

TABLE 1
OWNER'S COMMITMENTS AND RESPONSIBILITIES
SEA-TO-SKY HIGHWAY IMPROVEMENT PROJECT

NO.	COMMITMENTS AND RESPONSIBILITIES Note: These commitments apply to on-site, off-site, permanent, temporary and ancillary works and activities. "Site" refers to highway right-of-way as it may exist from time to time.	ACTION BY Note: this is for information purposes only and is not a binding part of the Certificate. Where ticks are not provided, whoever is doing the work has the obligation for the action.		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
1.	General <i>The Ministry of Transportation (MoT) will mitigate the potential impacts to the environment by:</i>				
1.1	Providing one month advance notice to the environmental agencies that an item(s) subject to agency review will be provided for review.		✓	All stages	✓
1.2	Developing an Environmental Management Plan prior to construction start-up, in accordance with or equivalent to the provisions of Section 165 of MoT's <i>Standard Specifications for Highway Construction (hereafter referred to as Section 165)</i> , to convey an understanding of the project's environmental constraints (including construction timing) and how the Project will be undertaken to avoid/mitigate negative impacts. The Environmental Management Plan(s) (EMP) will be submitted to the appropriate environmental agency for acceptance before work commences and will include, as relevant, an: <ul style="list-style-type: none"> — Air Quality Monitoring and Mitigation Plan, — Archaeology and CMT Management Plan, — Raptor/Heron Management Plan, — Bear/Human Conflict Reduction Plan, — Construction Schedule pertaining to permits and approvals, environmental tasks, environmental timing windows and work restrictions, — Contaminated Soils Management Plan, — Environmental Quality Management Plan, — Environmentally Sensitive Areas Management and Protection Plan, — Environmental Training Plan, — Equipment and Materials Plan, — Fisheries Mitigation/Compensation Plan (including habitat balance calculations and monitoring), — Infrastructure Demolition Management Plan, — Materials Management Plan, — Noise Control and Mitigation Plan, — Potentially Acid Generating/Metal Leaching Materials and Acid Rock Drainage Adaptive Management Plan, — Riparian Restoration and Terrestrial Reclamation/Revegetation Plan, — Sensitive Ecosystem Management Plan, — Sediment and Drainage Management Plan, — Soil Conservation/ Stripped Organic Material Management Plan, — Spill Contingency and Response Plan, — Tailed Frog Management Plan, — Vegetation Debris Management Plan, 		✓	Post contract award / Pre-construction	✓

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
1.2 cont'd	<ul style="list-style-type: none"> — Waste Management Plan — Water Quality Sampling Program, and — Wildlife Mitigation Plan. <p>Revisions to plans will be required as changes in work scheduling, site conditions and weather occur.</p>				
1.3	Consulting with environmental agencies to determine the conditions under which work in Environmentally Sensitive Areas (as defined in Section 165) must be carried out.		✓	Post contract award / Pre-construction	✓
1.4	Conducting on-site investigations and examinations of documents supplied and referenced by the MoT in order to fully comprehend the environmental aspects of the work required.		✓	Pre-construction/ Construction	
1.5	<p>Producing an Environmentally Sensitive Area Management and Protection Plan for any work in and around Environmentally Sensitive Areas (as defined in Section 165), such as fish habitat. The environmental procedures will contain the following items:</p> <ul style="list-style-type: none"> — Existing environmental conditions. Identification of the environmental resources (e.g. fish species and habitat) in the area of the proposed work. — Description of work proposed in the Environmentally Sensitive Area. Summary of the proposed work, equipment to be used, schedule of activities, and location. — Environmental protection measures. Statement concerning the measures that will be used to protect environmental resources (e.g., species and habitat) from each potential adverse impact. — Contingency plan. Description of alternative or backup plan in the event of an environmental emergency or failure of any of the protective measures. — Environmental monitoring requirements. Indication of any specific or unique environmental monitoring requirements to ensure compliance with environmental specifications and proper implementation of the environmental procedures. 		✓	Post contract award / Pre-construction	✓
1.6	Retaining an environmental monitor to work on-site during all phases of highway construction. The monitor will work with the Contractor to ensure the protection of the environment, that mitigation measures are appropriately implemented and to facilitate communication between the Contractor, environmental agencies, and MoT.		✓	Construction	
1.7	Undertaking environmental quality audits to ensure the Contractor complies with the Environmental Management Plan.	✓		All Phases	
1.8	Providing documented demolition procedures and schedules in the Infrastructure Demolition Management Plan, and liaising closely with environmental agencies to ensure a full understanding of the site-specific environmental issues.		✓	Construction	

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		MoT	Contractor		
2.	<i>Potentially Acid Generating (PAG)-Material Management and Metal Leachate Loading at Final Rock Cut Faces</i> <i>MoT will mitigate the potential impacts to biological receptors from acid generating materials by:</i>				
2.1	Detailed characterization of acid rock drainage/metals leaching in andesitic rock between Sunset Beach and 'M' Creek has identified PAG materials in four proposed rock cuts. These results will be used in conjunction with ongoing studies at the Britannia Mine to determine the appropriate handling and disposal options for this material, in consultation with the Ministry of Water Land and Air Protection and Ministry of Energy and Mines.			Pre-construction	✓
2.2	Optimizing the preliminary highway alignments to minimize rock excavation in areas where the potential exists for acid generating material.		✓	Post contract award / Pre-construction	
2.3	Using best management practices to avoid impacts from ML/ARD from material handling, stockpiling, transportation and placement of stockpiled materials during the construction phase.		✓	Construction	
2.4	Ensuring a properly qualified person or persons are retained for the terms of reference, methodology and products of subsequent metal leachate/ acid rock drainage assessments and mitigation work.	✓		Pre-construction	
2.5	Conducting the proposed detailed risk assessment during detailed design to identify if physical pathways exist and to evaluate the sensitivity of receptors to aluminum and copper toxicity.		✓	Pre-construction	MEM
2.6	Conducting a surface water monitoring program immediately prior to, during and post-construction for the sensitive waterbodies and any ditches at the base of the rock cuts if physical pathways are shown to exist to these water bodies that contain sensitive aquatic organisms (based on the risk assessment).		✓	Pre-construction/ Construction/ Post-construction	MEM
2.7	Maintaining a comprehensive database of all geological and geochemical data collected for the Sea-to-Sky Highway, including the rock units, sample type, location and results, drainage monitoring locations and results, and maps showing the sampling locations, rock types and ARD potential at planned excavation sites. This information will be provided in all tendering documents, and noted in all as-built plans as a guide for those conducting future highway maintenance and expansion. The database and plans will be updated when additional information is collected.		✓	Pre-construction	MEM
2.8	Referring the Potentially Acid Generating/Metal Leaching Materials and Acid Rock Drainage Adaptive Management Plan and the Materials Management Plan to environmental agencies for review and acceptance.		✓	Pre-construction	MEM

