The petitioner brings application for an interim injunction pending the judicial review of a quarry permit issued on March 18, 2020 (the "quarry permit") to the respondent, O.K. Industries Ltd. ("OKI"), by the respondent, Donald Harrison in his capacity as delegate of the Chief Inspector of Mines (the statutory decision maker or "SDM").

[2] The hearing for the judicial review has now been scheduled for three days starting October 19, 2020.

[3] On June 8, 2020, the petitioner filed its petition for judicial review of the issuance of the quarry permit.

[4] As a result of the complexity of matters occurring over three years and the volume of materials, despite diligent efforts, the Attorney General has not yet finalized the requisite tribunal record necessary for a judicial review. The Attorney General expects to have the record prepared by no later than September 18, 2020.

[5] In May 2021, OKI plans to start the first phase area of its quarry operations under the quarry permit.

[6] Prior to starting actual quarry operations, OKI needs to build an access and haul road (which includes the clearing of trees and stump grinding) and to remove overburden (the soil, subsoil, sand, and gravel above the bedrock) in the first phase area (described in the quarry permit as "Phase 1").

[7] One of the conditions of the quarry permit is:

> Vegetation clearing must be minimized to maintain as much existing vegetation as practicable and shall occur outside the nesting period from March 1 to August 31 to reduce impacts on bird species.

[8] A further condition involving stump grinding and overburden removal is:

All grubbing, stumping grinding, and stripping will be completed during the months of October through to February.

[9] OKI says that it needs to start the clearing, stump grinding, and overburden removal soon or otherwise, it will not be able to start the Phase 1 quarry operations in May 2021. OKI has agreed to not undertake any clearing or similar work until after September 17, 2020 (stump grinding is not permitted to start until October 1).

[10] In its notice of application, the petitioner states:

> 7. The petitioner has sought judicial review of the [quarry permit] because of its concerns about the construction and operation of the said quarry and the impacts it will have on the local environment and surrounding community.
>
> 8. The judicial review is advanced on two grounds: (1) that members of the petitioner were denied procedural fairness in the SDM's consideration of OKI's application for a *Mines Act* permit, and (2) that the decision of the SDM is unreasonable in several respects.

[11] I do not foresee that the ruling relating to the October 19 to 21, 2020 scheduled hearing would be released after the May 2021 start of OKI's Phase 1 quarry operations.

[12] For the reasons that follow, I do not find that the "balance of convenience" favours granting the interim injunction the petitioner seeks. Accordingly, the petitioner's application will be dismissed.

2. BACKGROUND

[13] The petitioner is a not-for-profit society incorporated in 1965. Its purpose is "to foster a sense of community among and advance the interests of the residents of the [District of Highlands]".

[14] The District of Highlands is a municipality north of the City of Victoria and is within the Capital Regional District ("CRD").

[15] Approximately 135 of the approximately 2200 residents of the District of Highlands are members of the petitioner.

[16] OKI owns in fee simple the land for which the quarry permit was granted. The subject property comprises approximately 65 acres (26.3 hectares). To the north (western portion), the subject property borders a contaminated former landfill site which the CRD now owns. The CRD is currently remediating the site. To the north (eastern portion), the subject property borders a functioning landfill site. To the south, the subject property borders an industrial park which includes an operating quarry and an asphalt plant. To the east, the subject property borders Thetis Regional Park. To the west, the subject property on its southern portion borders or runs near Millstream Road. On the other side of Millstream Road is a residential community. There is one single-family property between the subject property and Millstream Road.

[17] In the Official Community Plan ("OCP") of the District of Highlands, the area in which the subject property is located, is designated "Commercial Industrial" and is described (in part) as:

> The land base has been heavily disturbed and there are relatively few environmental preservation issues. The ground water in this area has been contaminated by its former use as a sewage lagoon and landfill.
>
> […]
>
> This area contains gravel deposits that may be suitable for future extraction.

[18] The OCP also states:

> Over time, the area designated as Commercial-Industrial land use … should be redeveloped as a range of light industrial and service commercial uses in conformance with Development Permit Area 4 - Highlands Commercial/Industrial Gateway Area and any agreements that are in place. These uses may include green economy-based industries such as: recycling; manufacturing and assembly; warehousing and storage; service industries; sales and service operations; and office uses that are ancillary to these uses. Industrial uses and practices that have appreciable negative impacts on surrounding areas, groundwater resources and air quality are discouraged. Industrial uses and practices that have appreciable positive impacts on surrounding areas, groundwater resources and air quality are encouraged.

[19] Finally, the OCP also states that "Industrial" areas shall be:

> for light industrial uses such as product assembly product service and repair, manufacturing, warehousing and storage, or the extraction of sand and gravel as an interim use.

[20] The OCP is dated November 2013. OKI purchased the subject property in January 2015 with "the intent to mine it as a quarry and then eventually develop commercial and/or industrial properties for resale".

[21] OKI plans to crush the rock from the quarry into aggregate, which it will then use at its asphalt plant to make asphalt mix.

[22] Although the subject property is within an area designated as Commercial Industrial by the OCP, the property is not zoned for industrial or commercial use by the District. In June 2015, OKI sought to have the subject property rezoned for industrial or commercial use. The District of Highlands denied OKI's application. As discussed further below, such zoning is not required for the issuance of a quarry permit.

[23] On March 24, 2017, OKI submitted its application for the quarry permit to the Ministry of Energy, Mines and Petroleum Resources as required under the *Mines Act*, R.S.B.C. 1996, c. 293. On June 21, 2017, the public comment period started. There was considerable public interest and comment, including comment by the petitioner.

[24] As part of the application process, OKI had prepared by Hemmera Envirochem Inc. a document titled "Millstream Road Quarry – Environmental Effects and Mitigation Report" ("EEMR").

[25] The EEMR is technical in nature and was prepared using qualified professionals with the appropriate areas of expertise (Hydrology, Hydrogeology, Mining (blasting), Atmospheric Sciences, and Ecology). In early April 2019, OKI submitted the finalized EEMR to the SDM.

[26] On April 5, 2019, OKI told the District of Highlands and the petitioner of the EEMR and that it had been submitted to the SDM.

[27] On April 5, 2019, OKI also invited the District of Highlands and the petitioner to a scheduled May 2, 2019 public information session.

[28] In the second week of April 2019, OKI delivered a physical copy of the EEMR to the District of Highlands and to the petitioner.

[29] After the May 2, 2019 public information session, the SDM requested changes to the mining plan set forth in the EEMR. The SDM had attended the public information session and answered questions from the public.

[30] OKI had prepared a revised phase plan dated July 9, 2019. OKI submitted the revised phase plan to the SDM. The quarry permit refers to the revised phase plan.

[31] The planned haul and access road going from the south west property line to the Phase 1 area requires approximately 4.6% of the total land area of the subject property. The Phase 1 total land area is approximately 16.7%.

[32] Mr. M. Sangha, an authorized representative of OKI, describes the harm he sees to OKI if there is delay as follows:

> If OK Industries is going to be able to quarry aggregate commencing in May 2021, it is imperative that it be able to do the necessary logging and stripping of overburden on its property this year. If it is unable to perform the necessary logging and stripping of overburden during the upcoming October 2020 to February 2021 window, OK Industries will not be able to commence quarrying operations on the Subject Property until the spring of 2022.
>
> This would have financial impacts to OK Industries beyond the obvious loss of revenues from the expected quarry operations. For example, we would have to duplicate work by engaging, for a second time, surveyors to perform (repeat) the environmental surveys required prior to beginning work.
>
> We would also have increased costs as a result of have to ask workers to be on standby and would risk losing our preferred tradespersons and contractors altogether, due to the uncertainty created by an injunction. Since the Mines Permit was granted, we have come up with a production schedule and allocated our financial and human resources to meet the targets set out in that schedule. If our activities are stayed, it would mean lost productivity costs while we reorganize our operations and plan how we are going to run a profitable business over the next year.
>
> Our Millstream quarry site was slated to employ 3-4 full-time unionized workers and indirectly employ (through contracting) many more for who would be tasked with tree removal, testing and monitoring of water quality, drilling and blasting, and environmental consultants engaged to ensure that our impact on the ecology of the site is kept to a minimum. Those workers would lose the opportunity to perform this work.
>
> Furthermore, if a stay is granted, and the planned logging and overburden stripping cannot proceed this year, there is a serious risk that OK Industries will need to source its aggregate from another site in order to meet its customers' annual demand for asphalt which (as mentioned) requires the quarrying of roughly 60,000 tonnes of aggregate for its Victoria asphalt plant.

> The nearest sources of aggregate that OK Industries could access to supply its Island Asphalt operation, if and when the Langford Quarry goes offline, are either in Malahat or Sooke, both of which can only be accessed by winding and narrow roads with existing traffic and congestion issues. Bringing the significant quantities of aggregate needed to supply the Victoria plant from these locations would increase industrial traffic on the Malahat and Highway 14.
>
> On top of this, OK Industries' transport costs would increase, some of which would be passed on to the consumer. Often, the consumer is one of the 13 municipalities on lower Vancouver Island. The result is that OK Industries would become less competitive in the marketplace and additional financial costs will be passed on to the Province and municipalities as a result of having to source more expensive aggregate from further away. Beyond the direct financial costs to municipalities of higher prices for asphalt, there will also be the indirect cost of the lost opportunity for an increase in the District of Highlands tax base and the many collateral benefits that come along with that.
>
> The greater distance between the source of aggregate and the asphalt plant of Island Asphalt also means more fossil fuel combustion as a result of increased truck traffic. This, in turn, means increased greenhouse gas emissions. Increased truck traffic also affects road safety to the public and additional costs for road maintenance.

[33] Mr. J. Richardson, the chairperson of the petitioner, states:

> Had the SDM explained his decision making process and invited formal comment and evidence from the community, we would have made a plan to raise funds and retain experts to present evidence that we felt relevant to the decision-making which was overlooked or not present in the Hemmera report. As it was, it was always unclear to me what the process for public participation in the SDM's decision-making process was. The SDM never communicated to us a clear roadmap for participation, the scope of his decision-making, or what sort of submissions and evidence he was willing to entertain. In particular, when we raised concerns with the SDM in our meetings and letters, he never advised us that he required us to present evidence or technical submissions in support of community concerns.

[34] With respect to potential harm, Mr. Richardson states:

> There is one existing quarry in the Highlands District operated by a company called "Basic Rock Products Ltd." It is my understanding that this quarry is nearing the end of its useful life. This quarry is East of the Millstream Industrial Park located just north of the southern border of the Highlands. The quarry and the Industrial park are both zoned Industrial by the Highlands.
>
> Due to the presence of the nearly finished Basic Rock Quarry and OKI's nearby Langford quarry and rock crushing operation, residents in the south Highlands are extremely familiar with the disruptive effects of quarry operations. Most residents are looking forward to the closure of the Basic Rock quarry as its operation is disruptive to the day to day lives of residents. The quarry generates enormous amounts of dust which settles on properties within several kilometers. Blasting tends to start early in the day and makes loud noises all day. There is also increased heavy vehicle traffic in and around the area. Finally, and perhaps most importantly, many residents share the concern that further quarrying may contaminate our local aquifer.

and further:

> While the Project will occur on private property, I am concerned that its impacts extend far beyond the property bounds and the environmental degradation that the project entails is completely at odds with the values of our community.
>
> I am concerned that this Project has the potential to damage and contaminate a common aquifer shared and used by local residents, negatively impact air quality, and undermine federally supported efforts to bring coho and cutthroat up the Millstream [Creek].
>
> This concern is elevated by the presence toxic waste both on the surface and located in underground plumes on the adjoining CRD Millstream Meadows property immediately to the north (of the front half of the OKI property), as well as the toxic landfill located immediately adjacent and north of the back half of the OKI property. The possibility of the toxins on the Millstream Meadows site either reaching the subservice aquifer our community depends upon, or coming to surface potentially contaminating the rehabilitated Millstream Creek have not, in my view, been adequately addressed.
>
> I am also concerned that the environmental impacts of the Project will have a significant impact on the values of local properties. As the rock mining currently being done adjacent to Millstream Road nears the end of its economic life, nearby residents can begin to imagine a future free of all of the dust, noise, traffic and associated negative impacts. I believe that these people deserve a say before a new mine with a life of 25 or more years is permitted by the Province.

[35] The SDM and other inspectors under the *Mines Act* have the powers to ensure compliance with the terms of a permit. Section 15(4.1) of the *Mines Act* reads:

> (4.1) If an inspector believes on reasonable grounds that a person has contravened or is contravening an order under this section or a provision of the Act, the code, the regulations or a permit and that the contravention has a detrimental environmental impact, the inspector may order the owner, agent, manager, permittee or any other person apparently in charge in, on or about a mine to do any of the following:
>
> (a) take immediate remedial action;
>
> (b) suspend regular work until remedial action is taken;
>
> (c) close the mine or part of it until remedial action is taken.

[36] Section 1 of the *Mines Act* defines " detrimental environmental impact" as follows:

> "detrimental environmental impact" occurs when the quality of air, land or water substantially reduces the usefulness of the environment or its capacity to support life;

[37] For ease of access and reference, a copy of the quarry permit and a copy of the SDM's March 18, 2020 reasons are attached to these reasons as Schedules "A" and "B" respectively.

3. KEY LEGAL PRINCIPLES

[38] The petitioner's application for an interim order is made under s. 10 of the *Judicial Review Procedure Act*, R.S.B.C. 1996, c. 241 [*JRP Act*] reads:

> 10. On an application for judicial review, the court may make an interim order it considers appropriate until the final determination of the application.

[39] The parties agree that the judicial authorities for an interim injunction are applicable to the exercise of the Court's discretion to make an order under s. 10 of the *JRP Act*.

[40] The two key authorities are *RJR-MacDonald Inc. v. Canada (Attorney General)*, 1994 CanLII 117 (SCC), [1994] 1 S.C.R. 311 and *British Columbia v. Wale et. al* (1986), 1986 CanLII 171 (BC CA), 9 B.C.L R. (2d) 333 (C.A.) aff'd 1991 CanLII 109 (SCC), [1991] 1 S.C.R. 62.

[41] In *RJR*, the Supreme Court of Canada adopted a three-stage test (at 334):

a) a preliminary assessment must be made of the merits of the case to ensure that there is a serious question to be tried;

b) it must be determined whether the applicant would suffer irreparable harm if the application were refused; and

c) an assessment must be made as to which of the parties would suffer greater harm from the granting or refusal of the remedy pending a decision on the merits.

[42] The third stage of the test is one of a "balance of convenience": *RJR* at 342.

[43] With certain exceptions that do not arise in the case at bar, the first stage of the test engages a low threshold and it is whether the application is "neither frivolous nor vexatious": *RJR* at 337.

[44] With respect to the second stage of the test and irreparable harm, the Supreme Court in *RJR* states (in part) at 341:

> "Irreparable" refers to the nature of the harm suffered rather than its magnitude. It is harm which either cannot be quantified in monetary terms or which cannot be cured, usually because one party cannot collect damages from the other. …

and further,

> … The fact that one party may be impecunious does not automatically determine the application in favour of the other party who will not ultimately be able to collect damages, although it may be a relevant consideration (*Hubbard v. Pitt*, [1976] Q.B. 142 (C.A.)).

[45] In *RJR*, the Supreme Court states that irreparable harm to the applicant should be considered at the second stage and irreparable harm to the respondent at the third stage.

[46] With respect to the third stage (balance of convenience) in *RJR*, the Supreme Court stated at 342–343:

> The factors which must be considered in assessing the "balance of inconvenience" are numerous and will vary in each individual case. In *American Cyanamid* [*Co. v. Ethicon Ltd.*, [1975] A.C. 396], Lord Diplock cautioned, at p. 408, that:

> [i]t would be unwise to attempt even to list all the various matters which may need to be taken into consideration in deciding where the balance lies, let alone to suggest the relative weight to be attached to them. These will vary from case to case.

He added, at p. 409, that "there may be many other special factors to be taken into consideration in the particular circumstances of individual cases."

[47] In *Wale*, Justice McLachlin, as she then was, in writing the majority reasons for our Court of Appeal, stated (at 346):

> The traditional test for the granting of an interim injunction in British Columbia is two-pronged. First, the applicant must satisfy the Court that there is a fair question to be tried as to the existence of the right which he alleges and a breach thereof, actual or reasonably apprehended. Second, he must establish that the balance of convenience favours the granting of an injunction.
>
> The decision in *American Cyanamid Company v. Ethicon Ltd.*, [1975] A.C. 396, [1975] 2 W.L.R. 316, [1975] 1 All E.R. 504 (H.L.), may be read as suggesting a three-stage test for the granting of interlocutory injunctions rather than the two-stage test to which I have referred, the requirements being (1) a fair question to be tried; (2) irreparable harm and (3) balance of convenience favouring the injunction. While I prefer to view the requirement of irreparable harm as integral to the assessment of the balance of convenience between the parties, the practical effect of the two approaches is the same.

and then further (at 347),

> Having set out the usual procedure to be followed in determining whether to grant an interlocutory injunction, it is important to emphasize that the judge must not allow himself to become the prisoner of a formula. The fundamental question in each case is whether the granting of an injunction is just and equitable in all the circumstances of the case. …

4. ANALYSIS

a) Not frivolous or vexatious

[48] Without the tribunal record, I cannot say that the petitioner's argument that it was denied procedural fairness is bound to fail. Similarly, without the tribunal record, I cannot say that the petitioner's argument that the SDM's March 18, 2020 decision "is unreasonable in several respects" is bound to fail. Accordingly, the first stage of the three-stage test for granting an interim injunction as set forth in the *RJR* is met.

b) Balance of convenience

[49] I will follow Justice McLachlin's approach in *Wale* and combine the second and third stages of the *RJR* three-stage test. In my view, with such an approach, the Court is less likely to "become the prisoner of a formula" in determining the fundamental question as to whether granting the sought injunction is "just and equitable in all of the circumstances of the case".

