



4.2.3. Air Pollution and Ice Fog

4.2.3.1. Contractor shall utilize and operate all facilities and devices used in connection with the construction of the Highway and Airports in such a way so as to avoid or minimize air pollution and ice fog.

4.2.3.2. Emissions from equipment, installations, and burning materials shall meet applicable Federal and State air quality standards.

4.2.4. Pesticides, Herbicides, and other Chemicals

Contractor shall use only non-persistent and immobile types of pesticides, herbicides and other chemicals. Each chemical to be used and its application constraint shall be approved in writing by the State Pipeline Coordinator prior to use.

4.2.5. Sanitation and Waste Disposal

4.2.5.1. "Waste" means all discarded matter, including but not limited to human waste, trash, garbage, refuse, oil drums, petroleum products, ashes and equipment.

4.2.5.2. All waste generated in construction of the Highway and Airports shall be removed or otherwise disposed of in a manner acceptable to the State Pipeline Coordinator. All applicable standards and guidelines of the Alaska State Department of Environmental Conservation, the United States Public Health Service, the Environmental Protection Agency, and other Federal and State agencies shall be adhered to by Contractor. All incinerators shall meet the requirements of applicable Federal and State laws and regulations and shall be used with maximum precautions to prevent forest and tundra fires. After incineration, material not consumed in the incinerator shall be disposed of in a manner approved in writing by the State Pipeline Coordinator. Portable or permanent waste disposal systems to be used shall be approved in writing by the State Pipeline Coordinator.

4.3. Buffer Strips

4.3.1. Public Interest Areas

No construction activity in connection with the Highway or Airports shall be conducted within one-half (1/2) mile of any officially designated Federal, State or municipal park, wildlife refuge, research natural area, recreation area, recreation site, or any registered National Historic Site or National Landmark, unless such activity is approved in writing by the Federal Authorized Officer as to Federal areas or the State Pipeline Coordinator as to State areas.

4.3.2. Streams

The Highway clearing limits shall be limited so as to provide three hundred (300) foot minimum buffer strips of undisturbed land along streams unless otherwise approved under 2.4 herein.

4.4. Erosion Control

4.4.1. Contractor shall conduct all Highway and Airport construction activities so as to avoid or minimize disturbance to vegetation.

4.4.2. The design of the Highway and Airports shall provide for the construction of erosion control facilities that will avoid or minimize erosion.

4.4.3. The erosion control facilities shall be constructed to avoid erosion and to lessen the possibility of forming new drainage channels resulting from Highway or Airport construction activities. The facilities shall be designed and constructed in such a way as to avoid or minimize disturbance to the thermal regime.

4.4.4. Stabilization

4.4.4.1. Surface materials taken from disturbed areas shall be stockpiled and utilized during restoration unless otherwise approved in writing by the State Pipeline Coordinator as to the Highway and by the Federal Authorized Officer as to the Airports. Stabilization practices, as determined by the needs for specific sites, shall include but shall not be limited to seeding, planting, mulching, and the placement of mat binders, soil binders, rock or gravel blankets, or structures.

4.4.4.2. All disturbed areas shall be left in a stabilized condition satisfactory to the State Pipeline Coordinator as to the Highway and the Federal Authorized Officer as to the Airports. Such satisfaction shall be stated in writing.

4.4.5. Crossings of Streams, Rivers or Flood Plains

4.4.5.1. Contractor shall prevent or minimize erosion at streams and river crossings and those parts of the Highway or Airports within flood plains.

4.4.5.2. Temporary access over stream banks shall be made through use of fill ramps rather than by cutting through stream banks, unless otherwise approved in writing by the State Pipeline Coordinator.

4.4.5.3. Timing and methods of crossings shall be subject to control and alteration by the State Pipeline Coordinator to protect fish passage and spawning and aquatic resources generally.



4.4.6. Seeding and Planting

Seeding and planting of disturbed areas shall be conducted as soon as practicable and, if necessary, shall be repeated until vegetation is successful, unless otherwise approved in writing by the State Pipeline Coordinator. All other restoration shall be completed as soon as possible.

4.4.7. Excavated Material

Excavated material not utilized for Highway or Airport construction shall be disposed of in a manner approved in writing by the Federal Authorized Officer, if wasted outside of the facility right-of-way.

