

Susitna-Watana Hydroelectric Project Document

ARLIS Uniform Cover Page

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Revised Study Plan

Susitna-Watana Hydroelectric Project

FERC No. 14241

Appendix 5

Mapping References



December 2012

RSP BASE MAP REFERENCES

| Category | Data Source | Date | File Name and Description |
|---------------------------|---|------------------|--|
| Administrative Boundaries | Alaska Department of Natural Resources, Information Resource Management Section | 2012-07-11 | DNR_Legislatively_Designated_Area: Land parcels within the State of Alaska contained by the Legislatively Designated Area category. |
| | National Park Service, Alaska Regional Office, Land Resources Program Center | 2012-03-27 | ParkOutline: Statewide summary of all National park, preserve, monument and current wilderness boundaries. |
| | U.S. Department of Interior, Bureau of Land Management, Division of Support Services, Branch of Information Resource Management | 2008-02-04 | DNR_section83: Protracted section grid for Alaska. |
| | U.S. Department of Interior, Bureau of Land Management, Division of Support Services, Branch of Information Resource Management | 2008-02-04 | DNR_township83: Protracted township grid for Alaska. |
| Cities, Towns, Villages | Alaska Department of Transportation and Public Facilities, Statewide GIS Mapping Section | 1999 | DNR_akplacenames: Historic cities, towns, villages, and camps throughout the State of Alaska. |
| Elevation | MWH Global | 2012-09-27 | RSP_corridor_contours_20ft: Contours at 20-foot intervals derived from the IFSAR elevation data set. |
| Hydrography | Alaska Department of Natural Resources, Division of Mining and Water, Information Resource Management Section | 1995-10-05 | Susitna_Drainage_Basin: Subset of the Hydrologic Unit Code (HUC) dataset showing entire Susitna drainage basin. |
| | Alaska Department of Natural Resources, Information Resource Management Section | 1998 | DNR_Hydrography_LINE: Alaska hydrography lines from USGS 1:2,000,000 Digital Line Graphs (DLG) |
| | Alaska Department of Natural Resources, Information Resource Management Section | 1998 | DNR_Hydrography_POLYGON: Alaska hydrography polygons from USGS 1:2,000,000 Digital Line Graphs (DLG) |
| | R&M Consultants, Inc. | 1981-12 | River_Mile_Index_1981: River miles as published in "Attachment D: Susitna River Mile Index, Mouth to Susitna Glacier" (ARLIS document SUS131.pdf). |
| | U.S. Geological Survey in cooperation with U.S. Environmental Protection Agency, USDA Forest Service, and other Federal, State and local partners | 2011-12 download | NHDFlowline: National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches for the nation's surface water drainage system; clipped to the Susitna Basin. |
| | U.S. Geological Survey in cooperation with U.S. Environmental Protection Agency, USDA Forest Service, and other Federal, State and local partners | 2011-12 download | NHDWaterbody: National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches for the nation's surface water drainage system; clipped to the Susitna Basin. |

| Category | Data Source | Date | File Name and Description |
|---|---|------------|--|
| Imagery/Raster | University of Alaska Fairbanks, Geographic Information Network of Alaska; Matanuska-Susitna Borough GIS | 2011 | Matanuska Susitna Borough LiDAR/Imagery Project: 2011 high resolution Light Detection and Ranging (LiDAR) and aerial photography data collected by the Matanuska-Susitna Borough from mouth of Susitna River to the area of the proposed Susitna-Watana Hydroelectric Project in 2011. Imagery mosaic available as a 1 ft, ortho-rectified, 4-band imagery for the entire 3680 sq/mi area, terrain corrected against the LiDAR elevation model during the 2011 collection. http://matsu.gina.alaska.edu . |
| | National Park Service, Alaska Regional Office | 2008-08-07 | aknedft_sli: USGS National Elevation Dataset (NED) for Alaska (integer grid with elevation values in feet). |
| | National Park Service, Alaska Regional Office | 2008-08-07 | aknedft_slihs: Hillshade of the USGS National Elevation Dataset (NED) for Alaska (integer grid with elevation values in feet). |
| Land Status | U.S. Department of Interior, Bureau of Land Management, Division of Support Services, Branch of Information Resource Management | 2011-09-06 | genstat: Generalized land status pattern for Alaska with respect to Federal, State, and Native Lands. |
| Project Location Facilities and Operations | HDR Alaska, Inc. | 2010 | SUWA_DamSites: Proposed Watana Dam site from Alaska DOT&PF baseline data for the evaluation of Watana Transportation Access Study. |
| | MWH Global | 2012-08-29 | RSVR_Max_Pool_2050ft: Proposed maximum water level (elevation 2,050 feet) for the reservoir. From MatSu LiDAR and IFSAR data. |
| | MWH Global | 2012-10-26 | RSP_Corridors_10_26_12: Study area corridors for the proposed roads; transmission lines; dam and camp facility areas; and 2,050 reservoir max pool elevation. |
| Transportation | Alaska Department of Transportation and Public Facilities | 2012-06-12 | DOT_RoadSystem_06121: Alaska DOT&PF road centerlines for Alaska. |
| | U.S. Census Bureau; Matanuska-Susitna Borough GIS | 2009-07 | matsu_railroad: Portion of the Alaska Railroad Corporation's track centerline that lies within the Matanuska-Susitna Borough. |

