

Appendix G
Geotechnical Investigation Plan
of Development Framework

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Acronyms and Abbreviations

B2H	Boardman to Hemingway Transmission Line Project
BLM	Bureau of Land Management
CIC	compliance inspection contractor
EPA	Environmental Protection Agency
ESA	Endangered Species Act
IPC	Idaho Power Company
NEPA	National Environmental Policy Act
POD	Plan of Development
Project	Boardman to Hemingway Transmission Line Project
U.S.	United States
USFS	United States Forest Service
USFWS	U.S. Fish and Wildlife Service

APPENDIX G – GEOTECHNICAL INVESTIGATION PLAN OF DEVELOPMENT FRAMEWORK

G.1 Introduction

This Geotechnical Investigation Plan of Development (POD) Framework has been developed based on the principles and procedures established by the Bureau of Land Management (BLM) and U.S. Forest Service (USFS), which are applicable to subsurface testing on federal lands. This plan applies to the access and subsurface testing for geotechnical investigations associated with Boardman to Hemingway Transmission Line Project (Project) on lands managed by federal, cooperating agencies and other lands as negotiated between Idaho Power Company (IPC) and the land manager. Requirements for geotechnical investigations on private lands will be negotiated between IPC and the landowner. The intent of the final Geotechnical POD will contain sufficient information for the BLM and the USFS to authorize IPC to perform tests to collect hydrogeologic and geotechnical soil properties and geophysical data to provide information for detailed transmission line, station, and communication stations engineering and design.

Geotechnical investigations are a required step in the Project construction process that provides necessary information to be able to complete detailed engineering and design of the transmission line, access roads, station and communication stations, and other facilities. Therefore, IPC, in coordination with the BLM and USFS has developed an implementation strategy that includes the preparation of a separate Geotechnical POD.

This Framework Geotechnical Investigation POD serves as the baseline document for the development of a complete Geotechnical Investigation POD to be developed by IPC and their contractor(s). The final Geotechnical Investigation POD will describe the geotechnical investigation program and include detailed information on the drilling program, location of boreholes, drilling equipment to be used at each borehole, and access to the boreholes. The Geotechnical Investigation POD will also describe and calculate the location and amount of anticipated disturbance associated with drilling activities at each bore location. Disturbance for the overall Project was calculated in the Environmental Impact Statement and National Environmental Policy Act (NEPA) POD based on a predictive model for the transmission line. Actual disturbance associated with the geotechnical program will be wholly contained within the disturbance associated with construction of the Project as described in the Environmental Impact Statement and NEPA POD.

G.2 Purpose

The purpose of the geotechnical investigations is to perform tests to collect hydrogeologic and geotechnical soil properties and geophysical data to provide information for detailed transmission line, station, and communication stations engineering and design. Geotechnical investigations provide critical data that will be incorporated into structure foundation design and the Project construction bid package. Information obtained from the geotechnical investigations will help to ensure the Project is designed and constructed to be safe, reliable, and cost effective. Access roads and overland access routes used for the geotechnical investigations will be access routes proposed for construction of the transmission line and approved for the geotechnical investigations in the BLM and USFS RODs; and the BLM right-of-way grant and USFS special-use authorization.

The Geotechnical Investigation POD will contain detailed information similar to following outline.

G.3 Geotechnical Exploration Description, Standards, and Requirements

G.3.1 Geotechnical Exploration Plan

G1.1.1.1 General Requirements

G1.1.1.2 Temporary Ground Disturbance

G1.1.1.3 Drilling Equipment Staging

G.3.2 Description and Identification of Geotechnical Exploration Sites, Access Routes, and Temporary Disturbance

G1.1.1.4 Overview of Borehole Site Locations and Selection Criteria

G1.1.1.5 Access Routes and Roads

G.3.3 Identification of Potential Geologic Hazards

G1.1.1.6 Overview of Geologic Hazards

- Slope Failure
- Seismicity and Earthquakes

G1.1.1.7 Geologic Hazard Locations

G.3.4 Geotechnical Exploration Methods

G1.1.1.8 Geotechnical Drilling Methods

- Hollow Stem Auger Drilling
- Mud Rotary Drilling
- Air Rotary Drilling
- Sonic Drilling
- Down-Hole Air Hammer Drilling
- Cone Penetration Testing

G1.1.1.9 Sampling Methods

- Grab Sampling
- Thin-walled Tubes
- Split-Spoon Sampling
- Coring

G1.1.1.10 Geophysical Surveys

G.3.5 Drill Vehicle Types

G1.1.1.11 Truck Mounted

G1.1.1.12 All-Terrain Vehicles

G1.1.1.13 Tracked Vehicles

G1.1.1.14 Platform Rig and Helicopter

G.4 Geotechnical Exploration Locations

G.4.1 Introduction

G.4.2 Drilling Locations, Access, and Sensitive Resources for Routes, Stations, and Communication Stations

