

Revised Wetland Mitigation Bank Use Plan

McFarlane Parking Lot Development
4-Acre Parcel
Spokane International Airport
for

Spokane International Airport
c/o T-O Engineers, Inc.

August 2, 2018



GEOENGINEERS 
Earth Science + Technology

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523 East Second Avenue
Spokane, Washington 99202
509.363.3125

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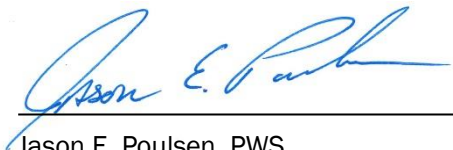
Prepared for:

Spokane International Airport
c/o T-O Engineers, Inc.
121 West Pacific Avenue, Suite 200
Spokane, Washington 99201

Attention: JR Norvell, PE

Prepared by:

GeoEngineers, Inc.
523 East Second Avenue
Spokane, Washington 99202
509.363.3125



Jason E. Poulsen, PWS
Senior Wetland Scientist



Jason R. Scott, FP-C
Associate

RMT:JEP:JRS:mls

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PROJECT DESCRIPTION

Spokane International Airport (SIA) proposes the development of a parking lot to the east of West Airport Drive and southwest of McFarlane Road in Spokane, Washington (Vicinity Map, Figure 1). A delineation was completed by GeoEngineers on the proposed site in December 2017 (GeoEngineers, 2018), which identified two jurisdictional wetlands (Wetlands A and B). Both wetlands will need to be filled to meet the proposed construction requirements. Mitigation for these two wetlands will necessitate compliance with City of Spokane Critical Areas Ordinances and Ecology's mitigation regulations.

The project site is located within the Northwest $\frac{1}{4}$ of the Northwest $\frac{1}{4}$ of Section 31 Township 25 North, Range 42 East of the Willamette Meridian, as depicted in the Airway Heights, Washington (Spokane County) 7.5-minute Series Topographic Map dated 1986 (Topographic Map, Figure 2). The site is currently undeveloped except for landscaping and two storm drain swales, one along the western and one along the eastern boundaries.

EXISTING CONDITIONS OF WETLANDS AND BUFFERS

GeoEngineers delineated and assessed two wetlands (Wetland A and B) within the proposed project site boundary. Collectively, both wetlands total approximately 0.17 acres and are situated within depressional areas in the central portion of the site. Detailed descriptions of the wetland and site conditions can be found in the, "Revised Wetland Delineation Report, Spokane International Airport 4-Acre Parcel" (GeoEngineers, 2018). A brief description of the current wetland and buffer conditions are provided below.

Landscape Position

The proposed project site is located near the boundary of Watershed Resource Inventory Area (WRIA) 56—Hangman Creek and WRIA 54—Lower Spokane River. The proposed project site is also near the border of Hydrologic Unit Codes (HUCs) 17010306 and 17010307.

Soils

The Spokane County, Washington Natural Resource Conservation Service (NRCS) Web Soils Soil Survey identified one soil type within the project site boundary (Soils Map, Figure 3).

- **3044—Cheney Ashy Silt Loam:** 0 to 8 percent slopes/Landform: Outwash plains/Available water storage: Moderate/Parent material: Loess mixed with minor amounts of volcanic ash/Drainage class: Well drained.

Hydrology

The primary source for hydrology at the proposed project site is likely from a seasonal high-water table. During the delineation, saturation was noted in two wetland test pits. In addition, there may be potential hydrologic input from nearby stormwater swales. The swales appeared to have been constructed for the purpose of stormwater control associated with roadways and parking facility located in an upland area. Therefore, GeoEngineers concluded they did not meet the definition of a wetland and/or Water of the US established by the US Army Corps of Engineers (USACE), Washington State Department of Ecology (Ecology), or the City of Spokane.

Vegetation

Dominant vegetation observed during the delineation included mullein (*Verbascum thapsus*), Oregon grape (*Mahonia aquifolium*), poplar (*Populus deltoides*), and willow (*Salix* sp.).

Surrounding Land Use

Surrounding land use includes roadways and parking for SIA to the north, east, and south of the project area. Undeveloped land is situated to the west of the project site across West Airport Drive.