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2.9	Retaining a qualified consultant to monitor material characteristics during construction to confirm assessments and to identify any materials with the potential for ML/ARD that were missed in the planning stages. The contractor will follow approved material disposal strategies and where necessary, recommend specific mitigative strategies to address unexpected conditions encountered during construction. If such areas are discovered, material handling options will be discussed with the Ministry of Energy and Mines		✓	Construction	MEM
2.10	Not used.				
2.11	Stipulating in contract language that acid generating (AG) and potentially acid generating (PAG) rock shall not be incorporated into embankment fills or elsewhere in the construction works, nor are they to be wasted other than in approved permitted disposal sites at: Watts Point offshore marine disposal area (PAG rock only), Point Grey offshore marine disposal area (PAG rock only); Britannia Mine Jane Basin glory hole (AG & PAG rock) and commercial disposal sites.	✓		Pre-construction	MEM
2.12	Stipulating in contract language that segregation of PAG and non-PAG materials within rock cuts will not be attempted unless it can be done without the potential for contaminating non-PAG materials with those with the potential for ML/ARD	✓		Pre-construction	MEM
2.13	Taking a proactive approach to designing and implementing measures that will mitigate potential for acid rock drainage and metals leaching from rock cuts. Measures may include: <ul style="list-style-type: none"> — shotcreting rock slopes or otherwise minimizing the infiltration of surface water through PAG/ML materials, — diverting surface water or otherwise minimising the volume of water that is in contact with PAG/ML materials, — designing ditches that will enhance dilution of acidic or metal contaminated drainage, — prevention of sensitive species from exposure to acidic drainage or metal leaching from rock cuts, — treatment of acidic or metal contaminated water prior to discharge to creeks. 		✓	Post contract award / Pre-construction	
2.14	Developing monitoring and maintenance provisions to ensure long-term performance of mitigation works.		✓	Construction	MEM
2.15	Applying for a "Disposal at Sea Permit" in accordance with the Regulations Respecting Applications for Permits for Disposal at Sea.			Construction	EC
2.16	Applying for permits from MWLAP and MEM for disposal of PAG/AG materials at the Britannia mine site.			Construction	WLAP, MEM
2.17	Encapsulating acid generating material in a bulk fill or waste rock pile and treating any groundwater leachate generated from within it if the results of additional testing on the Squamish to Whistler section indicate acid generation. Detailed testing of the Greenstone rock immediately west of Daisy Lake has shown these rocks to be non-PAG.		✓	Construction	✓
2.18	Monitoring and treating any groundwater leachate if acid generating materials are encapsulated in bulk fill or waste rock piles on the Squamish to Whistler section until water quality standards are met.		✓	Post-construction	✓

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		MoT	Contractor		
3.	Contaminated Soils				
	<i>MoT will mitigate the potential impacts by:</i>				
3.1	Specifying in the contract documents that fills /soils should be placed directly over the existing materials at the Britannia Beach site, so that, if possible, only minimal disturbance takes place.	✓		Pre-construction	
3.2	Obtaining a Soil Relocation Agreement from the Ministry of Water, Land and Air Protection to ensure that any soils at Britannia Beach site that require relocation can be dealt with safely. Soils will be retained within the affected area of Britannia Mine operations.		✓	Pre-construction	✓
3.3	Ensuring that construction activities do not compromise the Britannia Mines remediation efforts.		✓	Pre-construction	✓
3.4	Should highway construction proceed within the area affected by the Gonzales Creek Hydrocarbon Spill site, coordinating the design team and Levelton Engineering Ltd. (who are managing the site for Scamp Industries) and Hemmera Environmental (who are managing the site for Interfor, owners of the property on which the spill occurred) to ensure the remediation is done prior to construction.	✓		Pre-construction	
3.5	Developing a Soil Relocation Agreement with the Ministry of Water, Land and Air Protection for the removal and transport of any contaminated soils as required.		✓	Pre-construction	✓
3.6	Specifying in the contract documents the requirement for the Contractor to develop a Contaminated Soils Management Plan (see item 1.2).	✓		Pre-construction	✓

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		MoT	Contractor		
4.	<i>Terrestrial Environment and Wildlife</i> <i>MoT will mitigate the potential impacts to wildlife, migratory birds and biodiversity by:</i>				
4.1	Specifying in the contract documents the requirement that the Wildlife Mitigation Plan include measures to limit light pollution and measures to manage wildlife/human interactions.	✓		Pre-construction	✓
4.2	Specifying in the contract documents the requirement that the Sensitive Ecosystems Management Plan include measures to minimize the loss of and mitigate potential impacts to red- and blue-listed plant communities, dry arbutus habitat, and sensitive components of ecosystems, in accordance with management recommendations in Volume 2 Section A: Wildlife and Vegetation . This Plan will include: a survey of sensitive ecosystem polygons that are within proposed clearing and grubbing lines to determine if the sensitive ecosystem component is at risk; measures to delineate buffers around sensitive ecosystem components; measures to control the introduction of invasive and non-native species; and water quality protection measures. This plan will be submitted for environmental agency acceptance before work commences.	✓		Pre-construction	✓
4.3	Conducting pre-construction raptor (bald eagle, osprey, peregrine falcon) and heron nest surveys following RISC standards to determine the status (active or inactive) of previously recorded nests as well as any new active nests and their location.		✓	Pre-construction	WLAP
4.4	Retaining and protecting raptor and heron nests and roost trees where possible and applying for a permit under the <i>Wildlife Act</i> if a nest can not be retained.		✓	Construction	WLAP
4.5	Specifying in the contract documents that: a) no clearing of vegetation is permitted during the general bird breeding time period of March 15 to July 31 unless pre-approved by Canadian Wildlife Service on the basis of review of nest survey information collected by the Contractor at the time; b) no clearing is to occur within 500 metres and no blasting is to occur within 1 km of an active bald eagle, osprey, peregrine falcon, or heron nest between the January 31 to August 15 period unless otherwise pre-approved by Canadian Wildlife Service and the Ministry of Water, Land and Air Protection on the basis of review of nest survey information collected by the Contractor at the time; c) if blasting is to occur within 1 km of the heron colony on the banks of the Mamquam Blind Channel at IR24, then the blasting shall occur outside of the January 31 to August 15 period unless otherwise pre-approved by Canadian Wildlife Service; d) if construction of the BC Rail detour proceeds at Porteau Cove or barge loading sites are constructed and operated, waterbirds in the vicinity shall be monitored to ensure foraging/loafing waterbirds are not displaced and work practices shall be adjusted to minimize disturbance; e) where amphibian habitat is directly affected, effort shall be made to isolate the area, then salvage and relocate the amphibians prior to any site disturbance; f) where roadside rock piles and talus habitat is removed in the Daisy Lake area, rock piles shall be created to an equivalent extent using rock fill of a diameter suitable for reptiles.	✓		Pre-construction	WLAP, CWS

