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WATER ALLOCATION - APPROVAL APPLICATION REPORT
(Changes in and about a stream)

Water District:	New Westminster	Precinct:	20H - Kent	File No:	A 2005807

Applicant:	Name:	Emergency Management BC (EMBC)	Attn:	Ann Griffin
	Address:	P.O. Box 9223 Stn Prov Govt. Victoria, BC V8W 9J1	Email:	ann.griffin@gov.bc.ca
			Phone:	250-953-4098
Consultant:	Name:	Scott Resource Services Ltd.	Attn:	Jim Scott
	Address:	See File	Email:	Scottres@telus.net
			Phone:	604-701-6311 for Jim Scott
Contractor:	Name:	Links Contracting and Aggregate Supply Ltd.	Attn:	Clem Shae
	Address:	See File	Email:	clem@linkscontracting.ca
			Phone:	604-830-7214
Consultant:	Name:	Kerr Wood Leidal	Attn:	E. Ellis P.Geo., D. Murray, P.Eng
	Address:	See File	Email:	EEllis@kwl.ca
			Phone:	604-294-2088
(a) Name of Stream(s):		Fraser River (Tranmer Bar and Spaeti Bar)	Tributary to:	salt water

Add Consultant or Contractor | Remove

I recommend that the application be: Granted

(b) Proposed changes (include works and appurtenant land):
To install and remove a temporary bridge, culverts, and haul road; to remove a maximum of 190,000 m3 of gravel and other sediment; and to conduct the proposed associated activities (dry screening, use of sediment weigh stations, watering of haul roads with water obtained from another site, and use of a temporary sediment borrow pit approximately 2,500 m3 in volume on Spaeti Bar) all within the unsurveyed foreshore or land covered by water being part of the bed of the Fraser River in the area known as Spaeti Bar and Tranmer Bar and that part of Southeast 1/4 lying West of the Fraser River, East of District Lot 38 and South and East of Higginson's Lot, Section 20, Township 3, Range 28, West of the 6th Meridian, Yale Division Yale District and District Lot 154, Yale Division Yale District.

Requested timing for changes: 2011 winter work window (Jan. 1 to March 15 unless extended)

Special clauses for cover letter:
It is the responsibility of the Approval holder to ensure any proposed development does not impact traditional or special sites in accordance with the Heritage Conservation Act. If archaeological deposits or features are encountered during construction of the works, the Approval holder must stop work and contact the BC Archeology Branch for further direction.

Further to condition (w) of the Approval document, the Environmental Monitor's post-extraction report must include the Approval file number, site location, frequency of monitoring, a brief description and date of completion for each work stage, the total volume of sediment removed, description of the type and extent of any direct environmental impacts that were not described in the application (such as removal of vegetation at additional locations) and description of any difficulties and incidents and how these were addressed.

Reports for the biophysical assessments described in condition (x) of the Approval document must be provided as hard copies labelled with the Approval file number. The final monitoring report for 2011 sturgeon assessment shall be submitted by December 30, 2011 unless an alternate timeframe is required by the Regional or Assistant Regional Water

Manager. Monitoring reports for other biophysical assessment activities shall be submitted by March 30 after each year of sampling is completed.

The Ministry of Natural Resource Operations contact information for reporting requirements described in the Approval document is as follows:
-To report incidents, please call the Assistant Regional Water Manager, Timothy Bennett, at 604-582-5227 (office) or 604-314-4943 (cell) or the Regional Water Manager, Julia Berardinucci, at 604-582-5353 (office) or 604-816-5934 (cell).
-Monitoring reports should be mailed to the office address listed below and addressed to Water Officer, Rachael Eedy.

Please copy the following on the Approval document and cover letter : Lotte Flint-Petersen (MNRO), Laura Rempel (DFO) and the consultant and contractor above

Conditions under which the Approval is to be Granted:

(c) This Approval does not authorize entry on privately held land or Crown land.

(d) This Approval does not constitute authority of any other agency. The holder of this Approval shall have the necessary permits from other agencies concerned prior to the commencement of the works authorized herein.

(e) The holder of this Approval shall take reasonable care to avoid damaging any land, works, trees, or other property and shall make full compensation to the owners for any damage or loss resulting from the exercise of rights granted hereunder.