[50] In connection with the factor of irreparable harm, it is necessary to consider the actual activities to be undertaken under the quarry permit by OKI before the ruling arising from the judicial review set to start October 19, 2020. Actual quarry mining is not scheduled to start until May 2021. By May 2021, absent exceptional circumstances, the judicial review ruling will have been delivered. Accordingly, the petitioner's concerns as to regular and frequent blasting, dust, and groundwater risk are not engaged for the purposes of considering irreparable harm to the petitioner.

[51] As noted at page 7 of the SDM's March 18, 2020 reasons, OKI's application was "sent out for agency referral to the Ministry of Forests, Lands and Natural Resource Operations and Rural Development ("FLNRORD"). FLNRORD's recommendations are set forth at page 10 of the SDM's reasons. With the exception of the protection of the wetland located on the subject property, the quarry permit incorporates FLNRORD's recommendations.

[52] With respect to the wetland, the SDM considers the risk to the wetland as low prior to Phase 2 mining. The SDM states (p. 15):

> I have further concluded that the wetland may exist during the mining of Phase 1, but that it may be impacted by mining such as from the possible entry of surface water and sediment. The wetland would certainly be impacted by mining of Phase 2. …

[53] The SDM also concludes that as the quarry proceeds as planned beyond Phase 1, it is "not possible to preserve the integrity of the wetland" (p. 15). As noted, Phase 1 mining will not start until May 2021.

[54] In considering the interim injunction the petitioner seeks, any potential irreparable harm to the petitioner must relate to OKI's logging and building of the planned access and haul road and the logging and then the removal of overburden on the Phase 1 area.

[55] The removal of overburden in the Phase 1 area is more significant than the clearing of trees. Under the quarry permit, the overburden will not be removed from the subject property. It will be stockpiled and then used as part of the planned reclamation as the mining operations proceed.

[56] OKI owns the subject property in fee simple. The petitioner has no property interest in the trees, soil, or overburden.

[57] The quarry permit also recognizes the potential application of other laws and OKI's "responsibility to ensure compliance with any other legal requirements that may apply". The quarry permit reads:

> This Permit contains the requirements of the Ministry of Energy, Mines and Petroleum Resources (EMPR) for mining operations and reclamation. It is also compatible, to the extent possible, with the requirements of other provincial ministries for reclamation issues. The amount of security required by this Permit, and the manner in which this security may be applied, will also reflect the requirements of those ministries. Nothing in this Permit, however, limits the authority of other provincial ministries to set other conditions, or to act independently, under their respective permits and legislation.
>
> The permit holder should be aware that while this permit is issued under the *Mines Act*, other laws and regulations may apply, including federal and provincial legislation and local government bylaws. It is the proponent's responsibility to ensure compliance with any other legal requirements that may apply.
>
> Decisions made by staff of the Ministry of Energy, Mines and Petroleum Resources will be made in consultation with other ministries.

[58] In short, OKI must comply with the quarry permit and any other applicable laws and regulations. I am satisfied that the applicable statutory schemes serve to reflect and manage, in large measure, the competing public interests involving the subject property owned by OKI in fee simple.

[59] With elected representatives, the public interest has also been engaged. While not granting the requested rezoning, the District of Highlands has not sought to challenge the issuance of the quarry permit.

[60] With the logging activities and the construction of the access and haul road, there will be logging and other large trucks travelling on roads in the District of Highlands. The proposed access and haul road on the subject property connects to Millstream Road. Millstream Road is a collector road which will serve to reduce the concerns related to trucks or other large equipment travelling (or being transported) in the District of Highlands.

[61] In sum, I find little, if any, irreparable harm to the petitioner arising prior to the start of actual quarrying. For present purposes, I do not need to address possible irreparable harm arising after the start of actual quarrying. In this regard, I recognize that the petitioner's views differ dramatically from that of the SDM.

[62] With respect to whether an interim injunction would cause irreparable harm to OKI, I find that it would.

[63] In *Revolution Infrastructure Inc. v. Lytton First Nation*, 2016 BCSC 1562, Justice Gropper stated:

> [79] In *A.J.B. Investments* Mr. Justice Greyell adopted the test set out in *Trans Mountain Pipeline ULC v. Gold,* 2014 BCSC 2133, where the Court stated at para. 118:
>
> > As to the question of irreparable harm, I am satisfied that the failure to grant the injunction would cause the plaintiff irreparable harm. The plaintiff has advanced essentially uncontradicted evidence that the delays occasioned by the activities at issue have and will continue to cause the substantial costs and potential losses of revenues which are not recoverable. The harm although primarily economic, is thus, nonetheless, irreparable.
>
> [80] I am satisfied that Revolution has demonstrated irreparable harm in the circumstances. The LFN by-law will interfere with Revolution's business as an ongoing concern. The authorities support Revolution's position that interference with the business is irreparable harm. It appears that that position is supported by the weight of authorities in spite of the comment in *Zeo-Tech* [*Enviro Corp v. Maynard*, 2005 BCCA 392] that the applicant must show evidence that the business will close or lose its market position.

[64] I accept Mr. Sangha's uncontradicted evidence regarding the harm associated with delaying the start of quarry mining until the spring of 2022.

[65] To the extent OKI would suffer financial loss if the interim injunction the petitioner seeks were granted, the petitioner has not given an undertaking as to damages.

[66] I also accept Mr. Sangha's uncontradicted evidence regarding the harm to third parties regarding a delay in quarry mining until the spring of 2022.

[67] In *Wale*, Justice McLachlin also noted that another factor that may be considered in determining the balance of convenience is the strength of the petitioner's case (at 346).

[68] Although I have found that the petitioner's case is not frivolous or vexatious, at this stage, it does not appear to be a strong one.

[69] With respect to the petitioner's argument that it was denied procedural fairness, several aspects challenges its strength. First, the requisite notice requirements set forth in the *Health, Safety and Reclamation Code for Mines in British Columbia* (the "*Code*") were followed. The *Code* was prepared pursuant to s. 34 of the *Mines Act*.

[70] The relevant portions of the *Code* read:

> Publication
>
> 10.2.1 When required by an inspector, notice of filing an application under section 10(1) of the Mines Act shall be published, by the person filing it, in the Gazette and in local newspapers.
>
> Written Response
>
> 10.2.2 Where a notice of filing has been published under section 10.2.1 of this code, a person affected by, or interested in, the application has 30 days after the last date on which the notice was published to view the application and make written representations to the chief inspector.
>
> Permit
>
> 10.3.3 A permit issued under section 10(1) of the Mines Act shall take into consideration
>
> (a) any written representations received under section 10.2.2 of this code [...]

[71] It is clear that the SDM went beyond the strict requirements of the *Code* in order to receive public comment including meeting with the petitioner's representatives and attending the May 2, 2019 public information session with an available comment box.

[72] As noted, the petitioner also received a copy of the "EEMR" a couple of weeks before the May 2, 2019 public information session and well before the SDM released his March 18, 2020 reasons.

[73] Mr. Richardson's assertion that the SDM "never advised us that he required us to present evidence or technical submissions in support of community concerns" may be argued and considered further with the tribunal record. At this time, the petitioner's argument that it was denied procedural fairness does not appear strong.

[74] As noted, the petitioner says that the SDM's March 18, 2020 decision was unreasonable. In his notice of application, the petitioner states:

> The petitioner also contends that the decision is unreasonable in that it makes certain reasoning errors and fails to take into account relevant considerations. *Inter alia*, the petitioner contends that, contrary to the written decision of the SDM, there is no evidence that climate change will result in the destruction of a wetland present on the Lands and that the SDM has improperly fettered his discretion by refusing to [consider] questions of climate change in assessing whether to approve a new quarry.

[75] The petitioner also states that the quarry would not be consistent with the municipal zoning. With respect, the Province has exclusive jurisdiction to regulate mining: *Cowichan Valley (Regional District) v. Cobble Hill Holdings Ltd.*, 2016 BCCA 432 at paras. 6, 66, and 67.

[76] The SDM discusses climate change in the context of carbon emissions. In his reasons, he states (p. 31):

> Another issue raised was the impact of carbon emissions related to a quarry at this location and the impacts on global climate change. While this is an important issue and Canada has passed a non-binding motion to declare a national climate emergency in Canada, climate change is not relevant under the *Mines Act*.

[77] With respect to the wetland, as noted, the SDM concluded it was not "possible to preserve the integrity of the wetland while allowing the quarry to proceed as planned …" (p. 15). With apparent reference to climate change, the SDM adds the superfluous comment: "I question the long term integrity of the wetland in the absence of a quarry".

[78] With respect to the petitioner's assertion that the SDM improperly considered or did not consider climate change, it is not possible at this stage for the Court to make a final determination without the full tribunal record.

[79] With OKI's engagement of Hemmera Envirochem Inc. with its use of experts in the fields of atmospheric sciences, ecology, and hydrology, among others, environmental effects and mitigation were considered and addressed. At this time, the petitioner's arguments with respect to climate change do not appear strong.

[80] In *Canada (Minister of Citizenship and Immigration) v. Vavilov*, 2019 SCC 65, the majority stated (at para. 100):

> The burden is on the party challenging the decision to show that it is unreasonable. Before a decision can be set aside on this basis, the reviewing court must be satisfied that there are sufficiently serious shortcomings in the decision such that it cannot be said to exhibit the requisite degree of justification, intelligibility and transparency. Any alleged flaws or shortcomings must be more than merely superficial or peripheral to the merits of the decision. It would be improper for a reviewing court to overturn an administrative decision simply because its reasoning exhibits a minor misstep. Instead, the court must be satisfied that any shortcomings or flaws relied on by the party challenging the decision are sufficiently central or significant to render the decision unreasonable.

[81] With the EEMR and the input from experts and, in particular, experts in atmospheric sciences, ecology, hydrology, and with the SDM addressing in his March 18, 2020 reasons the wetland and other technical and environmental matters specifically and the proposed quarry project generally, the petitioner may face difficulty in satisfying the justice hearing the judicial review that "there are sufficiently serious shortcomings in the decision such that it cannot be said to exhibit the requisite degree of jurisdiction, intelligibility and transparency".

[82] In sum, having regard to the foregoing factors, the balance of convenience does not favour granting the interim injunction the petitioner seeks. In particular, I see little, if any, irreparable harm to the petitioner prior to the start of actual quarrying and the petitioner does not appear to have a strong case. OKI's site preparation activities are authorized by a presumptively valid quarry permit. OKI will suffer irreparable harm if the site preparation activities cannot be undertaken prior to the planned May 2021 start of Phase 1 quarrying. In all of the circumstances of the case, it is not just and equitable to grant the injunction.

5. CONCLUSION

[83] The petitioner application for an order under s. 10 of *JRP Act* is dismissed.

[84] The petitioner, in its petition, also asked for directions setting a hearing date for the judicial review. As noted, a three-day hearing has now been set to start October 19, 2020.

6. COSTS

[85] With the tribunal record, the justice that hears the judicial review will be in a better position to address the costs associated with this application. Accordingly, I will leave the determination of costs to the justice that hears the judicial review.

"Funt J."

Schedule "A"

PROVINCE OF BRITISH COLUMBIA
MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES (EMPR)

QUARRY PERMIT

APPROVING WORK SYSTEM AND RECLAMATION PROGRAM
(Issued pursuant to Section 10 of the ***Mines Act*** R.S.B.C. 1996, C.293)

Permit: Q-8-121 Mine No.: **1610713**

Issued to: **O.K. Industries Ltd.**
6702 Rajpur (PO Box 1324)
Victoria BC, V8W 2W3

for work on the following Property:
Millstream Rd Quarry-OKI (District of Highlands)

located on: **Lot 1, Section 5, Range 3, West Highlands District, Plan VIP 70242 (PID 024-710-270)**

Reclamation security amount: **$75,000**

This permit is subject to the appended conditions, referenced documents, and maps.

Issued this 18th day of March in the year 2020.

Don J. Harrison, P.Geo.
Senior Inspector of Mines

PREAMBLE

A notice of intention to commence work on a quarry for construction aggregate, and plan of the proposed work system, and a program for the protection and reclamation of the surface of the land and watercourses affected by the work (a Notice of Work application, or NoW) were submitted on March 24, 2017. A Notice of such filing was published in the Goldstream News Gazette on June 21, 2017 and in the British Columbia Gazette on June 22th, 2017. A Notice of the application was posted on the Property along Millstream Road on June 15th, 2017. The NoW application was updated by the applicant over the course of the application review.

The Notice of Work and associated documents listed in this Permit shall form the Mine Plan and are an integral part of this permit. Where there may be a discrepancy or conflict between the submitted NoW and its associated documents, and conditions in this Permit, the conditions in this Permit shall prevail.

This Permit contains the requirements of the Ministry of Energy, Mines and Petroleum Resources (EMPRR) for mining operations and reclamation. It is also compatible, to the extent possible, with the requirements of other provincial ministries for reclamation issues. The amount of security required by this Permit, and the manner in which this security may be applied, will also reflect the requirements of those ministries. Nothing in this Permit, however, limits the authority of other provincial ministries to set other conditions, or to act independently, under their respective permits and legislation.

The permit holder should be aware that while this permit is issued under the *Mines Act*, other laws and regulations may apply, including federal and provincial legislation and local government bylaws. It is the proponent's responsibility to ensure compliance with any other legal requirements that may apply.

Decisions made by staff of the Ministry of Energy, Mines and Petroleum Resources will be made in consultation with other ministries.

Documents Relevant to this Permit

The NoW and originally submitted reports were updated and revised as part of the technical review process of this application. The NoW and updated documents as listed below collectively form the Mine Plan and are a part of this Permit.

- **Revised Phase Plan**[1]: as per MILLSTREAM ROAD - OK INDUSTRIES - PROJECTED VOLUME BASED ON 2.0m REMOVAL OF OVERBURDEN AND 95m FINISHED ELEVATION (1:2,000 scale), revised 2019-July-09, signed and sealed 2019-July-11 by N.Fischer, Westbrook Consulting Ltd., with revised mining Phases as follows:

[1] The electronic (digital) version of this map is: **1610713-20190711_Dwg_190711 FIG 1_Revised-Phased-Plan-Projected-Volume.pdf**

PHASE NUMBERS		VOLUME (m^3)	AREA (ha)
Phase 1	(was Phase 3)	220,729.2	4.48
Phase 2	(was Phase 5)	84,880.2	1.88
Phase 3	(was Phase 4)	276,953	5.26
Phase 4	(was Phase 2)	106,561.6	3.35
Phase 5	(was Phase 1)	201,584.4	2.23

- **Site Drainage Plan**[2]: found in Appendix I of the Millstream Road Quarry - Environmental Effects and Mitigation Report (EEMR), prepared by Hemmera Envirochem Inc., (Project No. 989491-01) dated March 22, 2019, for O.K. Industries Ltd. (herein referred to as the **EEMR**). Note: mine phases in this report are revised and updated as per the **Revised Phase Plan.**
- **Quarry Site Plans and Cross-Section Drawings:** from in Appendix VII of the EEMR.
- **Nitrogen Management Plan:** from Appendix VIII of EEMR.
- **Mitigation Measures**: from **Section 6.0** of the Noise Assessment in Appendix IV of EEMR.
- **Hydrocarbon Transport, Storage, and Handling Plan:** from Appendix VIII of the EEMR.
- **Spill Response Plan:** from Appendix VIII of the EEMR.
- **Site Discharge and Groundwater Monitoring Plan** in Appendix VIII of EEMR

[2] Includes the **Millstream Quarry Storm Water Management Report** (November 2018), and the **Storm Water Management Plan (SWMP) Figures 1 to 5** for each mining phase with all drawings signed and sealed 2019-03-20 by N. Fischer, Westbrook Consulting Ltd., noting that the mining Phases have been revised as per the Revised Phase Plan

CONDITIONS:

General

The Chief Inspector of Mines (Chief Inspector) hereby approves the Notice of Work and Reclamation Program, and related submitted documents (Application) subject to compliance with the following conditions:

1. Interpretation

   Where more than one version of information exists in the application, the most recent version shall be considered the approved version unless otherwise determined by the Inspector. If there is a discrepancy or conflict between the NoW or associated documents or management plans, and a Condition in this Permit, the Condition in this Permit shall prevail.

2. Reclamation Security

   (a) The owner, agent or manager (herein called the Permittee) must maintain with the Minister of Finance securities in the amount of seventy-five thousand dollars ($75,000). The security will be held by the Minister of Finance for the proper performance of the approved program and all the conditions of this permit in a manner satisfactory to the Chief Inspector.

3. End Land Use

   The final surface of the land must be left in a manner that ensures long term physical and geochemical stability suitable for Comercial / Industrial use.

4. Revegetation

   Land to be re-vegetated must be re-vegetated to a self-sustaining state where practicable, using appropriate plant species native to the bio-region of the site.

5. No Removal of Topsoil

   Topsoil must not be removed from the Property without the specific written permission of an Inspector of Mines.

6. Buffer Zones

   A minimum 5.0 metre wide undisturbed and vegetated buffer zone must be established and maintained between the property boundary and the mine disturbed area, unless exempted by the Chief Inspector. The buffer zone must be established prior to vegetation clearing for the mine and maintained for the life of the mine.

7. Treatment of Structures and Equipment

   Prior to abandonment, and unless the Chief Inspector has made a ruling otherwise, such as heritage project consideration or industrial use,

   (a) all machinery, equipment and building superstructures must be removed,

   (b) concrete foundations must be covered and revegetated unless, because of demonstrated impracticality, they have been exempted by an Inspector, and,

   (c) all scrap material and waste must be disposed of in a manner acceptable to the Inspector.