The US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map did not identify wetlands within the proposed project site boundary. However, palustrine and riverine wetlands are mapped to the north and west of the project area (NWI Map, Figure 4).

Hydrogeomorphic Classification and Wetland Ratings

Wetland A and Wetland B were classified as palustrine, depressional, emergent/scrub shrub wetlands. Wetland A is approximately 1,155 square feet (0.03 acres) and Wetland B is approximately 6,263 square feet (0.14 acres) in size. Wetlands A and Wetland B were rated as Category IV systems based on their functional attributes; scoring a total of 13 points each on the Eastern Washington Rating (EWR) form. Both wetlands meet criteria consistent with a Category IV rating with a score of 5 points for water quality functions, 5 points for hydrologic functions and 3 points for habitat functions. Based on these ratings, the City of Spokane, Washington Municipal Code (Title 17E Chapter 070, Section 110 Paragraph B) requires a minimum buffer of 50 feet for a Category IV wetland in a high impact area.

Wetlands A and B (Figure 5) met the wetland characteristics criteria to be considered a jurisdictional wetland by Ecology and the City of Spokane, Washington. However, these two depressional wetlands are isolated and would most likely not be regulated by the U.S. Army Corps of Engineers (USACE) under their current wetland definitions because they not connected to larger water bodies or streams. Please note, the final decision related “connectivity” of Wetlands A and B to other Waters of the US (WOTUS) can only be made by the USACE.

AVOIDANCE AND MINIMIZATION OF WETLAND IMPACTS

The SIA recently completed an internal study (unpublished), which indicated the population growth within the service area of the airport has grown significantly within the last few years and is projected to continue for the foreseeable future. This growth has significantly increased the number of air travelers through the SIA and has placed a strain on traveler parking needs. In an effort to avoid and minimize wetland impacts, the SIA has started development of other parking facilities to accommodate increased parking for travelers. Those other areas were chosen first because they do not have impacts to wetlands. However, the parking infrastructure currently being developed in these other areas will not be sufficient to meet the long-term parking infrastructure need of the SIA to support travelers. This site is essentially the last practical parking area at SIA.

The 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency (EPA) and USACE establishes a three-part process, known as the mitigation sequence to help guide mitigation decisions and determine the type and level of mitigation required under Clean Water Act (CWA) Section 404 regulations. The preferred mitigation sequencing of: (1) avoidance; (2) minimization; and

(3) compensation for unavoidable wetland impacts was considered during project design. However, based on the projected population growth of the service area of the SIA, the impacts to on-site wetlands appear to be unavoidable due to the restricted footprint of the project area and overall parking needs at SIA. Therefore, the construction of the new parking lot will eliminate two palustrine depression, emergent/scrub shrub Category IV wetlands totaling approximately 7,418 square feet (0.17 acres). Direct impacts will be mitigated by ensuring no net loss of wetland area or function through credit purchased from the Meadowcroft Mitigation Bank in Stevens County, Washington.

Erosion control best management practices (BMPs) will also be implemented to minimize impacts to areas located outside the project area.

UNAVOIDABLE WETLAND IMPACT ACREAGE

Based on the proposed parking lot development designs, Wetlands A and B (0.17 acres) will be filled entirely. Table 2 summarizes the impacts to wetlands and buffers at the site. Delineated wetland boundaries are depicted on Figure 5.

TABLE 1. EXPECTED IMPACTS TO WETLANDS

Wetland Identifier	Wetland Area (acres)	Permanently Filled Wetland Area (acres)	Temporarily Impacted Wetland Area (acres)	Indirect Impact (acres)	Cowardin Class	Ecology Rating	Local Jurisdiction Rating (City)	HGM Class
Wetland A	0.03	0.03	0	0	PEM	IV	4	Depressional
Wetland B	0.14	0.14	0	0	PEM	IV	4	Depressional
Totals	0.17	0.17	0	0	--	--	--	--

IMPACTED WETLAND FUNCTIONS

As discussed, Wetlands A and B will be filled for parking lot development. The following functions are expected to be lost as part of this development.