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4.6	Conducting pre-construction surveys of spotted owls following RISC standards. Continuing to consult with the environmental agencies regarding requirements for spotted owl surveys and developing an inventory program for areas where disturbances overlap high and moderate habitat suitability/capability ratings for this species.		✓	Pre-construction	✓
4.7	Retaining a wildlife biologist to monitor trees with nesting potential for marbled murrelet on the east side of Doodson Corner, Polygon 899, and if required, developing in consultation with environmental agencies, mitigative measures to minimize or off-set losses of nesting habitat as a result of clearing of trees in this area.		✓	Pre-construction	✓
4.8	Include on applicable construction drawings all critical and sensitive wildlife habitats and ecosystems (e.g., nest trees, red- and blue-listed plant communities, wetlands, etc.) as identified in Volume 2 Section A: Wildlife and Vegetation and supplemental documents.		✓	Pre-construction	✓
4.9	Include on applicable construction drawings "no disturbance" riparian and "vegetation to remain" (protected vegetation) areas. Areas of protected vegetation will include those areas that provide a vegetated buffer from outside disturbance to sensitive ecosystem components, including red- and blue-listed plant communities, as identified in Volume 2 Section A: Wildlife and Vegetation and supplemental documents.		✓	Post contract award / Pre-construction	✓
4.10	Minimizing the width of the cleared edge beside the highway, while meeting the driver sight distance and project safety requirements to reduce the opportunities for vegetation that is attractive to wildlife to become established and to minimize the amount of habitat lost and/or altered.		✓	Pre-construction	
4.11	Developing terrestrial revegetation plans, in consultation with environmental agencies, that utilize native plant species that are appropriate to the site and coarse woody debris for amphibian and reptile habitat creation.		✓	Pre-construction	✓
4.12	Developing, in consultation with the environmental agencies, mitigative measures to limit wildlife mortality associated with vehicle collisions. Measures might include culvert or bridge design refinements to accommodate wildlife passage, identification of locations for wildlife signs, and specifying that concrete roadside barriers have enlarged scuppers (holes) to facilitate small animal passage. Special attention will be paid to developing mitigation measures for off-alignment construction segments (e.g. Horseshoe Bay).		✓	Pre-construction	✓
4.13	Complying with the 2,000 m no fly-zone around mountain goat winter range.		✓	Pre-construction Construction	
4.14	Reducing the area of impacted sensitive plant communities and developing, in consultation with the environmental agencies, a compensation plan for the potential loss of dry arbutus dominated habitat in the Horseshoe Bay area and the loss of areas of red- and blue-listed plant communities at a replacement ratio of 1:1. This compensation could take the form of the adjustment of BC Parks boundaries to encompass the sensitive ecosystem; adding a Restrictive Covenant to a land title if the property owner is willing to be a signatory to the covenant; and/or transfer of the title to a conservation group.	✓		Pre-construction	✓

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4.15	Developing, in consultation with the environmental agencies, wildlife habitat features at the proposed fisheries compensation sites, for example the creation of amphibian habitat at the Callaghan Creek Tributary Wetland Complex. Compensation for wildlife habitat loss will be developed in association with aquatic compensation requirements to ensure development of a comprehensive compensation strategy.		✓	Pre-construction	✓
4.16	Demarcating "no disturbance" and "vegetation to remain" areas in the field before clearing and grubbing begins.		✓	Construction	
4.17	Not used.				
4.18	Not used.				
4.19	Ensuring that the Contractor comply with the contract documents with respect to critical bird breeding time periods and related clearing restrictions, including construction timing and location restrictions in the vicinity of active raptor and heron nests.	✓		Construction	
4.20	Revegetating and protecting all exposed soils from erosion in accordance with, or using means equivalent to, MoT's <i>Manual of Control of Erosion and Shallow Slope Movement</i> , 1997. Hydroseed mixes for use along the highway will serve the primary function of successful erosion control, and to the extent possible, will exclude species that are palatable or attractive to wildlife		✓	Construction	
4.21	Requiring the Contractor to implement the approved "Bear/Human Conflict Reduction Plan" and "Wildlife Mitigation Plan".	✓		Construction	
4.22	Mitigating for impacts from ancillary areas by: <ul style="list-style-type: none"> — minimizing the losses of the largest (>60 years old) trees when laying out tote roads; — restoring all tote roads and equipment storage and marshalling sites as soon as they are no longer in use; and — reclaiming and revegetating depleted or inactive gravel and granular borrow pits in a manner consistent with, or using means equivalent to, MoT's <i>Reclamation and Environmental Protection Handbook for Sand, Gravel and Quarry Operations in British Columbia</i> (1995). To meet or exceed the requirements, all machinery, equipment and structures associated with the pits will be removed; watercourses will be reclaimed as close to their original position as possible; side slopes of sand and gravel pits will be recontoured to 2 horizontal: 1 vertical or flatter; and self-sustaining native plant cover will be re-established. 		✓	Construction	
4.23	Requiring that operational activities be carried out in accordance with, or using means equivalent to, applicable Ministry policies and procedures, including: <ul style="list-style-type: none"> — MoT's <i>Maintenance Specifications</i>, in order to prevent immediate or delayed environmental impacts to wildlife habitat. The maintenance contractor's responsibilities include, but are not limited to: agency notification; properly maintaining drainage patterns; exercising sediment and erosion control; controlling dust; and carrying out emergency maintenance; and — MoT's <i>Emergency Response Plan</i> which outlines what actions maintenance contractors and Ministry Area Managers must take in the event of a hazardous spill. 	✓		Post-construction	

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
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4.24	Installing bear proof garbage containers at popular pullouts and any proposed safety rest areas.		✓	Post-construction	
4.25	Requiring maintenance contractors immediately clean-up any spills that involve foods that are attractive to wildlife.	✓		Post-construction	
4.26	Wherever possible, refraining from utilizing herbicides or pesticides along the corridor during construction or maintenance. Where spot treatments of a herbicide are necessary, the MoT will consult with the Squamish and Lil'wat Nations regarding potential impacts and appropriate mitigation.		✓	Construction, Post Construction	
4.27	Consulting with the Lil'Wat Nation on the development and implementation of wildlife/habitat mitigation plans within their territory.	✓		Pre-construction, Construction	
4.28	If the overland option is selected at Horseshoe Bay, undertaking a windthrow prediction assessment within the Larson headwater swamp, and, if required, developing and implementing mitigation measures such as spiral thinning and feathering of forest edges.		✓	Pre-construction Construction	

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		MoT	Contractor		
5.	<i>Fisheries and Aquatic Habitat</i> <i>MoT will mitigate the potential impact to stream and foreshore fisheries resources by:</i>				
5.1.	Include on applicable construction drawings all fish bearing streams and sensitive fish and amphibian habitats as identified in Volume 2 Section B: Fisheries and Aquatic Habitat and supplemental documents.		✓	Pre-construction	✓
5.2	Identifying “no disturbance” riparian and “vegetation to remain” (protected vegetation) areas in the construction drawing package and marking these area in the field		✓	Pre-construction	✓
5.3	Developing riparian restoration plans, in consultation with environmental agencies.		✓	Pre-construction	✓
5.4	Specifying in the contract documents that the Sediment and Drainage Management Plan must address, but not be limited to, areas of expected sedimentation.	✓		Pre-construction	✓
5.5	Preparing generic treatment schemes for areas and slopes of sedimentation potential (e.g., hydroseeding to cover exposed soils following construction) and developing site-specific treatment prescriptions for areas prone to shallow slope movement and detailed on drawings. The Sediment and Drainage Management Plan will be referred to environmental agencies for their review prior to soil disturbance.		✓	Pre-construction	✓
5.6	Providing fisheries window information in the contract documents so that it will be incorporated into the development of the Environmental Management Plan before the start of construction.	✓		Pre-construction	✓
5.7	Finalizing crossing structure designs on the basis of geotechnical and biological considerations and on-site discussions between consulting fisheries biologists and representatives of MoT, the Ministry of Water, Land and Air Protection and the Department of Fisheries and Oceans. The Squamish Nation will be involved in designs affecting the Stawamus River. Crossings will maintain natural drainage patterns, meet the Department of Fisheries and Oceans’ requirements for water flow and fish passage, in accordance with, or using means equivalent to, the guidelines and best management practices presented in: <ul style="list-style-type: none"> — “Fact Sheet on Culverts and Fish Passage”, a Ministry publication, — <i>Land Development Guidelines for the Protection of Aquatic Habitat</i>, a joint publication of the Ministry of Environment, Lands and Parks and the Department of Fisheries and Oceans, — <i>Interim Standards and Best Management Practices for Instream Works</i>, Ministry of Environment, Lands and Parks March 2003, and — Any updated best management practices that are developed during the project. 		✓	Pre-construction	✓