8. Watercourses

   (a) Sediment laden water resulting from the mining activities must be controlled and managed on site prior to discharge to any creek or watercourse. A water management plan for the site, including management of storm event rainfall, must be prepared and implemented for the site and a copy must be submitted to an Inspector of Mines.

9. Roads

   (a) All roads must be reclaimed in accordance with land use objectives unless permanent access is required to be maintained.

   (b) Individual roads will be exempted from the requirement for total reclamation under condition 9(a) if either:

      (1) the Permittee can demonstrate that an agency of the Crown has explicitly accepted responsibility for the operation, maintenance and ultimate deactivation and abandonment of the road, or,

      (2) the Permittee can demonstrate that another private party has explicitly agreed to accept responsibility for the operation, maintenance and ultimate deactivation and abandonment of the road and has, in this regard, agreed to comply with all the terms and conditions, including bonding provisions, of this reclamation permit, and to comply with all other relevant provincial government (and federal government) regulatory requirements.

10. Disposal of Fuels and Toxic Chemicals

    Fuels, chemicals or reagents which cannot be returned to the manufacturer/supplier are to be disposed of as directed by the Chief Inspector in compliance with municipal, regional, provincial and federal statutes.

11. Fuels and Lubricants (Hydrocarbons)

    Fuels, lubricants and other hydrocarbons, if stored on the mine site, must conform to the latest version of the BC Fuel Guidelines.

    The Permittee must develop and implement a hydrocarbon management plan that deals with fueling, operational servicing, spill prevention and clean-up for fuels and lubricants stored on the mine site. In addition to the plan:

    (a) Fuel and lubricants shall be delivered to site as needed to re-supply fuel and oil tanks on mobile and fixed equipment,

    (b) Impermeable, oil absorbent matting must be used when refueling and servicing equipment,

    (c) While refueling, the operator must always be in control of the refueling nozzle,

    (d) If any petroleum, hydrocarbon or other product (no matter how small) is spilled the contaminated soil/gravels must be forthwith collected and removed for appropriate disposal,

    (e) Fuel or oil leaks on equipment must be effectively repaired as soon as they are discovered, or the equipment must be removed from the site and not operated until repairs have been made,

    (f) An emergency spill containment and clean up kit must be kept at the site while it is in operation. The kit must have the capacity to contain and clean up 100% of a spill from a failure of the largest volume of a fuel or lubricant tank or system plus 10%.

12. Archaeological Find

    An Archaeological Chance Find Procedure (ACFP) for the for the conservation of

cultural heritage resources must be developed for the mine site prior to surface ground disturbance:

(a) A copy of the procedure must be posted at the Mine Site, and all workers must be trained in the implementation of this procedure,

(b) A copy of this procedure must be filed with an Inspector of Mines.

In the event an archaeological artifact or site is encountered during the course of the approved mining activities, the work program must be suspended or modified in such a manner so as to ensure that the artifact or site is not damaged, desecrated or otherwise altered. The archaeological occurrence must be reported immediately to the Archaeological Branch of the Ministry Forests, Lands, Natural Resource Operations and Rural Development and the Ministry of Energy, Mines and Petroleum Resources (Inspector of Mines). Work must not be resumed until authorized by the joint Ministries.

13. Site Access

The Mine Manager, or in their absence a Designate, must allow Employees of other Provincial Ministries holding authorizations related to Compliance and Enforcement duties onto the mine site subject to the following conditions:

(a) The Provincial Employee must present the appropriate Ministry identification; and;

(b) must clearly state that they are acting on behalf of an Inspector;

(c) must be given a site orientation as required by the Health & Safety, and Reclamation Code;

(d) must sign-in and sign-out as acknowledgement of being on site;

(e) must be accompanied at all times by the Mine Manager, or qualified person appointed by the Manager, and must take all necessary measures to ensure the safety and well being of the individual(s); and this condition is not applicable to other Provincial Legislation.

14. Site Stability

(a) An Inspector must be advised in writing at the earliest opportunity of any unforeseen conditions that could adversely affect the extraction of materials, site stability, erosion control or the reclamation of the site.

(b) The stability of the excavated walls and all slopes must be maintained at all times and erosion must be controlled at all times.

(c) The discovery of any significant subsurface flows of water, seeps, substantial amounts of fine textured, soils, silts and clays, as well as significant adverse geological conditions must be reported to the Inspector as soon as possible and work must cease until the Inspector advises otherwise.

15. Site Security

All vehicle access areas must be secured with locking gates and signage provided indicating the mine name, operator' s name and emergency contact number as well as all necessary safety advisories. Gates must be locked when the quarry is not in operation.

16. Temporary Shutdown

If this quarry ceases operation for a period longer than one year the Permittee must either continue to carry out the conditions of the permit or apply for an amendment setting out a revised program for approval by the Chief Inspector.

17. Monitoring

The Permittee must undertake monitoring programs, as required by the Inspector, to demonstrate that reclamation objectives are being achieved.

18. Alterations to the Program

Substantial changes to the program and Mine Plan must be submitted to the Inspector of Mines for written approval.

19. Notice of Closure

Pursuant to Part 10.6.1 of the Health, Safety and Reclamation Code for Mines in British Columbia, a Notice of Completion of Work must be filed with the Inspector not less than seven days prior to cessation of work.

20. Annual Report

An Annual Report must be submitted in a form and containing the information as required by the Inspector of Mines. The completed Annual Report must be received by the Inspector on or before March 31 of each year and must contain the required information from the previous calendar year (the Report Year).

The Permittee or Manager must forward to the Inspector each year a copy of the completed Health and Safety Assessment form.

21. Liability:

The government is not liable to the Permittee for injuries, losses, expenses, or costs incurred or suffered by the Permittee as a result, directly or indirectly, of an act or omission of a person who is not a party to this Mines Act Permit, including but not restricted to an act or omission of a person disrupting, stopping or otherwise interfering with the Permittee's operations under this *Mines Act* Permit by road blocks or other means.

22. Permit to be kept at mine site

While it remains valid and subsisting, a copy of this Permit and associated reports, plans, maps and cross-sections must be kept at the mine site and be available to authorized Inspectors and other authorized government officials.

Site Specific Conditions:

1. **Annual Production**

   Annual production from the quarry must not exceed 150,000 tonnes per year.

2. **Authorized Activities**

   This permit authorizes drilling, blasting, excavation, hauling, crushing, screening, stockpiling, load-out and reclamation activities. This permit does not authorize the importation of surficial soil or used concrete or asphalt, other types of fill, or other foreign material unrelated to the quarry and mining activity; however, rock excavated on-site that has been moved off site for processing, may be introduced for the purposes of haul road construction.

3. **Hours of Operations**

   This permit authorizes year-round operation as required, from Monday to Friday, excluding statutory holidays, between the hours of 7 AM and 5 PM, subject to the following.

   (a) Light maintenance work is permitted on Saturdays between 9am and 4 pm. Light Maintenance is defined as work requiring the use of hand tools only. It does not include operation of any heavy equipment to perform the maintenance.

   (b) Blasting is only permitted between 8 AM and 5 PM.

   (c) Notwithstanding the hours of work provisions above, the Permittee is authorized to conduct work outside of this provision, if:

   (1) An agency having jurisdiction declares an emergency and the product from this site is required to mitigate an emergency;

   (2) A safety concern on site is such that a failure to complete necessary work can result in harm or risk to workers or members of the public;

   (3) An environmental incident on site occurs and a failure to address or mitigate the incident may result in harm to the receiving environment;

   (4) The Southwest Regional Mines office must be informed as soon as possible in any event where work may have to be performed outside of the hours noted above.

4. **Access and Haul Road**

   (a) The access road must be constructed as shown on the Revised Phase Plan map with a curved radius at the entrance to the quarry.

   (b) The access road must be paved for at least the first 60m from the entrance off Millstream Road. The paved section of the access road must be maintained regularly to prevent the accumulation of rock, sediment and dust.

   (c) The road must be constructed with sufficient crown to shed water, and maintained as required to keep a clear and safe running surface with effective water management structures that prevent sediment laden waters from entering nearby water bodies.

   (d) The Property must be fenced and gated where necessary to restrict access to the site.

5. **Surface Water Management**

   (a) Site drainage shall be managed as described in Appendix I of the EEMR: **Site Drainage Plan**, which includes the **Millstream Quarry Storm Water Management Report** and **Storm Water Management Plan** (SWMP) drawings, Figures 1 to 5.

   (b) Management of surface and storm water site must effectively control the quantity and quality of surface and storm water from cleared areas as the site is mined.

   (c) Each mining phase must utilize water management structures and features including sloped surfaces, settling/detention pond, pump, and ditches where appropriate, to ensure there is no water runoff and sedimentation from the quarry area that negatively impacts adjacent water bodies.

   (d) Drainage features must be installed along the north perimeter of the quarry where there is potential to collect groundwater discharge,

   (e) Sediment ponds and other water and sediment collection structures must be maintained and cleaned of sediment routinely to ensure they operate effectively as and when required. Accumulated sediment must not be allowed to exceed 50% of the pond or structure volume.

   (f) The volume of the structures or features (i.e. ponds, pumps, ditches) must be sized appropriately to manage water and sediment volumes during the life of the quarry.

   (g) Silt fencing and other effective sediment control structures must be installed and utilized as necessary to prevent sediment laden water from entering any creek or off-site watercourse.

   (h) Operations must be suspended during extreme weather events (high intensity/duration precipitation) to minimize erosion and sediment generation, and to allow adequate time for drainage and infiltration of surface water.

   (i) Effective measures must be taken to prevent inadvertent access (by people, equipment and vehicles) into storm water management ponds, water retention ponds, settling ponds, ditches, and trenches.

   (j) A stock of oil absorbent pads must be kept near each sump/settling pond location.

6. **Groundwater Management**

(a) The quarry must not result in capture of overburden-hosted groundwater,

(b) Quarrying at the site shall not have a negative impact on the quality or quantity of neighbouring existing domestic potable groundwater users.

(c) Temporary water management and drainage features (dewatering wells, drains, and ponds) must be installed to divert and control the movement of groundwater and groundwater discharge during quarrying activities.

(d) Monitoring wells MW00-1A (shallow) and MW00-1B(deep) are within the western buffer zone (west of the ephemeral tributary to Millstream Creek) and must not be impacted by any mining activities including blasting.

(e) Prior to decommissioning well MW00-3, a replacement well must be installed in one of the phases where quarry excavation has been completed.

(f) Groundwater levels and water quality must be monitored in a new monitoring well in the potential flow path between the Millstream Meadows property and the Site.

(g) Wells within the quarry area that are consumed by quarry excavations must be decommissioned to reduce the risk of contaminating local water-bearing zones and water wells in accordance with the Groundwater Protection Regulation.

7. **Quarry Excavation**

(a) The excavation of the site shall follow the plans as shown in Appendix VII of EEMR (**Quarry Site Plan and Cross-Section Drawings**), with the exception of the mining phase numbers, which shall be as shown on the **Revised Phase Plan,** dated July 11, 2019 (N.Fischer, Westbrook Consulting Ltd.).

(b) Quarrying shall be undertaken using a series of eight metre benches (excluding initial pioneering bench).

(c) With the exception of access road construction, quarrying must start at Phase 1 in the southeast corner of the Property and progress northerly into Phases 2 and 3, before moving westward into Phases 4 then 5.

(d) Tree clearing and overburden stripping must be carried out in the same sequential phases as mining to provide vegetated buffers between the quarry and adjacent residents for as long as possible.

(e) The quarry floor must not be at an elevation below 95 metres above mean sea level.

(f) The operational quarry floor must be left as rock and aggregate and be minimally sloped to allow for both shallow subsurface drainage and surface drainage towards constructed sediment structures/ponds as per the EEMR.

(g) Blasting must be utilized to break rock for primary quarry excavation. Pneumatic/hydraulic rock breaking equipment must not be utilized for primary excavation purposes. Such use shall be restricted to the reduction of blast oversize for no more than 15 minutes at a time, followed by a hiatus of no less than 15 minutes.

(h) The site must be monitored regularly for changes in geology, rock type or mineralogy. If any noticeable changes are observed, the Inspector must be notified as soon as possible of the observed changes.

(i) The Permittee or its QP must collect one representative composite rock sample (5-10 kg) of quarry blast rock immediately following each production blast. The rock sample must be submitted to an accredited lab for analysis for acid rock drainage (ARD) characterization, including Acid-Base Accounting (ABA) to determine acid generating potential and the neutralization potential ratio (NPR). Chemical analyses must include, but not limited to:

(1) Total sulphur, sulphate-sulphur and sulphide-sulphur,
(2) Bulk neutralization potential
(3) Total carbonate content
(4) pH

Results of the above characterization and analytical testing must be forwarded to the Inspector upon receipt. This condition may be reconsidered based on a review of the on-going analytical results.

(j) If potentially acid generating (PAG) rock is indicated from analyses, confirmation samples from the same area must be collected and analyzed as above. Pending results, the manager may be required to close that part of the quarry from further excavation until a plan for the prediction, prevention, mitigation and management of metal leaching and acid rock drainage, according to Part 10.1.16 of the Code has been developed and implemented for the quarry.

(k) Blasted material from Phase 1 shall be hauled to OK Industries Ltd. site at 2121 Millstream Road for processing until sufficient area is established on the site for stockpiles, crusher and related work.

8. **Drilling and Blasting**

(a) Drilling and Blasting must not negatively impact the surrounding environment and properties in a significant way.

(b) All blasting on site must be carried out by a blaster certified as required under the Health, Safety and Reclamation Code for Mines in BC (Code), and who has an urban blasting endorsement (a.k.a. close-proximity blasting endorsement).

(c) The blaster must apply best industrial practices for each blast and promote safe and productive operations, to protect the safety and health of the public, workers and close proximity structures within the blast area of influence to mitigate the environmental effects of: noise, dust, blast vibration, air overpressure, flyrock, and surface water contamination.

(d) Drills used on site must be maintained in accordance with the manufacturer's recommendations. The drills must use environmentally friendly hydraulic oils and be equipped with functioning and effective on-board dust collection systems.

(e) Blasting is only permitted between 8 AM and 5:00 PM, Monday to Friday, but not on statutory holidays.

(f) There must be no on-site storage of explosives.

(g) Atmospheric and weather conditions must be considered in planning each blast, such that:

(1) blasting does not occur on days that happen to have temperature inversions, strong winds, low continuous overcast cloud or fog;

(2) post-blast air-borne dust is not carried by wind towards residential areas.

(h) The time between loading a bore hole and detonation of the blast must be kept as short as possible, and loaded blast holes must not be left overnight without first notifying a Mines Health and Safety Inspector.

(i) All blasts must be electronically monitored with appropriate equipment which may include seismographs and geophones, to measure the velocity (PPV) of the particle motions in mm/sec (or inches/sec) and air overpressure (dBL).

(1) The monitoring devices must be located at the closest residence, building, and structures in each direction (north, south, east, west) to maintain a permanent record of both blast vibrations and air overpressure and to confirm compliance.

(j) Blast overpressure and vibration levels at the nearest residence or industrial building must not exceed 120 dBL and 50 mm/s peak particle velocity (PPV)

respectively (based on Fig. B-1 "Safe levels of blasting vibration for houses using a combination of velocity and displacement" USBM RI-8507).

(k) Copies of all Blast Logs, plans, and electronic monitoring records must be kept by the manager for quality control purposes and made available to an Inspector on request.

(l) Blast vibration levels must not exceed 25 mm/second PPV as measured:

(1) on the north Property boundary closest to the Highwest Waste Management liner (currently managed by Coast Environmental), and,

(2) on the common Property boundary with the Capital Regional District's Millstream Meadows site.

(m) All blasts must be monitored according to the "ISEE Field Practice Guidelines for Blasting Seismographs 2015" or as it may be updated.

(n) All blasts at the quarry must be video recorded, and a copy of the video must be kept by the manager and/or kept at the mine office and made available to an Inspector on request.

(o) The video file must include the following identification information as a word or text document;

(1) the quarry name, permit number, mine number,

(2) the bench/location identification of the blast site, including a map showing the blast area location on the mine footprint,

(3) the name of the blaster,

(4) the time and date of the blast.

(p) Where the potential for flyrock beyond the Property boundary exists, the blaster must ensure blast matts or other suitable covering is used. Where matts are not used the blast must be controlled to ensure flyrock does not have a negative impact on adjacent property.

(q) Blasts must be planned and designed such that they do not impact the integrity and performance of wells used for monitoring or water supply on neighbouring properties.

(r) Controlled Blasting procedures must be applied along the final quarry perimeter face and boundary to ensure stability of the final quarry wall/face.

(s) A procedure for public notification acceptable to the Inspector must be given for all blasts and shall include all residences and businesses within 1,000 metres of the centre of the blast area (including the CRD / Millstream Meadows, Highwest Waste Management site, Millstream Industrial Park). The blast notification must be given at least 24 hours in advance of the scheduled blast.

(t) Prior to blasting, the manager must place a sign at the entrance to the quarry indicating:

(1) that a blast is scheduled the follow day and that day,

(2) the blast warning signals to be used, and,

(3) a warning that all radios must turned off if electric detonators are used.

(u) All potential surface access routes into the blast danger zone must be identified, posted with appropriate warning signs and sufficiently guarded and controlled to prevent human access into the blast danger zone prior to, during and following each blast, until the blaster of record deems the area safe to enter.

