Northwest Hydraulic Consultants Ltd.
[redacted]
www.nhcwater.com

February 11, 2025

British Columbia Institute of Agrologists (BCIA)
110 – 2800 Bryn Maur Road
Victoria, BC, V9B 3T4

Attention: BCIA, Board of Directors Nomination Committee
Via email: nominations@bcia.com

Re: **BCIA Board Member Nominations**
District 3 – Vancouver and Victoria & Islands Branches

Dear Nomination Committee:

I am writing to express my interest in the Board Member position for District 3. My tenure in academic, government and consulting positions has afforded me a thorough understanding of the critical impact that an organization's values can have on protecting public interest. As a hydrologist, my profession is regulated under several governing bodies in BC. As such, I am interested in promoting the agrology profession and liaising with other regulatory bodies to ensure professional integrity. I am motivated to promote real, lasting organizational growth with the BCIA through promoting inclusivity, integrity and accountability.

As an owner and senior hydrologist at Northwest Hydraulic Consultants (NHC), I co-lead our hydrology and data science teams which operate in Western North America and are comprised of approximately 30 staff members. As a shareholder in an employee-owned firm, I have skills and experience in leadership, policy setting, strategic planning, financial and risk management and human resources.

For the past 7 years I have led flood mapping work in BC and Yukon. This multidisciplinary work requires collaboration and sign off from technical specialists that belong to various governing bodies (EGBC, BCIA, RPF). Through this work I have gained a deep understanding of the roles and responsibilities of registrants in various disciplines. I have also developed a superpower of taking complex problems, breaking them down into easily understood concepts and communicating them outwards to various stakeholders (community members, First Nations, regulatory agencies).

I co-founded NHC's Women in Engineering Resource Group which works towards advancing conversations around diversity, equity and inclusion and promoting women's roles in science and engineering. Through this work I spend time thinking deeply about diversity and inclusion

and recommending strategies for change management and future proofing to support women's roles in corporate culture.

I am excited to support the strategic direction of the BCIA, particularly as it relates to strengthening competency and integrity by increasing collaboration with academic institutions and professional organizations. My background and experience align well with the BCIA values, and I am interested in contributing to the governance and leadership of the BCIA over the next 3-years.

Sincerely,

Faye Hirshfield, Ph.D., P.Ag.
Associate | Senior Hydrologist
[redacted]

Faye Hirshfield, PhD, PAg

Associate Hydrologist

Faye is a senior hydrologist with 16 years of experience in water resource projects. Faye's work experience includes a variety of hydrologic investigations, flood mapping projects, communication of science to stakeholders, and field instrumentation and monitoring. Her recent projects have focused on hydrologic assessments for several flood mapping projects across BC along with completing community engagement for communities across Vancouver Island.

Prior to joining NHC Faye worked in both government and academia. She was a statutory decision maker under the newly established Water Sustainability Act with the Province of BC. She was responsible for negotiating and mediating solutions for surface and groundwater water applications. During her role as water manager, she led public engagement for all of Vancouver Island for implementation of the new Act. During her time in academia led several water resource projects while teaching undergraduate engineering and geography courses.

Through her consulting, government and research experience Faye has developed a dynamic skill set that allows her to specialize in leading multidisciplinary teams to solve complex water resources problems.

Education

PhD. Natural Resource & Environmental Studies, University of British Columbia, 2015

MS Environmental Science, University of British Columbia, 2010

BS Environmental Science & Geography, University of British Columbia, 2008

Licenses and Affiliations

British Columbia Institute of Agrology

Years of Experience

16

Areas of Expertise

Hydrology

Hydrologic modelling

Flood mapping

Science communication

Hydrometrics

Selected Project Experience

2021 Flood Response and Recovery - Highway 1 | BC Ministry of Transportation & Infrastructure | BC. NHC was retained to provide hydrotechnical input for various crossing projects after the atmospheric river flooding in November 2021. Faye provided senior hydrology review for various crossings.

Flood Mapping and Flood Hazard Assessments

Old Crow Floodplain Mapping | Yukon Government | Old Crow | 2024-present. Project Manager and Hydrology Lead. The project focuses on open water and ice jam flood mapping for the community of Old Crow in northern Yukon. The main tasks include survey and data collection, hydrology and flood frequency analysis, hydraulic modeling for open water and ice-induced flooding, and flood inundation and hazard mapping.

BC Floodplain Mapping Guidelines | BC Government | 2024-present. Senior hydrologist providing technical input to hydrology standards and guideline development.

Shuswap Lakes Region Flood Mapping | Fraser Basin Council | Shuswap Lakes Region| 2023-present. Lead hydrologist and public outreach coordinator supporting updated flood mapping for the Shuswap Lakes region. This project included hydrology for 6 rivers and 5 lakes. Completed flood frequency analysis, regional hydrology, climate change assessment and a joint probability assessment.

Quatsino First Nations Flood Assessment | Quatsino First Nation | 2024-present. Senior hydrologist providing technical input and review for regional hydrology, flood frequency analysis, design storm development and climate change to support hydraulic modelling input.