G.5 Construction Permits and Clearance Surveys

G.5.1 Anticipated Drilling Related Permits

G.5.2 Environmental Clearance Surveys and Seasonal Restrictions

G.6 Geotechnical Investigation Specific Design Features and Mitigation Measures

The Geotechnical Investigation POD will identify design features and mitigation measures that are to be applied specifically to the implementation of the geotechnical investigation program. The application of geotechnical investigation program specific design features and mitigation measures will minimize geotechnical investigation specific impacts on environmental resources. As applicable, the design features and mitigation measures identified in the NEPA POD will apply to the geotechnical investigation program as well. Where appropriate, design features and mitigation measures of the Project for Environmental Protection will be modified, where appropriate, to address geotechnical exploration activities rather than just transmission line construction, operation and maintenance. Design features are measures and practices that are incorporated into the Project description, including siting, to reduce environmental impacts. Mitigation measures are applied to the Project to reduce environmental impacts. The environmental resource clearance surveys, including survey methodologies, that are required to be conducted prior to the initiation of geotechnical exploration and drilling activities are detailed in Appendix B-1 of the NEPA POD.

G.6.1 Design Features of the Project for Environmental Protection

Design Feature 2. Prior to construction, the compliance inspection contractor (CIC) will instruct all personnel on the protection of cultural, paleontological, ecological, and other natural resources such as (a) federal and state laws regarding antiquities, paleontological resources, and plants and wildlife, including collection and removal; (b) the importance of these resources; (c) the purpose and necessity of protecting them; and (d) reporting and procedures for stop work.

Design Feature 3. Prior to B2H Project-related activities on private lands, landowners will be contacted for rights-of-entry and to inform them of impending visits to and/or work on their respective properties. A toll-free telephone number will be maintained for landowners to contact the Applicant or the Applicant's designee with questions, concerns, and/or to report any B2H Project-related issues during construction of the Project.

Design Feature 4. Pre-construction surveys for special status species, threatened and endangered species, or other species of particular concern will be considered in accordance with the B2H Biological Survey Work Plan, which was previously approved by the Applicant and the appropriate land-management or wildlife-management agencies (e.g., Bureau of Land Management [BLM], U.S. Fish and Wildlife Service [USFWS], state wildlife agencies, etc.). In cases for which such species are identified, appropriate action will be taken to avoid adverse impacts on the species and its habitat. Amendments to the work plan will be made based on the best available science. Surveys for fish species are not anticipated; Endangered Species Act (ESA)-listed fish species will be presumed present in all watersheds that agency data indicate presence.

Design Feature 8. Grading will be minimized by driving overland in areas approved in advance by the land-management agency and/or land owner in predesignated work areas (e.g., staging areas, material laydown yards, fly yards, and wire pulling/splicing sites) whenever possible.

Design Feature 9. All vehicle movement outside the right-of-way will be restricted to predesignated access, contractor-acquired access, public roads, overland travel routes, or crossings of streams approved in advance by the applicable land-management agency or landowner.

Design Feature 10. To minimize vehicle collisions with wildlife or livestock and reduce amount of dust generated from construction related activities, a speed limit of 25 miles per hour will be employed on B2H Project access routes, unless the applicable land-management agency has designated an alternative speed limit.

Design Feature 11. If ground-disturbing activities (e.g., vegetation clearing or construction activities) could not be avoided during the migratory bird nesting season (between April 1 and July 15), migratory bird and nest surveys will be required within 7 days of any ground disturbing activities. A spatial buffer will be placed around each active nest detected during the surveys in the area where the buffer intersects work areas where vegetation clearing or construction is taking place, until such time as the nest is determined, through monitoring, to be no longer occupied. Appropriate spatial nest buffers (by species or guild) and nest-monitoring requirements will be identified using the best available scientific information through coordination with USFWS and other appropriate agencies, and will be provided in a migratory-bird nest-management plan incorporated into the POD.

Design Feature 13. Agency guidelines for raptor protection during the breeding season will be followed.

Design Feature 14. State standards for abandoning drill holes will be adhered to where groundwater is encountered.

Design Feature 15. Consistent with the BLM and USFS riparian management policies, surface-disturbing activities will be avoided in defined segments of Riparian Conservation Areas², using the following delineation criteria, unless exception criteria defined by the BLM are met or with agency approval of acceptable measures to protect riparian resources and habitats by avoiding or minimizing stormwater runoff, sedimentation, and disturbance of riparian vegetation, habitats, and wildlife species:

- Fish-bearing streams: 300 feet slope distance on either side of the stream, or to the extent of additional delineation criteria, whichever is greatest.
- Perennial non-fish bearing streams: 150 feet slope distance on either side of the stream, or to the extent of additional delineation criteria, whichever is greatest.
- Ponds, lakes, reservoirs, and wetlands greater than 1 acre: 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs, or from the edge of the wetland, pond or lake, or to the extent of additional delineation criteria, whichever is greatest.