RSP MAP FIGURE DATA

| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|-----------------------|---|-------------------------------|------------|--|
| 1.2-1 | Susitna-Watana Corridor Study Areas | MWH Global | 2012-8-29 | RSVR_Watana_Dam: Proposed Watana Dam location. |
| | | National Geographic Society | 2010 | Physical World: NGS USA Topographic Map. |
| 5.5-1, 5.6-1 | Stream water quality and temperature data collection sites overview | Tetra Tech | 2012-04-26 | WQ_TempSites1980s: Proposed water temperature and collection sites used previously in 1980s. |
| | | Tetra Tech | 2012-04-26 | WQ_TempSampLoc80-82_TTmod: Proposed water temperature and collection sites. |
| A-1 to 34 Attachment | Water quality sampling sites | Tetra Tech | 2012-04-26 | WQ_TempSites1980s: Proposed water temperature and collection sites used previously in 1980s. |
| | | Tetra Tech | 2012-04-26 | WQ_TempSampLoc80-82_TTmod: Proposed water temperature and collection sites. |
| B1-1 to 10 Attachment | Instream Flow Study Focus Areas | R2 Resource Consultants, Inc. | 2012-11-27 | IFS_FocusAreas: Upper and lower extent of Instream Flow Study Focus Areas in the Middle Susitna River Segment. |
| | | R2 Resource Consultants, Inc. | 2012-11-26 | PRM_MS_MainChannel: Project River Mile (PRM) route for the Susitna River mainstem main channel. |
| B1-11 Attachment | Stream water quality and temperature data collection sites overview | Tetra Tech | 2012-04-26 | WQ_TempSites1980s: Proposed water temperature and collection sites used previously in 1980s. |
| | | Tetra Tech | 2012-04-26 | WQ_TempSampLoc80-82_TTmod: Proposed water temperature and collection sites. |

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| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|------------|---|--|------------|---|
| 6.5-7 | Susitna-Watana access corridors | Tetra Tech | 2012-10-04 | Federal_Lands: Digitized from Figure 1-1 provided by Bill Fullerton (Tetra Tech) and Kathy Dube (Watershed Geodynamics). |
| | | Tetra Tech | 2012-10-04 | Private_Lands: Digitized from Figure 1-1 provided by Bill Fullerton (Tetra Tech) and Kathy Dube (Watershed Geodynamics). |
| | | Tetra Tech | 2012-10-04 | State_Lands: Digitized from Figure 1-1 provided by Bill Fullerton (Tetra Tech) and Kathy Dube (Watershed Geodynamics). |
| | | ESRI; Federal Railroad Administration, Bureau of Transportation Statistics | unknown | railroads: Susitna area railroad infrastructure. |
| | | ESRI via U.S. National Atlas of the U.S. and U.S. Geological Survey | 2003-01 | PLSS_Grid: Protracted section grid for Alaska. |
| 6.6-3 | Middle Susitna River Segment Instream Flow Study Focus Areas | R2 Resource Consultants, Inc. | 2012-11-05 | IFS_RiverSegments_General: General alignment of Susitna River Segments (Upper, Middle, and Lower) as derived from NHD hydrography layer. |
| | | Tetra Tech | 2012-04-18 | SusitnaRiverReaches: Geomorphic Reach delineations for the Upper, Middle, and Lower Susitna River Segments. |
| 8.5-6, 7 | Instream flow transects and model types applied during the 1980s Su-Hydro studies | R2 Resource Consultants, Inc. | 2012-11-13 | IFS_HistFlowBreach: Breaching flows based on 1980s studies in Side Channel 11, Slough 11/14, and Whiskers Slough complex. |
| | | R2 Resource Consultants, Inc. | 2012-10-18 | IFS_HistTransects: Instream flow transects and associated model types in Side Channel 11, Slough 11/14, and Whiskers Slough complex during 1980s studies. |
| | | R2 Resource Consultants, Inc. | 2012-11-26 | PRM_MS_MainChannel: Project River Mile (PRM) route for the Susitna River mainstem main channel. |
| 8.5-9 | Upper, Middle and Lower Susitna River Segments | R2 Resource Consultants, Inc. | 2012-11-05 | IFS_RiverSegments_General: General alignment of Susitna River Segments (Upper, Middle, and Lower) as derived from NHD hydrography layer. |

| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|--------------|---|-------------------------------|------------|---|
| 8.5-11, 12 | Geomorphic Reaches and Instream Flow Study Focus Areas overview | R2 Resource Consultants, Inc. | 2012-11-05 | IFS_RiverSegments_General: General alignment of Susitna River Segments (Upper, Middle, and Lower) as derived from NHD hydrography layer. |
| | | Tetra Tech | 2012-04-18 | SusitnaRiverReaches: Geomorphic Reach delineations for the Upper, Middle, and Lower Susitna River Segments. |
| 8.5-13 to 22 | Instream Flow Study Focus Areas | R2 Resource Consultants, Inc. | 2012-11-27 | IFS_FocusAreas: Upper and lower extent of Instream Flow Study Focus Areas in the Middle Susitna River Segment. |
| | | R2 Resource Consultants, Inc. | 2012-11-26 | PRM_MS_MainChannel: Project River Mile (PRM) route for the Susitna River mainstem main channel. |
| 8.5-27 | Winter fish habitat use sampling overview | R2 Resource Consultants, Inc. | 2012-09-10 | IFS_FocusAreaPt_General: General point location of Instream Flow Study Focus Areas in the Middle Susitna River Segment. |
| | | R2 Resource Consultants, Inc. | 2012-11-05 | IFS_RiverSegments_General: General alignment of Susitna River Segments (Upper, Middle, and Lower) as derived from NHD hydrography layer. |
| | | Tetra Tech | 2012-04-18 | SusitnaRiverReaches: Geomorphic Reach delineations for the Upper, Middle, and Lower Susitna River Segments. |
| 8.5-28, 29 | Winter fish habitat use sampling sites | R2 Resource Consultants, Inc. | 2012-11-12 | IFS_ActiveFishSampling: Proposed winter locations of active fish sampling in Slough 8A and Whiskers Slough complex. |
| | | R2 Resource Consultants, Inc. | 2012-11-27 | IFS_FocusAreas: Upper and lower extent of Instream Flow Study Focus Areas in the Middle Susitna River Segment. |
| | | R2 Resource Consultants, Inc. | 2012-11-27 | IFS_WinterHabUseSites: Proposed locations of winter fish habitat use sampling instruments (intergravel temperature gages, piezometers, stage recorders, and underwater fish observation cameras). |
| | | R2 Resource Consultants, Inc. | 2012-11-26 | PRM_MS_MainChannel: Project River Mile (PRM) route for the Susitna River mainstem main channel. |

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| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|--------------|--|-------------------------------|------------|---|
| 8.5-31 | Conceptual layout of 2-D coarse and fine mesh modeling | R2 Resource Consultants, Inc. | 2012-11-27 | IFS_FocusAreas: Upper and lower extent of Instream Flow Study Focus Areas in the Middle Susitna River Segment. |
| | | R2 Resource Consultants, Inc. | 2012-11-13 | IFS_HistFlowBreach: Breaching flows based on 1980s studies in Side Channel 11, Slough 11/14, and Whiskers Slough complex. |
| | | R2 Resource Consultants, Inc. | 2012-11-28 | IFS_Slough_Habitat: Conceptual layout of 2-D coarse and fine mesh modeling within the Whiskers Slough Instream Flow Study Focus Area. |
| | | R2 Resource Consultants, Inc. | 2012-11-26 | PRM_MS_MainChannel: Project River Mile (PRM) route for the Susitna River mainstem main channel. |
| 8.6-5 | Susitna project area meteorological station locations | R2 Resource Consultants, Inc. | 2012-11-05 | IFS_RiverSegments_General: General alignment of Susitna River Segments (Upper, Middle, and Lower) as derived from NHD hydrography layer. |
| | | R2 Resource Consultants, Inc. | 2012-08-10 | WR_MonitoringStations_20120810_LL: Water resources monitoring stations. |
| 9.5-1, 9.6-1 | Fish distribution and abundance study area | R2 Resource Consultants, Inc. | 2012-12-03 | FA_DistAbund_Study_Streams: General alignment of fish distribution and abundance study streams in the Upper, Middle, and Lower Susitna River Segments. Derived from NHD hydrography layer. |
| 9.6-7, 8 | Winter fish habitat use sampling sites | R2 Resource Consultants, Inc. | 2012-11-12 | IFS_ActiveFishSampling: Proposed winter locations of active fish sampling in Slough 8A and Whiskers Slough complex. |
| | | R2 Resource Consultants, Inc. | 2012-11-27 | IFS_FocusAreas: Upper and lower extent of Instream Flow Study Focus Areas in the Middle Susitna River Segment. |
| | | R2 Resource Consultants, Inc. | 2012-11-27 | IFS_WinterHabUseSites: Proposed locations of winter fish habitat use sampling instruments (intergravel temperature gages, piezometers, stage recorders, and underwater fish observation cameras). |
| | | R2 Resource Consultants, Inc. | 2012-11-26 | PRM_MS_MainChannel: Project River Mile (PRM) route for the Susitna River mainstem main channel. |