(v) Prior to the first pioneering site blast and the first production blast, a pre-blast survey must be carried out by an independent qualified assessor to establish baseline observations, including defects and cracks at:

(1) all susceptible buildings and structures within 100 metres of the blast area, and,

(2) the closest residences to the blast area.

(w) A Control Blasting Plan form and Control Blast Report form must be completed by the certified blaster in charge, and the completed forms must be retained by the manager and made available to an Inspector upon request.

(x) If the manager receives any public complaint relating to a blast from the site, the manager must notify the Inspector without delay, and forward to the Inspector all records pertaining to the complaint.

(y) The manager must keep a written log of public complaints related to blasting, noise, dust, and any other activities at the quarry, and make this log available to an Inspector upon request.

9. **Nitrogen Management**

(a) Nitrogen from use of explosives must be managed according to the Millstream Quarry **Nitrogen Management Plan** in Appendix VIII of EEMR.

(b) A safe work procedure must be developed for the clean-up of spilled ANFO explosives, and the procedure follow the manufacturer's recommendations.

10. **Noise Management**

(a) Noise from the quarry site must be managed according direction provided in the Mitigation Measures outlined in **section 6.0 Mitigation Measures** of the **Noise Assessment** in Appendix IV of EEMR.

(b) Effective measures must be taken regarding strategic placement and orientation of the working face and operating equipment (including conveyors, crusher, screener) to reduce noise impacts.

(c) Non-audible back-up alarms must be used on loaders and excavators.

(d) An 80m naturally vegetated buffer must be left between the quarry and the nearest residence.

(e) The drop height (fall height) of overburden, rock and aggregate must be minimized when loading or stockpiling to minimize noise.

(f) Rubber linings must be used where feasible at transfer points to reduce the noise of rock falling onto metal surfaces.

(g) All equipment must be used within its design capacity, and properly maintained, repaired and lubricated. Noise-mitigation measures must be installed on heavy equipment and kept in top working condition.

(h) Progressive reclamation must include planting of drought tolerant native vegetation and shrubs on catchment benches to aid in sound dampening and absorption, and to prevent sound reflection off quarry faces.

11. Dust Management

(a) A site-specific Fugitive Dust Management Plan approved by a mines inspector must be developed by the permittee prior to ground disturbance and blasting, and be implemented throughout the duration of this permit.

(b) The Fugitive Dust Management Plan (FDMP) referred to in 12(a) must be based on the document: "Developing a Fugitive Dust Management Plan for Industrial Projects" dated May 2018 or subsequent amendments to it, prepared by: BC Ministries of Energy, Mines and Petroleum Resources and Environment and Climate Change Strategy.

12. Hydrocarbon Transport, Storage and Handling

(a) Fuel and other hydrocarbons, including spills, must be managed according to the **Hydrocarbon Transport, Storage, and Handling Plan** in Appendix VIII of the EEMR.

(b) All personnel authorized to operate fuel dispensers must be aware of and trained in the Hydrocarbon Transport, Storage, and Handling Plan.

(c) All used or contaminated spill pads must be disposed of properly and according to the appropriate regulations.

13. Spill Response

(a) Those fuel and hydrocarbon spills not referred to in Condition 13. must be managed according to the **Spill Response Plan** in Appendix VIII of the EEMR.

(b) All heavy equipment and fuel delivery trucks as described in the Spill Response Plan must be equipped with spill response kits as described in Table 1 (On-Site Spill Response Equipment) of the Spill Response Plan.

(c) All workers, contractor and, subcontractors on site must be made aware of and be provided with a copy of the Spill Response Plan.

14. Site Monitoring

Surface Water Monitoring

1. Monitoring of select site parameters must be as described in the **Site Discharge and Groundwater Monitoring Plan** in Appendix VIII of EEMR.
2. The surface water sampling methods must follow the British Columbia Field Sampling Manual (Ministry of Environment, 2013) or its most current updated version.
3. Two surface water sampling locations, identified as SW-WEST-02 AND SW-SOUTH-02 as shown on Figure 1 of the Site Discharge and Groundwater Monitoring Plan must be monitored over the course of this permit at frequencies described in Table 1 below.

Table 1. Surface Water Sampling Criteria

Sample Location	Sampling Frequency	Analytical parameters	Exceedance Response**
SW-WEST-02	Pre-operations: quarterly	pH, EC, hardness, TSS*, ammonia, nitrite nitrate, total metals	Resample and analysis, Notify EMPR, System review, mitigation (Section 2.5 of Plan) Resample
	Operations: biannually		
SW-SOUTH-02	Pre-operations: quarterly	pH, EC, hardness, TSS*, ammonia, nitrite nitrate, total metals	
	Operations: monthly, *and* after >13mm precip/24 hrs		

**TSS: Total Suspended Solids (turbidity) measured against the calibration curve created from on-site TSS measurements;*

*** to comply with BC Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture, Summary Report by MoE, latest edition.*

Groundwater Monitoring

4. Groundwater monitoring locations are shown on Figure 1 of the **Site**

Discharge and Groundwater Monitoring Plan and all must be monitored through phases 1-3, then as long as possible until excavation becomes too close to the wellhead.

5. Monitoring wells MW00-1A (shallow) and MW00-1B(deep) within the western buffer zone must not be impacted by mining activities and must be monitored while this permit is in effect.
6. Groundwater levels in at least one deep monitoring well must be monitored during all five phases of quarry operation.

7. Since monitoring wells MW00-2 and MW00-3 are planned to be impacted by quarry excavation, a replacement monitoring well must be installed at an as yet undetermined location.

8. Groundwater sampling and analyses must be carried out as per Table 2. below *(following page)*:

Table 2. Groundwater Sampling Criteria

Sample Location	Sampling Frequency	Analytical parameters	Exceedance Response*
BH-5	Obtain data from CRD or request permission to sample annually	pH, EC, hardness, major and minor anions, dissolved metals and petroleum hydrocarbon parameters (BETX and EPH)	Follow-up Sampling and analysis; Notify EMPR Consult with MoE; Develop mitigation plan; Implement mitigation plan; Continue monitoring and sampling
MW00-1B (deep)	Pre-operations: quarterly (for one year) Operations: biannually		
MW00-1A (shallow)			
MW00-2 (shallow)			
MW00-3 (deep)			

* *Exceedances are be determined by comparing analyses of groundwater sampling to the BC Source Drinking Water Quality Guidelines (SDWQGs), and the BC Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture, Summary Report by MoE, latest edition.*

Monitoring Results and Reporting

9. EMPR must be notified of any exceedances from the above sampling as soon as possible after receipt of results by the Permittee.

10. Surface and groundwater monitoring data must be compiled into a site-wide annual monitoring and sampling results report, which shall form part of the Annual Summary. The completed report must be received by the Inspector on or before March 31 of each year and shall contain the required information from the previous calendar year (Report Year).

Invasive Plant Monitoring

11. Monitoring of invasive plants must take place in cleared areas, especially those areas adjacent to neighbouring lands where invasive plants may persist and where active control cannot be undertaken, and near any environmentally sensitive features and established buffers.

15. Ecological and Wildlife Management

(a) The minimum distances of vegetated buffers undisturbed by mining activities, must be maintained around the quarry as shown on the Revised Phase Plan and as described below:

- 5m along the south property line west of the large fir tree,
- 56.7m along the south property line east of the large fir tree,
- 30m around the large fir tree,
- Minimum of 50m from Teanook Creek,
- 20m from Thetis Lake Regional Park,
- 5m along the property line adjacent to the CRD property,
- 30m along ephemeral water course adjacent to Millstream Road

(b) Vegetation clearing, grubbing and overburden stripping must be carried out consistent with the mining phases to maintain as large a buffer as possible between the quarry operations and local residents for as long as possible.

(c) Vegetation clearing must be minimized to maintain as much existing vegetation as practicable and shall occur outside the nesting period from March 1 to August 31 to reduce impacts on bird species.

(1) A search for and survey of bird nests (eagles, peregrine falcons, gyrfalcon, ospreys and herons) protected under Section 34(b) of the Wildlife Act must be conducted by a Qualified Environmental Professional (QEP) before the start of vegetation clearing.

(2) Should the nest of a bird requiring protection under Section 34(b) of the Wildlife Act be located, the recommended buffer distances must be referred to in Table 4.1 (Section 4) of Develop with Care: Environmental Guidelines for Urban and Rural Land Development in BC (see MOE 2014) available at http://www.env.gov.bc.ca/wd/documents/bmp/devwithcare/index.html

(d) All grubbing, stump grinding, and stripping will be completed during the months of October through to February.

(e) Prior to logging and land clearing, a Qualified Environmental Professional (QEP) must design and direct species survey and salvage plans as per the Ecological Values and Management Plan in Appendix VI of EEMR.

(1) The Permittee must, with the appropriate permits, salvage listed species and other species of concern where feasible;

(2) The species for salvage must include amphibians (including red-legged frog), reptiles (including sharp-tailed snakes) and plants. Plant salvage must be based on a need for beneficial end-uses in offsite locations for specific plant stock;

(3) The dewatering of the wetlands prior to quarrying must not happen in the breeding and rearing period, but at proper times as determined by the QEP;

(4) Captured amphibians must be moved to appropriate relocation site(s) outside the mine permit area in compliance with a Wildlife Act permit and with the consent of the recipient landowner/land manager.

(f) Best Management Practices for Raptor Conservation during Urban and Rural Land Development in BC must be followed.

(g) Vegetated buffers as described in the EEMR and as shown in the Revised Phase Plan must be retained around the perimeter of the excavated area as shown on the Revised Phase Plan. Select vegetation within the buffer areas may be removed if it is determined to be a hazard to health and safety to workers or the public.

(h) Invasive species must be removed and controlled as follows:

(1) The permittee must restrict the extent of cleared areas to the footprint of the current mining phase and to no more that 20 percent of the next phase, to limit the spread of invasive species;

(2) Invasive plants must be removed by hand or using approved herbicides and disposed of through existing CRD programs.

(i) The boundary between the buffer areas and the quarry area must be flagged or otherwise appropriately marked prior to cutting and clearing of each quarry phase to prevent entry into it by machinery or debris or other means of disturbance.

16. Fire

(a) All work must be suspended during any forest closures relating to fire hazard conditions as determined by the Ministry of Forests, Land and Natural Resource Operations.

(b) The Permittee must maintain an adequate supply of freshwater and firefighting equipment on site for fire protection purposes during the fire season. Firefighting equipment must be maintained in good condition, in accordance with the Forest Fire Prevention and Suppression Regulation.

17. **Reclamation and Use of Site**

(a) Derelict or damaged equipment must not be stored or abandoned on the

site. The site must not be used for the disposal of items including but not restricted to, garbage, wood waste, toxic materials, and petroleum waste.

(b) All waste and refuse must be controlled so as not to attract wildlife or other pests and must be removed from the site on a frequent and regular basis.

(c) With the exception of the access road and Phase 2, excavation of a mining phase must not exceed more than 30% until reclamation has commenced in the previously excavated phase.

(d) Topsoil and overburden must be stockpiled separately for future reclamation and effectively managed by whatever means (including use of a physical membrane or cover or use of weed-free native species ground cover vegetation).

(e) Invasive plant species must be controlled on the reclaimed site to prevent their establishment and spread.

(f) The quarry area must undergo progressive reclamation that includes the replacement of overburden and topsoil with vegetation over the life of the quarry with a focus on, 1) reclamation of catchment berms (horizontal benches) and, 2) peripheral areas of the final quarry floor, and, 3) those areas that are no longer required for mining or mining-related activities.

Schedule "B"

BRITISH COLUMBIA
Ministry of Energy, Mines and Petroleum Resources

March 18, 2020

File: 1610713-201701

Reasons for Decision

In the Matter of

Notice of Work: 1610713201701, Permit Q-8-121 – OK Industries Millstream Quarry in the District of Highlands, Capital Regional District, BC

1.0 Introduction

The purpose of this document is to provide a summary of my considerations, rationale and decision-making regarding issuance of a *Mines Act* permit to O.K. Industries Ltd. (OKI) based on its Notice of Work application number 1610713201701 and related documents (Application) for a new rock quarry in the District of Highlands (District) within the Capital Regional District (CRD) near Victoria, BC.

My considerations and reasons for my decision are limited to the authorization issued under the *Mines Act*. I do not speak to any other authorizations which may be required by OKI by other provincial Ministries or agencies, or other levels of government, be they municipal or federal; however, OKI has been informed that there may be requirements under other legislation and regulations.

A substantial amount of information was reviewed in the consideration and decision-making of this Application. This document provides only a summary of the information reviewed and considered in my decision and does not include all of the information I have reviewed and considered. The decision was a challenge in part because of the land use context within which the Application is made. I have therefore outlined some of the surrounding land uses issues that have been raised to demonstrate my understanding of the context and how it has shaped and informed my decision.

The first part of this document (Parts 1.0 and 2.0) is an introduction of the project and Application. It describes the legislative authority under which I am acting. Parts 3.0 to 5.0 provide the context within which this Application is made, with a description of the proposed quarry property (Property), a description of the surrounding lands within which the quarry is proposed, the proposed quarry activities and a summary of the Application review, referral and First Nations Consultation process.

The final part of this document (Parts 6.0 and 7.0) provides a summary of the main concerns and issues that were raised and that I have contemplated in my considerations, deliberations and reasons for decision on this Application, outlining why I have issued a *Mines Act* Permit based on the information before me. The final part (8.0) summarizes my rationale for issuing a *Mines Act* permit Q-8-121 to OKI.

Ministry of Energy, Mines and Petroleum Resources,
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2.0 Legislated Authority

Pursuant to section 10(1) of the *Mines Act*, R.S.B.C. 1996, before starting any work in, on, or about a mine, the owner, agent manager or any other person must hold a permit for that work issued by the chief inspector of mines, unless exempted in writing by the chief inspector. The application for a permit must include a plan outlining the details of the proposed work and a program for the conservation of cultural heritage resources and for the protection and reclamation of the land, watercourses and cultural heritage resources affected by the mine, including the information, particulars and maps required by the regulations or the Health Safety and Reclamation Code for Mines in BC (Code).

Pursuant to section 10.1.1 of the Code, the proposed mine plan and reclamation program filed with the inspector in compliance with section 10 (1) of the *Mines Act*, shall consist of the appropriate Notice of Work forms together with such other information as the inspector may require, for approval of placer mining, sand and gravel pits, rock quarries and industrial mineral quarries.

I am an Inspector of Mines with the BC Ministry of Energy, Mines and Petroleum Resources (EMPR), appointed pursuant to Section 5 of the *Mines Act* with delegated authority under the Chief Inspector of Mines pursuant to Section 6 of the *Mines Act*. I have the delegated authority of the Chief Inspector of Mines to make *Mines Act* permit decisions for applications within certain thresholds of exploration and mining activity, and the proposed activity in the Application is within my delegated authority.

I have reviewed the Application including supplementary information and am satisfied that it has been prepared and submitted in accordance with Section 10 of the *Mines Act* and with Part 10.1.1 of the Code.

3.0 Application overview

3.1 Location, Access Tenure and Background

The Application is for a new *Mines Act* permit for a rock quarry on fee-simple land owned by OKI. The Property is 26.3 hectares (ha) situated in the southern part of the District of Highlands within 200 metres of the City of Langford and east of Millstream Road. The legal description of the Property is: Lot 1, Section 5, Range 3, West Highlands District, Plan VIP 70242 (PID 024-710-270), with coordinates: Latitude: 48.48010°N, Longitude: 123.50110°W.

The Application was submitted by OKI, a private family-run business engaged directly and through its subsidiaries in the industrial, quarrying and road paving sector on Vancouver Island for over six decades.

I understand the property was owned by the Province and listed for sale in 2013. OKI purchased the Property in or around January 2015 with the intent to mine it as a quarry and to eventually develop it as commercial and/or industrial property. I am not aware of a previous *Mines Act* permit issued on this site nor have I seen any indication of previous mining activity on the Property.

The Property has two distinct parts. The eastern part is rectangular and measures approximately 400 m (N-S) by 500 m (E-W). The western part is a pan-handle shape approximately 500 metres long (E-W) and from 80 to 170 metres wide (N-S), with about 35 m frontage onto Millstream Road.

There is currently no means of vehicle access onto the Property. In addition to the Millstream road frontage, there is a 20 m wide access easement across the northern part of the property to the north (Millstream Meadows site). This easement was considered by OKI for potential vehicle access to Property but has been found to be unsuitable.

The property is zoned "Green Belt2" with a Land Use designation under the District's Official Community Plan as "Commercial/Industrial".

I understand the Property was logged from circa the 1890s to 1934 and has been otherwise undeveloped to the time of this decision. There has been reported encroachment onto the Property from adjacent activities over the years, including: storage and unauthorized disposal of vehicles, equipment, and waste materials. These encroachments are reportedly from the northwest (former uncontrolled dump site now owned by CRD), west (adjacent commercial/residential property), and south (Auto Wrecking within the Millstream Industrial Park). On the southern boundary, the Millstream Industrial Park fencing and quarry face are reported to extend 7 m onto the Property.

The impacts of these encroachments and potential impacts from the adjacent Millstream Meadows site have been the focus of environmental investigation and assessment. Based on the investigative works completed, the Ministry of Environment issued a Certificate of Compliance (CoC) on the Property on May 31, 2010. Confirmatory soil sampling (per Contaminated Sites Regulation (CSR) Schedule 7) indicates the soil on Property would not require a contaminated site relocation agreement if removed from the Property.

The CoC certifies that the Property has been satisfactorily remediated to meet CSR standards for urban park land soil use and aquatic life and drinking water use and CSR criteria for freshwater typical sediment use. The CoC refers to a restrictive covenant on the Property under section 219 of the *Land Title Act*, which restricts the use or development of the groundwater on the Property for any purpose without the prior written approval of the Director, as defined in Section 1 of the *Environmental Management Act*.