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		MoT	Contractor		
5.8	Continuing to assess the proposed tunnel alignment option and, if the tunnel alignment option proceeds to final design, finalizing mitigative measures to minimize impacts to Nelson Creek (south portal) and the headwaters of Larsen Creek (north portal) in the short-term, and tunnel water run-off in the long term.	✓		Pre-construction	
5.9	Retaining a hydrologist to provide input to the detailed design to protect hydrological function and water quality in the headwaters of Larsen Creek.		✓	Pre-construction	
5.10	Finalizing detail design on the basis of highway engineering, biological considerations and discussions between consulting fisheries biologists, engineering designers, the Ministry of Water, Land and Air Protection and the Department of Fisheries and Oceans (e.g., near the unnamed tributary to Brohm Creek and at Millar Creek).		✓	Pre-construction	✓
5.11a	Ensuring the continued application of DFO's preferred management options for the protection of fish habitat during detailed design.	✓			✓
5.11b	Identifying and implementing special measures to offset any impacts to amphibian habitats, in conjunction with fish habitat compensation works. Special measures might include the addition of marsh benches or woody debris. Key compensation sites being considered include the Mashiter Spawning Channel, the unnamed tributary to the Cheakamus River near SW 83, and the Callaghan Creek Tributary/wetland complex at SW 181 and SW 183.		✓	Pre-construction	✓
5.12	Identifying and implementing special measures, in consultation with the Ministry of Water, Land and Air Protection, to offset any impacts to tailed frogs. Special measures might include replacement of perched, closed culverts on important tailed frog streams with open bottom structures or installation of cobble and boulder ramps on tailed frog streams where existing culvert outlets are perched. The quality of the potentially tailed frog streams will be ranked and the most optimal sites, with the greatest resultant benefits for important tailed frog populations, will be enhanced.		✓	Pre-construction	✓
5.13	Finalizing the design of mitigation measures, in consultation with the environmental agencies.		✓	Pre-construction	✓
5.14	Installing an open bottom culvert at Middle Creek, unless a technical rationale that documents why a closed bottom structure is more acceptable at this location is developed and is accepted by the Ministry of Water, Land and Air Protection and Department of Fisheries and Oceans during the permitting/authorization phase.		✓	Pre-construction	✓
5.15	Mitigation measures will be applied to the final design of culvert extensions between Centennial Way and Depot Road.		✓	Pre-construction	

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5.16	<p>Finalizing fish habitat compensation plans to ensure the Department of Fisheries and Oceans' no-net-loss policy requirement is met prior to construction in a work segment. A fisheries biologist will be retained to complete compensation and monitoring plans, in consultation with design engineers and environmental agencies, at some of the following potential sites:</p> <ul style="list-style-type: none"> — Larsen Creek (for both onsite and offsite compensation requirements); — Middle Creek; — lower Thistle Creek, in consultation with BC Rail, if the bypass option proceeds and Thistle Creek and its tributary are impacted; — the Mashiter Spawning Channel and culvert crossing; — Loggers Lane Creek; — at the two existing Mamquam Blind Channel culvert crossings (sample sites HS 110 and 111); — the Cheakamus River tributary at the decommissioned salt shed and sand storage site; — Callaghan Creek Tributary/wetland complex at SW 181 and SW183. 		✓	Pre-construction	✓
5.17	<p>Working with the Department of Fisheries and Oceans during the permitting/authorization phase towards the installation of an acceptable crossing structure design at the Mashiter Spawning Channel, with the invert of the new structure to be lower than the existing culvert to improve the likelihood of success for any future restoration activities that would be taken to address inadequate groundwater supplies.</p>		✓	Pre-construction	✓
5.18	<p>Liaise with Land & Water BC Inc. on its requirements for <i>Land Act</i> and <i>Water Act</i> approvals. This is particularly in relation to works in and about streams and other fresh water bodies that could be affected by construction activities (bridges, pillars, pilings, fill etc.).</p>		✓	Pre-construction	LWBC
5.19	<p>Finalized compensation plans will avoid conversion of higher value or critical upland habitats into instream or riparian habitats when unacceptable to regulatory agencies. Wildlife habitat considerations (e.g., wildlife habitat feature protection or creation measures) will be incorporated into compensation plans.</p>		✓	Pre-construction	✓
5.20	<p>Marking "no disturbance" riparian and "vegetation to remain" areas in the field before clearing and grubbing begins. All cleared material will be kept out of wetland areas, streams and the foreshore, and where possible, riparian vegetation that does not pose a hazard to the highway will be left intact.</p>		✓	Construction	✓
5.21	<p>Complying with MoT's <i>Standard Specifications for Highway Construction</i> or equivalent contract document, to ensure that unstable areas are not created during construction, to ensure proper work practices regarding the transport, handling, storage and use of deleterious/hazardous materials and to protect fish-bearing waters from potential malfunctions or accidents during the construction phase.</p>		✓	Construction	

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5.22	Restoring riparian areas by planting appropriate native species following Ministry of Water, Land and Air Protection/ Department of Fisheries and Oceans criteria.		✓	Construction	✓
5.23	Revegetating and protecting all exposed soils from erosion in accordance with, or using means equivalent to, the Ministry's <i>Manual of Control of Erosion and Shallow Slope Movement</i> , 1997.		✓	Construction	
5.24	Installing, as required, riprap splash pads or discharge aprons at ditched outlets to protect against ditch slope erosion and the creation of new plunge pools.		✓	Construction	
5.25	Implementing and monitoring the compensation plans approved by the Department of Fisheries and Oceans under Authorization.		✓	Construction	✓
5.26	Mitigating for impacts from ancillary disturbance areas by: <ul style="list-style-type: none"> — restoring all tote roads and equipment storage and marshalling sites as soon as they are no longer in use; and — reclaiming and revegetating depleted or inactive gravel and granular borrow pits in a manner consistent with, or using means equivalent to, MoT's <i>Reclamation and Environmental Protection Handbook for Sand, Gravel and Quarry Operations in British Columbia</i> (1995). To meet or exceed the requirements, all machinery, equipment and structures associated with the pits will be removed; watercourses will be reclaimed as close to their original position as possible; side slopes of sand and gravel pits will be recontoured to 2 horizontal: 1 vertical or flatter; and self-sustaining native plant cover will be re-established. 		✓	Construction	
5.27	Retaining a fisheries biologist to monitor the post-construction success of the stream compensation sites in accordance with the terms and conditions of the Department of Fisheries and Oceans Authorizations.		✓	Post-construction	✓
5.28	Requiring that operational activities be carried out in accordance with, or using means equivalent to, applicable ministry policies and procedures, including: <ul style="list-style-type: none"> — MoT's <i>Maintenance Specifications</i>, in order to prevent immediate or delayed environmental impacts to wildlife habitat. The maintenance contractor's responsibilities include, but are not limited to: agency notification; properly maintaining drainage patterns; exercising sediment and erosion control; controlling dust; and carrying out emergency maintenance; and — MoT's <i>Emergency Response Plan</i> which outlines what actions maintenance contractors and Ministry Area Managers must take in the event of a hazardous spill. 	✓		Post-construction	