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| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|------------|---|--|------------|---|
| 9.7-1,2 | Salmon escapement study area | LGL Alaska Research | 2012-11-28 | SuWaLGLAdultSalmonDistributionWatershedMap: Fish escapement study area at watershed level. Includes fishwheel and stationary telemetry locations. |
| | | LGL Alaska Research | 2012-11-28 | SuWaLGLAdultSalmonDistributionMidRiverMap: Fish escapement study area with middle river telemetry locations. |
| 9.8-1, 2 | River productivity study area | R2 Resource Consultants, Inc. | 2012-09-10 | IFS_FocusAreaPt_General: General point location of Instream Flow Study Focus Areas in the Middle Susitna River Segment. |
| | | R2 Resource Consultants, Inc. | 2012-11-05 | IFS_RiverSegments_General: General alignment of Susitna River Segments (Upper, Middle, and Lower) as derived from NHD hydrography layer. |
| | | Tetra Tech | 2012-04-18 | SusitnaRiverReaches: Geomorphic Reach delineations for the Upper, Middle, and Lower Susitna River Segments. |
| 9.10-1 | Watana Reservoir fish community and risk of entrainment study area | Microsoft Corporation and its data suppliers | 2010 | Bing Maps Aerial: This layer contains the Bing Maps aerial imagery web mapping service, which provides worldwide orthographic aerial and satellite imagery. |
| 9.11-1 | Watana Dam fish passage study area | Microsoft Corporation and its data suppliers | 2010 | Bing Maps Aerial: This layer contains the Bing Maps aerial imagery web mapping service, which provides worldwide orthographic aerial and satellite imagery. |
| 9.12-8 | Study of Fish Passage Barriers in the Middle and Upper Susitna River | | | Base map data only. |
| 9.13-1 | Aquatic Resources within Access Alignment, Transmission Corridor, and Inundation Area | HDR Alaska, Inc. | 2012 | Access_Cor_NHD_flowlines_clip: NHD flowlines clipped to access corridor boundaries. |
| 9.16-1 | Eulachon study area | HDR Alaska, Inc. | 2012 | Eulachon_Study_Area: Selection from NHD flowline. |
| 9.17-1 | Cook Inlet Beluga Whale study | HDR Alaska, Inc. | 2012 | Beluga_Study_Area: Digitized from description provided by study lead. |
| | | HDR Alaska, Inc. | 2012 | Beluga_Critical_Habitat: Digitized from written description provided by National Marine Fisheries Service (NMFS). |
| | | HDR Alaska, Inc. | 2012 | Eulachon Streams: Extracted from NHD. |

| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|------------|-------------------------|--|------------|---|
| 10.5-1 | Moose study area | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-07-09 | MOOS_2013_14StudyArea: Moose study area. |
| | | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-02-17 | MOOS_CCA14 and MOOS_CCA7: Continuous moose count areas (repeat survey areas). |
| | | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-01-25 | Game_Management_Units: ADF&G Game Management Units (GMUs) & Subunits; used for ADFG-DWC wildlife and habitat management and regulations. |
| 10.6-1 | Caribou study area | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-07-09 | CARI_2013_14StudyArea: Caribou study area. |
| | | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-07-11 | CARI_NCH_Range_1999_2010: Total annual Nelchina caribou herd range from 1999–2010. |
| | | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-07-11 | CARI_DCH_Seas_Range: Delta caribou herd total annual range . |
| | | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-01-25 | Game_Management_Units: ADF&G Game Management Units (GMUs) & Subunits; used for ADFG-DWC wildlife and habitat management and regulations. |
| 10.7-1 | Dall's sheep study area | ABR, Inc.—Environmental Research & Services, in consultation with Alaska Department of Fish and Game | 2012-10-31 | DASH_2013_14StudyArea: Dall Sheep study area; derived from GMU 13E south of the Denali Hwy. and east of the Parks Hwy. |
| | | ABR, Inc.—Environmental Research & Services | 1984 | DASH_Hist_Mineral_Licks: Approximate locations of Jay and Watana Creek mineral licks digitized by ABR, Inc. from Tankersley, N. 1984. [APA Doc. No. 1704], pp. 5 and 7. |
| | | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-01-25 | Game_Management_Units: ADF&G Game Management Units (GMUs) & Subunits; used for ADFG-DWC wildlife and habitat management and regulations. |

