Lake Powell Pipeline

Draft Wetland, Riparian Areas, and Jurisdictional Waters Resource Work Plan

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Prepared by

Cynthia Jones

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Section 1
Introduction

The purpose of this work plan is to define the procedures for analyzing impacts on wetlands, riparian areas, and jurisdictional waters for the Lake Powell Pipeline (LPP). This work plan presents the issues and concerns, defines the impact area and significance criteria, describes the analysis methodology, reviews existing data and identifies data needs, references an outline for the Wetlands, Riparian Areas, and Jurisdictional Waters Technical Report, and identifies dependency items and relationships to other resources.

Section 2
Issues

Wetland, riparian area, and jurisdictional water-related issues and concerns identified during the formal scoping process will be addressed in the analysis for the LPP alternatives. MWH preliminary review of project construction and operation suggests the following potential issues related to preliminary impact analysis of resources:

- Avoid impacts on wetlands
- Determine which "dry" crossings are "jurisdictional waters of the United States" during intermittent flows given the June 2007 Guidance on the Rapanos Decision
- Minimizing impacts on riparian resources
- Controlling the spread of invasive species such as tamarisk as a result of the Project

Additional issues that arise during the formal scoping process, or during the preparation of the analysis, will be added and addressed.

Section 3
Impact Topics

The wetland, riparian areas, and jurisdictional waters impact topics include the following:

- Temporary or permanent loss of wetland area
- Changes in the function of wetlands, including changes in plant communities, soils, or hydrology
- Temporary or permanent loss of or impact to non-wetland riparian areas or jurisdictional waters

Wetlands are areas that meet the criteria for soils, hydrology, and vegetation as defined in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual. Wetlands that are determined to be hydrologically connected to "waters of the United States" are considered jurisdictional waters, and permitting is required through the U.S. Army Corps of Engineers if they are impacted. Jurisdictional waters may also include some non-wetland areas, such as unvegetated ephemeral or intermittent streams or drainages. In non-vegetated area, jurisdiction is determined by the "ordinary high water mark."

Riparian areas are vegetated zones bordering open water (e.g. streams or lakes), generally consisting of wetland vegetation but that may or may not meet all three U.S. Army Corps of Engineers Criteria for wetlands. Although riparian areas may not be regulated as wetlands and other jurisdictional waters, they are of interest because they provide important habitat for wildlife, including refuge and forage areas. This is also the case for wetlands that might not be considered jurisdictional waters. Therefore, the TR will evaluate all wetlands and riparian areas found in the study area, regardless of their regulatory status.

Section 4
Impact Area and Significance Criteria

4.1 Impact Area

The impact area would include the following:

- Any area directly affected by project feature construction or operations
- Any stream or river and associated corridor that would be subject to water deliveries or alterations in flow
- Any new wetlands created or developed in project hydroelectric forebay or afterbay facilities

4.2 Significance Criteria for Each Impact Topic

Impacts on wetlands, riparian areas, and jurisdictional waters are considered significant if construction, operation or maintenance activities would result in any of the following conditions:

- A net loss of wetland area, riparian areas, or jurisdictional waters resulting from construction or operational activities
- Changes in the quality or quantity of hydrologic support (either through surface flow or groundwater levels) that would result in an overall loss or gain of in the area of wetlands, riparian areas, or jurisdictional waters
- Other indirect impacts on wetlands, riparian areas, or jurisdictional water resulting from project construction or operational activities
- Loss of wetland functions or values from changes in water supply affecting wetland plant communities, wetland soils, or hydrology

Section 5
Methodology

5.1 Introduction and Overall Approach

Analysis of potential impacts on wetlands, riparian areas, and jurisdictional waters will involve the following activities.

5.1.1 Definition of Baseline Conditions

The baseline condition will be described using an evaluation of existing mapped data and the results of field reconnaissance that will be conducted by MWH to identify and delineate existing wetlands, riparian areas and other jurisdictional waters; characterize wetland hydrology and hydrogeological settings; and determine wetland functions within the impact area.

5.1.1.1 Review of Existing Data

Existing data that will be evaluated include mapped locations of wetlands, riparian areas, and other potential jurisdictional waters; groundwater mapping; topography; mapped locations of culverts; soils and vegetation maps; and aerial photography. Complete coverage of these datasets is not available for the entire study area (see Section 6). Areas of missing data will be identified, and information will be supplemented with field surveys where possible.