4.5. Fish and Wildlife Protection

4.5.1. Passage of Fish

4.5.1.1. Contractor shall provide for uninterrupted movement and safe passage of fish. Any artificial structure or any stream channel change that would cause a blockage of fish shall be provided with a fish passage structure or facility that meets all Federal and State requirements. The proposed design shall be submitted to the State Pipeline Coordinator in accordance with Stipulation 2.4.1.

4.5.1.2. Pump intakes shall be screened to prevent harm to fish.

4.5.1.3. Abandoned water diversion structures shall be removed or filled to prevent trapping or stranding of fish.

4.5.1.4. If material sites are approved adjacent to or in certain lakes, rivers, or streams, the State Pipeline Coordinator, either on his own initiative or at the request of the Federal Authorized Officer, may require the Contractor to construct levees, berms, or other suitable means to protect fish and fish passage and to prevent siltation of streams or lakes.

4.5.2. Fish Spawning Beds

4.5.2.1. "Fish Spawning Beds" means the areas where anadromous and resident fish deposit their eggs.

4.5.2.2. Contractor shall avoid channel changes in Fish Spawning Beds designated by the State Pipeline Coordinator; however, where channel changes cannot be avoided in such beds, new channels shall be constructed according to written standards supplied by the State Pipeline Coordinator.

4.5.2.3. Fish Spawning Beds shall be protected from sediment where soil material is expected to be suspended in water as a result of construction

activities. Settling basins shall be constructed to intercept silt before it reaches streams or lakes.

4.5.2.4. Contractor shall comply with any special requirements made by the State Pipeline Coordinator for a stream system in order to protect Fish Spawning Beds. Contractor shall repair all damage to Fish Spawning Beds caused by construction of the Highway or Airports.

4.5.3. Zones of Restricted Activities

Contractor's activities in connection with the construction of the Highway or Airports in key fish and wildlife areas may be restricted by the State Pipeline Coordinator during periods of fish and wildlife breeding, nesting, spawning, lambing or calving activity and during major migrations of fish and wildlife. The State Pipeline Coordinator shall provide Contractor written notice of such restrictive action. From time to time, the State Pipeline Coordinator shall furnish Contractor a list of areas where such actions may be required, together with anticipated dates of restriction.

4.6. Material Sites

4.6.1. Acquisition of Materials

4.6.1.1. If Contractor requires materials from the public lands, Contractor shall request the State of Alaska to make application, in accordance with 43 CFR, Part 3621, "Free Use of Mineral Materials." Contractor shall submit a mining plan in accordance with 43 CFR, Part 23. No materials may be removed by Contractor without the written approval of the Federal Authorized Officer.

4.6.1.2. Insofar as possible, use of existing material sites will be authorized in preference to new sites.

4.6.2. Layout of Material Sites

Material site boundaries should be shaped in such a manner as to blend with surrounding natural land patterns. Regardless of the layout of material sites, primary emphasis shall be placed on prevention of soil erosion and damage to vegetation.

4.7. Clearing

4.7.1. Boundaries

Contractor shall identify approved clearing boundaries on the ground prior to beginning clearing operations. All timber and other vegetative material outside clearing boundaries and all blazed, painted or posted trees which are on or mark clearing boundaries are reserved from cutting and removal with the exception of danger



trees or snags designated as such by the State Pipeline Coordinator.

4.7.2. Timber

4.7.2.1. Prior to initiating clearing operations, Contractor shall notify the Federal Authorized Officer of the amount of merchantable timber, if any, which will be cut, removed, or destroyed in the construction of the Highway or Airports, and shall request that the State make separate application for the free use of such timber in accordance with 43 CFR, Part 5510.

4.7.2.2. All trees, snags, or other woody material cut in connection with clearing operations shall be cut so the resulting stumps shall not be higher than six (6) inches measured from the ground on the uphill side.

4.7.2.3. All trees, snags, and other woody material cut in connection with clearing operations shall be felled into the area within the clearing boundaries and away from water courses.

4.7.2.4. Hand clearing shall be used in areas where the State Pipeline Coordinator as to the Highway and the Federal Authorized Officer as to the Airports, determine that use of heavy equipment would be detrimental to existing conditions.

4.7.2.5. All debris resulting from clearing operations and construction that may block stream flow, delay fish passage, contribute to flood damage, or result in stream bed scour or erosion shall be removed.

4.7.2.6. Logs shall not be skidded or yarded across any stream without the written approval of the State Pipeline Contractor.

