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Utah 401 Water Quality Certification Application Supplemental Information

US Magnesium Canal Continuation Project

(Associated USACE Permit # SPK-2008-01773)

August 29, 2022

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1.0 Introduction

This Project will extend two intake canals at the US Magnesium Facility, located in Tooele County, UT. The two canal extensions are required to reach the now receded open waters of Gilbert Bay, Great Salt Lake, to maintain connectivity with the source water for the evaporation facility.

This document supports the Utah Department of Water Quality 401 Water Quality Certification Application prepared by US Magnesium (Applicant). Information contained herein is for the Applicant's project: US Magnesium Canal Continuation Project (Project). The Applicant will conduct the Project in a manner that complies with applicable State of Utah discharge and water quality requirements in order to maintain the chemical, physical, and biological integrity of waters affected by the Project.

There is no discharge of effluent associated with this project. The project will place excavated lakebed materials adjacent to the intake canal alignments. The Applicant has submitted a 404 individual application for authorization to place the fill in the Great Salt Lake to the U.S. Army Corps of Engineers, SPK- 2008-01773.

2.0 Description of Overall Project Purpose and Characteristics of Discharge

The applicant withdraws water from the Great Salt Lake through two intake facilities located along the south arm of the Great Salt Lake. One facility is identified as the P-0 Intake Facility, the other is identified as the P-North Intake Facility. The ongoing drought and historic low lake levels on the Great Salt Lake have isolated the existing intake facilities from lake water such that neither is able to withdraw permitted amounts of water or operate at the minimum capacity to sustain the applicant's industrial process.

The Project will utilize hydraulic dredging to reestablish both existing intake canals' connectivity to the Great Salt Lake (GSL) open water by extending the canals down to a minimum GSL South Arm Water Surface Elevation (WSE) of 4,188 feet (NGVD29). The bottom elevation for both canals at their furthest point into the GSL lakebed will be at 4,185 feet (NGVD29). The difference between the canal bottom (4185 feet) and the minimum lake water surface elevation (4188 feet) provides 3 feet of hydraulic head to maintain gravity flow from the lake into the applicant's system for processing. Figures located in Appendix A show the full extent of the GSL, the locations of the P-0 and P-North canals, and the ordinary high-water mark (OHWL, 4,200-foot contour).

Additionally, this project represents the first phase of a potentially multi-phased approach to establish long-term reliability for the Applicant to access water from the Great Salt Lake. If needed, the phased approach would include continuation of both facilities to a canal bottom elevation of 4180 feet (NGVD29) but would only be pursued by the Applicant if lake levels continue to decline. The current downward trend for water surface elevations suggests Phase 2 for canal continuations may be needed within the next 3-5 years. Given the inability to predict future water surface elevations, this application focuses on the Applicant's immediate needs to address the current emergency. As such, everything

presented in this application is limited to the continuation of the P-0 and P-North facilities to a canal bottom elevation of 4,185 feet (NGVD29). Anything related to future phases and continuation of facilities to a lower canal bottom elevation will be coordinated in the future and as needed with Utah Department of Water Quality and other state and federal agencies.

The Project would modify limited portions of the lake bed of the GSL using hydraulic dredging equipment to extend existing intake canals. The hydraulic dredging would not result in permanent loss of any waters of the U.S., nor would it adversely impact or change the aquatic function of the lake bed. Discharge of the excavated materials would be managed within a proposed 300-foot-wide construction corridor adjacent to the canals to minimize impacts. The controlled discharge and placement of dredged material within the construction corridor would depend on dredging equipment available to the selected contractor; a contractor has not yet been selected. Following contractor selection, the Applicant will coordinate with state and federal agencies to work through details of how dredged materials will be placed within the construction corridor. At this time, it is anticipated impacts to the GSL lake bed from hydraulic dredging would be minimal and placement of dredged material would mimic existing lake bed conditions. The physical, chemical, biological, thermal, and other pertinent properties of the dredged lake bed material would be similar to the existing GSL lake bed adjacent to the excavation areas.

There is no discharge of wastewater effluent (municipal or industrial) associated with this project. The project will place excavated lake bed materials adjacent to the extended intake canal alignments. There is no change to these excavated lakebed sediments (chemically, biologically or physically) from the excavation and placement activities.

3.0 Discharge Compliance With Water Quality Standards

The Project would occur in Gilbert Bay; also described as the South Arm of the Great Salt Lake. The three main tributaries are the Jordan, Weber, and Bear rivers. No impacts to these tributaries are anticipated given that the Project location would remain a substantial distance from the nearest tributary. The Great Salt Lake is a terminal lake with no outlet other than evaporation. The average depth and size of the GSL vary, but the current depth at the Project area is approximately 5 to 8 ft and the lake currently covers approximately 950 square miles.

3.1 Antidegradation

Following the state's antidegradation laws, the Great Salt Lake has been designated as Protection Category 3. As stated in the Utah Antidegradation Review Implementation Guidance, Version 2.1 dated 1/29/2019:

"All surface waters of the State are Category 3 waters unless otherwise designated as Category 1 or 2 in UAC R317-2-12. Point source discharges (dredge spoils would be considered a point source) are allowed and degradation may occur, given the water quality impacts will be temporary and related only to sediment or turbidity and fish spawning will not be impaired (R317-2-3.5.a.3).

The proposed work would not result in permanent loss of any waters of the U.S. nor change the aquatic function of the lake bed or impact existing uses. No wetlands or waters other than the GSL would be affected. Increased turbidity during excavation and placement of lake bed sediments could create a limited, temporary effect to the lake water quality within and adjacent to the Project area during construction activities, but no long-term or permanent degradation of the lake water quality is anticipated from the Project, as there is no discharge of effluent associated with this project.. In addition, no fish spawning occurs in the GSL.

3.2 Beneficial Uses and Standards

- The Great Salt Lake has a Beneficial Use Class 5A designation for Gilbert Bay. Beneficial Use Class 5A is protected for frequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain. The numeric water quality criteria for Class 5A is limited to selenium and is a tissue-based standard for the eggs of aquatic dependent birds. There is no effluent wastewater discharge associated with the project that would effect the selenium numerical water quality standard.
- Narrative water quality standards protect waters against the presence of any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum or other nuisances such as color, odor or taste; or cause conditions which produce undesirable aquatic life, or which produce objectionable tastes in edible aquatic organism. As mentioned, the work would be limited to excavation of the natural lake bed material and placement of that excavated lake bed material back on the lake bed adjacent to the excavation area and therefore creating no substantial or long-lasting change to existing lake bed functions or conditions and lake water quality. There is no effluent discharged with this project, nor will imported fill material be placed in the lake. Construction best management practices will be implemented to minimize turbidity effects to lake waters during construction activities.
- Therefore, the Project would maintain the Beneficial Use 5A classification and comply with Numeric and Narrative Standards detailed in Utah Administrative Code R317-2.14.

4.0 Means and Methods and Discharge Monitoring

Lakebed materials would be excavated and discharged onto the adjacent lake bed and managed to avoid loss of lake bed aquatic function utilizing a hydraulic dredge. Proposed plan and cross-section views of the existing natural GSL lake bed along two locations of the proposed continuation of the P-0 and P-North intake canals are provided in the appendix. All dredging and placement of dredged materials will be managed within a 300-foot-wide construction limit area. See USACE 404 application in appendix. The placement of discharged material within the construction limit area would mimic the vertical variances of the natural lake bed as much as practicable given site conditions and dredge discharge equipment. Managed placement of the material will limit the depth of dredged material to a maximum height of 2 feet within the construction limit area and provide gaps to maintain connectivity with low lake waters and provide navigability.

In summary, managing the discharge of excavated materials to these objectives would:

- (1) Mimic natural lake bed variations, not exceed 2 feet high. By placing slurry sediment on the lake bed within a 300-foot-wide construction area and not exceeding 2 feet height, the material would mimic natural topographic variability of the lake bed. Aerial images with topographic data have been analyzed to identify that the natural rise and fall of the exposed lake bed is about 2 feet. The applicant proposes to stay within this 2-foot range, so that the lake bed would not be adversely impacted and no barriers to lake inundation would be created.
- (2) Create gaps for lake connectivity and navigation. The purpose of the gaps is to allow differential inundation levels and allow existing lake bed areas to remain connected when the GSL water surface level rises.
- (3) Provide that excavation would not reduce lake bed function. The placement of discharged materials would be managed to allow the GSL bed to remain as lake bed, and the proposed activities would not change into wetlands or upland areas.
- (4) Allow the lake waters to continue to inundate the fill area as the lake naturally rises. The lake bed would still function as lake bed, and lake waters would be freely flowing over the lake bed. In other words, by placement of the discharged material, no berm or dam would be created that would limit the inundation extents of the GSL.

As the project is not discharging wastewater effluent, there is no monitoring of water discharges required. The project will visually monitor the excavation and placement of lakebed materials. Bathymetric surveys will be conducted to confirm the extension of the canals and the placement of the excavated materials along the canal alignments.

5.0 Additional Information

See attached Section 7.4 for USACE 404 Permit Application SPK-2008-01773

The Applicant will implement construction best management practices during construction consistent with WQA Section 19-5-114 to address spills or other discharges or substances. No permanent equipment of facilities with WQA Section 19-5-114 are anticipated with the Project.

Although not anticipated, the Project will obtain and comply with any necessary elements for UPDES permitting and/or construction dewatering.