Chemainus River Flood Mapping and Integrated Flood Management Plan | Cowichan Valley Regional District | Chemainus | 2021-2023. Phase 1: Lead hydrologist supporting updated flood mapping for the Chemainus River.

Completing regional hydrology, flood frequency analysis, a joint probability assessment and climate change assessment to support hydraulic modelling input. Phase 2: Project coordinator for the development of an Integrated Flood Management Plan for the Chemainus River.

Regional District of Kootenay Boundary Flood Mapping | Regional District of Kootenay Boundary |Grand Forks | 2021-2022. Lead hydrologist supporting flood mapping for the Kettle River and Christina Lake. Completing regional hydrology, flood frequency analysis and climate change assessment to support hydraulic modelling input.

Hydrotechnical Assessment for 32-unit development | Cowichan Tribes | Duncan, BC | 2022. Lead hydrologist supporting hydraulic modelling evaluating floodplain impacts of a proposed development near Duncan, BC. Developed design storms, completed flood frequency analysis, and developed boundary conditions for modelling input.

Nov 15, 2021 Post Flood Assessment | Cowichan Valley Regional District | Cowichan Valley, BC | 2022. Lead hydrologist and Project Manager supporting an assessment of the November 15, 2021 flood on the Cowichan River. This project involved an infrastructure assessment and development of recommendations regarding upgrades and emergency response.

Updated Cowichan-Koksilah Floodplain Mapping | Cowichan Valley Regional District | Location | 2021. Lead hydrologist and mapping coordinator. Completing regional hydrology, flood frequency analysis, a joint probability assessment and climate change assessment to support hydraulic modelling input. Responsible for leading engagement and outreach.

Somass River Floodplain Modelling Study | Alberni-Clayoquot Regional District | Port Alberni | 2020. Project manager and lead hydrologist. Managed project team to complete floodplain mapping for the Somass River watershed. Completing regional hydrology and regional flood frequency analysis to support hydraulic modelling input.

Nitinat River Flood Study | Nitinat Lake | 2018. Project manager, hydrologist and hydraulic modelling lead. Completed regional hydrology assessment and regional flood frequency analysis in order to support hydraulic modelling input. Used HEC-RAS to complete 1D flood modelling for a 10 km reach of the lower Nitinaht River including the tidal inlet and narrows.

Upper Bow Flood Hazard study | Alberta government | Alberta | 2018. Completed the flood risk infrastructure inventory and statistical assessment for various inundation scenarios on the Bow River.

Hydrology

Hydrology and Water Licensing | Private Client | Whistler, BC | Ongoing. Project manager and lead hydrologist. Leading administrative and technical process for updating water licenses for large landowner in Whistler.

Kruger Pulp Mill Water Intake Assessment | Kruger Pulp | Kamloops, BC | Ongoing. Senior hydrologist providing technical input and review for flood frequency analysis, low flow assessment and climate change analysis to support hydraulic modeling input.

Chilliwack River climate change | Stó:lō Nation, Ts'elxwéyeqw Tribe and Soowahlie First Nation | Chilliwack| Ongoing. Lead hydrologist. Responsible for hydrologic and climate change assessment on the Chilliwack River for the Stó:lō Nation, Ts'elxwéyeqw Tribe and Soowahlie First Nation. Also responsible for developing plain language summaries of project findings to facilitate science communication to an interdisciplinary team.

Chemainus Riverscape Restoration and Planning| Halalt First Nation | Chemainus | 2023-2024. Lead hydrologist responsible for undertaking overview level hydrology and climate assessment for the Chemainus River watershed to support restoration planning.

K'ómoks First Nation water monitoring framework | Ministry of Forests & K'ómoks First Nation | Comox | 2023. Project manager and lead hydrologist. Responsible for leading interdisciplinary team to develop a water monitoring strategy for the K'omoks First Nations that considers surface water, groundwater, and climate data. Project outcomes will be recommendations around monitoring locations in the K'ómoks First Nation's traditional territory.

Upper Cowichan River Assessment | Cowichan Valley Regional District | Duncan | 2022-2023. Lead hydrologist supporting hydraulic modelling and riverine assessment to identify drivers of channel change in the upper Cowichan River. The project will be used to inform future investments in the river system.

Englishman River Estuary Old Mine Road Dike Options Assessment for Marsh Restoration | The Nature Trust of BC | Parksville | 2022-2023. Lead hydrologist supporting hydraulic modelling to assess potential decommissioning options to the Old Mine Road Dike in order to restore estuary habitat.

North Cowichan Outfall Relocation | Parsons Corporation | Duncan, BC | 2022-2023. Lead hydrologist supporting low flow frequency analysis and hydrologic assessment to inform design and construction for a pipeline crossing on the Cowichan River.

Brooklyn Creek Hydrology Study | Brooklyn Creek Watershed Society | Comox | 2022. Project manager and lead hydrologist. Developing flow estimates for Brooklyn Creek to support future design of stream restoration projects.

Lake Bathymetry Mapping | Greater Victoria for Capital Regional District | Victoria, BC | 2022. Project manager and lead hydrologist. Managing project team to complete bathymetry mapping of 4 lakes in the Greater Victoria water supply area during full pool conditions. Digital elevation models were developed for each lake. This project also involved establishing benchmark monuments on each lake.