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| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|------------|----------------------------------|--|------------|--|
| 10.8-1 | Study area for large carnivores | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-11-06 | LCAR_2013_14StudyArea: Study area for spatial modeling of bear density. |
| | | Alaska Department of Fish and Game | 2012-06-01 | AWC_SpawningStreams_for_LCAR: Cataloged anadromous waters for bear sampling downstream of the Watana Dam Site. Selected from Anadromous Waters Catalog data. |
| | | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-01-25 | Game_Management_Units: ADF&G Game Management Units (GMUs) & Subunits; used for ADFG-DWC wildlife and habitat management and regulations. |
| 10.9-1 | Wolverine study area | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-10-10 | WOLV_2013_14StudyArea: Wolverine study area (5-km grid covering the Project Area). |
| | | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-01-25 | Game_Management_Units: ADF&G Game Management Units (GMUs) & Subunits; used for ADFG-DWC wildlife and habitat management and regulations. |
| 10.10-1 | Terrestrial furbearer study area | ABR, Inc.—Environmental Research & Services, in consultation with Dr. Laura Prugh, University of Alaska Fairbanks, Institute of Arctic Biology | 2012-11-03 | TFUR_2013_14StudyArea: Terrestrial furbearer study area [10-km (6.2-mi) buffer of Project Area]. |
| 10.11-1 | Aquatic furbearer study areas | ABR, Inc.—Environmental Research & Services | 2012-11-09 | AFUR_2013_14StudyArea: Study area for all aquatic furbearers. |
| | | ABR, Inc.—Environmental Research & Services | 2012-11-09 | BEAV_DownStr_2013_14StudyArea: Downstream beaver study area. |
| | | ABR, Inc.—Environmental Research & Services | 2012-11-09 | RIOT_MINK_2013_14StreamStArea: Stream survey area for river otter and mink. |
| 10.12-1 | Study area for small mammals | ABR, Inc.—Environmental Research & Services | 2012-12-03 | SMAM_2013_14StudyArea: Small mammal study area. |
| 10.13-1 | Bat study area | ABR, Inc.—Environmental Research & Services | 2012-10-31 | BAT_2013_14StudyArea: Bat study area. |

| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|------------|--|---|------------|---|
| 10.14-1 | Study area for surveys of eagles and other raptors | ABR, Inc.—Environmental Research & Services, in consultation with U.S. Fish and Wildlife Service | 2012-11-01 | RPTR_2013_14StudyArea: Study area for all raptor species. |
| | | ABR, Inc.—Environmental Research & Services, in consultation with U.S. Fish and Wildlife Service | 2012-11-03 | GOEAonlyDisplay_2013_14StArea: Study area extension for Golden Eagles. |
| 10.15-1 | Waterbird study area | ABR, Inc.—Environmental Research & Services, in consultation with U.S. Fish and Wildlife Service and Alaska Department of Fish and Game | 2012-11-07 | WBRD_2013_14StudyArea: Waterbirds study area (3-mi buffer of Project elements plus selected water bodies). |
| | | ABR, Inc.—Environmental Research & Services | 2012-11-09 | LSBRD_WBRD_RadarSampleSite: Radar sampling site for waterbirds, landbirds, and shorebirds. |
| | | ABR, Inc.—Environmental Research & Services | 2012-11-09 | LSBRD_WBRD_RadarSampleArea: Radar sampling area for waterbirds, landbirds, and shorebirds (3-mi buffer of radar sampling site). |
| 10.16-1 | Landbird and shorebird study area | ABR, Inc.—Environmental Research & Services, in consultation with U.S. Fish and Wildlife Service | 2012-11-05 | LSBRD_2013_14StudyArea: Landbirds and shorebirds study area (2-mi buffer of Project elements). |
| | | ABR, Inc.—Environmental Research & Services | 2012-11-09 | LSBRD_WBRD_RadarSampleSite: Radar sampling site for waterbirds, landbirds, and shorebirds. |
| | | ABR, Inc.—Environmental Research & Services | 2012-11-09 | LSBRD_WBRD_RadarSampleArea: Radar sampling area for waterbirds, landbirds, and shorebirds (3-mi buffer of radar sampling site). |