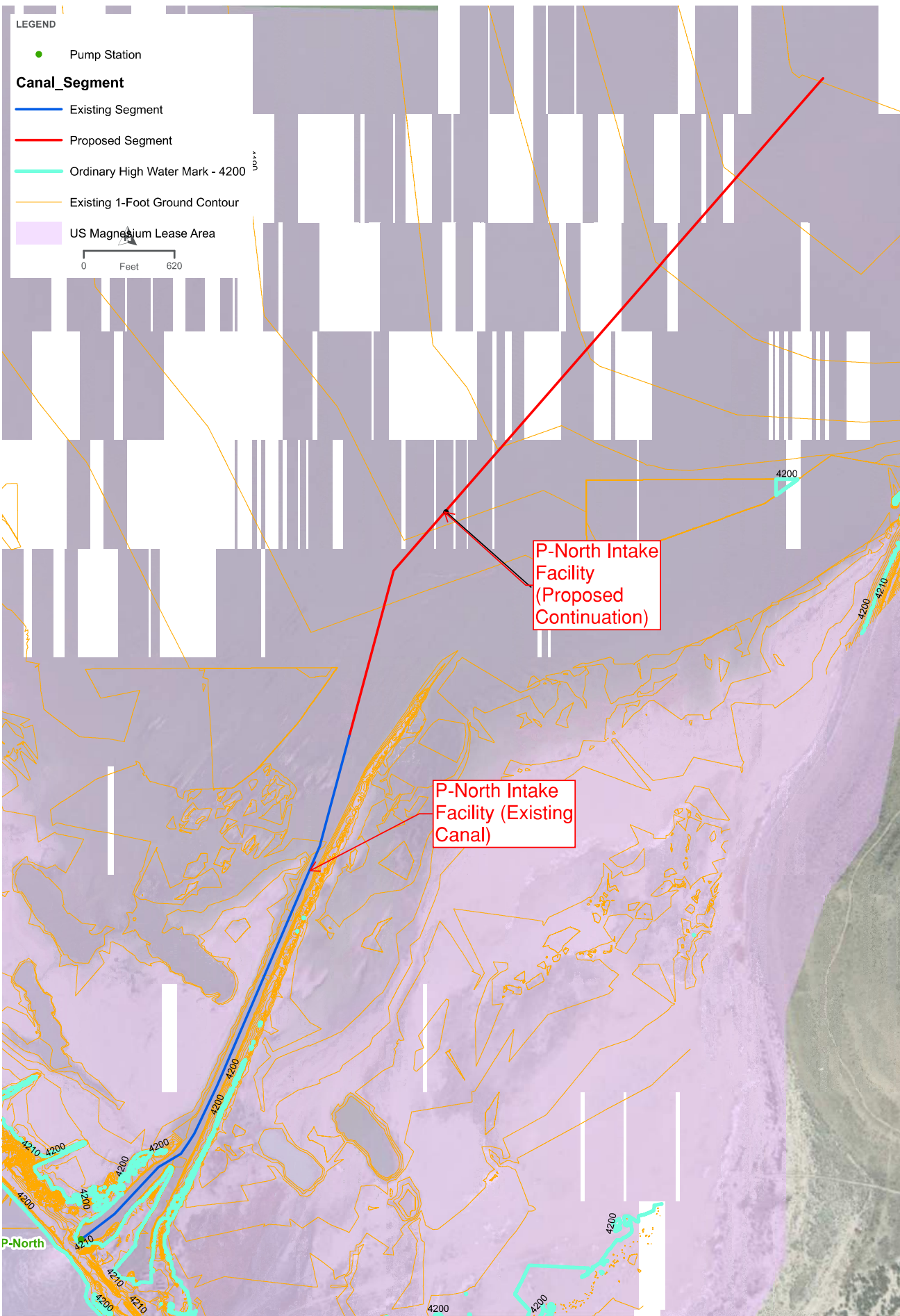
See USACE 404 Permit Application SPK-2008-01773 Appendix C for letter of support for the Project from Public Lands Policy Coordinating Office.