<Link to CIAS Numbered Template Clauses> Check ☒ clauses modified from the standard template version. ***Wait until the clause list is complete*** because inserting or removing rows offsets clauses from check and drop boxes. These fields are for internal use only.			
(f)	The work authorized shall be completed on or before March 15, 2011 and the holder of this Approval shall advise the Assistant Regional or Regional Water Manager (604-582-5200) when the changes have been completed.	☐	1
(g)	The holder of this Approval shall advise the Assistant Regional or Regional Water Manager prior to commencement of construction of the works.	☐	2
(h)	Prior to the commencement of the works authorized under this Approval, the holder of this Approval shall obtain authorization from Fisheries and Oceans Canada.	☐	
(i)	A copy of this Approval (and associated plans/drawings listed on this Approval) must be available for inspection, upon request, at any location where the authorized changes in and about a stream are being undertaken.	☐	
(j)	Work within the wetted perimeter of the stream shall be undertaken during the period of January 1 to March 15, so that the fisheries interests are protected.	☐	
(k)	Upon commencement of the project, the work shall be pursued to completion as quickly as possible.	☐	7
(l)	All sediment excavation for removal purposes shall be completed in isolation of the stream flows.	☐	
(m)	Care shall be exercised during all phases of the work to minimize siltation of the stream and to eliminate the release of raw concrete, concrete leachate, and any other debris or deleterious substances.	☐	11
(n)	Care shall be exercised during sediment screening so that fine size fractions are not introduced into wetted areas or left in dry areas of the stream channel following the completion of work.	☒	
(o)	All hydraulic machinery used in the channel of the Fraser River will use environmentally sensitive hydraulic fluids which are non-toxic to aquatic life and which are readily or inherently bio-degradable.	☒	
(p)	Vegetation shall be disturbed as little as possible. Any plants that are removed for the purpose of site access must be replaced by planting.	☒	50
(q)	Culverted crossings shall be placed so as not to adversely impact fish or restrict fish passage.	☒	
(r)	All temporary works shall be removed on completion of the project.	☐	50
(s)	The holder of this Approval shall retain qualified Environmental Monitors to supervise all instream works authorized under this Approval according to the "Specifications for On-site Environmental Monitoring of Active Sediment Removal Projects" (copy attached in Appendix 1) and the following clarifications and conditions. Environmental monitoring shall include a minimum of three site visits by a Registered Professional Biologist, including but not limited to: one to examine the bridge location and meet with contractors before the bridge is installed, another during excavation area perimeter layout, and another at a time near to the end of sediment removal to review plans for completion of the excavation and decommissioning of access structures.	☒	55
(t)	The Environmental Monitors, by this Approval, are hereby granted authority to take immediate action to halt and/or address activities that are perceived to be non-compliant, harmful to the environment or pose a significant risk to fish. In the event of an environmental incident or non-compliance with any of the terms or conditions of this Approval (including changes to the design of instream works that have not been authorized under the Water Act), the Environmental Monitor shall notify the Assistant Regional or Regional Water Manager by phone within two hours.	☒	

(u)	The holder of this Approval shall retain a Professional Engineer to oversee the bridge works authorized under this Approval and to monitor in person, pile driving and work at critical points of bridge installation and removal when and where there is a possibility or risk of detrimental impacts to the environment.	☒	
(v)	All sediment removal shall comply with the sediment removal site plan drawings SW7 Rev'3 and SW9 Rev'3 and access routes shall be located as shown in the overview plan drawing SW8 Rev'1, all prepared by Kerr Wood Leidal Associates Limited. The temporary bridge work shall comply with the engineering drawings 08-GC-0174-1/Sheet 1 Rev'0, Sheet 2 Rev'0, Sheet 3 Rev'0, Sheet 4 Rev'1 and Sheet 5 Rev'0 prepared by All North Consulting Engineers and Surveyors referencing engineering drawings 3751-SK-511 Rev'2, 3751-SK-512 Rev'3, 3751-SK-513 Rev'3, and 3751-SK514 Rev'1 prepared by Associated Engineering. All work shall be carried out in accordance with environmental protection measures proposed by Scott Resource Services in Section 4.6. "General mitigation measures" and Section 4.5.2 "Bridge"of the report titled "Fish Habitat Assessment Mitigation Plan and Monitoring Program - Tranmer Bar, Fraser River", dated Nov. 9, 2010.	☒	
(w)	An environmental monitor's post-extraction report shall be completed and a hard copy submitted to the Water Officer within 60 days of completion of the work.	☒	
(x)	The holder of this Approval shall designate appropriately qualified environmental professionals to complete the biophysical monitoring activities described in the application. Biophysical assessment shall include pre-extraction and post-extraction sampling of sediment size and invertebrates, as well as sturgeon sampling and habitat assessment, according to the specifications provided by Emergency Management BC, Fisheries and Oceans Canada, Ministry of Natural Resource Operations and Ministry of Environment staff.	☒	
(y)	The Environmental Monitor shall inspect the extraction area for fish stranding at least once during summer or fall of 2011 after water levels have declined.	☒	