Water Quality Functions

Wetlands A and B are Category IV, palustrine, depression, emergent/scrub shrub, depressional wetlands. They provide a medium level of water quality functions (5 out of 9 possible), scoring medium for site potential, medium for landscape potential and low for value of water quality functions. The wetlands do not have surface water outlets and do not receive stormwater discharge. However, greater than 10 percent of the area within 150 feet of the wetlands are in land uses that generate pollutants. In general, there is low potential for water quality improvements by the site that would be valuable to society.

Hydrologic Functions

Wetlands A and B provide a medium level of hydrologic functions (5 out of 9 possible), scoring medium for site potential, medium for landscape potential and low for value of water quality functions. While the site

and surrounding landscape do exhibit a medium potential to reduce flooding and erosion, hydrologic functions are primarily not considered valuable to society.

Habitat Functions

Wetlands A and B provide a low level of habitat functions (3 out of 9 possible), scoring low for site potential, low for landscape potential and low for value of water quality functions. In general, vegetation at the site was dominated by mullein (*Verbascum thapsus*), Oregon grape (*Mahonia aquifolium*), poplar (*Populus deltoides*), and willow (*Salix sp.*). The wetlands have a low potential to provide habitat for many species. Nominal species diversity was noted within the mapped wetlands, with no interspersions of habitats, and no special habitat features/priority habitats. On a landscape scale, there is a low potential to support habitat functions of the site and low value of habitat present.

WETLAND MITIGATION SITE SELECTION RATIONALE

The proposed project will be developed within a restricted footprint, and there is limited potential to mitigate on site. On-site mitigation would likely result in small, isolated wetlands with limited connectivity to other habitats. Furthermore, increasing wetlands on the SIA property would create a bird nuisance/safety hazard related to inbound/outbound aircraft. There appears to be no adequate options for mitigation on SIA property or other lands owned or controlled by the SIA. Moreover, abundant development in the general vicinity and lack of available mitigation sites in the area likely precludes off-site mitigation. Therefore, Permittee-Responsible Mitigation (PRM) is not considered a feasible option. As such, mitigation banking was considered the preferable alternative for the site.

The Meadowcroft Mitigation Bank in Stevens County, Washington presents the best opportunity for successful mitigation with regard to improving water quality, hydrologic function, and wildlife habitat. The bank is the only accredited wetland mitigation bank within in the general vicinity of the proposed project site. In addition, the bank generated marketable wetland mitigation credits through the creation of Category III depressional wetlands, which are of higher quality and function than the Category IV depressional wetlands that will be filled at the site. Discussions with personnel at the bank indicate credits are available to accommodate the anticipated loss of site wetlands.

Wetlands A and B are situated near the border of WRIAs 54 and 56. The Service Area (SA) for the Meadowcroft Mitigation Bank incorporates WRIA 54 (Figure 6). Although a portion or entirety of the site may be situated slightly outside the boundary of WRIA 54, the bank should still be considered an appropriate means of mitigation. Concurrence should be requested from the applicable regulatory agencies to ensure this mitigation strategy is environmentally preferable to alternate mitigation possibilities.

In summary, the wetland mitigation needs of the project correspond with the purpose, goals, and objectives of the bank, as follows:

- There is limited potential to mitigate on site, and off-site options are limited by high-intensity development in the area;
- Existing on-site wetlands have lower quality (Category IV) than the wetlands used at the Meadowcroft Mitigation Bank (Category III);

- Meadowcroft is an Ecology approved bank that the USACE has agreed to allow on a case by case basis. It is also monitored to ensure mitigation efforts translate to valuable ecological functions; and,
- The USACE 2008 Final Compensatory Mitigation Rule (33 CFR Part 332) recommends the district engineer give preference to the use of mitigation bank credits over PRM because mitigation banks typically involve more ecologically valuable parcels and receive more rigorous planning/implementation tactics.

WETLAND FUNCTIONS PROVIDED AT WETLAND MITIGATION BANK

The Meadowcroft Mitigation Bank credits represent freshwater depressional wetlands that provide functions of water quality improvement, reduction in flooding, improved groundwater recharge, and improvement of habitat. The primary goals of the bank are to restore wetlands on previously drained areas and improve general wildlife habitat and water quality/functions.

The mitigation bank was developed to provide credits for small hydrologically similar wetlands in Eastern Washington. Wetlands A and B, located on the proposed project site, are relatively small (0.17 acres [7,418 square feet]) and represent the same HGM classification (depressional) as those identified in the mitigation bank goals and objectives in the Mitigation Banking Instrument (MBI).