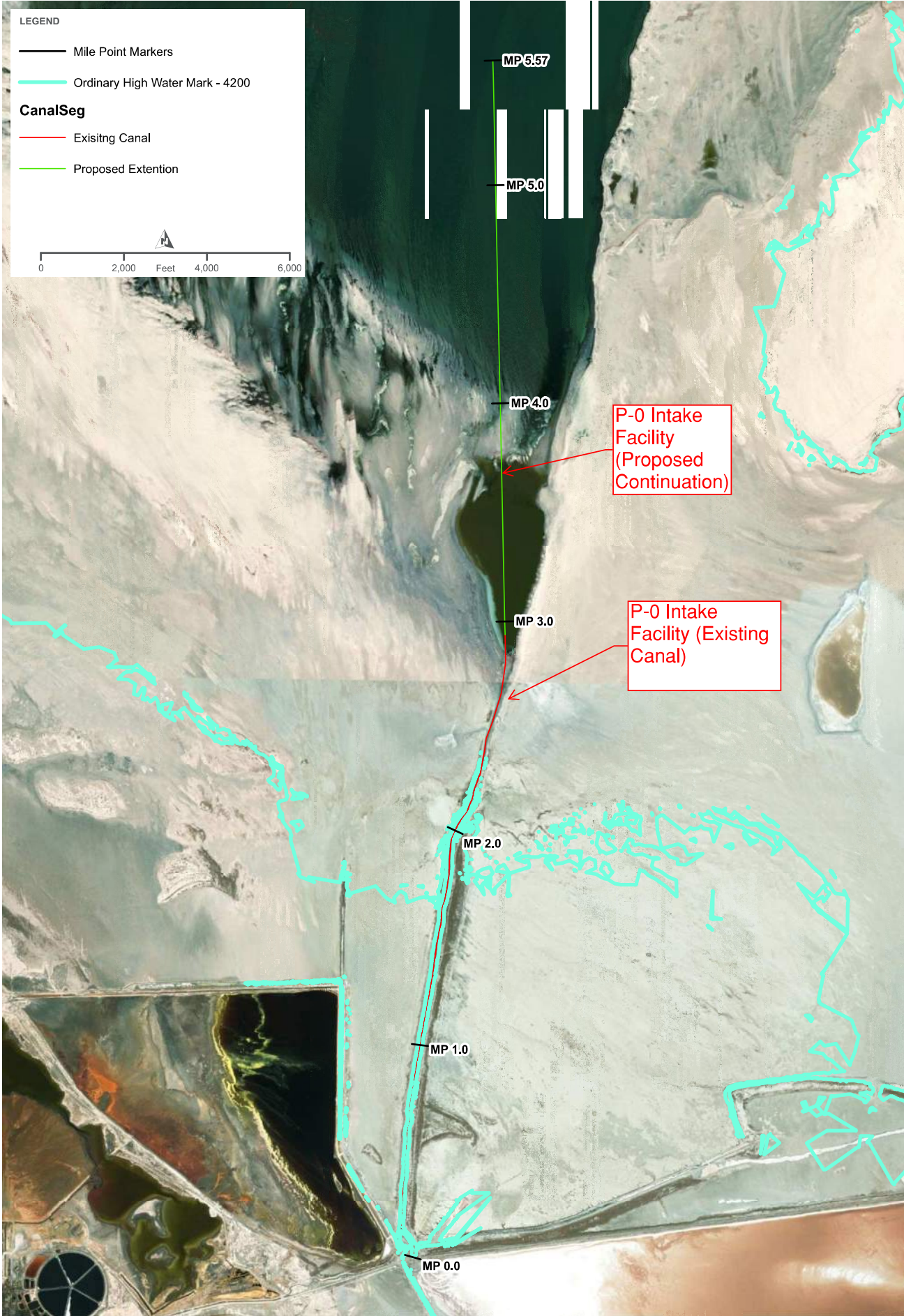
Section 6 - Project Drawings

6.1 Project Maps



OVERVIEW OF CANALS ON GREAT SALT LAKE
P0 AND P1

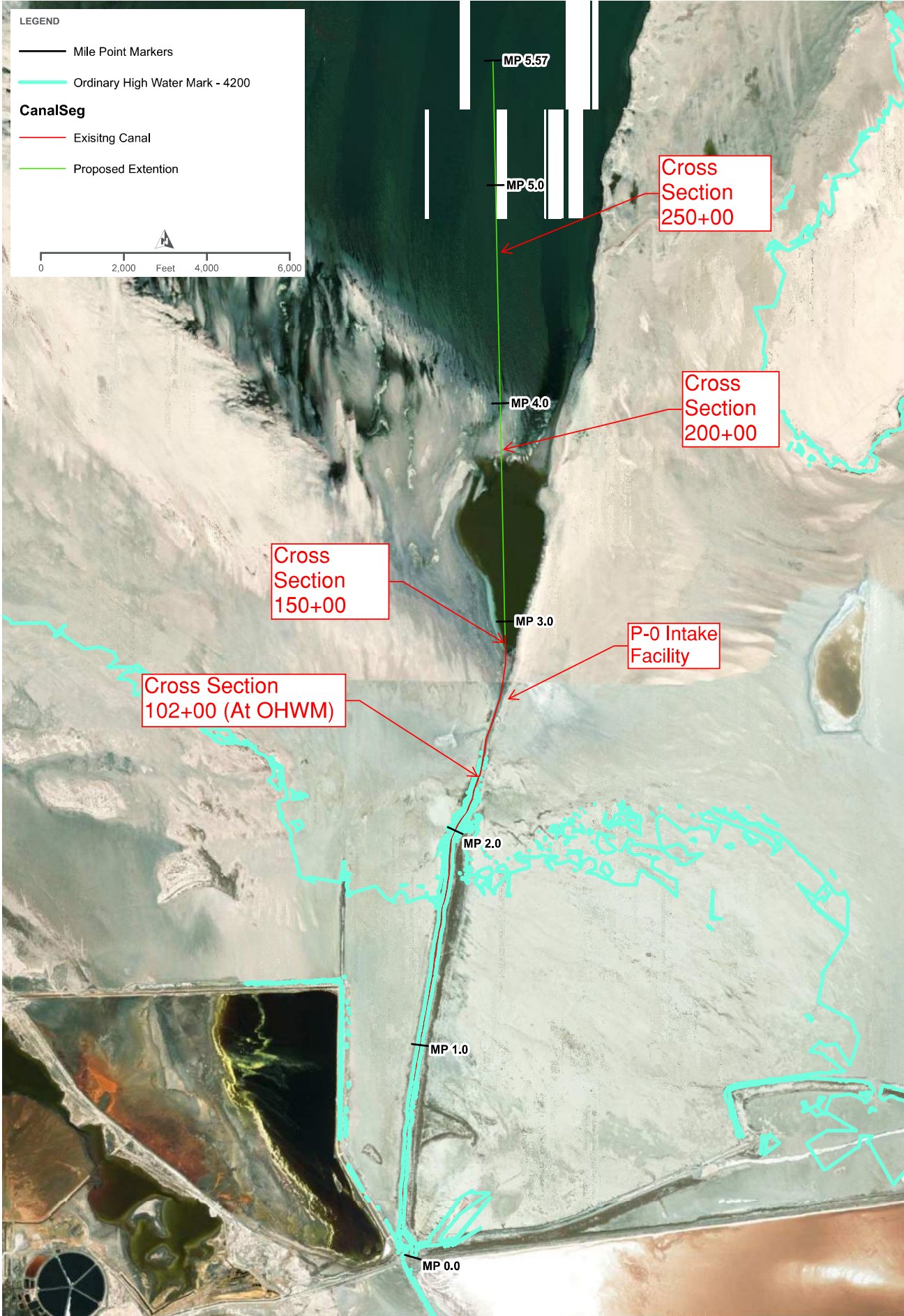




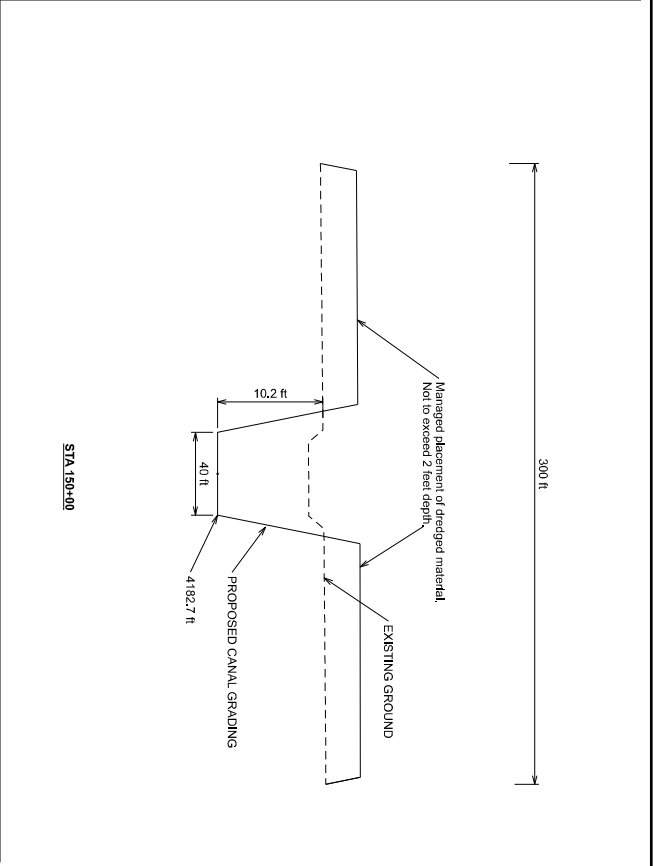
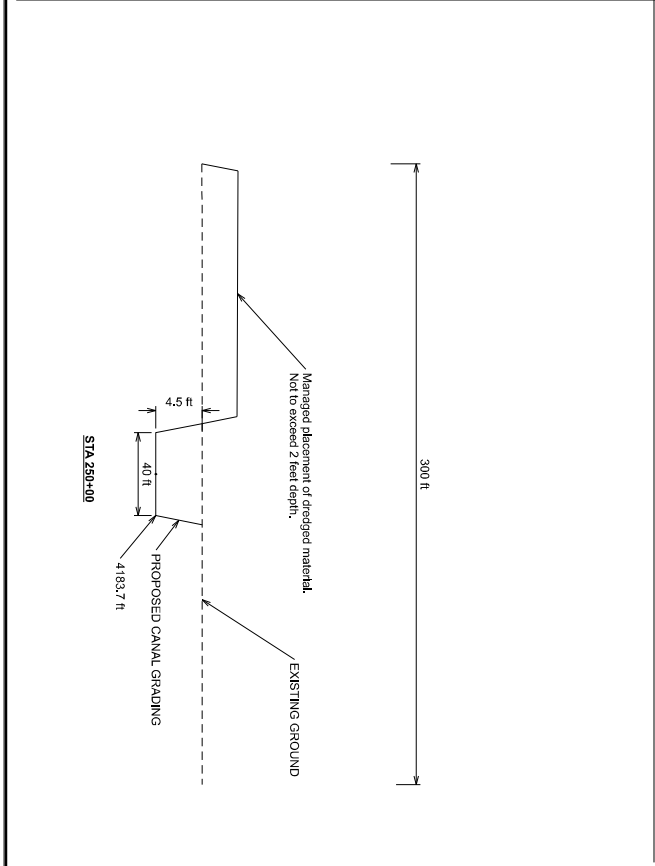
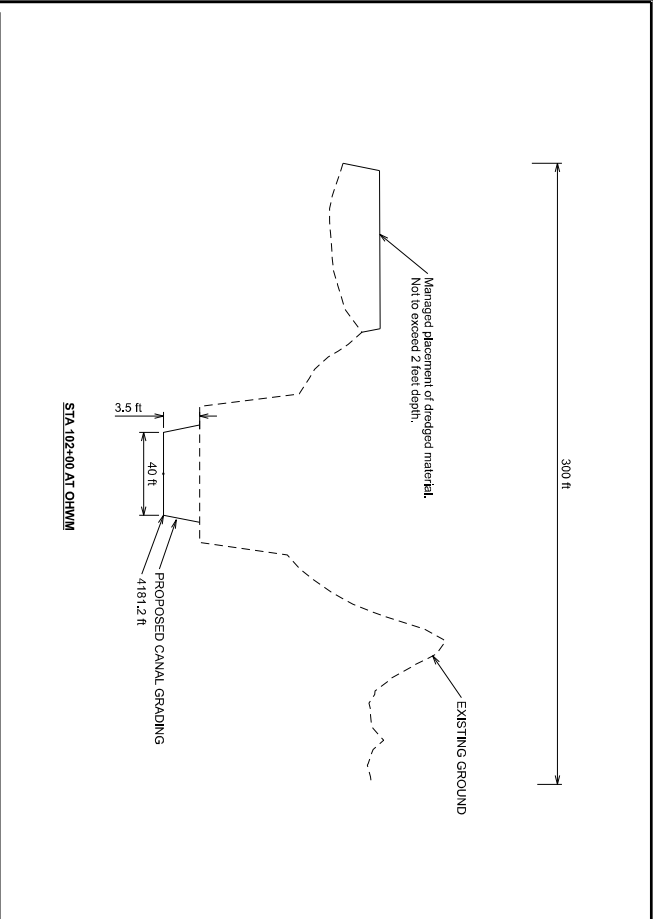
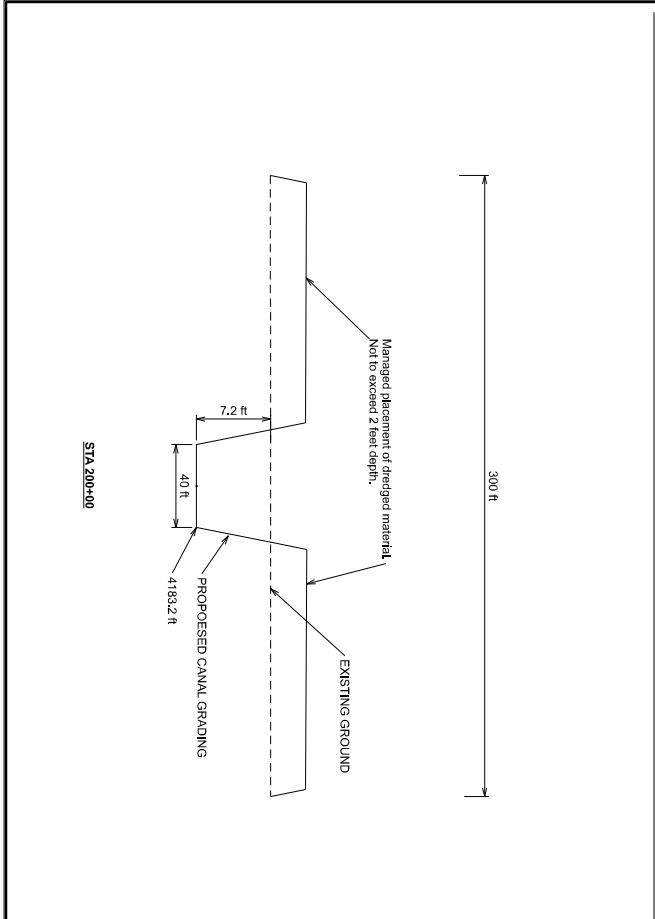
**PROPOSED GREAT SALT LAKE INTAKE CANAL
FROM EXISTING CONTOUR 4185**