British Columbia Regional Flood Frequency Analysis | BC Dam Safety | British Columbia | 2021. NHC developed a technical report and tools on regional flood frequency analysis as a reference document for estimating extreme floods. Faye was the project hydrologist leading the regulation and regionalization portions of the project.

Mt. Newton Irrigation Pond | BC | 2019. Project hydrologist. Estimating the 1000-year flood and probably maximum flood for a high consequence dam using a) regional flood frequency analysis b) HEC-HMS and c) the FLNRORD probable maximum flood estimation report.

Henderson River Fish Fence | BC | 2018. Project hydrologist. Completed regional hydrology assessment and regional flood frequency analysis to support fish fence design.

Millstream Culvert Fish Passage | Peninsula Streams Society | Langford | 2017. Project hydrologist. Estimated peak floods and conducted regional hydrology for the project watershed using a) regional flood frequency analysis b) HEC-HMS and c) the rationale method. Performed model simulations with meteorological data to project storm response and conducted low flow analysis to aid in culvert design.

Hydrometrics

Saanichton Peninsula Hydrometrics and Water Licensing | Private Client | Vancouver Island, BC | Ongoing. Project manager and lead hydrologist. Leading administrative and technical process for updating water licenses for large landowner on the Saanich Peninsula. Completed environmental flow needs assessment to support water license update. Manage field team to maintain their hydrometric network.

Hydrometric Monitoring | Capital Regional District | Victoria, BC | Ongoing. Project manager. Managing project team to complete installation and maintenance for 20 hydrometric stations in the greater Victoria water supply region. This project also involves collecting peak flow data throughout the flood season to update hydrometric rating curves.

Hydrometric Monitoring | Cowichan Valley Regional District | Duncan | Ongoing. Project Manager and hydrologist. Managing project field team to complete installation and maintenance for a network of gauges in the Cowichan River watershed. This project also involves setting up a flood warning system.

Hydrometric Monitoring | Regional District of Nanaimo | Nanaimo, BC | Ongoing. Project Manager. Managing project field team to complete maintenance for a network of lake gauges. Also facilitating staff hydrometric training and development of OMS manual.

Hydrometric Monitoring | City of Parksville | Parksville | Ongoing. Project coordinator. Managing project field team to complete annual flow measurements and annual station maintenance.

Hydrometric Monitoring | District of Tofino | Tofino | Ongoing. Project manager. Managing project field team to complete installation and maintenance for hydrometric monitoring program.

Grandmother Slough Hydrometric Monitoring | Líl̓wat First Nation | Pemberton | 2021. Lead hydrologist. Responsible for development of hydrometric monitoring program to understand the hydraulic controls affecting groundwater and surface water levels in Grandmother Slough. This information will be used to support conceptual mitigation to address flooding of the Slough.

Work experience prior to joining NHC

Assistant Water Manager | BC Ministry of Forests, Lands, Natural Resource Operations, and Rural Development | 2016-2017. Statutory decision maker responsible for making timely, informed and durable decisions under the Water Sustainability Act. Involved in negotiating and mediating solutions for surface and groundwater water applications. Responsible for hiring and training a team of 5 water officers in hydrology and hydrogeology. Responsible for procuring contracts, leading public outreach, coordinating team drought response and contributing to provincial policy development.

Watershed Scientist | Foothills Research Institute | 2014-2015. Worked with local industry to develop watershed assessment procedures for the foothills region of Alberta. Project lead for developing a 5-year water management strategy for a municipal water program located in northern British Columbia. Used the HBV-EC hydrological model to examine the impact of climate change on instream flow thresholds of a small mountain watershed in British Columbia.

River Ice Hydraulics | Environmental Engineering Department, University of Northern British Columbia | British Columbia |2015. Designed and constructed a large scale hydraulic flume. Conducted flume experiments investigating how ice conditions impact sediment transport processes around bridge piers. Responsible for: hiring contractors, procurement of materials, obtaining construction permits, grant proposal writing, hydraulic flume design and training intern students.

Montney Water Project - Kiskatinaw River | University of Northern British Columbia | British Columbia | 2013. Project manager responsible for leading a team in examining water resources in the Kiskatinaw Watershed for future development of a shale gas play. Responsibilities include: design and installation of surface water and piezometer monitoring network, hiring and supervising team of researchers, reviewing staff performance, budget management, proposal writing, data collection and analysis, report writing and final deliverables.

Watershed Modelling in Northern BC | University of Northern British Columbia | British Columbia | 2010. Responsible for applying the HBV-EC model to examine the impact of climate change and harvest of mountain pine beetle stands on streamflow. Provided a technical report and recommendations to provincial government regarding hydrologic modeling software application in northern environments.

University Lecturer | University of Northern British Columbia | 2009-2013. Responsible for instruction undergraduate courses in geography, fluid mechanics and environmental science.

Water Technician | BC Ministry of Environment | 2004-2012. Responsible for completing technical reports and recommendations for water license applications and approvals granted under provincial water legislation. Reviewed environmental assessments.