5.1.1.2 Field Surveys

Potential wetland, riparian area, and jurisdictional waters locations, as identified in review of existing data, will be located using a Geographic Positioning System (GPS) instrument. The location of additional areas identified during field surveys will be marked using the GPS instrument. All areas will be documented photographically. Field data collected will include description of vegetation community and structure, soil characteristics, and hydrology, including topography and identification of receiving water body where possible. Access for field surveys may not be possible for the entire study area. Where access is not permitted, potential wetland, riparian area, and jurisdictional water features will be identified based on review of existing data and comparison with other observed features in the study area. Results of data evaluation and field surveys will be transferred to a computer-generated GIS base map.

5.1.1.3 Determination of Jurisdictional Waters

The U.S. Army Corps of Engineers June 2001 "Final Summary Report: Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest" will be used as a guide for determining which streams and drainages may be jurisdictional waters. Additionally, the 2007 Guidance on the Rapanos Decision will be used in consultation with the Corps of Engineers and EPA to determine which waters and waterways are jurisdictional and those that are not jurisdictional. Data collected during initial data review and field reconnaissance results will be used in meeting with agency staff to reach concurrence on the location of jurisdictional waters. A final baseline GIS map will be produced that delineates jurisdictional wetlands and waterways and other non-jurisdictional wetlands and riparian areas.

5.1.1.4 Wetland Functions and Values Assessment

Functions are the ecological processes performed by wetlands. In contrast to wetland functions, values are subjective descriptions of the worth or quality of a wetland from a societal perspective, including aesthetics and recreational opportunities. There are various methods of evaluating wetland functions and values, including the UDOT Wetland Functional Assessment (Johnson et al. 2006), WET (Adamus et al.1987), Oregon Freshwater Wetland Assessment Methodology (Roth et al. 1996), and professional judgment. The basic approach in these methodologies is to evaluate a wetland against a checklist of specific functions and values based on a visual assessment of its physical, biological, hydrological, and societal characteristics. Because the UDOT Wetland Functional Assessment was designed to be used in portions of the project area, this method will serve as a guideline for assessing wetland function. Biologic

and hydrologic functions evaluated in this method include level of habitat disturbance, presence of listed species, plant community composition, flood attenuation, and sediment/nutrient/toxin attenuation and removal. The exact method to be used will be based on professional judgment, however, and will be determined after evaluating the type and extent of wetlands in the study area. In performing the functional assessment, the visual assessment of easily identifiable characteristics will be supplemented with habitat and hydrologic data documenting actual functional performance. Supporting data collected for other resources being analyzed in the EIS (i.e. wildlife, TES species, aquatic resources, surface and groundwater hydrology) will be used. The perceived value of wetlands in the study area will be described, using input from other resource evaluations, including recreation.

5.1.2 Analysis of Alternatives

Impacts on wetland, riparian areas, and jurisdictional waters will be analyzed for each of the alternatives. These impacts will be measured by calculating the area of direct impact, identifying potential indirect impacts, and estimating potential changes in wetland function or value.

5.1.2.1 Direct Impacts

The acreage of direct fill impacts under the alternatives will be determined by overlaying the acres to be disturbed over a map showing the existing wetlands, riparian areas, and jurisdictional waters. Areas where tunneling is proposed will be identified, and the resulting change in impacts to wetlands, riparian areas, and jurisdictional waters will be considered.

5.1.2.2 Indirect Impacts

Impacts of groundwater level changes on wetland hydrology will be estimated qualitatively for wetlands and riparian areas using the results of the EIS groundwater evaluation. The results of the surface water hydrology analysis will be used to qualitatively determine if wetlands, riparian areas, and jurisdictional waters might be reduced or enhanced because of changes in surface water levels in streams and canals. Results from analyses of soils and vegetation along with review of proposed stormwater pollution prevention and other construction best management plans will be evaluated to determine potential results to wetlands, riparian areas, and jurisdictional waters from sedimentation or introduction of non-native or invasive plant species.

5.1.2.3 Wetland Functions and Values Assessment

The baseline wetland functions and values assessment information will be used to characterize the existing wetland resources in the impact area of influence and to assess the effects and significance of potential changes from project-related activities. The functional assessment also will be used to evaluate potential mitigation opportunities, including wetland enhancement and restoration.

5.1.3 Analysis of Cumulative Impacts

The wetland, riparian areas, and jurisdictional waters cumulative impacts analysis will address the combined impacts of the alternatives and any past or future proposed or planned actions that have or are likely to affect the wetland, riparian areas, and jurisdictional waters in the impact area.