6.2 Cross Section Views

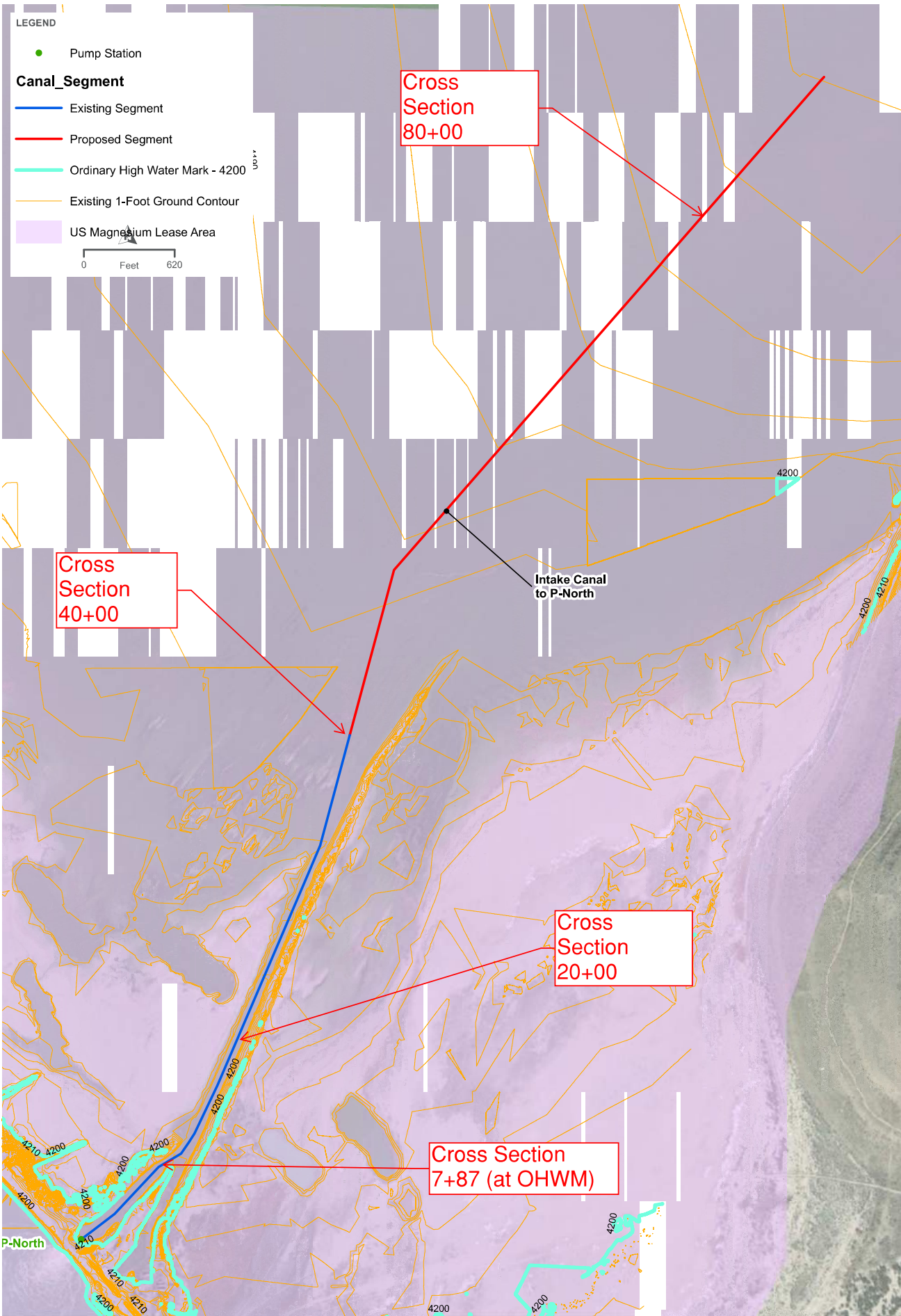


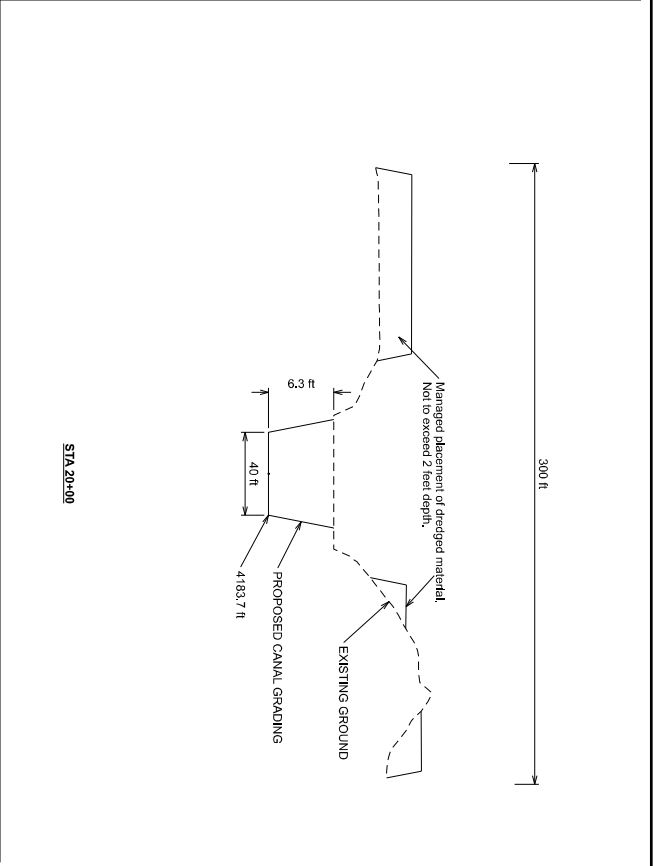
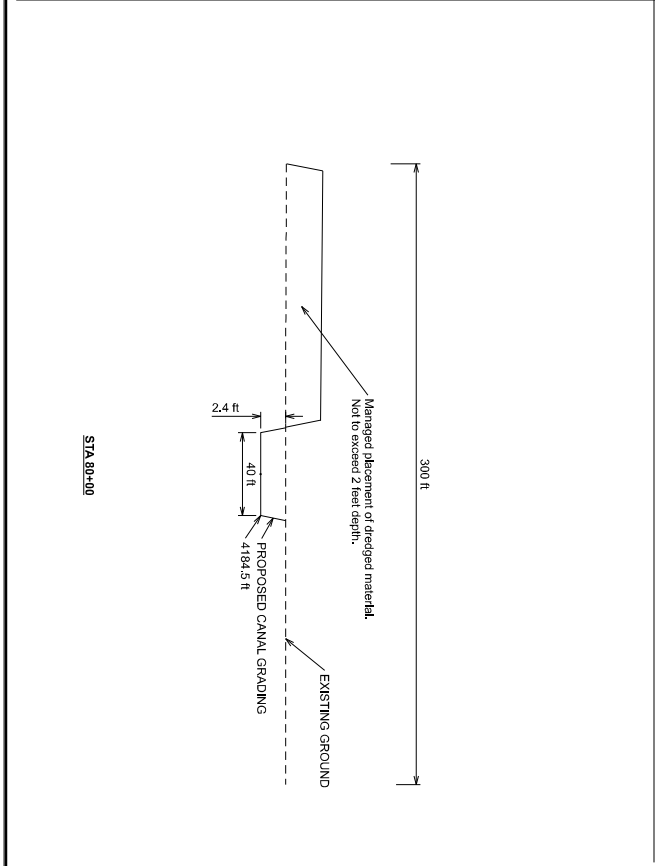
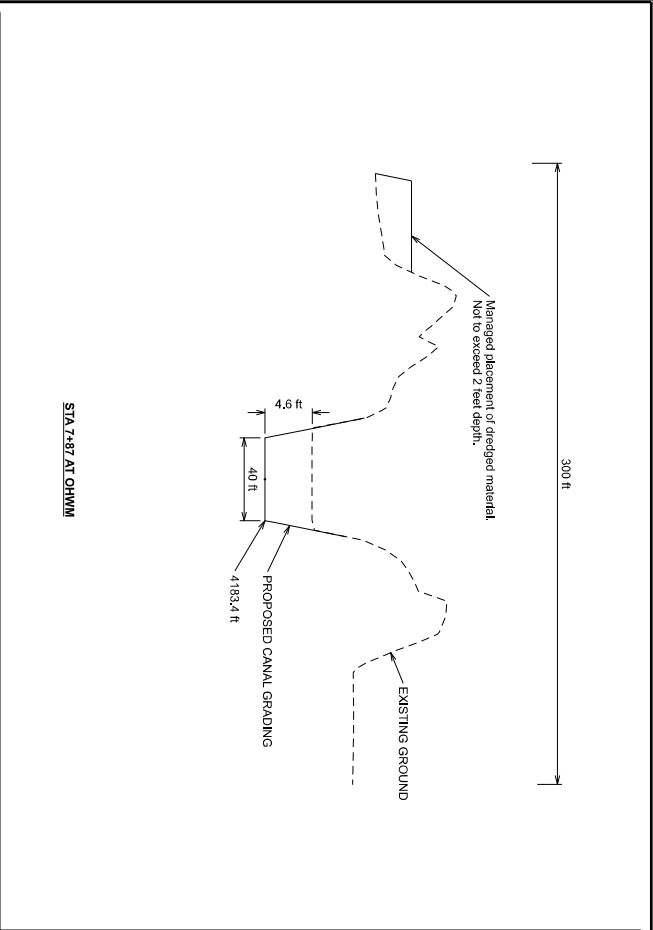
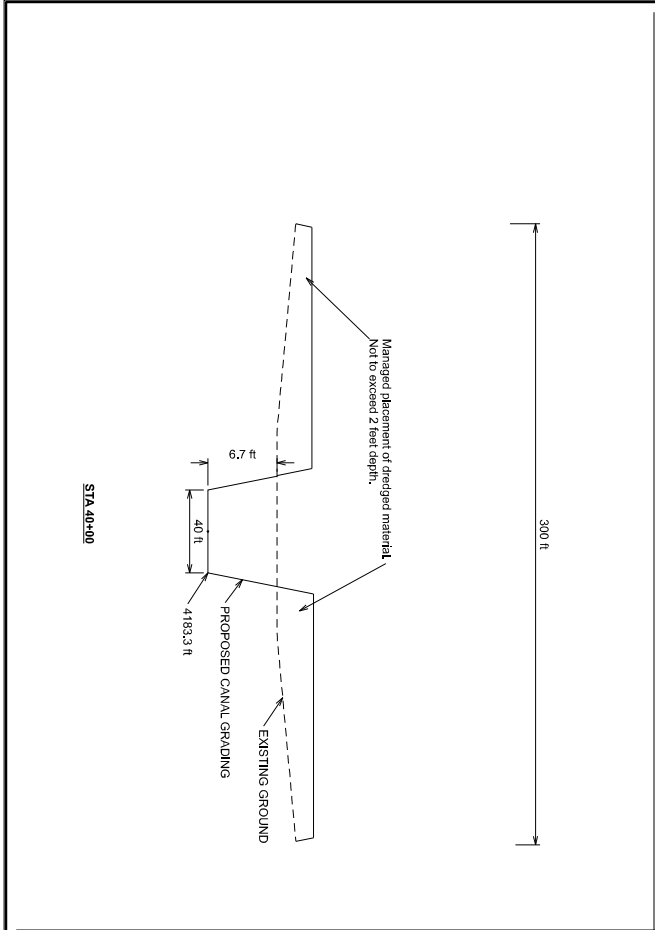
Cross Section Locations
P-0 Intake Facility



PROJECT	PROPOSED CROSS SECTIONS		APPROVED	DRAWN BY	REVISIONS				
	P-0 INTAKE FACILITY								
PROJECT NUMBER	PN		PROFESSIONAL ENGINEER	DATE	QC CHECKED BY	NO.	DATE	APPROVED BY	REMARKS

SHEET NO.





SHEET NO.	PROJECT		HDR		REVISIONS				
	P-NORTH INTAKE FACILITY								
	PROJECT NUMBER	PN	APPROVED		DRAWN BY				
			PROFESSIONAL ENGINEER	DATE	QC CHECKED BY				
						NO.	DATE	APPROVED BY	REMARKS

6.3 Elevation Plans

There are no proposed structures, therefore no content for 6.3 is provided

Section 7 Attachments

Section 7.1

See Supplemental Information Narrative
Section 2.0 - Description of Overall Project
Purpose and Characteristics of Discharge

Section 7.2

See Supplemental Information Narrative
Section 3.0 - Discharge Compliance with
Water Quality Standards

Section 7.3

See Supplemental Information Narrative
Section 4.0 - Means and Methods and
Discharge Monitoring

Section 7.4 Supporting Documentation

See attached USACE 404
Permit Application
SPK-2008-01773



404 Permit Application Supplemental Information

US Magnesium Canal Continuation Project

July 20, 2022



SPK-2008-01773-UO

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Appendix D – Summary of Dredging Quantities and Placement Footprint

Appendix E – List of Threatened and Endangered Species

Appendix F – Adjacent Property Owners

1.0 Introduction

This document supports the Individual Department of the Army (DA) Permit application for impacts to wetlands and other waters of the United States (WOUS) associated with the US Magnesium Canal Continuation Project (Project).