WETLAND FUNCTIONS NOT MITIGATED AT WETLAND MITIGATION BANK

All wetland functions impacted by the proposed project would be mitigated through the Meadowcroft Mitigation Bank.

PROPOSED MITIGATION CREDITS

The mitigation ratios for determining the number of bank credits needed to compensate for impacted wetlands are summarized in Table 2 below. Ratios were obtained from Table 5 of the MBI. The mitigation ratio for on-site wetlands expected to be filled is 1:1, for Category IV (depressional) wetlands.

The Meadowcroft Mitigation Bank is currently selling credits for \$3.14 per square foot. The area of wetlands to be permanently filled is approximately 0.17 acres (7,418 square feet). At a rate of \$3.14 per square foot, the total cost will be approximately \$23,293 for compensatory mitigation.

TABLE 2. CREDITS RECOMMENDED FOR WETLAND IMPACTS

Category of Impacted Wetland	Credit Recommended per Impact Acre
I	–
II	3:1
III	1.25:1
IV	1:1

CREDIT PURCHASE OR TRANSFER TIMING

Prior to impacting the wetland areas identified in Figure 5, proof of purchase of credits will be submitted to Ecology, USACE and the City of Spokane as needed.

REFERENCES

City of Spokane. 2017. Spokane Municipal Code; Section 17E.070.010 – Spokane Wetlands Protection Code. Spokane Plan Commission, Spokane, Washington.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of Wetland and Deep Water Habitats of the United States. Performed for Office of Biological Services, Fish and Wildlife Service, US Department of the Interior, Washington, D.C.

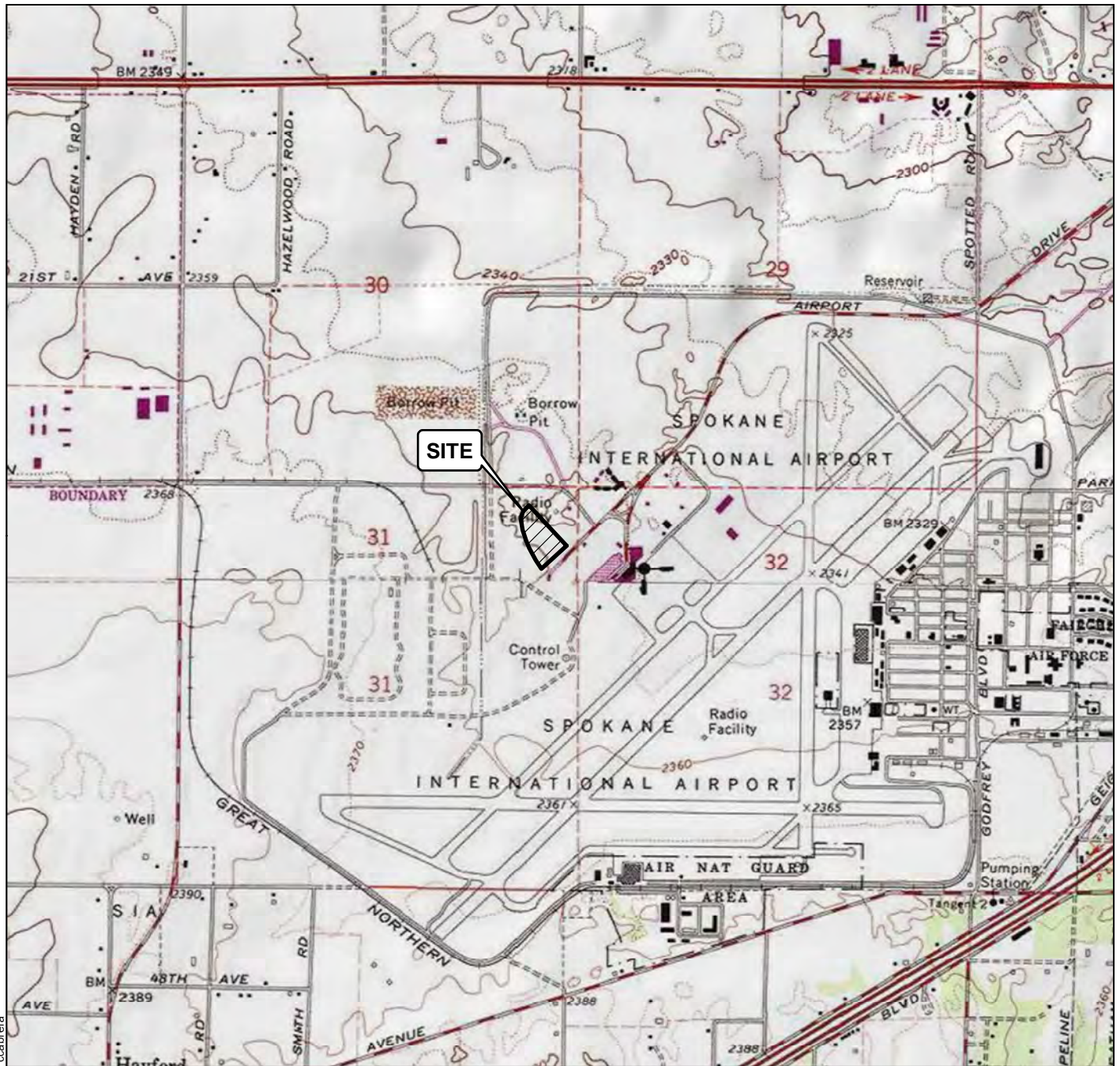
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Legend