3.2 The Property, Surrounding Land and Use

3.2.1 Property Description

The Property consists of shallow to steep rounded and hummocky bedrock topography with bare rock outcrop or a veneer to moderate depth overburden (sand, gravel, thin topsoil). It has large areas of moss-covered undulating rock outcrops with sparse tree cover, interspersed with

shallow gullies containing deeper overburden and somewhat larger trees. Most of the tree cover is not considered to be merchantable timber.

Much of the Property is around 100 m elevation above mean sea level (amsl) with many local bedrock hummocks up to 105 m amsl, and few over 110 amsl with the exception of a hill on the central Property boundary up to 120 m amsl. The proposed final elevation of the quarry floor is 95 m amsl. The northeast part of the Property with elevations below 95 amsl is proposed to remain in its natural state undisturbed by mining.

There are three surface water features on the Property which drain in different directions. The three water features and percentage of the Property that drains into each are as follows:

(1) 53% of Property drains into Teanook Creek which flows east through the NE portion of the Site into Thetis Lake Regional Park;
(2) 37% of the Property drains from a seasonal wetland in the centre of the Site which discharges to a pond on the Millstream Industrial Park south of the Site, and;
(3) 10% of the Property drains into an unnamed seasonal tributary of Millstream Creek flowing southwest through the west end of the Site.

The Property is traversed by a few trails, some of which continue off the Property onto Thetis Lake Regional Park. Despite this, there are no official CRD designated trails in Thetis Park that come within 200 m of the Property.

3.2.2 Surrounding Land Use and Area Context

The land around OKI's proposed quarry has undergone a number of historic uses and presents a somewhat complex and evolving setting for the quarry. While my decision is focused on the mining activities on the Property and not on land use issues generally, I provide a capsule description of the lands surrounding the Property to set the context within which the quarry is proposed, and for reference in understanding other parts of this document.

South of the Property is a 62 ha industrial area dominated by the Millstream Industrial Park (MIP) and by Basic Rock Products Ltd.'s operating Millstream Quarry. Virtually all of the MIP was previously quarried and leveled to its present elevation. Basic Rock Products' quarry was permitted under the *Mines Act* in 1993.

West of and contiguous with the Property is a residential zoned property which fronts onto Millstream Road. West of Millstream Road is Millstream Creek, a strip of private land in a natural state, then a small residential subdivision of about 60 homes called Hannington Creek Estates. Millstream Creek flows generally from the north to the south and drains a watershed of approximately 3,144 ha. It enters the ocean at Esquimalt Harbour about 4.5 km downstream from the Property.

Northwest of and contiguous with the Property is the 12.9 ha Millstream Meadows property owned by the CRD. Parts of this property were formerly used as an unregulated landfill for septic discharge until about 1985. The CRD and the provincial government began site remediation in 2008 after monitoring results identified contamination on-site.

The CRD is working to obtain a Certificate of Compliance (CoC) from the B.C. Ministry of Environment and Climate Change Strategy (MOE) for the Millstream Meadows site, in accordance with the *Environmental Management Act* (EMA) and Contaminated Sites Regulation (CSR). North of Millstream Meadows is Little Bears Child Care facility, a home-based business operated on 1.62 ha (4 acres) of land at 1931 Millstream Rd.

Coast Environmental Ltd.'s Highwest Waste Management Facility (HWMF) is located north of the eastern half of the Property at 1943 Millstream Road. The HWMF is a private engineered select waste landfill licensed by the Ministry of Environment. It is part of the CRD's Solid Waste Management Plan – Existing Solid Waste Management System.

Thetis Lake Regional Park (Thetis Park) is situated on the east side of the Property. This regional conservation area is 921.73 ha. Thetis Park contains a number of designated hiking trails throughout the park, however none of these officially designated trails come closer than 200 m to the Property. There is at least one unofficial trail that connect Thetis Park to the Property.

4.0 Proposed Mining Activity

The proposed rock quarry project (Project) consists of mining the Property through 5 phases totalling 17. 2 ha. The Property has an estimated resource of 2,775,000 tonnes based on excavation to the 95 m elevation amsl. The Property is proposed to be mined over at least 18.5 years at a maximum annual production of 150,000 tonnes / year.

The mining phases are proposed as follows:

Mining Phase	Mining Area (ha)
Phase 1	4.48
Phase 2	1.88
Phase 3	5.26
Phase 4	3.35
Phase 5	2.23
Total	**17.20**

Starting from Millstream Road at the southwest corner of the Property, a haul road is to be constructed across the southern portion of the property to Phase 1 in the southeast corner of the Property. Haul road construction will require removal of vegetation and topsoil/overburden followed by blasting and

removal of rock. OKI proposes to clear vegetation on the haul road by accessing the Property from Millstream Industrial Park to avoid disturbance on Millstream Road.

The Property will be mined sequentially according to the Phases, starting at Phase 1 and progressing through to Phase 5. The final depth of excavation is 95 m amsl. Rock excavated from haul road construction is planned to be used in its construction where possible. Rock excavated from haul road construction and Phase 1 is planned to be transported to the operator's Allfun site at 2121 Millstream Road for processing (crushing, screening, and washing) until such time as sufficient space has been established at the quarry. During this early stage in the quarry, OKI may potentially transport blast rock from the Property through the Millstream Industrial Park to its site at the Allfun quarry.

Phase 1 is expected to provide material for about the first 5 years of the quarry at which time a new updated mine plan will be submitted, as required by Code.

After completion of Phase 1 mining will move north into Phase 2, followed by moving further north in Phase 3. At completion of Phase 3, mining in the east part of the Property will be complete. Mining will then move west into Phase 4 and progress westerly towards Millstream Road, finishing at Phase 5. Mining in this manner should leave as much of the Property as possible in its current state to act as a buffer between the closest residents west of the property and in Hanington Creek Estates, as well as Millstream Road and the Millstream Meadows site.

Excavation of the Property to the 95 m elevation amsl will result in the floor day-lighting to the existing ground surface in the northwest corner of the property along the buffer zone with Teanook Creek. Elsewhere along the Property perimeter, benches will be developed to the existing ground level with quarry walls typically ranging from near zero up to about 9 m. These face heights are consistent with the height of rock cuts in the area of Millstream Road – Trans-Canada Highway interchange, Millstream Village and along parts of Millstream Road.

Reclamation, including the replacement of overburden and topsoil with vegetation, will commence on benches and the quarry floor along the periphery of each Phase where it adjoins the vegetated buffer. Reclamation will be carried out in a progressive manner to minimize dust generation and the amount of exposed disturbed ground. OKI presents two options for reclamation. Their favoured end land use is to develop the site to a commercial or light industrial land use, however that requires changes to zoning. If zoning is not changed, the default plan is to reclaim the entire site to a safe and stable state with a cover of topsoil and weed-free native species vegetation.

5.0 Application Review Process, Referral and Consultation

5.1 Application Review and Referral Process Summary

The application was originally submitted as a Notice of Work (NoW) application on March 24, 2017 online to Front Counter BC (FCBC). The application included a supplemental package in support of the NoW consisting of plan maps, a set of detailed north-to-south oriented vertical cross-sections

every 20m across the length of the property and an ecological assessment prepared by Aqua-Tex Scientific Consulting Ltd. (Aqua-Tex). The NoW application and package were screened by FCBC and deemed complete to meet the standard requirements for a quarry application.

The application was received by the SW Regional Mines office and sent out for agency referral to the Ministry of Forests, Lands and Natural Resource Operations and Rural Development (FLNRORD) and the District's – Planning Department on June 5, 2017 for 30-day comment.

The public comment period began on June 15, 2017 when the public staking notice sign was posted at the entrance to the pit. On June 21, 2017 the Notice of Application for Permit ad was placed in the Goldstream News Gazette and it was posted in the British Columbia Gazette on June 22, 2017. A copy of the NoW referral package was available for the public at the District's Municipal Office.

The District requested an extension of the comment period and additional information which was granted; however, I have maintained an open policy to receiving input and feedback from stakeholders since the application was made public.

The District responded by letter of June 23, 2017 and Council passed a formal resolution on July 19, 2017 in opposition to the application. The Regional Operations Division - Coast Area of FLNRORD responded via the response roll-up through Front Counter BC. The content and nature of both responses are summarized later in this document. At the invitation of the District I attended the District's October 2, 2017 Council meeting at Caleb Pike Heritage Park.

I received and reviewed correspondence from the President of the Hanington Creek Strata in October 2017 with concerns about impacts to groundwater and drinking water supplies, noise and dust and many of the issues raised by the District and the Highland District Community Association (HDCA). The SW Regional Mines Office provided them with a copy of the application and supporting documents.

In in December 2017, I sent the NoW application package and updated blast plan to the Environmental and Regulatory Advisor at Tervita, the owner/operator of the HWMF at the time, and to the CRD who is the owner and manager of remediation at the Millstream Meadows site. I wanted to hear what potential impacts they considered there may be to these sites from the quarry that I was unaware of.

I communicated with OKI from time to time to outline the information I was seeking to supplement their application based on my technical review of their application to date. I was informed by OKI from time to time that it was working through my list of requests in support of their quarry application.

In early 2018, I received and considered information from Peninsula Streams, who is undertaking a Millstream Fishway Project to provide access upstream of the Atkins Road culvert to bring cutthroat and coho salmon into the upper Millstream Creek watershed.

All relevant information received by EMPR was passed on to OKI during the review process and intake of comments. In mid-2018 I was informed by OKI that, based on discussions it had with its consultants (Hemmera EnviroChem Inc., an Ausenco Company), it was voluntarily expanding the scope of its work to include an overall environmental management plan for the site. OKI said this work would help to reasonably address concerns it understood were raised by the referral and public comment.

There was substantial two-way correspondence and discussion between the Southwest Mines office and OKI in my review of various plans and documents submitted. The review included my consideration of how well OKI had addressed what I assessed were the most important issues and concerns raised in my review and from that of the referred agencies, local government and the public.

In April 2019 OKI submitted its final report in support of its quarry application: Millstream Road Quarry – Environmental Effects and Mitigation Report, prepared by Hemmera EnviroChem Inc., (Project No. 989491-01) dated March 22, 2019, for O.K. Industries Ltd. (herein referred to as the EEMR). The surface and groundwater section of this report was submitted to FLNRORD for review for surface and subsurface water quantity issues and to MoE to review water quality. The Blasting Management Plan was submitted to the EMPR regional Health and Safety inspector for review.

Public Notice for a Public Information Session was posted in the Times Colonist and Goldstream Gazette on April 10, 17 and 24, 2019. The purpose of the meeting was for OKI to present the findings of its study and consultants report (EEMR) to the public, and to answer questions from the public.

The meeting took place from 3:00PM to 8;00PM on May 2, 2019 at the District of Highlands Community Hall. The meeting was attended by a few hundred people. OKI had its own staff and consultants on hand to answer questions. I attended and answered questions from the public.

On June 17, 2019 at the request of the HDCA the Southwest Regional Director of EMPR and I met with five HDCA members to discuss their concerns. Their concerns are noted later in this document.

In late June 2019 I checked with the CRD for progress on remediation at the Millstream Meadows site. I understood from the CRD that it would seek a CoC at some time in the next year or two. I then met with OKI to discuss the CRD's timing. Following that discussion, OKI decided to change the mine phase sequencing so that the initial three phases of mining would not be perceived to interfere with the CRD's potential to obtain a CoC. The mine sequencing was made such that mining would start at

the east end of the proposed quarry, farthest from the Millstream Meadows remediation work. At that time, OKI also adjusted its road configuration to limit sightlines down the access road from Millstream Road.

The Southwest Mines office received copies of a community petition over the latter part of the public comment period. Hundreds of individuals were in opposition to the proposed quarry for reasons stated in the petition such as:

- OKI plans to strip mine a significant portion of the South Highlands and would turn 43 acres into a deep barren crater,
- The quarry would be too close to:
  - valuable and vulnerable water,
  - People/residents,
  - Parks and other highly valued greenspace,
  - Pools of contaminants and Millstream Meadows.

In the course of reviewing this application I have remained open to receiving information and reading the information that was relevant to *Mines Act* decisions. By mid to late 2019 no further comment was provided on the Application.

5.2 First Nations Consultation

Consultation with First Nations began on June 5, 2017. Letters were sent out to, Esquimalt, Malahat, Pauquachin, Songhees, Tsartlip, Tsawout, and Tseycum First Nations. No responses were received from First Nations with the exception of Malahat First Nation with a request for clarification of the proposed mining area overlapping with a creek and distance from the mining area to the creek, and to be kept up-to-date on the Application. Consultation ended on July 31, 2017. No further input was received from First Nations. Information updates were proviced to the Malahat First Nation at their request.

5.3 Comment on application review and public process

The letters and information including that received from local government, First Nations, other ministries, the CRD and Tervita, and a local residents association (HDCA), and many letters and comments from the public, have been informative and added context to the issues I was reviewing.

I reviewed all of the information I received on this file and all relevant and applicable information was considered and taken into account, however not all of the information was relevant in making my decision.

6.0 Agency Referral and Public Comment

6.1 District of Highlands (District)

The District's Official Community Plan (map 2.1 on the District website) indicates the Property is within the "Highlands Servicing Area". Four of the largest properties east of Millstream Road in this Servicing Area are designated as "Commercial Industrial", which includes one active quarry.

A District zoning map of April 2017 shows the Property has a zoning designation of GB2 (Greenbelt 2), as is the Millstream Meadows site to the northwest. Other properties immediately adjacent the Property are zoned as follows: Millstream Industrial Park (MIP) is zoned M1 (General Industrial); Basic Rock Products quarry is zoned M2 (Medium Industrial); HWMF is zoned "Highwest Industrial". The residential property immediately west of the site is zoned Rural 3 and immediately to the east (Thetis Park) is zoned regional Park in the town of View Royal.

The District passed a formal resolution on July 19, 2017 to oppose the issuance of a *Mines Act* permit for the proposed quarry.

Notwithstanding the District's opposition, it stated that if a quarry permit was to be issued for the Property, the District considers that the proposed operational setbacks should be significantly increased from its original *Mines Act* application. The District suggested the following buffers be considered:

- a 30-70 m buffer from the south boundary, (Industrial park),
- a 30 m buffer from the east boundary (Thetis Lake park),
- a minimum 60 m buffer from the north boundary surrounding Teanook Creek, and,
- a buffer adjacent to Millstream Road except for a 20 m wide access road.

6.3 Key Concerns from BC Ministry of FLNRORD

FLNRORD recommended that the project proceed only if the watercourses on the property are protected, the wetland complex in the center of the property is left intact with a minimum 30 m vegetated perimeter buffer, and the site hydrology remain as is, so the wetland is not adversely impacted. Recommendations also included that Teanook Creek and the unnamed tributary to Millstream Creek should be protected with a 30 m vegetated buffer.

FLNRORD also recommended:

- that vegetation clearing be minimized and occur outside the nesting period from March 1 to August 31 to reduce impacts on all bird species,
- a search for the nests of birds (eagles, peregrine falcons, gyrfalcon, ospreys and herons) protected under Section 34(b) of the *Wildlife Act* should be conducted before the start of vegetation clearing,
- an effective sediment and erosion control plan be implemented such that surface drainage is controlled with surface flow to settling ponds and ground infiltration, or discharge to less than 25 mg/l standards,
- explosives handling and utilization should be controlled to minimize the potential for nitrate and blasting residue to contaminate groundwater, site runoff and adjacent watercourses,
- that top soil and overburden should be stockpiled and protected from erosion.

6.4 Key Concerns from CRD and Tervita

The CRD's concerns were regarding blasting, requesting the same restrictions that apply to blasting at the Hartland landfill be applied at the OKI Property as well. These restrictions limit maximum Peak Particle Velocity (PPV) measured at specified locations nearest to the blast to 25 mm/second and provide that all blasting operations be monitored by seismograph at closest point on the common property line to the blast to ensure conformance to vibration criteria.

Tervita's concerns were related to surface water quality management and monitoring and concerns about impacts from blasting on the landfill liner system. The CRD's concerns were related to the Millstream Meadows property (Lot A Plan 40349), noting that it is a contaminated site registered on the BC SITE registry and providing some site information. The CRD's main concern was whether blasting on the Property had the potential to fracture bedrock on the Millstream Meadows site.

6.5 Key concerns from Peninsula Streams:

The following are some of the key concerns expressed by Peninsula Streams:

- Deforestation in a watershed already impacted by industrial, retail and residential development,
- increases in stormwater flows into both Millstream and Teanook Creeks, stating the project will "add significantly more pressure on those water systems", and,
- impacts from the mine which will require "almost continual blasting" to extract the rock, and risk changing groundwater storage and direction of the groundwater flow which could affect hydrology and summer interflow.

6.6 Key Concerns of the Highlands District Community Association (HDCA)

The HDCA noted public interest in the proposed quarry is extensive, with several hundred local citizens having signed petitions over the past year or so confirming their opposition.

The HDCA's letter of August 25, 2017 noted impacts on the ecological values of the property, including:

- water and riparian areas within the Millstream and Craigflower Creek watersheds,
- outstanding examples of old growth tree specimens,
- wildlife corridors bypassing the adjacent industrial areas,
- a natural entry point into Thetis Lake Park, with an existing informal trail system crisscrossing the property,
- Potential impacts to the HWMF,
- Potential impacts to Millstream Meadows contaminated site.