- Intermittent or seasonally flowing streams and wetlands greater than 1 acre: In watersheds that support ESA-listed fish species and /or designated critical habitat, 100 feet slope distance from the edge of the stream channel or wetland to the outer edge of riparian vegetation, whichever is greatest.
- In watersheds that do not have current, documented presence of ESA-listed fish species and /or designated critical habitat, 50 feet slope distance from the edge of the stream channel or wetland to the outer edge of riparian vegetation, whichever is greatest.

Mitigation measures, such as micro-siting road locations, will be developed on a site specific basis, in consultation and coordination with the BLM and other federal land management agencies, and incorporated into the final POD.

Design Feature 17. If work were required during wet periods with saturated soil conditions, vehicles will not be allowed to travel when soils are moist enough for deep rutting (4 or more inches deep) to occur unless prefabricated equipment pads (matting) were installed over the saturated areas or other measures were implemented to prevent rutting. Equipment with low-ground-pressure tires, wide tracks, or balloon tires will be used when possible.

Design Feature 18. Crossings of dry washes will be made during dry conditions, when possible. Repeated crossings will be limited to the extent possible but constrained to the same location with appropriate stabilization to reduce erosion potential.

Design Feature 24. All internal- and external-combustion engines will be operated per 36 Code of Federal Regulations 261.52, which requires all such engines to be equipped with a qualified spark arrester that is maintained and not modified.

Design Feature 25. Where work will occur on hazardous and contaminated sites, the Applicant must seek approval from the U.S. Environmental Protection Agency (EPA) as required by federal law. Work on contaminated sites must avoid remedial structures (e.g., capped areas, treatment, or monitoring wells, etc.) and workers must use adequate worker protection measures for working in contaminated areas.

Design Feature 31. In accordance with the Programmatic Agreement (to comply with Section 106 of the National Historic Preservation Act) entered into among the BLM; USFS; the states of Idaho and Oregon; consulting parties; and tribes, specific measures to mitigate effects on cultural resources will be developed and implemented to mitigate identified adverse impacts.

Design Feature 34. Calving, lambing, and trailing areas will be avoided when in use by livestock operations to the extent practical. Calving season generally occurs between December and February. Lambing season generally occurs between March and June. Trailing areas (areas where livestock producers move livestock across lands to facilitate proper grazing management) can occur throughout the B2H Project area and timing may vary throughout the year. Prior to construction, the Applicant will coordinate with the applicable land-management agency or private landowner to avoid areas used for calving, lambing, and trailing during construction.

Design Feature 36. Construction and maintenance activities will occur as practicable to minimize impacts on agricultural operations. In cultivated agricultural areas, soil compacted by construction and maintenance activities will be decompacted or the landowner compensated accordingly.

G.6.2 Selective Mitigation Measures.

In addition to the Project design features discussed above the following mitigation measures will be applied to the implementation of the geotechnical investigation program.

Selective Mitigation Measure 2 (Use Existing Access and/or Stream Crossings for Sensitive Resources Avoidance). Existing access and/or stream crossing will be used as much as

possible/practicable for construction and maintenance to avoid disturbance of sensitive resources crossed by the B2H Project.

Selective Mitigation Measure 3 (Use of Matting [Stabilization] in Sensitive Areas). To minimize ground disturbance in sensitive areas, matting or other similar practices for ground stabilization will be used for B2H Project access and work areas.

Selective Mitigation Measure 12 (Seasonal and Spatial Fish and Wildlife Restrictions). To minimize disturbance to identified fish and wildlife species during sensitive periods, construction, operation, and maintenance activities will be restricted in designated areas unless exceptions are granted by the Authorized Officer or his/her designated representative and other applicable regulatory agencies (e.g. USFWS, National Oceanic and Atmospheric Administration Fisheries, state wildlife agencies). A list of seasonal fish and wildlife restrictions are presented in Table 1 of Attachment D, Seasonal and spatial Restrictions for Biological Resources of Appendix B.

Selective Mitigation Measure 14 (Overland Access). In addition to using overland travel in work areas, overland access to work areas will be used to reduce resource impacts. The construction contractor will use overland access in areas where no grading will be needed to access work areas. Overland access will consist of drive-and-crush (i.e., vehicular travel to access a site without significantly modifying the landscape, cropping vegetation, or removing soil) and/or clear-and-cut travel (removal of all vegetation while leaving the root crown intact to improve or provide suitable access for equipment). Prior to commencement of work activities, overland access routes will be staked. Routes will be specified in the POD. Use of overland access routes will be restricted based on dry or frozen soil conditions, seasonal weather conditions, and relatively flat terrain.