1.1 Applicants (Block 5, 6, 7) and Authorized Agent (Block 8, 9, 10)

US Magnesium (the applicant), along with its partner industry Cargill Salt, has a unique operation harvesting salts on the shores of the Great Salt Lake (GSL) to produce primary pure and alloy magnesium metal as well as lithium carbonate, chlorine, calcium chloride, iron chlorides, and hydrochloric acid.

Tim Gribben is the US Magnesium Process Control Manager and the designated point of contact for the project. HDR is supporting the applicant by providing engineering services. Bill Pope, HDR is the applicant's authorized agent for the project. See Table 1 below.

Table 1. Applicant and Authorized Agents

Applicant	Authorized Agent
Tim Gribben Process Control Manager US Magnesium TGribben@usmagnesium.com 238 North 2200 West Salt Lake City, Ut 84116 801-532-1522 ext 1207 (office) 3330-410-5006 (cell)	Bill Pope, PE Project Engineer HDR Engineering, Inc. William.pope@hdrinc.com Salt Lake City, UT 84121 801-743-7821 (office) 801-440-9120 (cell)

1.2 Project Overview

The applicant withdraws water from the Great Salt Lake through two intake facilities located along the south arm of the Great Salt Lake. One facility is identified as the P-0 Intake Facility, the other is identified as the P-North Intake Facility. The ongoing drought and historic low lake levels on the Great Salt Lake have isolated the existing two intake facilities from lake water such that neither is able to withdraw permitted amounts or operate at the minimum capacity to sustain the applicant's industrial process.

The project will re-establish both existing intake canals' connectivity to the GSL open water so that industrial activities can continue down to a minimum GSL South Arm Water Surface Elevation (WSE) of 4,188 feet (NGVD29). The bottom elevation for both canals at their furthest point into the GSL lakebed will be at 4,185 feet (NGVD29). The difference between the canal bottom (4185 feet) and the minimum lake water surface elevation (4188 feet) provides 3 feet of hydraulic head to maintain gravity flow from the lake into the applicant's system for processing. Figures located in Appendix A show the full extent of the GSL, the locations of the P-0 and P-North canals, and the OHWL (4,200-foot contour).

Additionally, this project represents the first phase of a potentially multi-phased approach to establish long-term reliability for the Applicant to access water from the Great Salt Lake. If needed, the phased

approach would include continuation of both facilities to a canal bottom elevation of 4180 feet (NGVD29) but would only be pursued by the Applicant if lake levels continue to decline. The current downward trend for water surface elevations suggests Phase 2 for canal continuations may be needed within the next 3-5 years. Given the inability to predict future water surface elevations, this application focuses on the Applicant's immediate needs to address the current emergency. As such, everything presented in this application is limited to the continuation of the P-0 and P-North facilities to a canal bottom elevation of 4,185 feet (NGVD29). Anything related to future phases and continuation of facilities to a lower canal bottom elevation will be coordinated with USACE and addressed through future modifications to this permit application.

1.3 Applicant's Preferred Alternative

The applicant's preferred alternative is to utilize hydraulic dredging to re-establish and continue the existing P-0 and P-North intake facilities. A summary of the individual actions included in the applicant's preferred alternative is provided below and are the subject of this Section 404 individual permit application. See also figures in Appendix A.

- **Re-establish existing P-0 canal invert.** The existing 2.6-mile P-0 intake canal will be excavated to remove accumulated sediment and re-establish invert elevations to maintain conveyance capacity.
- **Re-establish existing P-North canal invert.** The existing 1.1-mile P-North intake canal will be excavated to remove accumulated sediment and re-establish invert elevations to maintain conveyance capacity.
- **Continue existing P-0 canal to open water of the GSL.** The existing 2.6-mile intake canal will be continued 3.0 miles to the lake bed contour of 4,185 feet (NGVD29). The canal will be excavated to geometry of 40-foot bottom width and maximum top width of 46 feet and maintain conveyance of lake water intake flows of 100,000 gallons per minute from the GSL to the intake pump station.
- **Continue existing P-North canal to open water of the GSL.** The existing 1.1-mile intake canal will be continued 0.7 mile to the lake bed contour of 4,185 feet (NGVD29). The canal would be excavated to geometry of 40-foot bottom width and maximum top width of 46 feet and could maintain conveyance of lake water intake flows of 100,000 gallons per minute from the GSL to the intake pump station.

2.0 Background

2.1 Project History

Great Salt Lake Conditions. As a traditional navigable water, the GSL is a WOUS. Gilbert Bay is the largest area of the GSL and receives a majority of its inflow from the Weber River. Although salinity gradients exist naturally in the GSL, they have been accentuated by the fragmentation of the lake through the construction of causeways and dikes. Historically, salinity in Gilbert Bay has fluctuated

between approximately 5% and 17%. Because of the broad, shallow nature of the GSL, its open water surface area expands rapidly as its water surface elevation (WSE) increases. Under the current conditions of extreme drought, much of the lake bed is exposed, and the remaining inundated portions are generally shallow and have higher salinity levels.

Nutrient inputs to Gilbert Bay are used by a diverse assemblage of algae and bacteria, which in turn support a rich microfauna of benthic invertebrates and macroinvertebrates. Some areas of the lake bed are permanently to semi permanently inundated, yet relatively shallow waters are covered with microbialites. These rock-like structures develop because of the precipitation of carbonates by algae and are an important source of algal production and habitat, serving as a primary food source for brine shrimp and brine flies. The microbialites structures cannot survive prolonged periods of exposure to the dry lake bed. Although areas of the lakebed with intact microbialites provide important functions in supporting aquatic habitat and the ecosystem food web, lakebed areas that lack microbialites are of limited aquatic function and are not particularly sensitive to the disturbances envisioned with the proposed emergency activities.

Under Utah Administrative Code R317-2, the Utah Division of Water Quality assigns beneficial uses for waters of the state. Class 5A is the beneficial-use class designated to Gilbert Bay. Designated beneficial uses under Class 5A are: protected for frequent primary and secondary contact recreation, waterfowl, shorebirds, and other water-oriented wildlife, including their necessary food chain.

The Utah Division of Forestry, Fire and State Lands prepared the *Final Great Salt Lake Comprehensive Management Plan* based on high, medium, and low lake level management zones. The low lake level management zone includes a range of WSEs from 4,197.9 to 4,188.0 feet NGVD29 (UDFFSL 2013). In July 2021, the lake dropped below the previous historic low WSE, which occurred in October 1963 at a level of 4,191.35 feet. Lake levels continue to decline. As of February 1, 2022, the current lake WSE was 4,190.9 feet. Although lake WSEs have fluctuated in the past, from 2010 to 2020 the average annual decline in GSL South Arm WSE has been 3.9 inches per year. However, over the past 18 months, the South Arm lake WSEs have dropped at the unforeseen rate of more than 25 inches per year (Figure 1). Similar declines have occurred in the North Arm of the GSL. This recent accelerated lowering of the lake's WSE and its anticipated continued decline require actions for continued operations to avoid the applicant's facility closing and the resulting loss of property and economic hardship.

US Magnesium. US Magnesium (the applicant), along with its partner industry Cargill Salt, has a unique operation, harvesting salts on the shores of the GSL to produce primary pure and alloy magnesium metal as well as lithium carbonate, chlorine, calcium chloride, iron chlorides, and hydrochloric acid.

US Magnesium has the capacity to produce over 63,500 metric tons per year of primary magnesium and a variety of chemical products at a facility 60 miles west of Salt Lake City, Utah, at full capacity. The operation is expansive, with solar evaporation ponds and process facilities spanning over 80,000 acres adjacent to the southwestern shore of Gilbert Bay of the GSL. This solar evaporation system produces magnesium chloride feedstock for the magnesium production facility and contributes to the production of marketable salts. A nucleus of chemical processing units concentrates and purifies the feedstock for magnesium production. An upgraded chlorine liquefaction plant and increased chlorine recovery allow the production of liquid chlorine and numerous derivative products. Because

lake's water surface levels are historically low and because the open water body of Gilbert Bay is receding, production at the applicant's facility is severely compromised.

The applicant must re-establish intake canals and pump station facilities to access the lower WSE of the GSL for the intake brine source. If the existing intake canals are not re-established to access the receded open water of the GSL, intake brine cannot be conveyed to existing evaporation ponds, and industrial activities could not continue.

The proposed work would not result in permanent loss of any waters of the U.S. nor change the aquatic function of the lake bed of the GSL. The proposed work would modify portions of the lake bed of the GSL by excavating the canals to continue intake operations using a hydraulic dredge. The discharge of the excavated materials would be managed to not cause a loss of lake bed aquatic function. No wetlands or waters other than the GSL would be affected.

The proposed activities require excavating and discharging materials below the ordinary high-water mark of 4,200 feet (Corps 2015) onto the lakebed of Gilbert Bay. As seen in Appendix A, the 4,200-foot MSL topographic contour is shown. Dredging activities conducted above the GSL South Arm OHWL are not included in this Application since they are not located in waters subject to the jurisdiction of the U.S. Army Corps of Engineers. All dredging activities with discharges under the 4,200-foot mean sea level (MSL) topographic contour (GSL South Arm Ordinary High Water Level [OHWL]) are subject to Clean Water Act Section 404 permitting requirements.

3.0 Supplemental Information for DA Form 4345

The following information is specific to the Applicant's preferred alternative. This information supplements the Section 404 application form (DA Form 4345) for the Project.

3.1 Location Information (Block 15, 16, 17)

There are no wetlands in the project area. The proposed projects are located in Gilbert Bay of the Great Salt Lake (GSL).

The proposed activities and project locations are:

- Existing P-0 Intake Canal and Continuation Canal, 40°57'23.65"N, 112°41'23.74"W
- Existing P-North Intake Canal and Continuation Canal, 40°55'48.37"N, 112°31'23.45"W

The US Magnesium facility can be accessed using the below directions. Note access to the facility requires coordination with the Applicant prior to any site visits.