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
5.29	Requiring that the contractor conduct regular inspections during operations so that potential problems, including erosion and slope instabilities, are recognized early and site-specific treatments developed and implemented.	✓		Post-construction	
5.30	Continuing to consult with the Squamish Nation in relation to stream and habitat mitigation/consultation measures regarding the following areas of importance for fishing and hunting activities by Squamish Nation members: <ul style="list-style-type: none"> - Stawamus River, - Mamquam River, - Mamquam Blind Channel, - Larsen Creek, and - Brohm River. 				
5.31	Consulting with the Lil'Wat Nation on the development and implementation of the fisheries mitigation plans within their territory				
5.32	Avoiding encroachment to the wetted area of the swamp habitat in the Larsen Creek headwaters through horizontal adjustments to the alignment or mitigating impacts through design features, such as retaining walls. MoT's intention is to apply DFO's hierarchy of preferences at preliminary design and to first try to relocate, then redesign, then mitigate the potential impact.		✓	Pre-construction	✓

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
6.	<i>Air Quality</i> <i>MoT will mitigate the potential impacts to air quality by:</i>				
6.1	Implementing site specific pollution prevention measures and best management practices to minimize the generation of road dust and particulate matter. These measures include: <ul style="list-style-type: none"> — develop, in consultation with stakeholders, a Vegetation Debris Management Plan for clearing and grubbing activities, — as much as possible, remove and fill material “in one trip” to minimize the handling of material on stockpiles and during transfer to and from construction equipment, — minimize the time unpaved surfaces are exposed and frequently water unpaved and hauling surfaces to minimize road dust, — ensure soil piles are watered on dry days, cover small soil piles and vegetate longer-term soil piles to minimize dust, — cover haul/dump truck loads of fine-grained materials during longer distance hauls, and — ensure effective management of ambient air quality impacts when construction activities take place near residences located within 50m of the road (e.g., Lions Bay, near Squamish, Stawamus IR#24) by monitoring PM₁₀ and PM_{2.5} during the driest days each season. 		✓	Construction	
6.2	Developing and implementing the Air Quality Monitoring and Mitigation Plan.		✓		
6.3	Adhering to open burning enactments with regard to burning of vegetative debris. Where vegetative burning could impact nearby residences, monitoring on those days where ambient levels could already be elevated.		✓	Construction	
6.4	Cooperating with the Greater Vancouver Regional District (GVRD) and environmental agencies, as required, in the assessment of air quality data measured periodically by those agencies at Horseshoe Bay, Squamish and Whistler, and determine the resultant appropriate level of prevention management.		✓	Construction	✓
6.5	Managing road dust by cleaning the highway in compliance with, or using means equivalent to, MoT’s maintenance specification.		✓	Post-construction	

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
7.	Socio-Community/Economic Assessment <i>MoT will mitigate the potential impacts to local communities by:</i>				
7.1	Developing and implementing a traffic management plan to address potential traffic disruption during construction. Mitigation of traffic disruption is recognized as a key consideration and essential component in Project planning. Mitigation measures include, but are not limited to, scheduling of construction works to avoid times when traffic volumes are higher, including seasons, day-of-week and hours of the day.		✓	Pre-construction and construction	
7.2	Developing, in association with the Vancouver Coast Health Authority (VCHA), communications for residents and physicians about access to health care services in the Lower Mainland and related travel times. In particular: <ul style="list-style-type: none"> — working with VCHA to communicate with residents of affected areas and physicians to make patients aware of additional time required to travel to appointments. — working with VCHA, physicians, nurses and community resources to ensure that expectant parents are aware of possible delays in getting to hospital. — communicating schedule for delays or closures to Health Authority, clinicians and couriers so that clinic schedules, physician travel times and courier schedules may be adjusted. 			Pre-construction	✓
7.3	Working cooperatively with the public, police, fire and ambulance service providers along the corridor to ensure effective emergency service by: <ul style="list-style-type: none"> — communicating with the public in communities affected by construction so that, when an emergency arises, they can factor construction delays into their decisions (e.g., where to go for care; whether to call an ambulance). — maintaining access to one highway lane for emergency vehicles to the extent possible. During blasting (when one lane can not be cleared quickly), ensure that helicopter transport is on standby. — working with the B.C. Ambulance Service (BCAS) to ensure access to helicopter services are available if required. Contractors may need to identify or develop potential helicopter landing sites. — developing communication protocol between construction site(s) and the B.C. Ambulance Service to ensure that ambulances are able to get to front of traffic queues during delays and temporary closures. 			Construction	

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
7.3 cont'd	<ul style="list-style-type: none"> - developing communication protocol between construction site(s) and fire protection services dispatchers to ensure that fire protection services are able to get to the front of traffic queues during delays and that neighbouring fire protection services are able to access service areas during times of temporary closures. - developing a communications protocol between VCHA and BCAS to ensure dispatchers are aware of delays or closures. - working with the RCMP to map high frequent crash areas to construction areas so that the RCMP can identify in advance those high-incidence areas that require RCMP response and for which access may be restricted due to construction. 				
7.4	Communicating closure/delay schedule to School Districts and school administrators.	✓		Construction	
7.5	Developing and implementing a pro-active overall communications strategy to coordinate construction work, communications and stakeholder dialogue. This will include liaison with First Nations, municipalities, businesses, Chambers of Commerce, and tourism associations about schedules for construction and special events and working with businesses to examine adjustments to work schedules during closure periods.	✓		Pre-construction and construction	
7.6	Establishing a project liaison office to coordinate consultations, communication and construction.	✓		Pre-construction and construction	
7.7	Encouraging bidders to propose programs for fostering local employment and local business opportunities.	✓		Construction	

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
8.	Community Access <i>MoT will mitigate the potential impacts to community access by:</i>				
8.1	Consulting with municipalities, First Nations, and individuals requiring access to their properties during construction to devise plans to maintain necessary property access.	✓		Pre-construction	
8.2	Developing a communications strategy and working relationship with local businesses to address potential access issues during construction.	✓		Pre-construction	
8.3	Continuing to consult with the Project Technical Liaison Committee and work closely with key stakeholders, First Nations, and Community Advisory Groups to ensure that adverse impacts are identified and design features are developed to provide safe pedestrian, cyclist and vehicular movement to, from and across the Highway.	✓		Pre-construction	
8.4	Implementing detours in areas requiring by-pass routes around construction areas.		✓	Construction	
8.5	Providing directional signage along detours to notify motorists of the approaching communities and egress points.		✓	Construction	
8.6	Implementing effective safety measures on all detours, including but not limited to, as required, a posted speed limit, flag persons, train actuated gates, and pilot vehicles to lead vehicle platoons through the detour.		✓	Construction	
8.7	Highway design and access solutions on and through the Stawamus Reserve (IR#24) will be jointly identified and refined by the Squamish Nation and the MoT. The Squamish Nation will be notified if new road accesses are developed during the detailed design process.				