Insert or Remove Clause at End

Referrals/Notifications: Referrals and Notifications were completed by the applicant on behalf of the government of BC (see notes below for summary). A table listing referrals sent and responses received was prepared by EMBC and is on file.

<Link to Referral Agency List> | Abbreviated Referral Text | Insert / Remove Referral Table

Notes: *(include reasons for refusal or cancellation)*
<Hyperlink to Notes Doc>

Paste Notes from Word File | Clear Notes

Proposed Work

The proposed gravel removal design is part of a second line of flood protection defence to the communities along the Fraser River gravel reach. The fist line of defence is provided by dikes.

Gravel removal occurs as part of the Fraser River Sediment Management Program (Sediment Program). The site proposed for winter 2011, Tranmer Bar, is located 5 km upstream of the Agassiz-Rosedale bridge on the right (north) bank of the Fraser River. It is the only removal site currently proposed for 2011 in this program. (An Approval application was submitted for Powerline Bar, but will be withdrawn if work at Tranmer proceeds). Emergency Management BC (EMBC) is responsible for the work.

EMBC proposes to remove up to 228,000 m^3 of gravel and other sediment from Tranmer Bar. The excavation would scalp a layer of gravel from an area of around 260,000 m^2 located near to the bar edge and mainstem channel. The excavation design slopes slightly towards the mainstem channel to create positive drainage and prevent fish stranding. Note that the actual removal volume is now anticipated to be lower than initially requested (167,000 m^3) based on a site survey conducted on December 1, 2010 and the revised excavation design. A maximum removal volume of 190,000 m^3 has been recommended for the Approval document.

All sediment excavation would be done in the dry outside of the wetted channel areas and above the waterline. Sediment removal would proceed in an upstream direction so that the removal site could be left in an acceptable configuration if rising water levels do not allow excavation of the entire volume proposed. EMBC anticipates that most or all of the winter work window will be required to complete the proposed removal.

A haul road approximately 1.4 km long would be used to access the bar and haul sediment off-site by truck. An existing access ramp will be used to cross the dike road. A temporary bridge would be used to cross a side channel between Tranmer Bar and Spaeti Bar. Part of the bridge foundation (piers and possibly a portion of the abutments) would be positioned in the wetted channel. The bridge design will be the the same as used for the 2009 removal and permitted by Transport Canada, Navigable Waters (engineering drawings on file). If small "residual" wetted side channels are present

in other locations, culverts would be installed at the haul road crossing(s). All crossing and access structures are temporary and restoration of the affected locations would occur before the end of the work window.

Other associated activities that would occur in the Fraser River channel are: a 2,500 m^3 borrow pit on Spaeti Bar to be used as a temporary supply of gravel for the bridge ramp; wet crossing(s) of equipment to enable bridge construction; watering of haul roads for dust control (using water from off-site); and dry screening of sediment (to separate it into size fractions) and weighing prior to transport.