- Take I-80 West to Tooele County to exit 77.
- Follow road to Rowley Road, turn right.
- Road terminates at US Magnesium plant.

See also Appendix A above which shows locations for the P-0 and P-North intake facilities.

3.2 Nature of Activity (Block 18)

The proposed work would not result in permanent loss of any waters of the U.S. nor change the aquatic function of the lake bed. The proposed work would modify portions of the lake bed of the GSL by excavating the canals to continue intake operations using a hydraulic dredge. The discharge of the excavated materials would be managed to not cause a loss of lake bed aquatic function. No wetlands or waters other than the GSL would be affected.

The project will re-establish both existing intake canals' connectivity to the GSL open water so that industrial activities can continue down to a minimum GSL South Arm Water Surface Elevation (WSE) of 4,188 feet. The bottom elevation for both canals at their furthest point into the GSL lakebed will be at 4185 feet. The difference between the canal bottom (4185 feet) and the minimum lake water surface elevation (4188 feet) provides 3 feet of hydraulic head to maintain gravity flow from the lake into the applicant's system for processing. Figures located in Appendix A show the full extent of the GSL, the locations of the P-0 and P-North canals, and the OHWL (4,200-foot contour).

The extent of the proposed work is based on work activities required to protect facility operation below the 4,200-foot lake bed contour (South Arm OHWL). A summary of individual actions is provided below.

- **Re-establish existing P-0 canal invert.** The existing 2.6-mile P-0 intake canal would be excavated to remove accumulated sediment and to re-establish invert elevations to maintain conveyance capacity.
- **Re-establish existing P-North canal invert.** The existing 1.1-mile P-North intake canal would be excavated to remove accumulated sediment and to re-establish invert elevations to maintain conveyance capacity.
- **Continue existing P-0 canal to open water of the GSL.** The existing 2.6-mile intake canal would be continued 3.0 miles to the lake bed contour of 4,185 feet (NGVD29). The canal would be excavated to geometry of 40-foot bottom width and maximum top width of 46 feet and could maintain conveyance of lake water intake flows of 100,000 gallons per minute from the GSL to the intake pump station.
- **Continue existing P-North canal to open water of the GSL.** The existing 1.1-mile intake canal would be continued 0.7 mile to the lake bed contour of 4,185 feet (NGVD29). The canal would be excavated to geometry of 40-foot bottom width and maximum top width of 46 feet and could maintain conveyance of lake water intake flows of 100,000 gallons per minute from the GSL to the intake pump station.

The proposed work would modify portions of the lake bed of the GSL by excavating the canals to continue intake operations using a hydraulic dredge. The discharge of the excavated materials would be managed to preserve the existing aquatic function of the lake bed. No other waters would be affected. The nature of the proposed activity is, therefore, an important consideration in evaluating the Application.

Excavated materials would be discharged onto the adjacent lake bed and managed to avoid loss of lake bed aquatic function. Proposed plan and cross-section views of the existing natural GSL lake bed along two locations of the proposed continuation of the P-0 and P-North intake canals are attached. The cross sections shown in Appendix B are generated from best available for lake bottom surface bathymetry. All dredging and placement of dredged materials will be managed within a 300-foot-wide construction limit area. See Figures in Appendix B. The placement of discharged material within the construction limit area would mimic the vertical variances of the natural lake bed as much as practicable given site conditions and dredge discharge equipment. Managed placement of the material will limit the depth of dredged material to a maximum height of 2 feet within the construction limit area and provide gaps to maintain connectivity with low lake waters and provide navigability.

In summary, managing the discharge of excavated materials to these objectives would:

- (1) Mimic natural lake bed variations, not exceed 2 feet high. By placing slurry sediment on the lake bed within a 300-foot-wide construction area and not exceeding 2 feet height, the material would mimic natural topographic variability of the lake bed. Aerial images with topographic data have been analyzed to identify that the natural rise and fall of the exposed lake bed is about 2 feet. The applicant proposes to stay within this 2-foot range, so that the lake bed would not be adversely impacted and no barriers to lake inundation would be created.
- (2) Create gaps for lake connectivity and navigation. The purpose of the gaps is to allow differential inundation levels and allow existing lake bed areas to remain connected when the GSL water surface level rises.
- (3) Provide that excavation would not reduce lake bed function. The placement of discharged materials would be managed to allow the GSL bed to remain as lake bed, and the proposed activities would not change into wetlands or upland areas.
- (4) Allow the lake waters to continue to inundate the fill area as the lake naturally rises. The lake bed would still function as lake bed, and lake waters would be freely flowing over the lake bed. In other words, by placement of the discharged material, no berm or dam would be created that would limit the inundation extents of the GSL.

3.3 Plan and Cross-section Drawings of Proposed Work

Appendix B contains plan and cross-section views of proposed work for both intake facilities. Also shown in the cross sections is the 300-foot-wide construction limits area for each cross section and also the managed placement of dredged material within the 300-foot corridor.

3.4 Purpose of the Proposed Project (Block 19) and Reason for the Discharge (Block 20)

Current drought conditions have resulted in new historic lows of the water surface levels of the GSL and have created the need for the project. Because lake's water surface levels are historically low and because the open water body of Gilbert Bay is receding, production at the applicant's facility is compromised. The purpose of the project is to re-establish intake canals and pump station facilities to access the lower WSE of the GSL for the intake brine source. If the existing intake canals are not re-established to access the receded open water of the GSL, intake brine cannot be conveyed to existing evaporation ponds, and industrial activities could not continue.

Appendix C contains a letter of project support from the State of Utah Public Lands Policy Coordinating Office. Work to commence dredging activities would begin as soon as possible upon receipt of an individual 404 Permit.

3.5 Amounts of Material Being Discharged (Block 21)

A total of 203,583 cubic yards (CY) of dredged lakebed material would be placed within the managed 300-foot-wide construction limits area below the OWHM (4200-elevation contour) for the P-0 facility. The material would be placed within the 300-foot-wide construction limits area not to exceed 2 feet depth and cover an area of approximately 88.3 acres. Similarly, a total of about 68,695 cubic yards (CY) of dredged lakebed material would be placed within the managed 300-foot-wide construction limits area below the OWHM (4200-elevation contour) for the P-North facility. Placement of the material would not exceed 2 feet depth and cover an area of approximately 39.2 acres. Table 1 below summarizes amounts of material being dredged and placement area for placement of the dredged material.

Table 1 Summary of Dredged Quantities and Placement Area

Facility Name	Dredged Quantity (CY)	Maximum Placement Area Depth (ft)	Maximum Placement Area (Ac)
P-0 Intake Facility	203,582	2	88.3
P-North Intake Facility	68,695	2	39.2

The proposed work would not result in permanent loss of any waters of the U.S. nor change the aquatic function of the lake bed. The proposed work would modify portions of the lake bed of the GSL by excavating the canals to continue intake operations using a hydraulic dredge. The discharge of the excavated materials would be managed to not cause a loss of lake bed aquatic function. No wetlands or waters other than the GSL would be affected.

3.6 Anticipated Effects to Waters of the United States (Block 22)

The proposed work would modify portions of the lake bed of the GSL by excavating the canals to continue intake operations using a hydraulic dredge. The discharge of the excavated materials would be managed to preserve the existing aquatic function of the lake bed. No other waters would be affected. The nature of the proposed activity is, therefore, an important consideration in evaluating the Application.

3.7 Anticipated Effects to Biological and Cultural Resources

3.7.1 Biological Resources

3.7.2 Cultural Resources

A qualified professional will complete a cultural resources evaluation to all areas within the proposed project activities.

3.8 Conceptual Mitigation (Block 23)

The following presents alternatives considered that present the initial avoidance and minimization efforts considered by the Applicant.

3.8.1 Initial Avoidance and Minimization Efforts

The proposed work would not result in permanent loss of any waters of the U.S. nor change the aquatic function of the lake bed. The proposed work would modify portions of the lake bed of the GSL by excavating the canals to continue intake operations using a hydraulic dredge. The discharge of the excavated materials would be managed to not cause a loss of lakebed aquatic function and would therefore be considered self-mitigating. No wetlands or waters other than the GSL would be affected.

The applicant anticipates that excavation would be conducted with hydraulic dredge equipment including slurry discharge lines and/or “shooters” to spread the excavated material over the lake bed within the construction limits. The construction area would depend on the selected contractor’s means and methods and available equipment. The applicant has not yet selected a contractor, but construction limits 300 feet wide are anticipated for both the P-0 and P-North intake canals. Discharged material from hydraulic dredge equipment would relocate lake bed material within the construction limits. Managing the discharge of excavated materials to these objectives would (1) mimic natural lake bed variations, not exceed 2 feet high, (2) create gaps for lake connectivity and navigation, (3) provide that the emergency actions would not reduce lake bed function, and (4) allow the lake waters to continue to inundate the fill area as the lake naturally rises. See Attachments A and B for plan views and typical cross sections.

It is worth noting that hydraulic dredging covers a variety of equipment and dredging methods. It is also worth noting that different dredging equipment and methods can achieve different results with regards to meeting project specific goals for placement of relocated material. Hydraulic dredging projects successfully completed within Waters of the US have employed various means and methods to meet requirements in Chapter 40 of the Code of Federal Regulations (CFR) which allow dredged materials for be dispersed in thin layers and in a controlled manner. The Applicant understands that ongoing discussions with USACE will focus on selecting equipment and implementing appropriate dredging methods to meet applicable regulations.

The effort to determine dredged material quantities included analysis of three alternatives for both the P-0 and P-North facilities. The first alternative evaluated dredging quantities based on a constant slope, starting at the lake bottom elevation of 4185 feet and ending at the existing pump station. The second alternative looked at dredging quantities based on a profile that started at 4185 feet and continued at a constant slope until a total drop of 3 feet had been obtained in the profile. At that point, a 1-foot upward step was introduced into the canal profile and the canal again followed a constant slope starting at the top of the 1-foot step. This process repeated until the alignment reached the existing pump station. The third alternative was like the second alternative, with the exception that a constant slope was followed until the profile dropped 2.1- feet and then stepped up 0.5 feet. The third alternative resulted in the least amount of dredged material that would be displaced and is the options carried forward with this application. Appendix D contains summary information of the three dredging alternatives.