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
9.	Noise <i>MoT will mitigate the potential impacts from noise by:</i>				
9.1	Keeping the community well informed of the nature and time limits of the planned construction work and of the effort to be made to control noise impacts.		✓	Pre-construction	
9.2	Holding meetings with representatives of the various municipalities affected to identify the noisiest construction activities that must be conducted within each community and to discuss the extent to which these activities can be conducted during normal daytime working hours. For those activities which must be done at night, the contractor will describe the measures which will be taken to minimize the noise produced and will discuss whether work can be scheduled during the first few evening hours rather than between midnight and 5:00 am.			Construction	
9.3	Specifying in the contract documents procedures the Contractor are to follow to minimize noise emissions and to communicate effectively with the affected communities.	✓		Pre-construction	
9.4	Reducing average noise levels in the noisier residential areas along the corridor (e.g., Lions Bay, IR 24 and urban Squamish) by specifying in contract documents the use of open graded asphalt that creates less tire noise.	✓		Pre-construction and construction	
9.5	Working with the Lions Bay community to reduce current highway noise by 4 to 5 dB through mitigation measures, such as open graded asphalt and speed reduction. Further, MoT is prepared to work with the community to make best efforts to incorporate noise barriers and other noise mitigation efforts where effective, which could result in a further 5dB reduction.			Pre-construction	
9.6	Working to reduce traffic speeds through the Village of Lions Bay, including consulting with the police and the RCMP to discuss ways in which MoT can facilitate more effective speed enforcement (e.g., additional pull outs for enforcement use).	✓		Pre-construction	
9.7	Undertaking additional analysis of the potential impact of highway noise within IR 24, in cooperation with the Squamish Nation, during the detailed design phase as the physical characteristics of the alignment become better known. In addition to the mitigative measures that have already been proposed (the use of open graded asphalt, traffic calming measures, etc.) MoT will consider other viable options in consultation with the Squamish Nation.		✓	Pre-construction	
9.8	Assessing, monitoring and, if necessary, mitigating the impacts of operational (traffic) noise at the daycare facility on the Squamish First Nation's IR #24 during the detailed design phase of the Urban Squamish section.		✓	Pre-construction Construction	
9.9	Assessing, monitoring and, if necessary, mitigating construction noise exposures at the Eagle Ridge School and the Stawamus Elementary School.		✓	Pre-construction Construction	

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
9.10	As part of the Noise Control and Mitigation Plan, determining the layout, nature and schedules of any affected daycare facilities, including the facilities at Lions Bay and on the Squamish First Nation's IR #24, to develop strategies that will limit project-related construction noise exposures during nap times.		✓	Construction	
9.11	Educating construction personnel about particular noise issues and associated equipment operation.		✓	Construction	
9.12	Avoiding or reducing construction noise at the source through the appropriate operation, modification or maintenance of construction equipment and processes.		✓	Construction	
9.13	Scheduling construction activities so the noisiest activities (e.g., rock drilling, pile driving) are conducted, to the extent possible, within the daytime construction period.		✓	Construction	
9.14	Requiring the Contractor to hold meetings with representatives of affected municipalities to discuss measures that the Contractor will take to minimize the noise produced or received in the community.	✓		Construction	
9.15	Requiring the Contractor adopt a Noise Control and Mitigation Plan to minimize the disturbance to adjacent residential enclaves and communities.	✓		Construction	✓
9.16	Requiring the Contractor to comply with contract documents to minimize construction noise.	✓		Construction	
9.17	Reducing average noise levels in the noisier residential areas along the corridor (e.g., Lions Bay, IR 24, and urban Squamish) by implementing traffic calming measures.		✓	Post-construction	
9.18	Begin conducting follow-up noise monitoring within one year of project completion to verify the accuracy of traffic noise projections and effectiveness of noise mitigation techniques.		✓	Post-construction	

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
10.	Water Quality <i>MoT will mitigate the potential impacts to water quality by:</i>				
10.1	Implementing a three-component Water Quality Monitoring Program, including (1) water quality audit and performance monitoring, (2) water quality sampling and analysis of runoff from PAG/ML rock cuts, and (3) water quality field sampling monitoring protocol. (a) The water quality audit and performance monitoring program will include hydrocarbon and, oil and grease testing conducted on samples taken as part of stages 2, 3 and 4; if samples taken during stage 2 sampling do not indicate the presence of hydrocarbons in the surface waters, then random sampling may be implemented for stages 3 and 4. (b) The water quality field sampling monitoring program will include pH and conductivity.			Pre-construction / Construction	✓
10.2	Avoiding areas of unstable or erosion-prone terrain.		✓	Pre-construction	
10.3	Specifying in the contract documents that the Contractor must prepare a Sediment and Drainage Management Plan that identifies sensitive or potential problem areas and provide a strategy for dealing with them, including planned water control, sediment control, stormwater runoff controls and water quality testing programs.	✓		Pre-construction	✓
10.4a	Preparing generic treatment schemes for areas and slopes of sedimentation potential (e.g., hydroseeding to cover exposed soils following construction) and developing and detailing on drawings site-specific treatment prescriptions for areas prone to shallow slope movement.		✓		
10.4b	Requiring that the Contractor prepare a Spill Contingency and Response Plan for the clean-up of toxic or hazardous spills prior to construction and submit it, together with a list of spill abatement equipment, to be stored on the job site, to the Ministry representative for review.	✓		Pre-construction and construction	
10.4c	Requiring the Contractor to immediately report as required by law and verbally to the Ministry representative and the Provincial Emergency Program, any spill of any toxic or hazardous material. The Contractor must immediately take the necessary steps as required by law, including measures to abate the discharge and provide the necessary labour, equipment, materials and absorbents to contain and remove the spill, clean-up the affected area, dispose of waste materials at an approved disposal site, and restore the area to the satisfaction of the environmental regulatory agencies.	✓			
10.5	Compiling a list of groundwater well users whose wells are within 500 m of the proposed project works and testing of wells where permission is granted by the owner.	✓		Pre-construction	
10.6	Implementing a water quality audit and performance (trend) monitoring program prior to construction to establish the immediate pre-construction water chemistry of surface water streams, domestic wells and community water supplies.	✓		Pre-construction	✓

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
10.7	Placing concrete roadside barriers on the highway in the vicinity of Retta Lake to reduce the risk of vehicles entering the lake.		✓		
10.8	Minimizing and controlling rock blasting in the vicinity of Retta Lake.		✓		
10.9	Implementing the guidelines in, or using means equivalent to those outlined in, MoT's <i>Guidelines for Environmental Design of Highway Drainage</i> , 1992.		✓	Construction	
10.10	Implementing standard forms of erosion and siltation control, including but not limited to, silt fences, straw bale barriers, hydroseeding, diversions, sediment ponds.		✓	Construction	
10.11	Continuing the implementation of a water quality data collection program during construction to identify water quality issues. Water sampling will be done as close to "first flush" as possible.		✓	Construction	✓
10.12	Revegetating and protecting all exposed soils from erosion in accordance with, or using means equivalent to those outlined in, MoT's <i>Manual of Control of Erosion and Shallow Slope Movement</i> , 1997.		✓	Construction	
10.13	Requiring that the Contractor conduct regular inspections in compliance with, or using means equivalent to, the Ministry's maintenance specifications so that potential problems – including erosion and slope instabilities – can be identified early.	✓		Post-construction	
10.14	Implementing a water quality data collection program approximately 6 months after construction completion to ensure water quality guidelines are met. If water sampling indicates that exceedences of drinking water or aquatic standards are occurring as a result of construction, MoT will direct the Contractor to alleviate the situation and further monitoring will be conducted until water quality standards are met.	✓		Post-construction	✓
10.15	Developing site-specific treatments (e.g., sodding, installing a permanent water quality treatment basin, applying bioengineering techniques or applying shotcrete), if required to further stabilize an area.		✓	Post-construction	✓