Information Reviewed

Technical documents

The following key reports and submissions were provided by EMBC:

- "Fraser River Sediment Removal Plan Proposed Tranmer Bar Sediment Removal- 2011" report package, dated Nov. 9, 2010, prepared by Scott Resource Services Inc. (SRS), Kerr Wood Leidal Associates (KWL) and EMBC, which includes geomorphic, fish habitat and environmental mitigation information. The reports in the package include a hydraulic assessment report, dated Oct. 27, 2010, and a Techanical Memorandum, dated Nov. 5, 2010, both prepared by KWL.
- Engineering drawings for the gravel excavation:
    1. Drawing No. SW7, stamped Oct. 15, 2010, contained in the Nov. 9 report package and superceeded by Drawing No. SW7 revision 3, stamped Jan. 10, 2011 for construction purposes.
    2. Drawing No. SW9, stamped Oct. 15, 2010 contained in the Nov. 9 report package and superceeded by Drawing No. SW9 revision 3, stamped Jan. 10, 2011 for construction purposes.
- Engineering drawings for the temporary bridge (see Approval conditions for drawing numbers).
- Fraser River Sturgeon Sampling and Monitoring Program 2010 report, dated Dec. 28, 2010, prepared by Triton Environmental Consultants Ltd.

All technical information that I received from EMBC or others by and including Jan. 12, 2011 was reviewed in preparation of this report.

Consultation and Referral Procedures

Work was planned with advice from the Fraser River Sediment Management Technical and Management Committees. Committee members include the Regional Water Manager and representatives from Ministry of Natural Resource Operations (MNRO) Flood Hazard Management and Crown Lands as well as federal representatives from Fisheries and Oceans Canada and Transport Canada (Navigable Waters). The Technical Committee consulted with MNRO's Ecosystems Section on plans for this site.

Coordinated consultation with other groups was done by EMBC on behalf of all provincial permitting agencies. Referrals were sent by EMBC to permitting agencies, local government, First Nations and potentially affected land tenure holders in May and June of 2010. EMBC has also launched a public website that provides technical information and reports for the sediment program (http://www.pep.gov.bc.ca/floods/fraser_sediment_prog.html)

All referral responses, as reported by EMBC before January 12, 2011, have been reviewed. The only responses received directly by our office were comments from the technical committee and the Ministry of Natural Resource Operation's Crown Land adjudication group. Key referral responses and concerns are summarized in this report according to my understanding of the author's intent. This internal Water Allocation report is not intended to serve as communication from other organizations. Please see EMBC's referral response table and other records on file for full comments and responses.

Flood protection and channel morphology

The rationale for the sediment removal program is explained as follows (from the Nov. 9, 2010 report package prepared by EMBC, SRS and KWL): *"Each year during the spring freshet, sand and gravel are deposited in the Fraser River gravel reach between Hope and Mission. Localized sediment deposition raises the river bed over time, which poses a flood risk to adjacent communities. The ongoing program of sediment removal in the lower Fraser River is part of a long term pro-active maintenance strategy to support water conveyance and help protect communities from large scale flooding events (such as the record floods that occurred along the lower Fraser in 1894 and 1948). Sediment management is only one component of the provincial flood protection strategy.*

The first line of defence in flood protection to the communities is provided by the dikes. The design flood of record used for dike design purposes and flood protection to the community is the flood that occurred in 1894. The Fraser River hydraulic model, which computes the water surface profile along the dikes, if this flood event were to occur again, is a

key tool in understanding where along the dikes the local communities are at most risk for flooding. While dikes are the first, and most important defence against flood, it is not possible to keep raising dikes indefinitely.

The second line of defence in flood protection is to strategically remove the influx of sediment into the gravel reach. Without a sediment management program, in-channel sediment build-up will result in the design flood water profile rising along the dikes and increasing the risk of flooding to local communities. It is estimated that on average approximately 230,000 cubic metres of gravel enters the lower Fraser River every year".

The applicant's hydraulic consultant, Kerr Wood Leidal states that the proposed removal is intended to provide flood protection since it "would contribute to the goal of "water profile maintenance" "(i.e. preventing increased flood profile levels). The removal design involves removing part of a laterally expanding bar edge and was selected to reflect goals such as preserving channel conveyance and minimizing opportunities for major bar destabilization.

The proposed removal volume for winter 2011 is less than the estimated average annual net input of sediment into the gravel reach (which is in the order of 230,000 m^3). The total volume of sediment removed from Tranmer Bar since 1999, with the addition of the proposed removal, is only 31% of the estimated volume of aggradation during that time period. (See Section 2 of KWL Oct. 27, 2010 for further details on removal volumes). Kerr Wood Leidal did not identify potential for the proposed removal to cause adverse effects on the morphology of the surrounding channel. Note that there are ongoing changes in the channel morphology in this area, including a new cut-off channel through Herrling Island, opposite and downstream of Tranmer.