Section 6
Data Needs and Analysis

6.1 Data Needed

The data needed to perform the analysis include:

- GIS layer with footprint of ground-disturbing impacts from the project alternatives
- wetland mapping (i.e. National Wetland Inventory [NWI] maps)
- soils mapping, including locations of hydric soils
- hydrologic maps showing locations of intermittent, ephemeral, and permanent waterways and their receiving bodies
- topographic maps
- aerial photography
- precipitation and flow data
- vegetation mapping, including identification of riparian areas
- mapped location of roadway culvert

6.2 Data Available and Adequacy

The data required to complete the wetland, riparian areas, and jurisdictional waters analysis can be acquired from the following identified and existing sources:

- GIS layer with footprint of ground-disturbing impacts from the project alternatives can be obtained from the engineering team
- NWI maps are available electronically for a very limited portion of the study area in Utah; hard copy maps may be obtainable for portions of the study area in Arizona; the remainder of the study area is unmapped
- Soil mapping is available electronically from NRCS for the majority of the study area
- Electronic USGS quad maps (displaying topography and hydrology) are available for the entire study area
- High resolution aerial photography is available for portions of the project area. Lower resolution aerial photography is available for the remaining area from publicly available sources such as Google Earth. High resolution aerial photography that can be georegistered to the project footprint for GIS evaluation will be necessary for identifying and evaluating wetlands, riparian areas, and jurisdictional waters, particularly in areas not accessible for field surveys. Video coverage of portions of the study area filmed during a recent helicopter trip will assist in mapping of wetlands, riparian areas, and jurisdictional waters, assuming a key is developed so that locational reference is possible.
- Precipitation and flow data are available through USGS and NOAA's National Weather Service web pages. It is unlikely that comprehensive data would be available without installation of rain and water gages.
- Limited vegetation data may be available through the state GAP programs. Vegetation map, specifically riparian area mapping, has been conducted for some portions of the study area by BLM. The resolution, age, and availability of these data are unknown, however, therefore their utility is unknown.
- The location of culverts may be available on major roadways by the state highway departments. If these data are available, they are not expected to be comprehensive.

6.3 Additional Data Needs

6.3.1 Primary

Other data needed to identify and describe wetlands, riparian areas, and jurisdictional waters will be primarily obtained by reconnaissance-level surveys performed in 2007 and 2008.

6.3.2 Secondary

The following data will be required in addition to the data described in Section 6.2:

- Historical aerial photography may be available from U.S. Army Corps of Engineers or other government agencies

Section 7
Procedures For Developing Mitigation

The analysis of impacts on wetlands, riparian areas, and jurisdictional waters will be based on the standard operating procedures and measures to avoid or reduce impacts, both of which will be included in the project description chapter of the Draft Wetlands, Riparian Areas, and Jurisdictional Waters Technical Report. The significance criteria for wetlands, riparian areas, and jurisdictional waters will then be applied to determine if any impact would be significant. Mitigation measures would then be developed to offset significant impacts. The mitigation measures will be based on applicable state and Federal statutes and regulations, past experience and best professional judgment to either satisfy a legal requirement or to satisfy the public interest requirement. In some cases significant impacts may not be able to be mitigated. All reasonably foreseeable mitigation options will be evaluated by the Federal Energy Regulatory Commission, Bureau of Land Management, and other responsible federal agencies and factored into the respective decision documents.

Section 8
Technical Report

A technical report will be necessary to document in detail baseline conditions of and potential impacts on wetlands, riparian areas, and other jurisdictional waters. The technical report will follow the resource technical report outline common to all resource work plans (see Resource Technical Report Outline).

Section 9
Dependency Items From Other Resources

The following items are required from other MWH Team resource specialists:

- **Groundwater:** Description of groundwater hydrology baseline in the study area and potential changes in groundwater elevation under the alternatives that may impacts wetlands and riparian areas.

- **Surface Water:** Description of surface water hydrology baseline in the study area and potential changes under the alternatives that may impacts wetlands, riparian areas, and jurisdictional waters.

- **TES Species:** Identification of known locations of TES wildlife or plant species or habitat in the project area occurring within wetlands, riparian areas, or jurisdictional waters.

- **Recreation:** Identification of any recreational activities associated with wetlands, riparian areas, or jurisdictional waters.

- **Engineering:** Mapped footprint of alternatives, identification of potential crossing locations, description of construction activities.