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| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|------------|---|--|------------|---|
| 10.17-1 | Willow Ptarmigan study area | ABR, Inc.—Environmental Research & Services, in consultation with Alaska Department of Fish and Game | 2012-11-01 | PTAR_2013_14StudyArea: Ptarmigan study area (15-mi buffer of Project Area). |
| | | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-11-01 | PTAR_2013_14Capture: Capture sites and possible alternative capture site for ptarmigan. |
| | | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-10-28 | PTAR_2013_14AerialArea: Aerial search area for ptarmigan (50-mi buffer of capture sites). |
| | | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-01-25 | Game_Management_Units: ADF&G Game Management Units (GMUs) & Subunits; used for ADFG-DWC wildlife and habitat management and regulations. |
| 10.18-1 | Wood frog study area | ABR, Inc.—Environmental Research & Services | 2012-10-31 | FROG_2013_14StudyArea: Wood Frog study area. |
| 10.19-1 | Study area for evaluation of wildlife habitat use | ABR, Inc.—Environmental Research & Services | 2012-11-03 | HABEV_2013_14StudyArea: Wildlife habitat evaluation study area [combination of the wildlife habitat mapping areas from the Vegetation and Habitat Mapping Study (Section 11.5) and the Riparian Vegetation Study (Section 11.6)]. |
| 10.20-1 | Study area for the wildlife harvest analysis | ABR, Inc.—Environmental Research & Services | 2012-10-28 | HARV_2013_14StudyArea: Wildlife harvest analysis study area; derived from GMUs 13A, 13B, 13E, 14B, 16A, & 20A. |
| | | Alaska Department of Fish and Game, Division of Wildlife Conservation | 2012-01-25 | Game_Management_Units: ADF&G Game Management Units (GMUs) & Subunits; used for ADFG-DWC wildlife and habitat management and regulations. |

| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|------------|---|---|--------------|---|
| 11.5-1 | Study area for vegetation and wildlife habitat mapping for 2013 and 2014 in the Susitna-Watana Hydroelectric Project area | ABR, Inc.—Environmental Research & Services, in consultation with Alaska Energy Authority, U.S. Fish and Wildlife Service, and Alaska Department of Fish and Game | 2012-12-04 | VEG_2013_14StudyArea: The 4-mile buffer excludes riparian areas along the Susitna River downstream of the dam site (vegetation and wildlife habitats will be mapped in that area in the riparian vegetation study; see Section 11.6). |
| | | BDL WMS: U.S. Geological Survey and Earthstar Geographics LLC | 1988 to 1992 | Mid Resolution Natural Color (10-30 meter): Landsat mosaic generated by the USGS and a simulated true color Landsat mosaic provide by Earthstar Geographics LLC. Imagery copyright Earthstar Geographics http://www.terracolor.net). |
| 11.6-1 | Preliminary riparian vegetation study area for 2013 and 2014 in the Susitna basin | ABR, Inc.—Environmental Research & Services, in consultation with Alaska Energy Authority, U.S. Fish and Wildlife Service, and Alaska Department of Fish and Game | 2012-10-31 | RIPR_2013_2014StudyArea: Riparian study area: extent of riverine physiography as a potential lateral boundary for the study area (from preliminary mapping efforts in October 2012); the figure will be updated to illustrate the final proposed study area when agreement is reached on lateral and downstream boundaries. |
| | | BDL WMS: U.S. Geological Survey and Earthstar Geographics LLC | 1988 to 1992 | Mid Resolution Natural Color (10-30 meter): Landsat mosaic generated by the USGS and a simulated true color Landsat mosaic provide by Earthstar Geographics LLC. Imagery copyright Earthstar Geographics http://www.terracolor.net). |
| 11.7-1 | Study area for wetlands mapping in 2013 and 2014 in the Susitna-Watana Hydroelectric Project area | ABR, Inc.—Environmental Research & Services, in consultation with Alaska Energy Authority, U.S. Fish and Wildlife Service, and Alaska Department of Fish and Game | 2012-12-04 | WET_2013_14StudyArea: The 2-mile buffer excludes riparian areas along the Susitna River downstream of the dam site (wetlands will be mapped in that area in the riparian vegetation study; see Section 11.6). |
| | | BDL WMS: U.S. Geological Survey and Earthstar Geographics LLC | 1988 to 1992 | Mid Resolution Natural Color (10-30 meter): Landsat mosaic generated by the USGS and a simulated true color Landsat mosaic provide by Earthstar Geographics LLC. Imagery copyright Earthstar Geographics http://www.terracolor.net). |

| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|------------|---|--|--------------|---|
| 11.8-1 | Study area for rare plant surveys in 2013 and 2014 in the Susitna-Watana Hydroelectric Project area | ABR, Inc.—Environmental Research & Services | 2012-11-01 | RAPL_2013_14StudyArea: Study area for rare plant surveys. |
| | | BDL WMS: U.S. Geological Survey and Earthstar Geographics LLC | 1988 to 1992 | Mid Resolution Natural Color (10-30 meter): Landsat mosaic generated by the USGS and a simulated true color Landsat mosaic provide by Earthstar Geographics LLC. Imagery copyright Earthstar Geographics http://www.terracolor.net). |
| 12.5-1 | Recreation resources study area | URS Alaska | 2012-11-19 | REC_StudyArea_EffectsAnalysis: Five-mile buffer around the Susitna River from Sunshine to the Denali Highway, all trails accessing project area, and the proposed project facilities. |
| | | URS Portland | 2012-10-5 | REC_StudyArea_Use: Study area for both Recreation Use Studies and the Recreation Supply and Demand Studies. |
| | | URS Portland | 2012-10-8 | REC_StudyArea_Facilities: Study area for existing public recreation facilities and carrying capacity. |
| 12.5-3 | Survey intercept locations | URS Alaska | 2012-11-29 | URS_Intercept_PTS: Location of in-person intercepts to gather recreation use data. |
| 12.6-1 | Aesthetic resources study area | URS Alaska | 2012-9-28 | AES_StudyArea: Aesthetics study area bounded by the Denali, Richardson, Glenn, and Parks Highways. |
| 12.7-1 | River Recreation - Reaches study area | ERM, Inc. | 12/11/2012 | REC_Reaches: Generated from NHD data, split at pre-determined Susitna-Watana River miles. |
| | | ERM, Inc. | | REC_Points_of_Interest: Conglomerate of select town locations, state highway/NHD river intersection, Dam site. |

| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|------------|---|--|------|--|
| 13.1-1 | Property ownership in the vicinity of the study area | Alaska Department of Natural Resources | 1992 | Boundaries_ANCSAcorp_POLYGON: Depicts Alaska Native Corporation boundaries; based on U.S. census data (compiled by TIGER in 1990). |
| | | U.S. Department of Interior, Bureau of Land Management, Division of Support Services, Branch of Information Resource Management | | Spatial Data Management System (SDMS): Layers of land status polygons across Alaska compiled by the BLM, based on spatial information on surveyed land parcels, mining claims, and title plats; provided via Web Map Service (WMS) server. |
| | | U.S. Geological Survey; Alaska Mapped; University of Alaska Fairbanks, Geographic Information Network of Alaska | 2012 | Hill Shaded DRG 1:250k: Background map based on digitized USGS maps with hill shading; provided via WMS server. |
| 13.5-1 | Traditional Native language areas in the vicinity of the study area | Alaska Native Language Center, University of Alaska, Fairbanks and University of Alaska, Anchorage Institute of Social and Economic Research | 2011 | CR_IPLAmap: Indigenous Peoples and Languages of Alaska map of approximate language boundaries (Krauss 1974; revised 1982) produced as digital map polygons, by M. Krauss, G. Holton, J. Kerr, and C. West. Downloaded from the Alaska Native Language Archive. |
| | | U.S. Geological Survey; Alaska Mapped; University of Alaska Fairbanks, Geographic Information Network of Alaska | 2012 | Hill Shaded DRG 1:250k: Background map based on digitized USGS maps with hill shading; provided via WMS server. |
| 13.5-2 | Direct and Indirect APEs for the cultural resources study | Northern Land Use Research, Inc. | 2012 | CR_Indirect: Polygon of areas beyond corridors and impoundment; includes trails and areas with known cultural resources and areas that have not been previously surveyed, but which may experience effects from increased traffic/activity. |
| | | U.S. Geological Survey; Alaska Mapped; University of Alaska Fairbanks, Geographic Information Network of Alaska | 2012 | Hill Shaded DRG 1:250k: Background map based on digitized USGS maps with hill shading; provided via WMS server. |

| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|------------|--|--|------|---|
| 13.5-3 | Survey coverage accomplished in the late 1970s and early 1980s | Northern Land Use Research, Inc. | 2012 | CR_Dixon_1980sEra: Polygons of survey locales, borrow areas, recreation areas, and other locations surveyed for cultural resources, 1979-85, by Dixon et al.; polygons are based on line drawn figures on USGS maps in published documents. |
| | | Northern Land Use Research, Inc. | 2012 | CR_Greiser_1980sEra: Polygons of survey units surveyed for cultural resources, 1985-86, by Greiser et al.; polygons are based on original aliquot information, hand drawn figures in published documents, and ADNR section grid for Alaska. |
| | | Northern Land Use Research, Inc. | 2012 | CR_Dixon_1980sEra_concentr: Polygons of survey locales within the impoundment area, as defined in 1979-85, depicting areas of concentrated archaeological survey and testing; polygons are based on line drawn figures on USGS maps in published documents. |
| | | Northern Land Use Research, Inc. | 2012 | CR_Indirect: Polygon of areas beyond corridors and impoundment; includes trails and areas with known cultural resources and areas that have not been previously surveyed, but which may experience effects from increased traffic/activity. |
| | | U.S. Geological Survey; Alaska Mapped; University of Alaska Fairbanks, Geographic Information Network of Alaska | 2012 | Hill Shaded DRG 1:250k: Background map based on digitized USGS maps with hill shading; provided via WMS server. |

| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|------------|--|--|------|---|
| 13.5-4 | Detail of testing accomplished in the late 1970s and early 1980s | Northern Land Use Research, Inc. | 2012 | CR_Dixon_1980sEra: Polygons of survey locales, borrow areas, recreation areas, and other locations surveyed for cultural resources, 1979-85, by Dixon et al.; polygons are based on line drawn figures on USGS maps in published documents. |
| | | Northern Land Use Research, Inc. | 2012 | CR_Dixon_1980sEra_concentr: Polygons of survey locales within the impoundment area, as defined in 1979-85, depicting areas of concentrated archaeological survey and testing; polygons are based on line drawn figures on USGS maps in published documents. |
| | | Northern Land Use Research, Inc. | 2012 | CR_Indirect: Polygon of areas beyond corridors and impoundment; includes trails and areas with known cultural resources and areas that have not been previously surveyed, but which may experience effects from increased traffic/activity. |
| | | U.S. Geological Survey; Alaska Mapped; University of Alaska Fairbanks, Geographic Information Network of Alaska | 2012 | Hill Shaded DRG 1:250k: Background map based on digitized USGS maps with hill shading; provided via WMS server. |
| 13.5-5 | Proposed survey methods in the direct and indirect APES | Northern Land Use Research, Inc. | 2012 | CR_SurveyTypes: Polygons (based on shapefile RSP_Corridors_10_26_12) depicting preliminary survey design, including areas of planned aerial and pedestrian archaeological survey. |
| | | U.S. Geological Survey; Alaska Mapped; University of Alaska Fairbanks, Geographic Information Network of Alaska | 2012 | Hill Shaded DRG 1:250k: Background map based on digitized USGS maps with hill shading; provided via WMS server. |

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| Figure No. | Figure Name | Data Source | Date | File Name and Description |
|------------|---|--|------------|---|
| 13.6-1 | Paleontological resources in the vicinity of the study area | Northern Land Use Research, Inc. | 2012 | CR_AHRSpaleontol_2011: Point locations (n=4) of paleontological resources listed in the Alaska Heritage Resources Survey dataset. |
| | | Pacific Rim Geological Consulting, Inc. | 2012 | Fossil_Locations: Compiled dataset of published point locations (n=100) of paleontological resources in the general study area. |
| | | U.S. Geological Survey; Alaska Mapped; University of Alaska Fairbanks, Geographic Information Network of Alaska | 2012 | Hill Shaded DRG 1:250k: Background map based on digitized USGS maps with hill shading; provided via WMS server. |
| 14.5-1 | Federally designated nonrural areas | Stephen R. Braund & Associates | 2012-11-06 | Federal_nonrural_areas: Digitized by SRB&A. |
| 14.5-2 | State of Alaska nonsubsistence areas | Stephen R. Braund & Associates | 2012-11-06 | State_nonsubsistence_areas: Digitized by SRB&A. |
| 14.5-3 | Overview of subsistence study communities | | 2012-11-06 | Base map data only. |
| 16.6-1 | Site region faults | Fugro | 2011-08-03 | Site_Buffer_200k_20110803: 200-kilometer buffer around the proposed Watana Dam Site. |
| | | Fugro | 2011-09-22 | Faults_Regional_20110922: Fault lines. |
| | | ESRI | 2010 | States: State boundaries. |
| | | ESRI | 2010 | Country: Country boundaries. |
| | | ESRI | 2009 | World Shaded Relief. |