The applicant intends to avoid and minimize impacts to microbialites within the construction limits. The extent of microbialites within the construction limits is not well defined and has not been documented. However, the applicant is committed to avoid and minimize impacts to microbialites from the proposed actions. Before dredging begins, the construction limits would be established and inspected for the presence of microbialites by an in-person visual inspection and/or drone operations to collect aerial images. The construction limits might need to be revised to avoid and minimize disturbances to microbialites, and such a revision would be coordinated with the Corps' field office.

The applicant's current understanding is that dredging within the construction limits would not affect microbialites along the alignment for the P-0 intake canal extension. Microbialites have been observed in the general lake area near the existing P-North intake canal alignment but have not been mapped. In this area, once the presence or nonpresence of microbialites is established, the contractor would manage the dredging operations to deposit the excavated materials away from known microbialites. In areas with no microbialites, the applicant expects no more than minimal adverse effects to the lake bed from the canal excavation and discharge of materials because these areas would be functionally comparable to the existing lake bed.

All work would be performed within the US Magnesium Special Use Lease Area issued by the Utah Division of Forestry, Fire and State Lands.

At this time, the applicant does not anticipate construction dewatering associated with the proposed emergency work. However, if dewatering is required, the contractor would be required to obtain the State Permit for Construction Dewatering.

Discharge of excavated materials would be managed, as described above, to avoid more-than-minimal adverse effects, including effects to lake bed characteristics. Accordingly, no compensation is required.

3.8.2 Considered Alternatives to Preferred Alternative

Facility Modifications. The applicant has modified operations and existing facilities to maintain operations, albeit reduced operations, through the past 10 years of declining WSEs. To date, the following actions been implemented: intake pumping stations have been modified by installing smaller pumps to reliably operate with reduced brine levels in the existing canals, operations have been altered to access and harvest previously stockpiled surplus minerals, and annual production has decreased as a result of decreasing WSEs and the applicant's inability to pump at full capacity. Increased brine concentrations resulting from the lower lake WSE has reduced pumping durations and efficiencies while maintenance to keep pumps operational has inversely increased. Additionally, the applicant has added new waterlines and modified the routing of GSL water through evaporation ponds (via pumping and channel modification) and has trucked in thousands of gallons of fresh water from the nearby city of Grantsville to dilute the existing residual GSL brines to maintain the concentrations needed for the production process. Over the past several years, the applicant has relied on stockpiled surplus to supplement the declining intake capacity. The surplus is anticipated to be completely exhausted after this year.

Floating Pipe System. The Corps has suggested using a floating pipe system to avoid fill activities in the GSL. Although the applicant appreciates that the Corps mentioned the potential use of a floating pipe, the applicant believes this option to be technically infeasible and here provides a brief initial assessment. To convey 100,000 gallons per minute of brine intake, a minimum of four parallel pipes 48 inches in diameter (or larger) would need to be "floated" for about 3 miles to reach the 4,200-foot GSL contour. Several barges would be required at the pipe intakes to house multiple suction pumps that would pump the lake water into each pipe. Given the low lake water levels, the barges required to float the equipment would not have enough water depth to operate. Intermediate pumps on barges would also be required for each pipe to boost the brine across the required distance. The floating pipes would need to have temporary anchoring for stabilization since they would be exposed wind and wave action and could present navigation hazards. Additional challenges include those related to the extreme pumping requirements and material availability. This option, while not fully evaluated, is considered a high-risk, high-capital option and presents significant technical difficulties that might not be feasible to overcome.

3.9 Adjoining Property Owners (Block 25)

Lakebed areas are managed by Utah Division of Forestry, Fire, and State Lands. All other property owners adjacent to the project areas are provided in Appendix F of this document.

3.10 Other Required Permits and Approvals (Block 26)

Table 3 lists approvals and permits anticipated to be required for the Project, in addition to this Section 404 application.

Table 3. List of Other Certificates and Approvals

Permit or Approval	Agency	Notes
Clean Water Act (CWA) Section 401, Water Quality Certification	Utah State DEQ	

Appendix A



/HJHQG

- P-0 Intake Facility /LRQ &/
- P-North Intake Facility RQ &/
- 860DJ /HDVH \$UHD
- 2+:0

N

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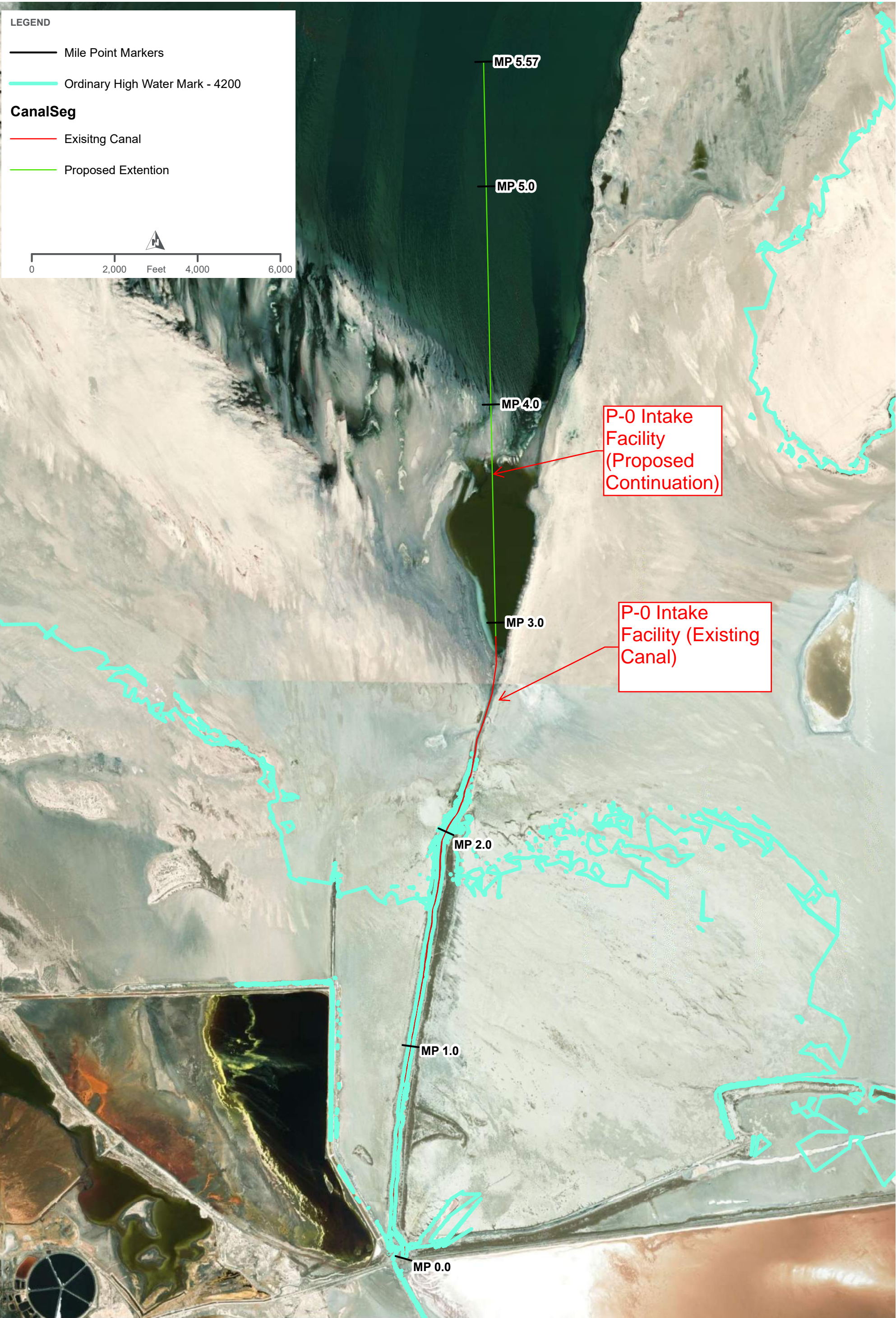
P-0 Intake Facility

P-North Intake Facility

Earthstar Geographics HRJUDS

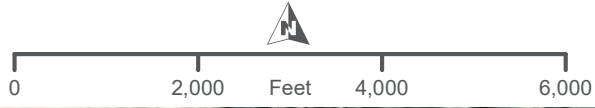
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LEGEND

- Mile Point Markers
 - Ordinary High Water Mark - 4200
- CanalSeg**
- Existing Canal
 - Proposed Extention



MP 5.57

MP 5.0

MP 4.0

P-0 Intake Facility (Proposed Continuation)

MP 3.0

P-0 Intake Facility (Existing Canal)