 Site



2,000 0 2,000
Feet

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Topo base from ESRI ArcGIS Online.

Projection: NAD 1983 UTM Zone 11N

Topographic Map

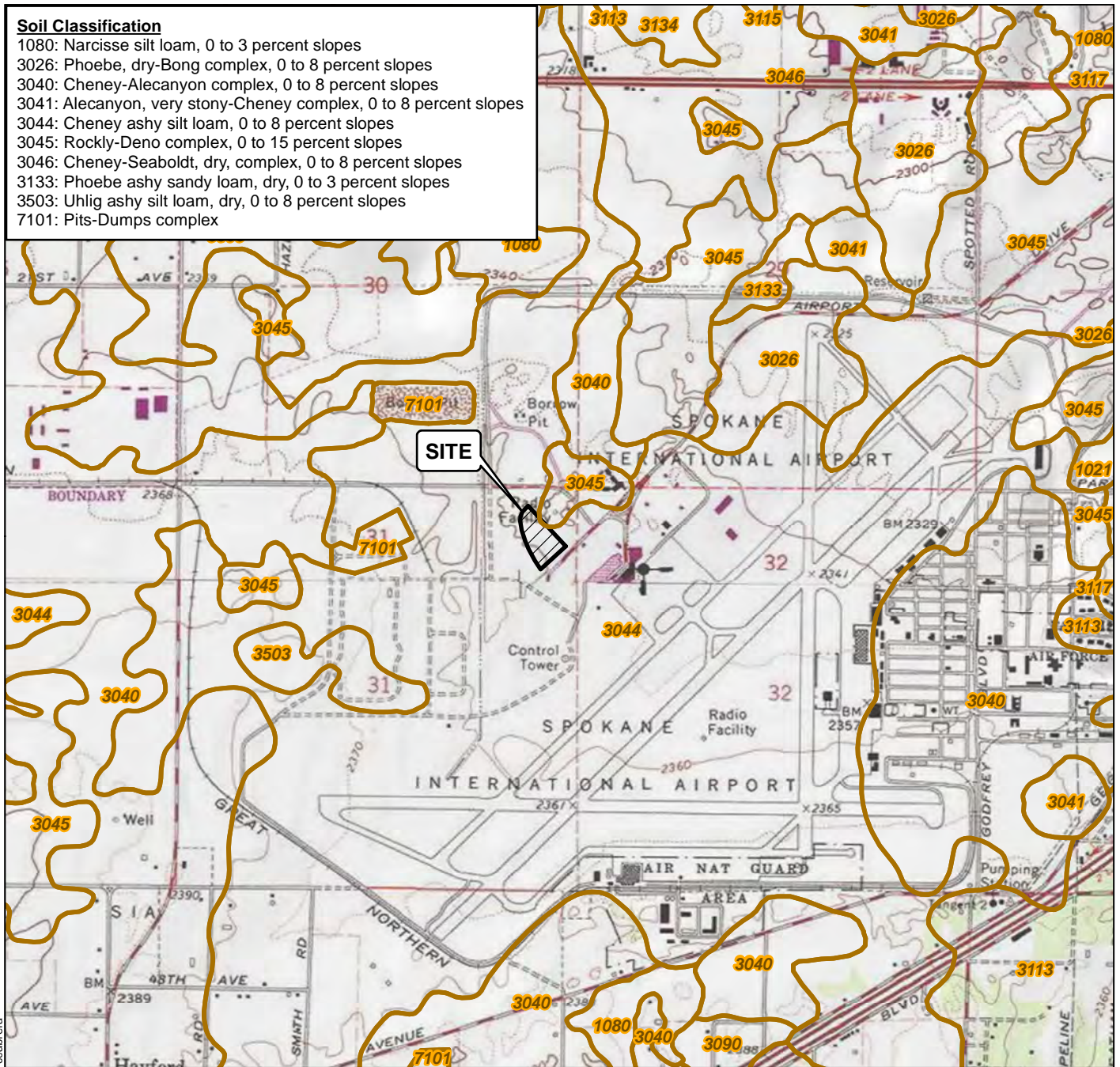
Spokane International Airport 4-Acre Parcel
Spokane, Washington