Environmental Considerations

Environmental assessment for the Fraser River Sediment Removal Program is focussed on potential impacts to fish. There are 28 species of fish found in the gravel reach, including white sturgeon, a provinicially red-listed and COSEWIC (Committee on the Status of Enangered Wildlife in Canada) listed species.

Work in the wet is proposed to access this site, so there is potential for direct impacts to fish. Sediment removal would be completed in the dry so is not expected to affect fish directly. However, sediment removals have the potential to affect fish indirectly through changes to physical habitat characteristics.

Information prepared by EMBC's consultants

This application includes reports by three different consultants with information on existing fish habitat value and potential environmental impacts. Their comments are based on qualitative observations, habitat modeling analysis, biological monitoring for this program, and other studies.

Scott Resource Services provided information on existing fish habitat values. At moderate summer flows, the bar edge area around the removal area provides suitable rearing habitat for various fish species. The nook features present at low flow may be particularly suitable for smaller juvenile fish. The area adjacent to the removal area and the bridge location have potential for salmon spawning (e.g. chinook and chum) although redds were not observed during site visits in fall of 2010. Other fish species may use the bar edge area for spawning.

Triton Environmental Consultants Ltd. provided information on sturgeon habitat use. Sampling for sturgeon eggs and juveniles and collection of habitat information (e.g. water temperature, substrate, depth and velocity) was completed this year at and around several different bars in the gravel reach, including Tranmer. Juvenile sturgeon were captured in small numbers at 5 of the 9 sampled sites, including a location at Tranmer near to the proposed bridge (see SRS Section 4.1.3 and Triton Figure 11b).

Sturgeon eggs were only found at the Herrling site (across from Tranmer Bar) this year. Although sturgeon eggs were not found at the sampled Tranmer sites, SRS notes that there are small cross-bar channels overlapping the removal area that may provide suitable spawning habitat. The Triton report details limitations of the sturgeon data collected, including that site usage may vary among years and that discharge was lower than average this year.

Kerr Wood Leidal modeled hydraulic conditions (depths and velocities) for existing and post-excavation conditions at typical summer flow levels (4,000 m^3/s at Hope). Velocities were predicted to increase near the removal site, but decrease near the channel thalweg. These results were used to predict changes in habitat suitability (Weighted Useable Area (WUA) values) during "typical summer rearing flows" for different life stages of six species (salmonids and the blue-listed mountain sucker) selected based on DFO requirements. Changes in WUA were predicted using two methods – one that covered Tranmer Bar and surrounding channel area and one that only covered the much smaller removal footprint.

Key points related to potential impacts on fish and fish habitat from the information provided by EMBC's consultants include:

- KWL summarized the results of the fish habitat modeling. When assessed over the larger area, the removal was predicted to both increase and decrease WUA values depending on the species and life stages, with more increases than decreases. When assessed for the excavation area alone, the removal was predicted to decrease WUA values for 10 of 13 species/life stages. Note that our perception of the extent of change can be affected by

how these values are expressed (e.g. over 10,000 m^2 change in WUA units *versus* <1% change when WUA is expressed as a percentage of the entire larger area, see Table 6 Oct. 27, 2010 KWL). The values presented seem to reflect small but significant shifts in habitat suitability affecting large areas.