4.7.2.7. No log landing shall be located within three hundred (300) feet of any water course, except where impractical, then only with the written approval of the State Pipeline Coordinator.

4.7.2.8. All slash shall be disposed of within the Highway right-of-way or Airport lease unless otherwise directed in writing by the Federal Authorized Officer as to the Airports or the State Pipeline Coordinator as to the Highway.

4.8. Disturbance of Natural Waters

All activities of Contractor in connection with the construction of the Highway or Airports that may create new lakes, drain existing lakes, significantly divert natural drainages, permanently alter stream hydraulics, or disturb significant areas of stream beds are prohibited unless such activities along with necessary mitigation measures are approved in writing by the Federal Au-

thorized Officer as to the Airports and the State Pipeline Coordinator as to the Highway.

4.9. Off Right-of-Way Traffic

Contractor shall not operate mobile ground equipment off the Highway or Airport construction limits or authorized areas unless approved in writing by the Federal Authorized Officer as to the Airports and the State Pipeline Coordinator as to the Highway, or when necessary to prevent harm to any person.

4.10. Aesthetics

The Federal Authorized Officer or State Pipeline Coordinator may impose such requirements as he deems necessary to protect aesthetic values.

4.11. Restoration

4.11.1. Areas disturbed by Contractor shall be restored by Contractor to the satisfaction of the State Pipeline Coordinator as to the Highway, and the Federal Authorized Officer as to the Airports, as stated in writing.

4.11.2. All cut and fill slopes shall be left in a stable condition.

4.11.3. Materials from the Highway and Airports, haul ramps, berms, dikes, and other earthen structures shall be disposed of as directed by the State Pipeline Coordinator as to the Highway and the Federal Authorized Officer as to the Airport.

4.11.4. Vegetation, overburden, and other materials removed during clearing operations shall be disposed of by Contractor in a manner approved in writing by the State Pipeline Coordinator as to the Highway and the Federal Authorized Officer as to the Airports.

4.11.5. Upon completion of restoration, Contractor immediately shall remove all equipment and supplies from the site.

5. CONTRACTOR STIPULATIONS— TECHNICAL

The following requirements shall be complied with in design and construction of Highways and Airports.

5.1. Special Standards

5.1.1. All preconstruction, construction, and post-construction operations shall be conducted to minimize permafrost degradation and damage to the environment, and to provide maximum protection to wildlife and human beings.

5.1.2. Temporary bridges shall be located so as to reserve the superior site and alignment for future permanent bridges.



5.1.3. Embankment sections shall be used in preference to excavated sections wherever practicable and, in general, the Highway shall follow terrain features.

5.1.4. Unless otherwise approved by the State Pipeline Coordinator, organic material resulting from clearing operations shall not be incorporated in the road prism, but may be used as a mat overlay below the road prism.

5.2. Permanent Culverts and Bridges

Culverts and bridges shall be designed to accommodate a 50-year flood in accordance with criteria established by the American Association of State Highway Officials and the Federal Highway Administration.

5.3. Erosion

5.3.1. Erosion control procedures shall accommodate and be based on the runoff produced by storm and snow melt conditions having a 50-year occurrence interval. The procedure shall also accommodate effects that result from thawing produced by flowing or ponded water on permafrost terrain.

5.3.2. Slopes of cuts through stream banks shall be designed and constructed to minimize erosion and prevent slides.

5.3.3. Where necessary because of outfall erosion, stilling basins shall be constructed at the

outflow end of culverts. To prevent erosion the pool sides shall be established by appropriate methods; e.g., by the use of riprap.

5.4. Slope Stability

Areas subject to mudflows, landslides, mudslides, avalanches, rock falls, and other types of mass movements shall be avoided where practicable in locating the Highway and Airports. Where such avoidance is not practical, the Highway or Airport design, based upon detailed field investigations and analysis, shall provide measures to prevent the occurrence of, or protect the Highway or Airports against the effects of mass movements.

5.5. Construction Operations

5.5.1. All pre-construction and construction activities shall be conducted so as to avoid or minimize thermal and other environmental changes and to provide maximum protection to fish and wildlife and their habitat, and people. All surface modifications shall be planned and executed in such a way that any resulting degradation of permafrost will not jeopardize adjoining structure foundations.

5.5.2. Acceptable plans, procedures and quality controls that ensure compliance with these Stipulations shall be submitted in accordance with Stipulation 2.4.1.