I had a meeting with the HDCA at the EMPR office on June 17, 2019 and received a follow-up letter from HDCA of June 27, 2019. In its letter, the HDCA wrote in opposition of the proposed quarry and

noted the quarry would pose significant adverse impacts, with concerns with respect to the following potential impacts:

- air quality (dust, noise project-related air emissions),
- water quality (impacts on groundwater and sensitive local surface waterbodies),
- endangered species (such as the sharp tailed snakes),
- land use (including impacts on property uses and values),
- traffic (increased industrial traffic, impacts on public roads and public safety),
- local remediation and restoration efforts on the Millstream Fishway Project to restore spawning and rearing habitat for sensitive cutthroat and coho salmon,
- Millstream Meadows site remediation,
- quality of life of neighbours, their long-term health and safety,
- the property values of our neighboring properties.

In addition to the main groups mentioned above, I did hear from other members of the public. I have considered the comments from the general public and note many of them were similar to those mentioned above. I have taken the relevant issues and concerns into account.

7.0 Discussion, Considerations, Deliberations of Key Issues and Concerns

I have turned my mind to the matters described above, have explored these matters and considered and deliberated over these matters, and made my own independent determinations as to the significance and appropriate weighting of each of these matters in making my decision. The issues raised by this Application are complex and challenging.

I have considered and weighed what I understand to be all relevant information on this file and have conducted a thorough and comprehensive review based on the requirements of the *Mines Act*. The documents I have reviewed in this regard are included at the end of this document under "Partial Summary of References and Documents Reviewed in Consideration of Issuing A *Mines Act* Permit". I note that local government bylaws, regulations, land use issues, and other provincial and federal legislation are not within my jurisdiction to address or comment on in making permit decisions under the *Mines Act*.

Operators of mines are required to comply with the *Mines Act*, the Code and the permit, in addition to other legislation and regulations, including local bylaws, that may apply. Some of the concerns noted above will be addressed to some degree by the *Mines Act* and the Code, while those that do not may be addressed by other legislation, regulation and bylaws. I have included permit conditions that I believe will address the concerns and issues I have heard in the course of my review of this application.

In the paragraphs below, I outline my rationale for the decision I have made. Where necessary, I have referred to site-specific permit conditions that will be included in the permit, where additional, more specific, or more restrictive measures than provided for in the *Mines Act* or the Code are required to ensure that the Project is adequate in terms of health, safety, and environmental impacts.

The Application which includes the updated information (i.e. EMMR and phased mine plan) is significantly different and much more robust that the application that was before me in 2017. From my own technical review and consideration of input from others mentioned above, I required a significant amount of additional thought, study and investigation into the characteristics of the Property and information of the surrounding area context. OKI retained the consultants needed to address the concerns that were raised. As a result, OKI has revised its original quarry design and configuration based on the recommendations of qualified professionals.

I believe the proposed mine plan, management plans, reports and drawings in the final EEMR provide an adequate response to the questions and concerns that were raised in this Application and review process. I shall summarize below what I understand are the key issues and how I believe they can be addressed in the permit, and my rationale for issuing a permit.

7.1 Local Government Planning, Zoning, Land Use and OCP

EMPR has exclusive jurisdiction over mines and mining activities under the *Mines Act*. I am aware of the District's bylaws, and I understand OKI is aware of those bylaws; however, the *Mines Act* applies to mining operations and whether such operations can be conducted in a way that adequately addresses health, safety and environmental concerns. I am not making a determination of an appropriate use of land but ensuring that the operation is appropriate in the context of *Mines Act* requirements.

I understand a decision-maker under the *Mines Act* is not bound by local government bylaws, but issues around bylaws can be considered in making permitting decisions. Where a bylaw prohibits certain activities, it does not prevent me from issuing a permit in relation to those activities. Operators are still required to comply with any applicable bylaws despite the issuance of a *Mines Act* permit.

7.2 Surface water and potential impacts to adjacent water bodies

I have read and understand the concerns put forward that the quarry may have a negative impact on water quality and quantity on Millstream Creek, Teanook Creek, and the central wetland of the Property. The primary impacts would be from physical encroachment of mining activity into these areas causing destruction of habitat and a decrease in the quality of the water.

Considerations and Deliberations:

Having read and reviewed and considered the Application and supporting documents, and information from the public, referred agencies and others, I understand the naturally vegetated riparian areas and creeks on the Property adjacent Teanook Creek and the un-named seasonal tributary to Millstream Creek may be vulnerable to negative impacts from a quarry operation.

I have accepted OKI's measures as described in APPENDIX I of the EEMR and include the Site Drainage Plan (Appendix 1 of the EEMR) as a part of the *Mines Act* permit. This includes the Storm

Water Management Plan and Figures 1 through 5 (one figure for each mining phase), designed to protect surface water streams with the use of undisturbed naturally vegetated setbacks to provide a buffer between the quarry site and the creeks' riparian zones. Those buffer widths are as follows:

- Teanook Creek; 50 m to 200 m (Teanook Creek flows into Thetis Lake Regional Park)
- Thetis Lake Regional Park: 20 m to 150 m
- Unnamed tributary (ephemeral) to Millstream Creek: 30 m to 50 m
- all other boundaries: 5 m to 60 m.

I understand these setbacks are greater than the required regulatory distances and have been increased to reduce potential effects on creeks and surrounding communities. OKI acknowledges the buffer along Teanook Creek active floodplain meets the Riparian Area Regulation (RAR) for the Streamside Protection Enhancement Area (SPEA).

FLNRORD recommended the wetland complex in the center of the property be left intact with a minimum 30 m vegetated perimeter buffer and the site hydrology unchanged so the wetland is not adversely impacted. I reviewed and considered this recommendation in addition to my own site-observations and those noted in the Aqua-Tex report, including the eventual impacts on the wetland from a vegetated buffer surrounded by a quarry.

I have considered the location of the wetland on the property relative to the proposed quarry, information provided on wetland water levels, surface and subsurface flow from the wetland, off-site movement and storage of water from the wetland, the absence of fish and quality of fish habitat in the wetland, other ecosystem values of the wetland, and the small, confined and disconnected nature of wetland relative to nearby stream systems.

In reviewing the observations and studies provided by OKI's consultants, I have considered aspects of the ecology of the wetland and the ground elevation and topography surrounding the wetland. I understand the elevation of the wetland (and hence the elevation of the wetland water) is in the order 95-100 m amsl which is about equal to or higher than the proposed quarry floor. From that, I understand a 30 m wide riparian buffer left around the wetland while allowing the remainder of the quarry to proceed as planned would in effect create a "perched" wetland above the quarry floor.

I further understand a 30 m wide buffer would not provide a sufficient catchment area to maintain the normal wetland water levels nor support the ecological integrity of a viable wetland if other parts of the Property were quarried beyond the 30 m buffer. I have also considered the long-term viability and integrity of the wetland in light of predicted long periods of drought due to climate change if the Property is left in its present state.

I have considered the ecology of the wetland as I understand it from the studies provided to me and have concluded the values provided by the wetland alone are insufficient to reject the quarry application outright. I have considered the above information and have concluded a 30 m buffer

around the wetland as proposed by FLNRO would be insufficient to protect the wetland in the long term if the rest of the quarry were to proceed.

I have further concluded that the wetland may exist during the mining of Phase 1, but that it may be impacted by mining such as from the possible entry of surface water and sediment. The wetland would certainly be impacted by mining of Phase 2. I have taken into consideration a number of factors regarding the wetland, the key ones of which are presented in this document. I have tried to strike balance between retaining the wetland and allowing quarrying. I have concluded it is not possible to preserve the integrity of the wetland while allowing the quarry as planned to proceed and I question the long term integrity of the wetland in the absence of a quarry.

I have considered the ground topography along the boundary between the Property and the Millstream Meadows site on the common western pan-handle arm and expected direction of surface water flow. I have taken into consideration the naturally vegetated area at the west end of the Property which contains an ephemeral stream and which is to remain as an undisturbed buffer from the quarry. I am satisfied that surface flow from the quarry site would not have any significant impact the Millstream Meadows site, if at all.

Appendix I of the EEMR titled "Site Drainage Plan" contains the Storm Water Management Report and contains five drawings (Figures 1 to 5) of the surface water management plans for each mining phase. These documents have been prepared by Westbrook Consulting Ltd. are made a part of the permit. As per the quarry permit, each mining phase shall utilize water management structures and features including sloped surfaces, a settling/detention pond and pump, and ditches where appropriate, to ensure no water runoff and sedimentation from the quarry negatively impacts adjacent water bodies.

I believe there is sufficient management direction in the Site Drainage Plan such that water from the quarry will not affect surrounding properties. I have considered the plan and believe it, along with requirements in the Code and conditions in the permit, satisfies the concerns raised regarding control and management of surface water quality and quantity.

APPENDIX VIII of the EEMR titled "Management and Monitoring Plans" describes surface sampling locations, frequency, analytical parameters, methods and quality control methods for surface water monitoring on the site, and this document is made a part of the permit. I have considered the monitoring plan and believe it, along with requirements in the Code and conditions in the permit, satisfy the concerns raised regarding control and management of surface water quality and quantity.

Not withstanding the above and the application of the *Mines Act*, there may be other legislation and regulations that may apply to this Project and it is the responsibility of the Permittee to know and understand these other legislation and regulations.

7.3 Groundwater - Potential impacts to groundwater and wells

Concerns were raised about the impacts from the quarry on the local groundwater resource. I considered this to be a reasonable concern since the water supply in the District is predominantly derived from groundwater. There are wells on and around the property and the water supply for the residential property immediately west of the Property and the Hanington Creek Estates (HCE) west of Millstream Creek are from a groundwater source. I understand some residences near the Property are provided bottled drinking water from the CRD as a precaution while the Millstream Meadows site is under remediation.

I requested OKI to provide a groundwater risk assessment of the proposed quarry and its potential impacts. This assessment has been included as Appendix II of the EEMR, titled, "Groundwater Risk Assessment - Proposed Millstream Road Quarry". This report assesses the potential risk to groundwater and nearby surface water bodies from development of a rock quarry and provides recommendations for risk mitigation.

Based on my assessment of the documents and reports I have reviewed, including those from OKI, its consultants, referred agencies, public comment and others, it is my opinion that the proponent may operate the quarry with minimal disturbance and impact on the local groundwater regime, the integrity of water supply wells surrounding the Property, and to groundwater on the Property.

<u>Considerations and Deliberations</u>:

The District places a high value on groundwater in the region as it is the primary source of domestic water for the majority of the District. In my review of the groundwater concerns, my considerations have included the nature and characteristics of the regional bedrock aquifer, the groundwater regime, major lineaments that may act as groundwater conduits, estimated rate and direction of groundwater movement, the productivity, use, demand, yield and vulnerability of the aquifer, and the water-bearing zones and water table in the area of the Property.

The following groundwater and well parameters on and proximal to the Property that I have considered and lent weight to include: hydrogeologic setting, local area and site topography, overburden and water-bearing zone composition, thickness, volume, groundwater flow directions, groundwater gradients, interpreted groundwater catchment zones, number of wells and well density in the area, well head elevations, well depths and water levels, well use, demand, yield, groundwater levels in monitoring wells, and summaries of previous surface and groundwater investigations (2000 to 2010) related to contamination or soils and groundwater.

I have considered and weighed the potential impact of quarry development on the Property and boundary with the Millstream Meadows property. According to the Groundwater Risk Assessment by Hemmera the overburden aquifers are not connected between the properties and quarry development will not result in capture of overburden-hosted groundwater.

Quarry development may however affect the groundwater flow direction on parts of the Millstream Meadows property and induce minor flow toward the Property in the shallow bedrock aquifer. Quarry excavation may shift the local groundwater-shed boundary slightly north onto the Millstream Meadows property in the western part of the Property. I have considered this, the distance from the former lagoon areas to the Property boundary and that the volume and magnitude of groundwater capture is expected to be low because of the resulting low hydraulic gradient in the bedrock aquifer. Further, the small cross-sectional area in this flow zone suggests that a very small amount of groundwater may be diverted between the Millstream Meadows property and the quarry Property.

I have considered the provisions of the Code and that excavation shall not be carried out within 5 m of the Property boundary. Whereas quarry blast vibrations will be limited to a peak particle velocity (PPV) of 25 mm/sec. as measured at the Millstream Meadows property boundary and considering the short distance that fractures may be affected in blasting the final quarry perimeter face under controlled blasting conditions, blasting is expected to have minimal impact on groundwater flow in the immediate bedrock fractured aquifer.

I have considered that the proposed rock quarry will decrease groundwater quantity on the Property due to removal of the thin overburden deposits. Quarrying will, to a small degree reduce groundwater recharge and result in an increase of surface runoff from the Property. This may result in minimally reduced recharge of nearby wells. As most of the nearby wells are screened within the deeper bedrock water-bearing zone (>50 m below grade), it is unlikely the production from these wells will be affected. It is unlikely the quarry would affect the productivity in water wells around the quarry area and beyond.

I have considered the number of water wells identified within 500 m of the Property and their classified use and note that the water supply closest to the Property is provided by the CRD.

I have also considered the potential risks to groundwater quality on adjacent and nearby domestic water well users from the proposed quarry development to be low because I understand the water-bearing fractures and the wells generally are screened at depths significantly deeper than the final quarry elevation and would therefore be less vulnerable to quarry development. I note a potential municipal waterline extension to the Property and other nearby properties would reduce reliance on groundwater in the area.

I understand according to Golder (Golder 2008), five communal/commercial groundwater users were identified in the southern portion of the District and in the northern part of the City of Langford. The well that I heard most concern about is the community wells in Hanington Creek Estates (HCE) subdivision (there are two wells, one in regular use and one back up). Golder (2008) states that of the communal/ commercial users, 70 percent of the water consumption at a nearby Retreat Center and the HCE subdivision, among others was assumed to recharge the aquifer as septic water return (Golder 2008). If contaminants are detected in the groundwater supply for HCE, it may be challenging to differentiate the source of the contaminants, considering the amount of septic recharge identified by Golder. Groundwater users put great faith and dependence on the neighbours to keep their septic systems maintained to prevent septage entering the local aquifers.

I have considered and weighed Golder's assessment of the HCE community well groundwater capture zone. A capture zone is defined as the portion of an aquifer from which groundwater is derived by a pumping well. In 2008 Golder determined the location and extent of the HCE well capture zone and time of travel zone predicted by modelling for the HCE well. Golder delineated the capture zone for the HCE well to be upslope and to the southwest of the HCE water supply well. This is in the exact opposite direction of the proposed quarry Property. The quarry would be located approximately 240 m to the east and downslope of the well capture zone. Based on this I have considered that the quarry operations would have little to no impact on the HCE well.

Proposed mitigation efforts

While I believe impacts from quarrying should have minimal impacts to groundwater and domestic groundwater users surrounding the Property, water management features shall be implemented at the quarry to divert groundwater and runoff during quarrying activities.

Permit conditions are included in the permit to address concerns related to groundwater management and monitoring. They are designed to reduce impacts to the groundwater aquifer. Site specific conditions (SSC) regarding groundwater include the following:

- Groundwater management, water management features and wells (SSC 6.),
- Quarry excavation phases, blasting, final quarry floor elevation, rock sampling (SSC 7.),
- Drilling equipment and consumables, blast vibration limits, blast monitoring (SCC 8),
- Nitrogen management and control of explosives on site and in boreholes (SCC 9.),
- Hydrocarbon transport, storage and handling (SCC 12.),
- Fuel and hydrocarbon spill response (SCC 13.),
- Groundwater quality monitoring (SCC 14.),
- Reclamation and use of site (SSC 17.).

OKI has acknowledged that existing water wells and monitoring wells within the quarry will be decommissioned in accordance with the Groundwater Protection Regulation to reduce any risk of contaminating local water-bearing zones and water wells. This has been made a condition of the permit. Well MW00-3 may be used for water supply during early stages of the project but decommissioned before quarrying in the area, and a replacement well will be installed during operations. A replacement well for MW00-3 is also a condition of the permit and it will also be sued for water quality monitoring (in addition to monitoring wells MW00-1A, 1B, and 2).

Although the risk of changes to the overall groundwater level and quality is considered low, groundwater monitoring in potential groundwater flow paths on the boundary with the Millstreams Meadows property would identify any such changes following the commencement of quarrying activities. This would provide forewarning of any water quality issues should they arise.

To protect groundwater resources on the Property and surrounding area, as well as nearby streams, the following will be required in the permit:

- Monitor groundwater levels and quality in a monitoring well in the potential flow path between the Millstream Meadows site and the Property.
- Install surface drainage diversion features to manage groundwater displaced by quarrying.
- Control and monitor site drainage to prevent impacts to groundwater quality.
- Manage site discharge in a manner that attenuates peak flows to adjacent streams.

Groundwater quality will be assessed according to the BC Source Drinking Water Quality Guidelines (SDWQGs), and the BC Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture. Groundwater quality monitoring is also discussed later in this document.

7.4 Millstream Meadows (MM) concerns

The MM site is a contaminated site under remediation. It is contiguous with the north side of the Property and is owned by the CRD. The District and local residents are concerned about potential impacts the proposed quarry may have on the MM site and how the quarry may impact remediation efforts at MM. The issue of contamination from the MM site to the quarry is related to surface and groundwater concerns and includes the description above. The following summarizes my main considerations regarding the MM site.

From my review of information on the MM site and studies commissioned by the CRD on surface and groundwater, I understand that residual contaminants on the MM site move via surface and groundwater away from the Property. I understand from my review of the information before me there is a low risk the quarry will impact the MM site. I also understand the potential is low or unlikely for the migration of contaminants via overburden groundwater flow from the MM site to the Property, due to topographic and hydraulic gradients.

I have considered the proposed quarry blast parameters (charge weight for single hole per delay, predicted blast vibration intensity, distances from blast, peak particle vibration). Based on my review, I understand there is low risk that contaminated groundwater flow could be induced from the known area of contamination on the MM site to the quarry. Although considered low risk, OKI has initiated monitoring of groundwater and will continue to monitor as a condition of the permit.