- The fish habitat suitability modelling has significant limitations and SRS stated that they could not comment on its accuracy in terms of predicting gains and losses of habitat for each species/life stage.
- Scott Resources notes potential for increases in velocity to impact habitat use for certain life stages and species of fish. For example, nook areas could become less suitable for the smallest minnows and suckers due to increases in velocity. Nook habitat features are included in the extraction design for compensation purposes.
- Triton notes that the juvenile sturgeon were mostly found in backwater and deep hole areas, and may not commonly use the shallow bar habitat types targeted for gravel removal (with the exception of sturgeon captured at a previous sediment removal area at Gill Bar). Therefore excavations should be hydraulically designed to maintain any surrounding backwater areas.
- The extraction has been positioned away from the water's edge and above the water table so as to avoid impacts to viable redds.
- Scott Resources comments that benthic invertebrates are expected to recolonize the removal area when it becomes wetted, however there could be changes in invertebrate community composition due to changes in physical characteristics such as sediment size.
- There was a significant decrease in invertebrate abundance associated with the 2009 Tranmer removal site in the first post-removal sampling session in fall of that year. Most invertebrate sampling results for this program that I have reviewed do not show a clear association between sediment removal and invertebrate abundance (see SRS Section 4.3 for references).
- Changes to physical habitat characteristics such as bar lowering are "anticipated to be shorter term disturbances, that are dependent upon the size of the Fraser River freshet" according to SRS. The reports did not include related predictions such as how many years (freshets) it might take for the excavation area to refill.
- Bridge work has the potential to impact salmon redds, if present, through direct (e.g. pile driving) and indirect means (e.g. compaction and sound pressure). Scott Resources anticipates little or no actual disturbance of redds at the bridge crossing based on observed site conditions. However, water levels are too high to determine if there are redds near the centre of the affected channel, so we cannot entirely exclude the possibility of impacts to salmon redds (see Jan. 10, 2010 email and Section 4.5.2 of SRS report for details).
- Site access will require some riparian vegetation removal — an estimated 50 m^2 (mostly grass and blackberry) near the proposed bridge and some vegetation disturbance at the access ramp. Replanting is planned to remove any replaced vegetation.

There is a biophysical monitoring program for the sediment management program. It includes collection of the following types of data before and after gravel extraction: surveys, habitat mapping (classification of habitat features), surface sediment size and benthic invertebrate sampling. The fish sampling methods were modified during the past year based on guidance from DFO and our Ministry to add a sturgeon sampling component and remove the earlier requirement for juvenile fish sampling designed to capture other species. (The reasons for this decision included low statistical confidence of juvenile fish sampling results and the implementation of fish habitat suitability modeling).

Ecosystems Section comments

Ecosystem's Biologist commented on potential impacts to sturgeon in a response to DFO (Dec. 17, 2010 email). Key comments can be summarized as:

- Seasonal sturgeon rearing and feeding includes "nearly all available lower Fraser River habitats". Sturgeon observation locations near the proposed works were noted.
- The Biologist's opinion was that the sediment removal "will result in a harmful alteration of sturgeon and other fish habitats", but that this alteration would likely be temporary if work is designed and conducted appropriately. Continued biological monitoring was recommended to determine if DFO should require fish habitat compensation in future. It was recommended that "sampling for all other fish species for spawning and rearing activity" also be required.
- Specific recommendations were provided for design review (e.g. ensuring positive drainage to avoid fish stranding), environmental monitoring (e.g. more Registered Professional Biologist supervision) and construction mitigation measures.

I have included or modified certain Approval conditions based on the advice from Ecosystems, but have not included all of their advice in the Approval conditions. For example, in the conditions related to Environmental Monitoring, a requirement for on-site involvement from a R.P.Bio has been added, but a requirement for more frequent reports has not. Further changes in environmental requirements, such as changes in fish sampling methods, should be discussed at the committee level during the next year before consideration as a requirement of Section 9 Approvals.

Fisheries and Ocean Canada

This project is under review by DFO for Fisheries Act Authorization. I recently discussed certain aspects of the works with DFO, including the fish habitat modeling results, bridge crossing, and possible Approval conditions related to monitoring (Jan. 6, 2011 phone conversation). No additional key concerns were identified through this conversation beyond those summarized above and reflected in the Approval conditions.

First Nations Considerations

The proposed work could affect First Nations rights as it involves large-scale changes to Crown Land in a river with considerable importance to First Nations. However, the potential for adverse impacts to First Nations is limited by the largely temporary nature of the work. It is noted that the Tranmer site is close to Seabird Island and Cheam Indian Reserves.

Cheam First Nation are EMBC's partner for this project and have selected the contractor to do the work. We understand that Cheam have signed an agreement to work cooperatively on gravel removal and other flood protection issues with Seabird Island Band and Sto:Lo Tribal Council.

Notifications were sent by EMBC to all First Nations with consultative areas overlapping this site (over 30 offices) in May of 2010 with updated and additional information provided in November of 2010. (Note that since the initial Notification was sent for all three candidate sites together, certain First Nations received information on this site only because they had Consultative Areas that overlapped other sites). EMBC discussed the project with interested First Nations by phone and/or in person.