Figure 2

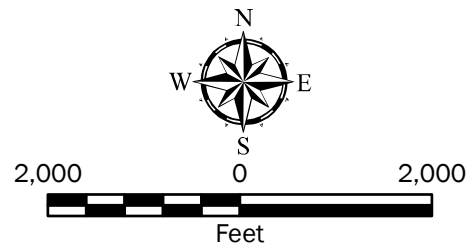
Soil Classification

1080: Narcisse silt loam, 0 to 3 percent slopes
3026: Phoebe, dry-Bong complex, 0 to 8 percent slopes
3040: Cheney-Alecanyon complex, 0 to 8 percent slopes
3041: Alecanyon, very stony-Cheney complex, 0 to 8 percent slopes
3044: Cheney ashy silt loam, 0 to 8 percent slopes
3045: Rocky-Deno complex, 0 to 15 percent slopes
3046: Cheney-Seaboldt, dry, complex, 0 to 8 percent slopes
3133: Phoebe ashy sandy loam, dry, 0 to 3 percent slopes
3503: Uhlig ashy silt loam, dry, 0 to 8 percent slopes
7101: Pits-Dumps complex



Legend

- Site
- Soils Boundary



Notes:

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Data Source: Topo base from ESRI ArcGIS Online.
Soils data from NRCS, <https://websoilsurvey.sc.egov.usda.gov/>.