In June 2019 I spoke with Korine Torney of the CRD who has detailed knowledge of the MM site. She indicated that contaminants had not migrated south from the MM site to the Property, but rather northwesterly (away from the Property) and at that time there appeared to be a low risk to the Property. This was confirmed again in early March 2020 in a conversation I had with the CRD. I understand the recent work by the CRD on mitigating the contamination at MM indicates the quarry should not have a detrimental impact on the MM site.

I have taken into consideration that the risk of contaminated groundwater from the MM property flowing to the Property has been assessed by Hemmera as low for the following reasons:

- there is no groundwater contamination recorded in the southern or eastern areas of the MM site close to the Property,
- groundwater flow in the overburden is northerly – northwesterly from the MM site (away from the Property) and largely within the unconsolidated overburden at MM,
- past and on-going remediation of the former landfill area is expected to reduce the source of contamination on this property such that the CRD can obtain a CoC.

I have further considered that quarrying will commence at Phase 1 in the southeast corner of the Property and progress to Phases 2 and 3 over the first years of operation. Phase 1 is the farthest area on the Property from the MM contamination. Phases 2 through 3 are on the easternmost part of the Property and also farthest away from the MM contamination.

Quarrying on the east side of the Property (Phases 1 through 3) is expected to take a number of years, perhaps in the order of 7 to 10 years. I understand the CRD expects to receive a CoC at MM by the end of 2020 or soon thereafter.

I have made it a condition of the quarry permit that OKI shall monitor ground vibration from quarry blasting on the common property boundary between the Property and the MM property at a point in line to the closest historic lagoon, and that such ground vibration must not exceed 25 mm/s PPV.

The two wells on the Property (a deep 4-inch diameter well and a shallow 2-inch monitoring well) will be monitored, as per the permit, for groundwater quality. OKI understands, as stated in Hemmera (2019) that wells to be decommissioned, such as Well MW003, must be decommissioned in accordance with the Groundwater Protection Regulation. Effects to adjacent water wells and the local aquifer from the quarrying are assessed by Hemmera as minor.

In summary, my considerations have included:

- there is no indication of contamination at or near the borders of the MM site adjacent to the Property,
- known contaminant migration on the MM site is away from the Property,
- should the quarry proceed, the potential is low or unlikely for the migration of contaminants via groundwater flow from the MM site to the Property,
- initial quarry phases will take place at the farthest point from the MM historic contamination,
- permit conditions regarding PPV will limit ground vibrations from blasting such that the impact on the shallow bedrock aquifer will be very low on the MM site,
- the CRD should receive its CoC for the MM site by the time quarrying approaches the western pan-handle arm closest to the area of historic contamination,

For these reasons, and others not summarized here, I believe impacts from quarry will be low risk and have minimal if any impacts to groundwater users surrounding the Property.

7.5 Highwest Waste Management Facility (HWMF)

I have considered the District's and local residents' concerns about the potential impacts the proposed quarry (blasting and excavation) may have on the HWMF. The HWMF operated by Coast Environmental Ltd. is situated north of the Property. Teanook Creek, a tributary of Craigflower Creek is in the northwest corner of the Property and flows into Thetis Lake Regional park.

The closest blasting to the HWMF from the quarry operation will be in Phase 3. The distance to the closest lined cell would be 140 m. I have considered the predicted blast vibration intensity at the closest cell would have a PPV of less than 9 mm/sec. at an anticipated frequency of approximately 25 Hz. I understand the predicted blast vibration intensity at the nearest HWMF cell would be well below the level of concern for vibration damage to the 60 mm HDPE (High Density Polyethylene) liners and overall liner system.

Teanook Creek separates the proposed quarry and the HWMF. Teanook Creek forms a shallow

valley in the topography from 70 to 95 m elevation amsl in the southern part of the HWMF property and northern part of OKI's Property. The proposed final quarry floor is at an elevation of 95 m amsl. I have considered the surface elevation changes between the proposed quarry and HWMF noting that Teanook Creek occupies a topographic low between the two which is equal to or deeper than the final quarry floor.

I understand this topographic low occupied by Teanook Creek would act as a form of barrier to ground vibrations such as from blasting between the two properties. I also understand it is unlikely that groundwater would move from one property beneath Teanook Creek to discharge onto the other property, rather than discharging into Teanook Creek itself.

I have considered the distance between the proposed quarry area and the HWMF. The undisturbed vegetated buffer between the proposed quarry and Teanook Creek is from 50 m wide to over 100m wide, not including the width of undisturbed ground between Teanook Creek and the HWMF.

Based on the above considerations, I conclude that blasting at the proposed quarry is unlikely to impact the liner system or waste stability in the HWMF.

7.6 Noise – Concerns of Impacts from Quarry

During the review of this Application I have heard and understand there are concerns that the Property is close to a residential neighborhood (Hanington Creek Estates) and the District and residents have concerns it and other nearby residences may be impacted by the noise, vibration, dust and traffic from a quarry operation. The District has a local bylaw regarding noise and noise suppression. This bylaw, as it pertains to the proposed quarry, is focused on not disturbing the quiet, peace, rest, and enjoyment of the public during certain times.

Noise from the quarry may be generated from a number of activities, including excavating, loading, crushing, screening, stockpiling, compressors, generators, and trucking. A screening-level assessment of noise levels at the receptors was completed by Hemmera using distance attenuation and assuming worst-case conditions. I have considered the noise assessment and the noise mitigation measures as described in Section 6.0 Mitigation Measures, of Hemmera's Noise Assessment (Appendix IV of the EEMR) and have incorporated those key measures as conditions in the *Mines Act* permit.

Noise mitigation measures are defined in the permit and I consider them to be sufficient to address potential noise effects at the nearest dwellings and the MIP south of the quarry. All key noise sources are predicted to be below assessment criteria once mitigation measures are in place.

Considerations for noise mitigation strategies include careful site planning and source control. Source control mitigation strategies have been incorporated in the permit and include using low-noise equipment, properly maintaining equipment to keep it in good working order, and implementing procedures such as minimizing vehicle speeds to reduce noise generation.

I have considered quarry layout strategies and made it a condition of the permit that the mining face will be oriented away from the closest homes where possible to direct blasting and excavating noise away from home owners.

I have considered that noise from rock processing should not be a significant concern in the early stages of access road construction and initial Phase 1 mining as the excavated rock is expected to be transported south to the Allfun quarry for processing. Phase 1 is in the southeast and farthest corner of the Property from residences. This is 700 to 1100m away from the HCE, as per the Revised Phase Plan. Phases 2 and 3 are similar distances away from HCE. By the time Phases 1 through 3 are complete, operations at the Allfun quarry are expected to be completed.

Other than the proposed access road from Millstream Road, the area between OKI's Phases 1 through 3 will be separated from the HCE by the natural hummocky topography and natural treed and shrub vegetation of the undisturbed part of the Property. In addition, the access road is designed with a gentle curved radius to break the direct line of site to help reduce noise transmission to create a degree of interference in the sound from the quarry.

Noise source controls, as described by Hemmera, will include using low-noise equipment, regular vehicle maintenance and berms. The greatest source of noise at the quarry would likely be the crusher. The crusher once moved to the Property would be located at lower elevations where the surrounding unexcavated rock faces will provide shielding from crusher noise. Vegetation growth on completed benches should help dampen noise from the operations.

I have considered the Noise Assessment (Appendix IV of the EEMR) prepared by Hemmera and have incorporated what I determine as the relevant parts as conditions in the *Mines Act* permit. I have also added site-specific conditions to the permit. Considering the above information and those parts of the Code that refer to noise issues, I am satisfied that the key noise sources are predicted to be below assessment criteria once the mitigation measures are in effect. Taken all of the foregoing into account and together, I believe there are sufficient regulatory tools to address the concerns raised by the District and public.

7.7 Vibration (Blasting) - Concerns of Impacts from Quarry

The District and the public note the Property is close to residences including a residential neighborhood at Hanington Creek Estates (HCE) and that there are concerns local residents may be impacted by the vibrations from blasting. Impacts from blasting on the local residents is a concern I noted in my review and I have taken it into consideration.

International Blasting Consultants Ltd. (IBCL) has prepared a Blast Plan for OKI's proposed Millstream Quarry (Appendix III of the EEMR). The plan is to address potential impacts from blasting activities which include blast overpressure and blast vibration. Issues about damage to the underlying bedrock aquifer, nearby wells and landfill liners from blast vibration have been addressed elsewhere in this document.

I have considered the effects of blast vibration waves and how energy moves through the ground, propagating outward from the source as the energy in the wave dissipates. I understand the velocity of particle motion is directly related to the intensity of the blast waves, therefore peak particle velocity (PPV) limits are used to prevent damage to structures.

I have relied on research from the US Bureau of Mines which has carried out extensive studies on the potential damage to structures from blast vibration waves. For frequencies above 40 Hz, the USBM recommends a safe particle velocity maximum of 2.0 in/sec (50.8 mm/sec) to prevent damage for all houses. This corresponds to the level at which there is no damage to a structure, including the onset of minor cosmetic hairline fractures in plaster, the weakest material in a structure. Blast vibrations are to be kept below this level at the closest structure. Seismographs will be used to measure the velocity of the particle motions in mm/sec (or inches/sec).

At the onset of this project, blasting will be required in construction of the access haul road. This will require about a 4-metre deep cut 107 m from the residence located on the east side of Millstream Road immediately west of the Property. These blasts will be well controlled shots and fairly small (< 1000 m^3) in size. Blasts along the access road are expected to occur every two to five days for three to nine months once road construction has started. I understand these blasts, which are smaller than production blasts, will resemble blasting normally carried out for urban housing subdivisions such as at the nearby Bear Mountain development.

I have considered that from five to 12 production blasts per year are anticipated at the quarry. Production blasts will be in the order of 5,000m³ per blast. Production will vary depending on the demand for OKI's internal needs and from sales from external (non-affiliated) sources. The production blast design should produce good fragmentation (minimizing time required for processing) with excellent control of fly rock. It is a condition of the permit that blast mats be used where required as determined by the blaster of record to maintain a safe blast, control fly-rock and comply with permit conditions.

I have considered many aspects of blasting and associated vibrations and the impact they may have from quarry operations. Many of the concerns are satisfied by Part 8 of the Code which specifically addresses blasting and explosives. I have taken into consideration the Blast Plan in Appendix III of the EEMR and from it I have developed various permit conditions, some of which are described below:

- It is required that all mine-site blasting must be carried out by a blaster certified in accordance with the Code, and it is a condition of the permit the blaster shall also have an urban blasting endorsement;
- Atmospheric and weather conditions must be considered in planning each blast;
- All blasts must be electronically monitored with appropriate equipment which may include seismographs and geophones, to measure the velocity (PPV) of the particle motions in mm/sec (or inches/sec) and air overpressure (dBL);
- Blast overpressure and vibration levels at the nearest residence or industrial building must not exceed 120 dBL and 50 mm/s peak particle velocity (PPV) respectively;
- Blast vibration levels must not exceed 25 mm/second PPV as measured:
    - on the north Property boundary at a place closest to the HWMF liner (currently managed by Coast Environmental Ltd.), and
    - on the common Property boundary with the CRD's Millstream Meadows site;
- Copies of all Blast Logs, plans, and electronic monitoring records must be kept by the manager for quality control purposes;
- All blasts at the quarry must be video recorded, and a copy of the video shall be kept by the manager and/or kept at the mine office and made available to an Inspector on request;
- Where the potential for flyrock beyond the Property boundary exists, the blaster must ensure blast mats or other suitable coverings are used;
- Blasts must be planned and designed such that they do not impact the integrity and performance of wells used for monitoring or water supply on neighbouring properties.
- Prior to blasting (first site blast), a pre-blast survey must be carried out by an independent qualified assessor to establish baseline observations, including defects and cracks

OKI has been notified that other regulations may apply to its site other than those in this permit or the *Mines Act* and Code, and that it is OKI's responsibility to know those other regulations. The Blast Plan prepared by IBCL for OKI provides notice that blast vibrations are to be controlled to stay under the limits described in the federal Guidelines for the Use of Explosives in or near Canadian Fisheries Waters.

I have considered the possibility of structural fatigue based on long-term blasting operations, noting blast vibration limits for homes have been established and have taken this into account in the submitted Blast Plan which forms part of the permit.

I have considered the Blast Plan prepared by IBCL (Appendix III of the EEMR) for OKI and have incorporated what I determine as the relevant parts as conditions in the *Mines Act* permit.

Considering and taking all of the foregoing into account and together with those parts of the *Mines Act* and Code that refer to blasting and blast vibration, in addition to other regulations and legislation that may apply, I am satisfied that there are sufficient regulatory tools to address the concerns raised by the District and public regarding blasting and associated vibrations at the quarry.

7.8 Dust - Concerns of Impacts from Quarry

The Property is close to a residential neighborhood (Hanington Creek Estates) which the District and local residents are concerned will be impacted by the dust generated from a quarry operation. I have read and considered the information provided to me regarding dust from the proposed quarry.

I have considered the proposed setback between the western edge of the excavation in Phase 5 and the nearest residence east of Millstream Road constitutes a beneficial barrier. This setback is in the order of 80 m wide or more and supports natural vegetation that will help mitigate potential impacts from dust generated from the quarry. Mining from Phases 1 through 3 in the initial years of the quarry allows for the unmined Phases of 4 and 5 to act as natural vegetated buffers to dust from the active parts of the quarry.

I have considered the measures to control and suppress dust to mitigate impacts to air quality both on and off the quarry site. These measures taken from the EEMR include:

- Water for dust control will initially be hauled to the Property to augment water from the sedimentation pond;
- Clear water from the sediment ponds will be used for dust suppression on site when and where dust is generated;
- Modern hydraulic drills will be used with on-board dust collection systems;
- Haulage areas will be watered on an as-needed basis to control dust. The prevailing winds which are generally westerly, will tend to blow any residual dust away from the closest homes.
- Water for drilling and dust control will initially be hauled to the Property to augment water from the sedimentation pond.
- Vegetation clearing shall be restricted to the active mining phase to maintain as large of a vegetated buffer area between the mined areas and the residential properties to the west.

I have included a condition in the permit that a site-specific Fugitive Dust Management Plan (FDMP) approved by a mines inspector must be developed by the permittee prior to ground disturbance and blasting, and be implemented throughout the duration of the Mines Act permit.

The FDMP shall be based on the document: "Developing a Fugitive Dust Management Plan for Industrial Projects" dated May 2018 or subsequent amendments to it, prepared by: BC Ministries of Energy, Mines and Petroleum Resources and Environment and Climate Change Strategy. Dust control measures that should be considered in the FDMP include:

- Surface mining activities shall be carried out in such a way to limit the amount of surface disturbance as much as possible. This shall include strategic placement and orientation of the working face and operating equipment (including crusher, screener) to reduce the generation of and impacts from dust.
- All active work areas, including post-blast quarry "pit-run" rock, shall be sufficiently wetted prior to mucking and excavating to limit dust generation.
- Dust generated by crushing, screening, conveying and other parts of the processing area shall be controlled at source points by water sprays or other simliarly effective means.
- Drills shall be equipped with effective, functioning and well-maintained on-board dust collection systems.
- The site access/haul road shall be sprayed with water as needed to suppress dust. Application of suppression additives (dust palliatives) shall be considered to augment water-only dust suppression.
- The permittee shall ensure vehicle traffic on site obeys low speed limits to minimize dust creation.
- All trucks loaded with aggregate shall have their box compartments covered as soon as possible after loading, and prior to exiting the work area.
- The height of stockpiles for topsoil, overburden, waste, rock of other aggregate shall be limited to minimize dust generation;
- Stockpiles shall be kept weed-free to prevent the establishment of invasive plant species, and shall be managed to prevent erosion and dust generation;
- Rock and aggregate drop heights shall be sufficiently reduced to minimize dust generation;
- Dust-generating mining activities shall be suspended during periods of extreme wind velocity.
- A log book shall be kept to record the date, time and person who applies the dust control. If multiple methods and/or applications are required, each instance shall be recorded.

I have considered the dust issues raised by the District and nearby residents. Having considered and taken into account the foregoing, together with those parts of the *Mines Act* and Code that refer to dust on mine sites, I believe the concerns raised by the District and public regarding dust on the mine site can be adequately addressed by compliance with all requirements.

7.9 Traffic - Concerns of Impacts from Quarry

The Property is close to a residential neighborhood (Hanington Creek Estates) which the District and residents are concerned will be impacted by the traffic from the proposed quarry operation.

OKI has produced an assessment of estimated traffic volumes associated with this quarry in consideration of diminishing traffic of its Allfun site to the south. I understand that OKI plans to provide safety enhancements along Millstream Road to make the travelling public aware of the new quarry driveway location which will include signalized truck turning signs located on Millstream Road at minimum distances of 200 m on either side of the proposed quarry entrance.

While this is good information for planning purposes, the issue of traffic on roads outside the quarry are outside the jurisdiction of the *Mines Act* and beyond my jurisdiction to regulate. I understand OKI will have to apply to the appropriate authority for a permit to allow vehicle access to the Property from the public right-of-way on Millstream Road.

7.10 Ecosystems and Species – Concerns of Impacts from Quarry

The District and the general public have concerns that mining the Property will negatively impact the ecology of the Property and of the surrounding area.

In my review of the Application and in deliberating on the decision to issue a *Mines Act* permit to OKI, I considered and relied heavily on Appendix VI of the EEMR, entitled Ecological Assessment in addition to comment from the public and referral agencies. I have walked the Property from end to end prior to making my decision and have read many concerns on the subject of ecosystem and wildlife values.