The majority of First Nations did not respond or provided responses that are interpreted as being neutral or in support of the proposed works. Two First Nations expressed concerns about the work proceeding.

The Nicola Tribal Association responded on behalf of Nicomen Band and expressed "technical" concern about potential to disturb artifacts and recommended that archeological fieldwork be completed. There are no known archeological sites in the work area. Sediment in the excavation area was likely deposited relatively recently, so is unlikely to contain sizeable intact archeological sites (although small artifacts could be present). Standard archeological advice has been included in the cover letter of the Approval.

Cowichan Tribes asserted rights to title, fishing, hunting and resource gathering on the lower Fraser River, and summarized documentation showing that they historically occupied certain areas (July 16, 2010 letter from Chief Lydia Hwitsum on file). Comments included that the 2011 candidate sites "lie within and in close proximity of traditional Cowichan lands and resource sites" and that Cowichan Tribes "will vigorously oppose any project that could have an adverse impact on Cowichan Aboriginal title and rights". Cowichan Tribes requested additional information and consultation. EMBC provided additional information and offered to meet as requested. EMC commented in a response letter to Cowichan that "no or low impacts on Cowichan Tribes Aboriginal Interests" was anticipated based on a review of traditional use and the nature of the works (Dec. 2, 2010 letter).

Water and Land rights

There are no water licences in the vicinity of the works.

The work site overlaps a tree farm Licence belonging to Kruger, who received a referral and did not comment on this site. The access route crosses privately owned land at Spaeti Bar and the landowner has given written consent for this use.

The Ministry of Natural Resource Operation's Crown Land group commented that the only authorization they were requiring is a contractor temporary work permit and that a Notation of Interest is already in place over the entire gravel reach (Aug. 31, 2010 phone conversation).

Additional Committee Comments

The Ministry of Natural Resource Operation's Senior Flood Hazard Engineer recommended that the works proceed as proposed, but did note that not all requested documentation had been received for the temporary bridge. EMBC has yet to confirm how the bridge height and conveyance relates to winter high flow frequency. However, Northwest Hydraulic Consultants (nhc) had provided an earlier opinion that the proposed bridge deck elevation "appears adequate" to convey flow (see Nov. and Dec. 2010 email correspondence on file, and Jan. 2011 note to file for details). Note that anticipated water levels are shown on Sheet 2 of the All North engineering drawings, with over 3 m of freeboard indicated for "anticipated water level at the time of installation" (presumably winter of 2009).

Stewardship Group Comments

The sediment removal program is of concern to certain environmental groups. Submissions to MNRO included the January 5th and 10th, 2011 letters from the Fraser River Sturgeon Conservation Society. DFO provided MNRO with

copies of documents received in the course of the CEAA review's opportunity to comment (copies are on file). Information received by Water Allocation has been considered by the Regional Water Manager. Key technical comments were recently discussed with DFO and Ecosystems (Jan. 12, 2011 conference call). The types of concerns raised by stewardship groups, such as potential impacts on salmon, sturgeon and channel morphology, are considered as part of the Approval review process and reflected in the notes above.

Recommendations

Information provided by appropriately qualified professionals and by referral respondents suggests the following:

1) The proposed sediment removal at Tranmer Bar is expected to provide flood protection benefits.
2) Temporary impacts to fish habitat are anticipated. The extent of adverse impacts is uncertain, but the professional opinion is that they are temporary and recoverable. There may be small scale direct impacts to fish at the wetted crossing locations, which can be limited through appropriate mitigation measures.
3) First Nations interests have been considered as part of an ongoing dialogue with the BC provincial government, as represented by EMBC.

Therefore, I recommend that this Approval be granted with the listed conditions.

Recommended Approval conditions are based on standard conditions for Section 9 Approvals; recommendations from the applicant's qualified professionals; opportunities for improvement identified from difficulties and incidents during past gravel removals; and recommendations from the technical committee.

Recommendation:

I recommend that this Application be Granted as Approval 2005807.

Report made by: Rachael Eedy — Date Report: January 12, 2011

Rachael Eedy
Water Stewardship Officer

Site inspected by: Not Inspected — Inspection Date:

Report signed by: Julia Berardinucci — Date signed: January 13, 2011

Julia Berardinucci
Regional Water Manager