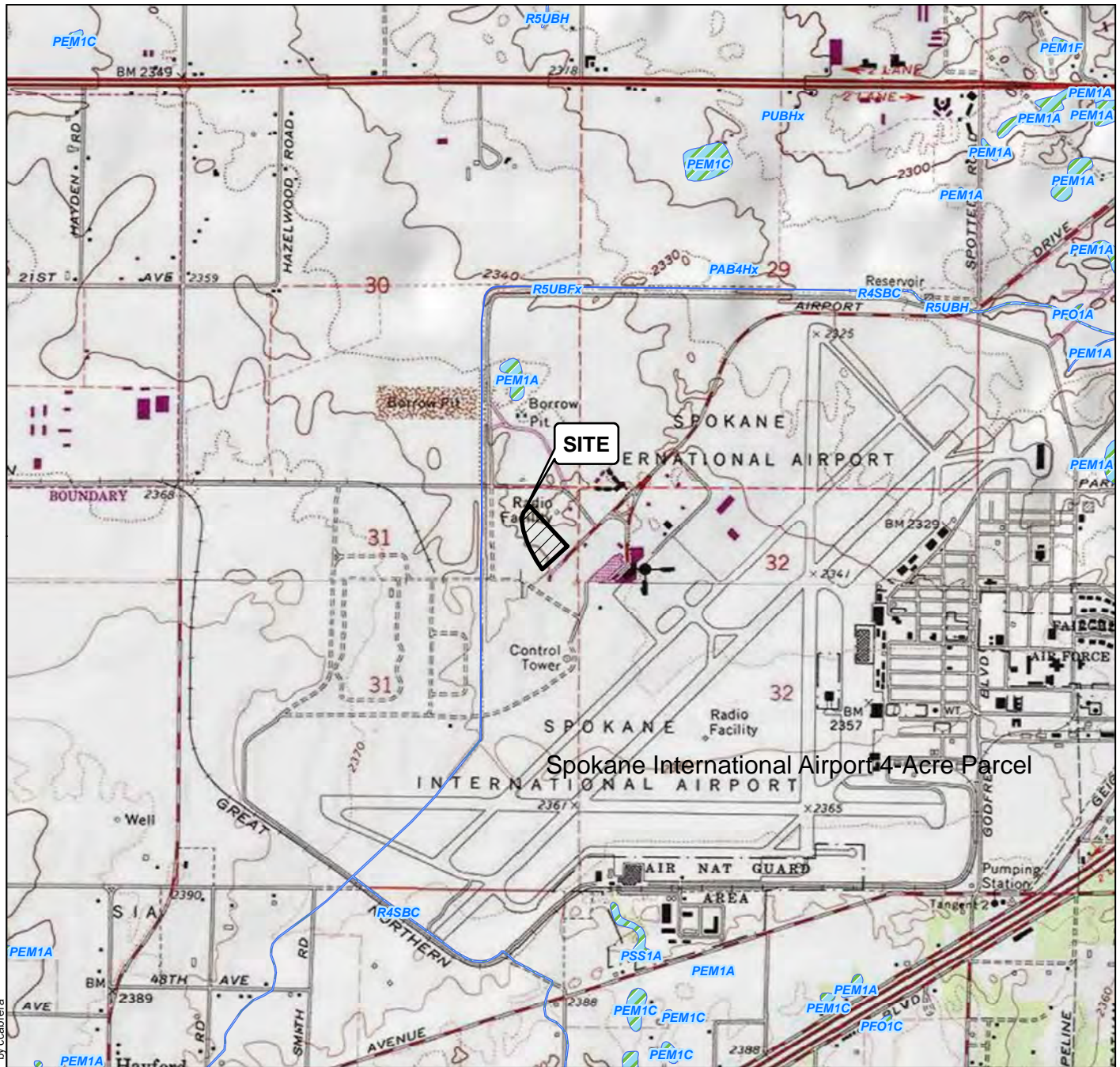
Projection: NAD 1983 UTM Zone 11N

Soils Map

Spokane International Airport 4-Acre Parcel
Spokane, Washington

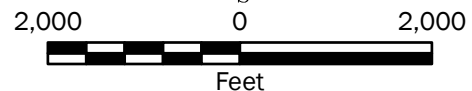


Figure 3



Legend

-  Site
-  NWI Wetland Boundary



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Data Source: Topo base from ESRI ArcGIS Online.
 NWI Data from US Fish and Wildlife, <https://www.fws.gov/wetlands/>.

Projection: NAD 1983 UTM Zone 11N

National Wetlands Inventory Map






Spokane International Airport 4-Acre Parcel
 Spokane, Washington



Figure 4




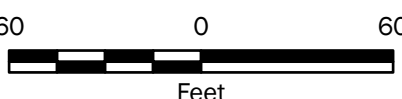
Legend

-  Stormdrain
-  Sample Plots
-  Culvert
-  GEI Delineated Wetland
-  Stormwater Swale

Notes:

- The locations of all features shown are approximate.
- This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Aerial base from Spokane County GIS Map Service, <http://gis.spokanecounty.org/arcgis/services>.
Projection: NAD 1983 HARN StatePlane Washington North FIPS 4601 Feet