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
11.	Recreation <i>MoT will mitigate the potential impacts to recreation resources by:</i>				
11.1	Continuing to consult with recreation industry and user representatives about issues that affect their interests, and ensure that, whenever feasible, adverse impacts are avoided or mitigated.	✓		Pre-construction	
11.2	Consulting with recreation user groups to discuss the potential for enhancement of recreation sites.	✓		Pre-construction	
11.3	Developing a communications strategy specific to recreation users to discuss design and site-specific construction access and use issues that affect their interests.	✓		Pre-construction	
11.4	Entering into discussions with BC Parks and other affected stakeholders with respect to ancillary sites and the possible use of the Porteau ferry dock for barge loading purposes.	✓		Pre-construction	✓
11.5	Developing and implementing detailed mitigative measures, in association with BC Parks, to minimize potential impact to recreation features and amenities at Porteau Cove Provincial Park, Murrin Provincial Park, Shannon Falls Provincial Park and Brandywine Falls Provincial Park. Impacts to marine recreation at Porteau Cove will be mitigated through access management.		✓	Pre-construction and construction	✓
11.6	Adhering to the Letter of Agreement between MoT and MWLAP, dated January 2004, which discusses the responsibilities and commitments specific to parks and other related features and services impacted by the highway improvements.				
11.7	Developing and implementing detailed mitigative measures in association with the District of West Vancouver to minimize potential impact to recreational features and amenities at Nelson Canyon Park.		✓	Pre-construction	
11.8	Adding to the construction drawing package showing all site-specific and temporary mitigative measures to be implemented during construction. Temporary measures may include re-routing sections of trails and providing alternate access routes, staging areas or scenic viewpoints.		✓	Pre-construction	✓
11.9	Requiring the Contractor to comply with contract documents for construction to minimize encroachment or other impact to recreation trails, trailheads, staging areas and related amenities or features.	✓		Construction	
11.10	Implementing a communication strategy specific to recreation users to address potential site specific access and use issues.		✓	Construction	

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
12.	<i>Archaeology and Heritage</i> <i>MoT will mitigate the potential impacts to archaeology, culture and heritage by:</i>				
12.1	Adding to the construction drawing package, polygons showing areas with archaeological or heritage potential, including areas containing culturally modified trees in proximity to the project corridor as identified in Volume 3 Section G: Culture and Heritage . Site specific mitigative measures, if required, will be detailed on drawings and the requirements explained in contract Special Provisions for construction. The drawings and contract Special Provisions will be referred to the Archaeology and Registry Services Branch and First Nations for their review.		✓	Pre-construction	✓
12.2	Consulting with the First Nations regarding the three trails identified as areas of concern to the Squamish Nation in Volume 3 Section G: Culture and Heritage and facilitating discussions between the Squamish, other concerned First Nations, and other Ministries or provincial government agents regarding the management of the trails.	✓		Pre-construction	
12.3	Facilitating discussion between the Province and the First Nations to identify steps that can be taken by BC Parks to protect the pictograph site in Murrin Provincial Park from impacts from rock climbing and vandalism.	✓		Pre-construction	✓
12.4	Consulting with First Nations if post-1846 heritage resources are to be impacted, including but not limited to culturally modified trees at upper Larsen Creek, Montizambert Creek, Bertram Creek, Cheakamus River, and south of Rubble Creek. Provisions will be made for any impacted CMTs to be provided to First Nations for cultural purposes.		✓	Pre-construction	
12.5	Where highway widening provides improved access to a site of known archaeological or historical significance, working cooperatively with the First Nation(s) that have an interest in the site, as well as the responsible government agencies, to develop measures to minimize impacts related to over use and/or vandalism.		✓	Pre-construction	✓
12.6	Exploring options to protect sites of known archaeological , historical or cultural significance from project related impacts. This will include consulting with First Nations on management of Site DiRt-13, an aboriginal rock carving, including such measures as excluding any land-altering developments from the immediate vicinity of the petroglyph or placement of a barrier to protect the site.	✓		Pre-construction	✓
12.7	Continuing to consult with First Nations on issues as identified by them, and ensure that, wherever feasible, adverse impacts are avoided or mitigated.	✓		Pre-construction	

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
12.8	Avoiding CMTs where feasible. However, if avoidance is not possible, First Nations will be consulted and the affected CMT(s) will be dated using an increment borer to determine if the trees predate 1846 and require an alteration permit from Archaeology and Registry Services Branch. Regardless of whether a permit is required or not, the affected culturally modified tree will be recorded, photographed and stem round segments obtained, analysed and dated Provisions will be made for any impacted CMTs to be provided to First Nations for cultural purposes.			Construction	✓
12.9	If, during the course of the project any items of archaeological, heritage or historical interest are found in the project area, requiring the Contractor to immediately cease operations in the affected area and minimize activities that create ground disturbance in and adjacent to the affected area, in compliance with, or using means equivalent to, those described in Section 165. Archaeology and Registry Services Branch, Department of Canadian Heritage (if within IR24) and First Nations representatives to the Project will be notified, and work within 30 m of the discovery site (or larger buffer area if human remains are encountered) will not resume until an appropriate directive has been received from representatives of those agencies after consultation with First Nations.			Construction	✓
12.10	Retaining an archaeology monitor during the route clearing and preparation stage to examine the area at Function Junction identified by the archaeology consultants as having potential for containing buried archaeological remains. If archaeological sites are encountered, mitigative measures, including, for example, installing drainage or erosion control, applying slope measures, erecting fences or other suitable barriers to protect sites, or establishing a buffer zone in which no land alteration or other activity is permitted will be applied. A systematic data recovery program would only be undertaken as a mitigative measure if avoidance were not possible. If avoidance is not possible, appropriate permit(s) will be obtained prior to impacting the site(s).			Construction	✓
12.11	Retaining a First Nations representative to act in the capacity of a Cultural and Heritage Advisor to liaise with the MoT and Contractor in providing input related to potential impact/interference with archaeological and/or cultural interests. It is anticipated that the representative will be on site at appropriate intervals during site preparation and construction.			Construction	
12.12	Working with the Lil'Wat Nation to maintain Lil'Wat access to culturally modified tree sites near Rubble Creek.			Pre-construction	
12.13	Ongoing liaison with First Nations throughout planning and design phase to provide design information that may necessitate additional archaeological assessment.			Pre-construction	