I have considered that large areas of the Highlands are currently protected from development through provincial, regional and municipal parks. Approximately 38% of the Highlands (just under 1,450 ha in 2012) is publicly owned and designated as park and the District has a strategy to protect more lands from development. The quarry proposed by OKI will affect 17.2 ha, a very small percentage of the District. The Property is bordered by industrial activities to the north and south and a central roadway on the west.

The ground surface of the quarry area including wetlands will be affected by quarry activities. I have considered that the original application called for a quarry area of about 21 ha. This has been reduced in the current Application to 17.2 ha and the volume of rock to be mined has been reduced significantly. I have considered that the reduced mining area has allowed for increased width of the perimeter buffer areas adjacent to the surrounding properties. While mining is inherently destructive of the overlying vegetation and surface biota, the increased buffers should help reduce impacts to off-site areas.

I have considered the proposed buffer widths between the areas disturbed by quarrying and the Property line are as follows:

- Teanook Creek; 50 m to 200 m
- Thetis Lake Regional Park: 20 m to 150 m
- Unnamed tributary to Millstream Creek: 30 m to 50 m
- all other boundaries: 5 m to 60 m

The buffers to Teanook Creek, the unnamed tributary to Millstream Creek, and Thetis Lake Regional Park have been developed to ensure vegetation stability and inclusion of any unique trees and wildlife habitat features.

I understand the natural buffers adjacent Teanook Creek and the unnamed tributary to Millstream Creek at the west end of the Property provide sufficient protection to those waterways. I have considered the natural buffer adjacent to Thetis lake Regional Park and along the southeast corner of the Property to be sufficient to provide sufficient protection to those woodland habitats. The large Douglas fir tree in the soucheast corner of the Property is within a buffer area and shall be protected by a 30 m radius (60m wide buffer).

I have considered that the Property comprises three drainage areas: Teanook Creek in the northeast; the central wooded area and associated seasonal wetland (swamp) draining south to the MIP and the unnamed tributary draining to Millstream Creek in the west of the Property. Mining will impact the swamp in the central part of the Property. It is likely the ecological integrity of the swamp would be compromised if a 30 m riparian buffer were established, and also in the long term as predicted by increased duration of drought periods due to climate change.

I note and have considered that there were no fish observed in the wetlands within the proposed quarry area. Based on a site reconnaissance by an R.P.Bio. and the isolated and ephemeral characteristics of the wetlands, it has been concluded that fish are not present in the wetland areas of the proposed quarry.

I have also considered commitments fulfilled or made by OKI as described in the Ecological Values and Management Plan in Appendix VI of EEMR. Those commitments not yet fulfilled have been made as site-specific permit conditions:

- Increase the buffers from those originally intended for the Project to those indicated in this report;
- Conduct further surveys for listed-species and other species of interest prior to the commencement of quarrying;
- Conduct salvage programs where species-at-risk have been identified;
- Limit land clearing to the active quarry phase to limit the spread of invasive plants;
- Remove invasive plants where they become established;
- Use a Qualified Environmental Professional (QEP) to direct the surveys and salvage plans.

I have considered that the northeastern buffer along Teanook Creek provides a naturally vegetated east-west connection between Thetis Lake Regional Park and an easement registered on the

Property through the Millstream Meadows site to Millstream Road. While most of the Property will be disturbed by mining, a substantial buffer zone at the northeastern part of the Property protects Teanook Creek and its riparian zone and maintains the local streamside and near-stream habitat. This buffer will also serve as a wildlife connector between Thetis Park and areas to the west.

I understand any ground disturbing development on the Property has potential to impact components of the natural ecosystem on the Property to varying degrees, while other parts of the ecosystem may be left in tact. I have read and considered the comments from the District, agencies and the public regarding the ecology of the site and the sensitivity and vulnerability of certain species found on the site and the impacts a quarry would have on the site.

I have read and considered the Ecological Assessment in Appendix VI of Hemmera's EEMR which includes the Ecological Values and Management Plan, two internal Hemmera memos titled, Field Review and Potential Mitigation Measures for Environmental Protection (May 2018), and Wetland Reconnaissance (August 2018), and the 2015 report titled Preliminary Ecological Site Investigation prepared by Aqua-Tex.

I have relied upon the comments, reports and documents mentioned above to establish site specific permit conditions which should help preserve and protect fragments of the natural ecosystem that currently exists on the periphery of the Property to an acceptable level.

7.11 Reclamation:

The District and the general public have concerns that the reclamation planned for the site post-quarry development is insufficient for the Property and may negatively impact the ecology of the Property and of the surrounding area.

I have considered that this quarry project is a temporary use of the land proposed for an estimated 18.5 years depending on a number of factors and variables, and that the land will eventually be used for another purpose after the quarry is complete.

I understand that OKI owns the Property as fee simple land with the intention to reclaim the land to an end land use as commercial/ industrial land. I understand the major area of industrial activity in the District is located east of Millstream Road, immediately north of District's boundary with the City of Langford. According to the District's Official Community Plan (OCP) this area falls inside the Urban Containment Boundary of the Regional Growth Strategy and what is referred to as the "Highlands Servicing Boundary". The District OCP notes that the land base in this area has been heavily disturbed and there are relatively few environmental preservation issues. Map 2.1 of the OCP indicates the land use designation for the Property is Commercial Industrial.

I understand from the District's OCP that the amount of industrial land in Greater Victoria is in short supply and this large contained area ("Highlands Servicing Boundary") has reasonable access to the

Trans Canada Highway. The OCP notes that a light industrial/business park in this location would require utilities such as piped water and storm and sanitary sewers, among other things.

During on-going progressive reclamation and final reclamation, any disturbed land not required for mining or infrastructure, with the exception of faces and benches, are proposed to be graded and levelled to the final elevation of 95 m amsl, covered with previously removed and stockpiled overburden, and vegetated with the appropriate weed-free native species as established by a Qualified Professional. Rock faces and walls will be monitored for safety and any scaling required will be completed during the mine operating period and post closure of the mine.

I am satisfied with the plans submitted with the Application, that the final pit-wall slope will be approximately 50 degrees where mining was conducted in two benches. In other areas where ground contours may fluctuate relative to the planned final floor elevation of 95 m amsl, the face slope will likely vary by location. The remaining benches are to be covered with overburden and topsoil and seeded with appropriate native species vegetation.

In the event OKI is unable to meet its stated end land use objectives, there are provisions in the Code (Part 10.7) that require the land and access roads to be left in a manner that ensures long-term physical and geochemical stability and require land to be re-vegetated to a self-sustaining state using appropriate plant species.

I have considered and made it a condition of the permit that the quarry shall undergo progressive reclamation that includes the replacement of overburden and topsoil with vegetation over the life of the quarry with a focus on, 1) reclamation of catchment berms (horizontal benches) and, 2) peripheral areas of the final quarry floor, and, 3) those areas that are no longer required for mining or mining-related activities.

7.12 Visual Effects - Concerns of Impacts from Quarry

There are concerns from the public that there will be negative visual effects from the quarry. While visual impacts are more of a land use concern and not generally within the jurisdiction of the *Mines Act*, I believe OKI has dealt with this concern in a satisfactory way such that the impact of the quarry will have limited visual impact to the nearby residents in the District and those travelling on Millstream Road.

I have considered that OKI has combined various visual management features into its quarry plans. Foremost among these is the establishment of wide naturally existing vegetated buffers between the quarry area and the Property line. These buffers offer varying degrees of sloped topography and tree cover with understory to block site-lines onto the quarry.

From off the Property, most perspectives will be looking up vegetated slopes beyond which will be the quarry at various distances below the crest of the quarry wall. I have considered this to be an

effective use of buffers, vegetation and topography to minimize if not eliminate site-lines onto the property from most perspectives. The one exception would likely be site-lines from the Millstream Industrial Park towards the quarry.

The only break in the perimeter vegetated buffers is at the quarry entrance on Millstream Road. I have considered OKI's plan to incorporate a gently curving radius into the access haul road that would otherwise provide a long straight view down the access haul road into the quarry. The driveway entrance will be about 20 m wide and the longest site-line into the quarry should be about 150 m. I consider this and the previously described measures to be effective visual management strategies, despite not being required under the *Mines Act*.

7.13 Other concerns of impacts from the Quarry

7.13.1 Climate Change

I have summarized in this document what I consider to be the most important concerns, issues and potential impacts related to the proposed quarry. Another issue raised was the impact of carbon emissions related to a quarry at this location and the impacts on global climate change. While this is an important issue and Canada has passed a non-binding motion to declare a national climate emergency in Canada, climate change is not relevant under the *Mines Act*.

7.13.2 Petitions

EMPR has received over a thousand signatures on petitions in direct opposition to the Application, requesting the Application be "quashed on health, safety, economic and environmental grounds" and because the Application "has not met the minimum threshold for technical approval".

Based on my considerations presented in this document and the information before me, I am not of the view that there is any health, safety, economic or environmental grounds upon which to deny a *Mines Act* permit in this case. Nor do I agree that the Application has not met the minimum threshold for technical approval. I believe the Application has sufficiently met the minimum threshold for technical approval. I grant that the activities on the surrounding properties puts this Application for a quarry in a context that is quite technical, but I disagree it has not met the minimum threshold.

I believe I have considered the relevant concerns in the petition, namely those related to impacts to groundwater and surface water, impacts to residents from noise, dust, blasting and vibration and others, and ensured that those concerns have been adequately addressed.

8.0 Conclusion and Closing Remarks

The BC MEMPR facilitates and encourages a thriving, safe and environmentally responsible mining sector, while minimizing the health, safety and environmental risks related to mining activities. With this in mind I have considered whether or not the Application before me could result in undue adverse impacts to the site, existing and surrounding infrastructure, Indigenous interests, and the health and safety of the residents and people in the immediate area of the Project.

I understand that decisions under the *Mines Act* are about mine operations, and whether such operations can be conducted in a way that adequately addresses health, safety and environmental concerns. The decision is not about land use and whether a particular use of land is appropriate. I have considered that quarrying rock comes with both positive impacts or benefits and negative impacts or costs.

In granting the permit I did consider the views of the District but did not lend it significant weight nor felt bound by the local zoning issues. In my consideration, the local zoning alone is not a basis for the refusal of a *Mines Act* permit although local governments do have the power to prohibit soil removal. The exercise of this power is only possible if they enact a bylaw approved by the Minister of Municipal Affairs and the Minster of EMPR. Since local land zoning cannot restrict me from exercising my jurisdiction to issue a permit under the *Mines Act*, I did not consider the question of whether or not the proposed quarry would be a non-conforming use.

Were I to rely on local government zoning to reject the permit application on the grounds of the local government's zoning, I would have acted outside my jurisdiction as an inspector of mines.

As an inspector of mines I have broad discretion in issuing a *Mines Act* permit, and I recognize the separate and important jurisdiction of the District. While I may consider provisions of local zoning and bylaws, I am not constrained by them in making my decision to issue a permit under the *Mines Act*.

I have heard various concerns from the referral and consultation process, primarily from the District, the HDCA and members of the public in general. I have reviewed and considered what I understand are all of the relevant facts and all other arguments and concerns even if they are not specifically identified in this document. I have considered how the local residents may be impacted if this quarry goes ahead.

I have shared with OKI the many questions and concerns I had and that I have received, including those from the District, other agencies and organizations, First nations and general public, the CRD (re: Millstream Meadows) and Tervita (re: HWMF). OKI has taken these concerns into account and has adequately addressed them to my satisfaction.

In response to concerns that were raised, OKI retained the appropriate qualified professionals, subject matter experts and consultants to review the history of the Property and surrounding area, conducted site investigations, made observations and gathered data, assessed and interpreted data, and designed

measures and strategies to mitigate potential impacts from the quarry operation. OKI's work has been summarized in a comprehensive report referred as the Environmental Effects and Mitigation Report (EEMR, 2019) prepared by Hemmera EnviroChem Inc. for O.K. Industries Ltd.

All mines are subject to inspections and regulatory oversight by EMPR and this one is no different. In addition to regular inspections, the southwest regional mines office expects to hold at least one meeting annually with the permit holder to review permit compliance performance and receive updates on the quarry progress.

In my opinion, groundwater and surface water have been the key issues of concern. The EEMR report and Appendices I and II specifically, assess the potential risk to groundwater and nearby surface water bodies from development of a rock quarry and provides recommendations for risk mitigation. Based on this report and from following its recommendations and other permit conditions and regulatory requirements, I am satisfied that OKI can operate the quarry with minimal effects to groundwater quality and quantity for current and future land use in the District.

I believe much of the information provided by OKI in its EEMR addresses many of the concerns raised in the review and consideration of the Application. Many of the site-specific conditions in the permit refer to those relevant parts of the EEMR. Since the EEMR is a voluminous document, I have included certain parts of the EEMR as individual site-specific conditions in the permit.

As holder of a *Mines Act* permit, OKI is required to meet all requirements of the *Mines Act*, including the Health, Safety and Reclamation Code for Mines in British Columbia (the Code). I have tried to avoid duplicating those requirements as conditions in this permit.

I have added site-specific conditions in this permit where I believe more clarification is required, more specific or restrictive measures are required than are found in the *Mines Act* or the Code. I have added these conditions to address what I considered to be relevant concerns that were raised through the review, referral and public comment process.

In consideration of all of the above, I find that I cannot reasonably refuse to issue a *Mines Act* permit for the Application based solely on public opposition, without science-based technical evidence that indicates my considerations have left out critical, credible and reliable information and undisputable facts.

I have been open to receiving and reviewing relevant and well-founded science-based information. I have reviewed the comments and opinions, the historic and current scientific investigations at Millstream Meadows, the information, science-based evidence and interpretations provided by qualified professionals. I have not been presented with science-based information or interpretation that refutes what has been made available to me.

Based on the information available to me, I believe I have reached a point of having sufficient information upon which to base my decision, that being to issue a *Mines Act* permit to OKI.

I believe that consultation between the Province and First Nations has been reasonable, appropriate, meaningful and sufficient in the circumstances, and that the Province's legal obligations have been met.

I have considered what I believe are all of the relevant facts and all other arguments raised, even if they are not specifically identified in these reasons for decision. There were relevant concerns identified with respect to the application, however, I believe that the concerns have been sufficiently addressed to allow a *Mines Act* permit to be issued, based on the final Application.

Parts of the EEMR have been included in the permit as conditions. These parts are drawn from assessments, management directions and plans which I have considered in depth and put significant weight on in arriving at my decision to issue a *Mines Act* permit for the quarry. I believe the direction and plans, coupled with other conditions in the permit, requirements of the Code, and requirements covered by other levels of government are sufficient to address the concerns that I have heard raised in regard to the Application.

In summary and to close, I issue a *Mines Act* permit based on the Application before me, based on the considerations, deliberations and the reasons provided above.

Sincerely,

Don Harrison, P.Geo.
Senior Inspector of Mines

Partial List of References and Documents Reviewed

2001 District of Highlands Parks and Recreation Master Plan - October 2001; Parks and Recreation Master Plan Steering Committee with Judith Cullington & Associates. Website: https://www.highlands.ca/DocumentCenter/View/1671/Parks-and-Recreation-Master-Plan

2008 The bull and the bear – Development History of Bear Mountain Community and Resort, Globe and Mail, March 28/08; https://www.theglobeandmail.com/report-on-business/the-bull-and-the-bear/article8252897/

2008 PHASE 1: GROUNDWATER PROTECTION STUDY, DISTRICT OF HIGHLANDS - 07-1414-0014, by Golder Associates Ltd. (Golder), October 22, 2008.

2009 PHASE 2: GROUNDWATER PROTECTION STUDY, DISTRICT OF HIGHLANDS - 07-1414-0014, by Golder Associates Ltd. (Golder), December 2009.

2010 Section 219 covenant, Land Title Act, Doc #: FB341899, dated April 12, 2010 on the Property (Lot 1, Section 5, Range 3 West, Highland District, Plan VIP 70242, PID 024-710-270)

2010 Certificate of Compliance - Lot 1, Section 5, Range 3 West, Highland District, Plan VIP70242, District of Highlands, British Columbia; Letter dated May 31, 2010 from Crown Land Opportunities Branch, Ministry of Agriculture and Lands, Surrey, BC., Victoria File: 26250-20/7163, SITE ID: 7163.

2011 Memo from Aqua-Tex (Patrick Lucey) to District of Highlands (July 27, 2011) Re: Riparian Management Zones – Lot alignment, RAR and SWM Pursuant to Rezoning Application RZ-02-11 – 1150 Bear Mountain Parkway https://www.highlands.ca/DocumentCenter/View/1486/Riparian-Management-Report-Part-1?bidId=

2012 PHASE 3: GROUNDWATER PROTECTION STUDY, DISTRICT OF HIGHLANDS - 07-1414-0014, by Golder Associates Ltd. (Golder), December 2012.

2013 District of Highlands Official Community Plan (OCP), Schedule A to Bylaw No. 277

2014 Letter from SNC Lavalin Inc. (Environment & Water) to O.K. Industries Ltd. (November 10, 2014) re: review of Certificate of Compliance issued for Lot 1, Section 5, Range 3 West, Highland District, Plan VIP70242

2015 Preliminary Ecological Site Investigation – LOT 1 SECTION 5 RANGE 3 WEST HIGHLAND DISTRICT PLAN VIP70242; prepared for O.K. Industries Ltd. by Aqua-Tex Scientific Consulting Ltd., dated June 10, 2015.

2016 Highlands, District municipality [Census subdivision], British Columbia and Capital, Regional district [Census division], British Columbia

2016 District of Highlands Zoning bylaw Consolidated to June 6, 2016

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