Wetland Delineation Map

Spokane International Airport 4-Acre Parcel
Spokane, Washington


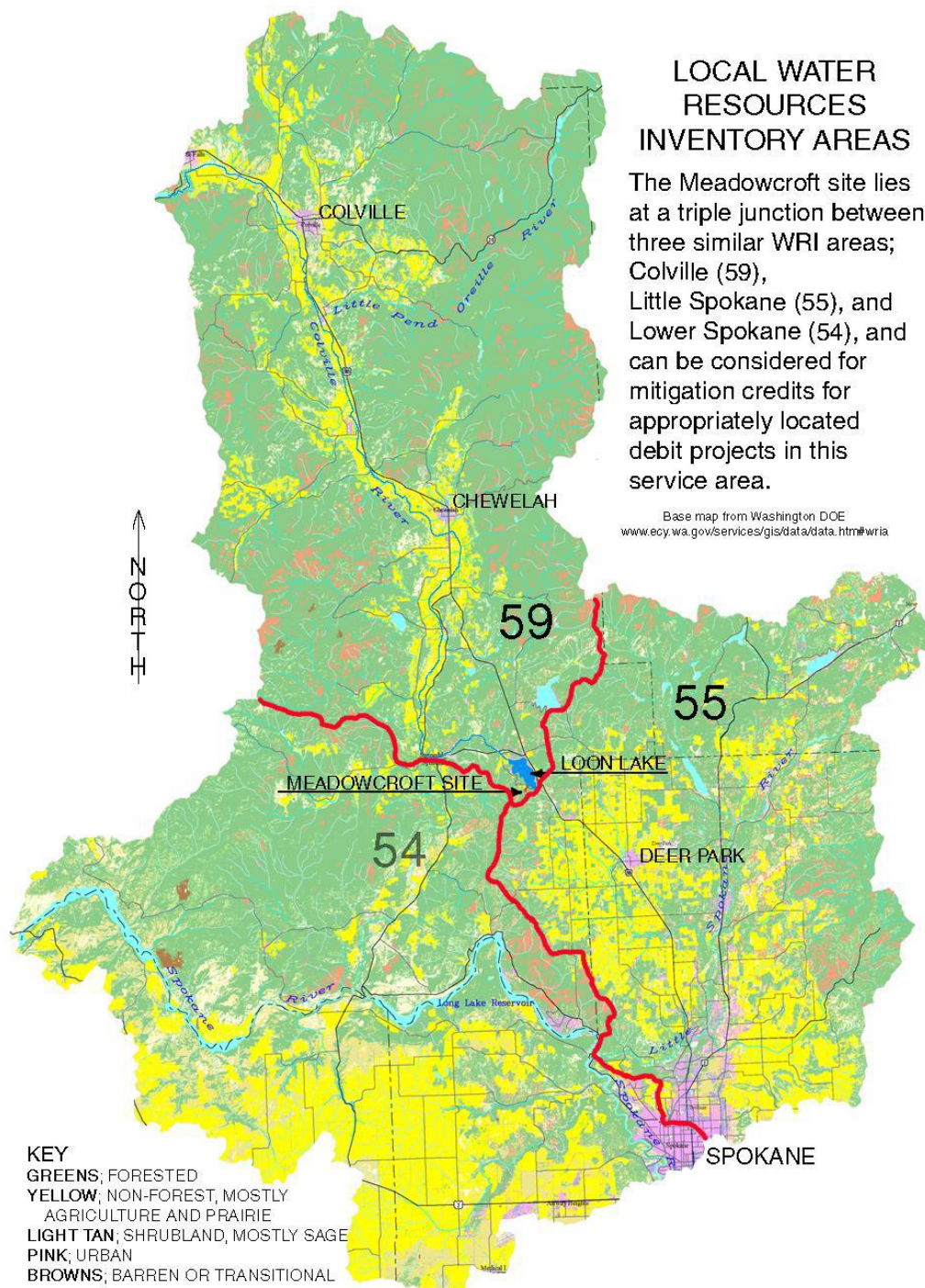


Figure 5

LOCAL WATER RESOURCES INVENTORY AREAS

The Meadowcroft site lies at a triple junction between three similar WRI areas; Colville (59), Little Spokane (55), and Lower Spokane (54), and can be considered for mitigation credits for appropriately located debit projects in this service area.

Base map from Washington DOE
www.ecy.wa.gov/services/gis/data/data.htm#wria



Not to Scale

Notes:

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- Projection: NAD 1983 UTM Zone 11N

Data Source: Washington State Department of Ecology

Service Area for Meadowcroft Mitigation Bank

Spokane International Airport 4-Acre Parcel
 Spokane, Washington



Figure 6