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
13.	<i>Navigable Waters</i> <i>MoT will mitigate the potential impacts to navigable waters by:</i>				
13.1	Obtaining final determination of navigability from the Coast Guard for crossings affected by the Project and for the proposed barge loading site at Sunset Marina.		✓	Pre-construction	✓
13.2	Liaising with the Coast Guard, Harbours Board and known mariners, as required, regarding referral process requirements for proposed temporary works, facilities and equipment.		✓	Pre-construction	✓
14.	<i>Public Safety</i> <i>MoT will:</i>				
14.1	Develop an Operations and Incident Response Plan for the tunnel and approaches if the tunnel option is selected for construction. This Plan will be similar to those that exist for the Cassiar and George Massey Tunnels but will be tailored to suit the unique conditions at this tunnel. Mechanical, electrical, fire suppression and CCTV monitoring systems, if required for this tunnel application, will be monitored by control center operators. In the event of an incident, such as fire, accident or dangerous goods spill, the nature and location of the incident will be confirmed. Notifications and response will then be systematically implemented in accordance with pre-determined plans.		✓	Pre-construction	

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
15.	<i>Aesthetics</i> <i>MoT will enhance the aesthetic attributes of the highway corridor by:</i>				
15.1	Consulting with the communities to develop design treatments that achieve aesthetic continuity and coherence along the highway corridor and incorporate these measures into designs so that the visual quality of the corridor and the corresponding aesthetic experience of those using the corridor is enhanced.	✓		Pre-construction	
15.2	Conducting further visual quality assessment as required to refine the list of important landscape features and to determine precisely how and if their use should be promoted.	✓		Pre-construction	
15.3	Undertaking a corridor-wide review of scenic viewpoints and pullouts to ensure an appropriate distribution of such amenities, while taking into account traffic safety considerations, site servicing, community and recreation interests.	✓		Pre-construction	
15.4	Developing and/or upgrading existing roadside facilities in partnership with the private sector, community groups, and various government agencies.		✓		
15.5	Developing aesthetic design treatment to maintain driver interest and attentiveness and thereby encourage safe driving.		✓	Pre-construction	
15.6	Providing aesthetic unity and character for the entire corridor, while respecting and reflecting the unique landscape character, culture, and ecology.		✓	Pre-construction	
15.7	Commissioning a landscape design consultant to work closely with the District of Squamish on the urban Squamish section of the highway improvements, and with the Squamish Nation on Stawamus IR#24.		✓	Pre-construction	

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
16.	<i>Property Acquisition</i> <i>MoT will mitigate the potential impacts to owners and users from property requirements by:</i>				
16.1	Negotiating with BC Parks regarding compensation for property requirements at Murrin Provincial Park, Shannon Falls Provincial Park and Brandywine Falls Provincial Park (a change in Park boundaries at Brandywine Falls Provincial Park requires cabinet approval), including consideration of any private contractor impacts.	✓		Pre-construction	✓
16.2	Negotiating with the District of West Vancouver regarding property requirements due to potential encroachment of Nelson Canyon Park.	✓		Pre-construction	
16.3	Initiating offers and negotiating with private property owners to acquire lands,.	✓		Pre-construction	
16.4	Following MoT's process to ultimately register a Survey Plan of Road at the Crown Land Registry.	✓		Pre-construction	
16.5	Minimizing property acquisition requirements whenever possible.	✓		Pre-construction	

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
17.	Public Information Sharing and Consultation				
	<i>The Ministry will:</i>				
17.1	Maintain local dialogue			Post-Certification	
17.2	Conduct regular meetings between Owner's Engineer and TLC/CAGs	✓			
17.3	Conduct regular meetings with corridor elected officials and key stakeholder groups	✓			
17.4	Establish project liaison office in central location to facilitate local access and maintain a presence in the corridor.	✓			
17.5	Conduct open houses at key stages, by community.	✓			
17.6	Maintain broad public access to information, particularly in construction phases	✓			
17.7	Update website	✓			
17.8	Advertise project information as necessary	✓			
17.9	Maintain project liaison office: reporting project activity is key role of liaison function during construction, along with "customer service" function of fielding and following up on questions and complaints.	✓			
17.10	Communicating with the affected communities on a regular basis to advise them in advance of the types of activities that will be taking place and to notify them of changes in the estimated start and/or completion dates for the various construction phases.	✓			

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
18	First Nations Relevant commitments that result from ongoing discussions between the province and the First Nations and are not captured herein, will be included in other forms of documentation agreeable to the First Nations.				
18.1	Squamish Nation IR 24 MoT is committed to working cooperatively with the Squamish Nation, and other government agencies as appropriate, for a timely grant of the permit authorizing the use of the lands through IR 24 and subsequent transfer. The parties will work cooperatively towards this end as per the terms of the March 2004 AiP.	✓			
18.2	Noise: <ul style="list-style-type: none"> – Additional analysis of noise issues will be undertaken with the Squamish Nation once the physical characteristics of the alignment are better known. The MoT will consider viable options for mitigation in consultation with Squamish Nation. – Construction contractors will be required to monitor noise at key locations to permit comparison with objectives. 	✓	✓		
18.3	Safety: <ul style="list-style-type: none"> – The MoT will work closely with Squamish First Nation to identify and mitigate potential impacts related to intra-community barriers within IR#24. 	✓			
18.4	Culturally Significant Sites / Interests: <ul style="list-style-type: none"> – The MoT has committed to further exploring options/opportunities to protect identified sites from impacts where highway improvements may provide increased access. – The MoT will continue to consult with First Nations regarding the protection of important plant harvesting areas and will work towards identifying appropriate land protection, harvesting, relocation, or replanting measures. – The MoT will continue to consult with the Squamish Nation to identify locations where culturally significant rock formations may be potentially impacted by construction activities. Where feasible, the MoT will work cooperatively with the Squamish Nation to establish appropriate measures for this rock to be safely collected by the Squamish Nation. – During construction, the MoT will consult with the Squamish and Lil'Wat Nations if any of the previously identified cedar groves will be impacted/harvested during construction. If impacts to these cedars is unavoidable the method of harvesting and cutting into lengths for provisions to First Nations will be mutually agreed upon by the Province and First Nations. – MoT to continue to consult with the Squamish Nation regarding the potential for minimizing rock blasting through Murrin Park. – The MoT will consult with the Lil'Wat Nation regarding any environmental rehabilitation plans within their territory to ensure their cultural interests are incorporated, as appropriate. 	✓ ✓ ✓ ✓ ✓ ✓			

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
18.5	<p>Signage:</p> <ul style="list-style-type: none"> - MoT will continue to consult with the First Nations to develop appropriate forms and locations of signs in the First Nations' language for naming. MoT will work with the First Nations to develop and install displays that recognize culturally significant sites. Sign and display wording will be jointly developed. - MoT to work with the Squamish Nation to develop wording and select a location for a memorial plaque to be placed at M Creek. MoT will work with the Squamish Nation to provide safe access for related ceremonial activities. 	<p>✓</p> <p>✓</p>			

NO.	COMMITMENTS AND RESPONSIBILITIES	ACTION BY		PROJECT STAGE	AGENCY REVIEW
		MoT	Contractor		
19.	<p>Federal Department, Provincial Agency, and Local Government</p> <p><i>MoT will:</i></p>				
19.1	Continue to consult with government agencies on an individual basis post-certification as further detailed in this table. During this period, detailed design plans at environmentally sensitive sites will be referred to the agencies, mitigation and compensation designs will be finalized, and permits and authorizations from these agencies will be secured.		✓	Pre-construction	
19.2	Continue to consult with government agencies on an ongoing basis, including on-site meetings to ensure compliance with best practices and permits and approvals as further detailed in this table.		✓	Construction	