MP 2.0

MP 1.0

MP 0.0



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PROPOSED GREAT SALT LAKE INTAKE CANAL FROM EXISTING CONTOUR 4185

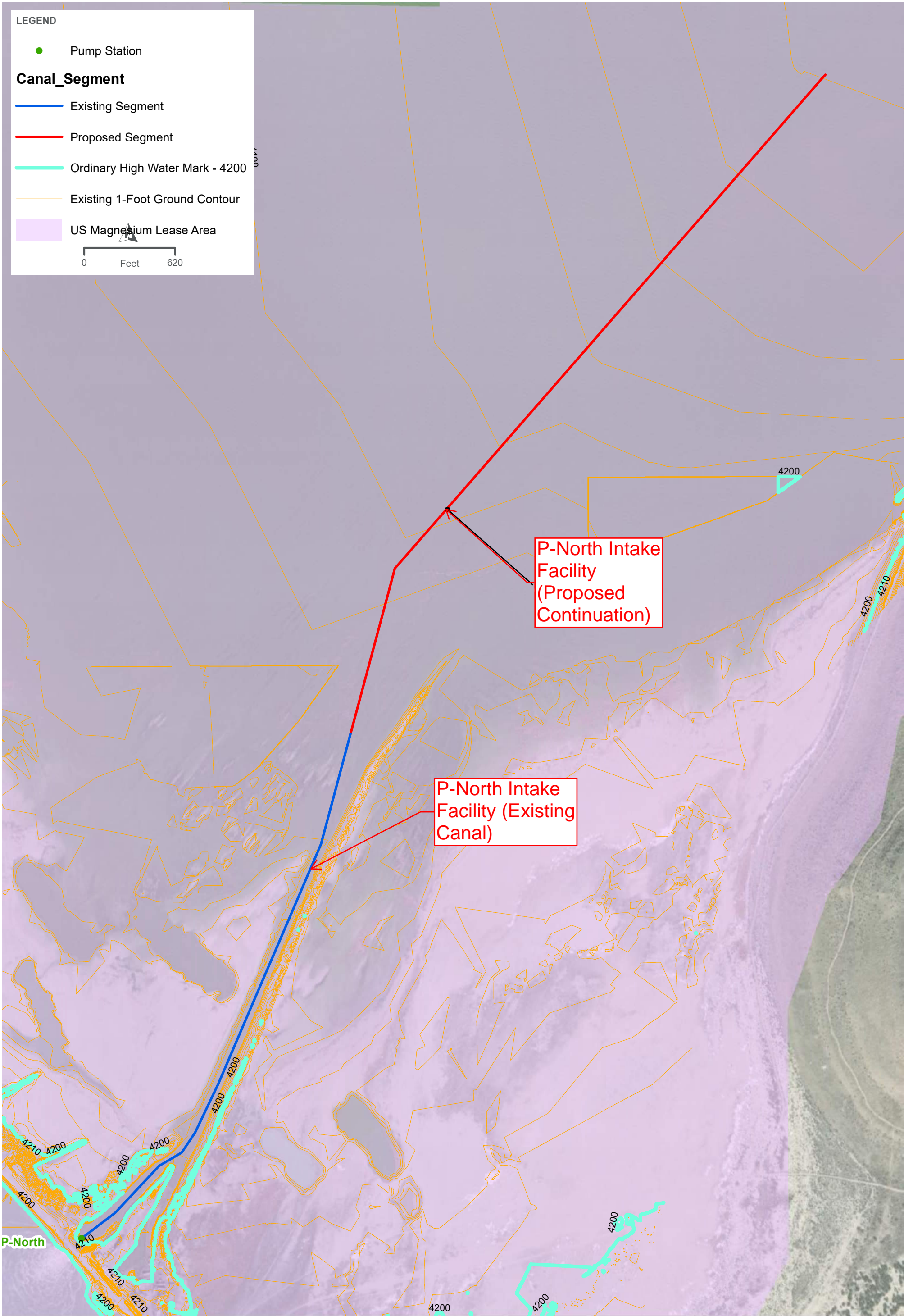
LEGEND

- Pump Station

Canal_Segment

- Existing Segment
- Proposed Segment
- Ordinary High Water Mark - 4200
- Existing 1-Foot Ground Contour
- US Magnesium Lease Area

0 Feet 620



P-North Intake Facility (Proposed Continuation)

P-North Intake Facility (Existing Canal)

P-North



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P-NORTH INTAKE CANAL MAP

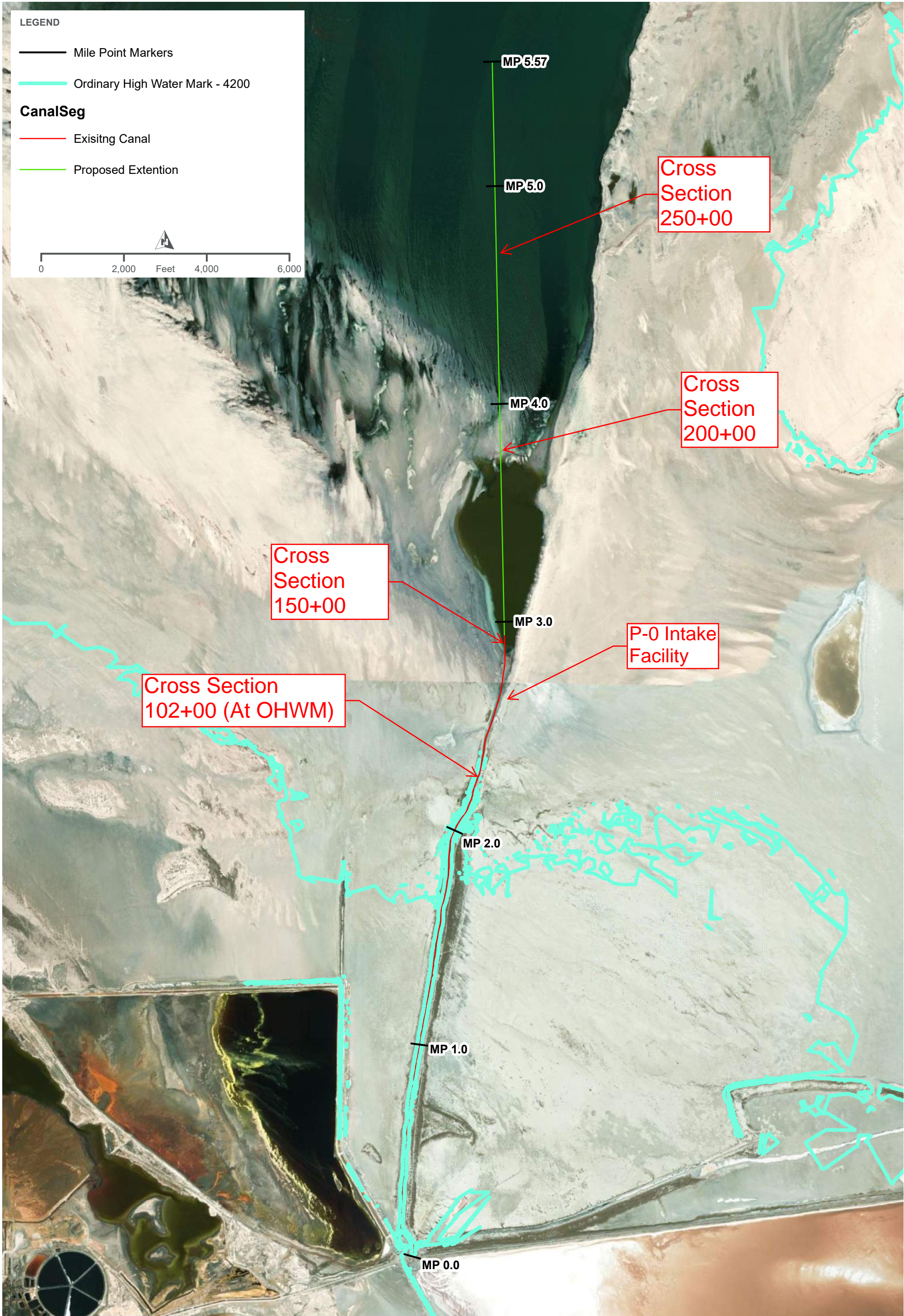
Appendix B

LEGEND

- Mile Point Markers
- Ordinary High Water Mark - 4200

CanalSeg

- Existing Canal
- Proposed Extention



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Cross Section Locations
P-0 Intake Facility

LEGEND

- Pump Station
- Canal_Segment**
- Existing Segment
- Proposed Segment
- Ordinary High Water Mark - 4200
- Existing 1-Foot Ground Contour
- US Magnesium Lease Area

0 Feet 620

Cross Section 80+00

Cross Section 40+00

Intake Canal to P-North

Cross Section 20+00

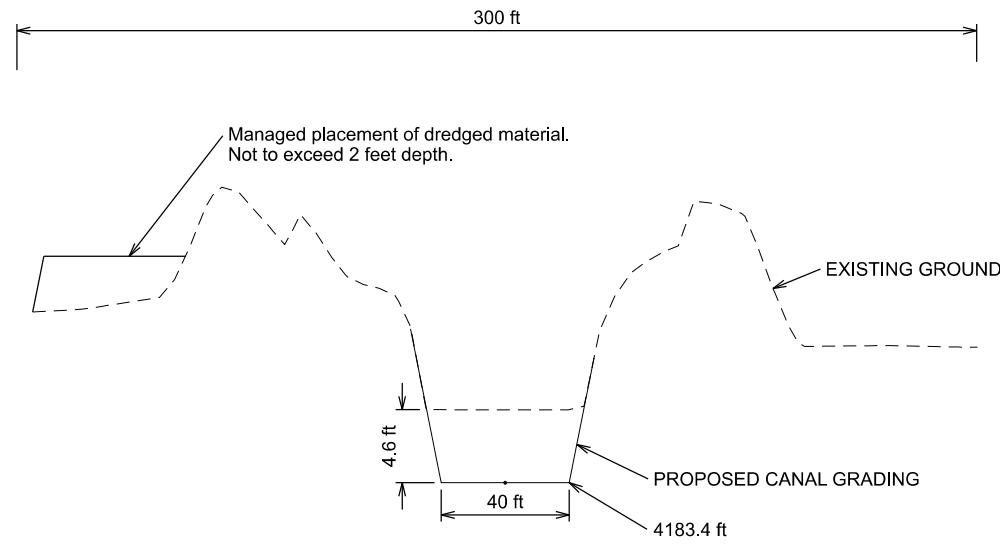
Cross Section 7+87 (at OHWM)

P-North

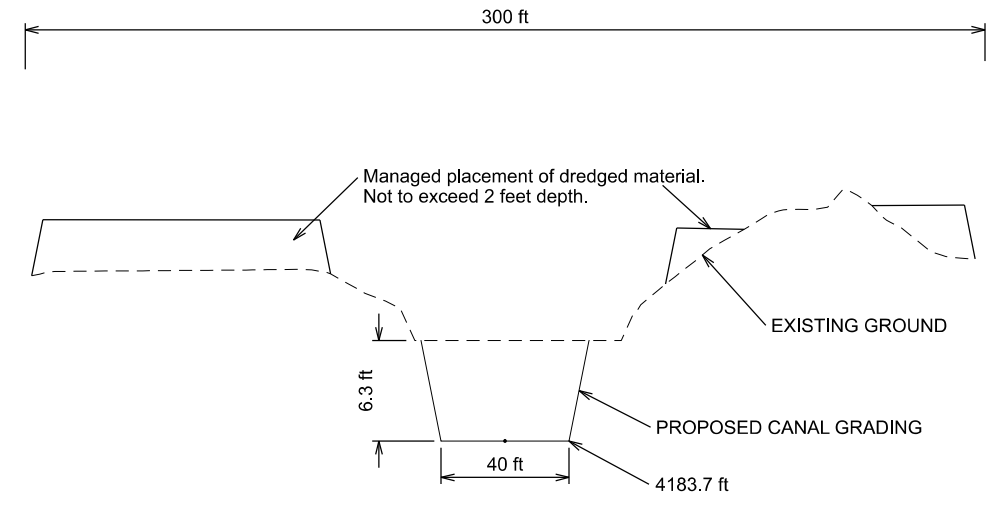


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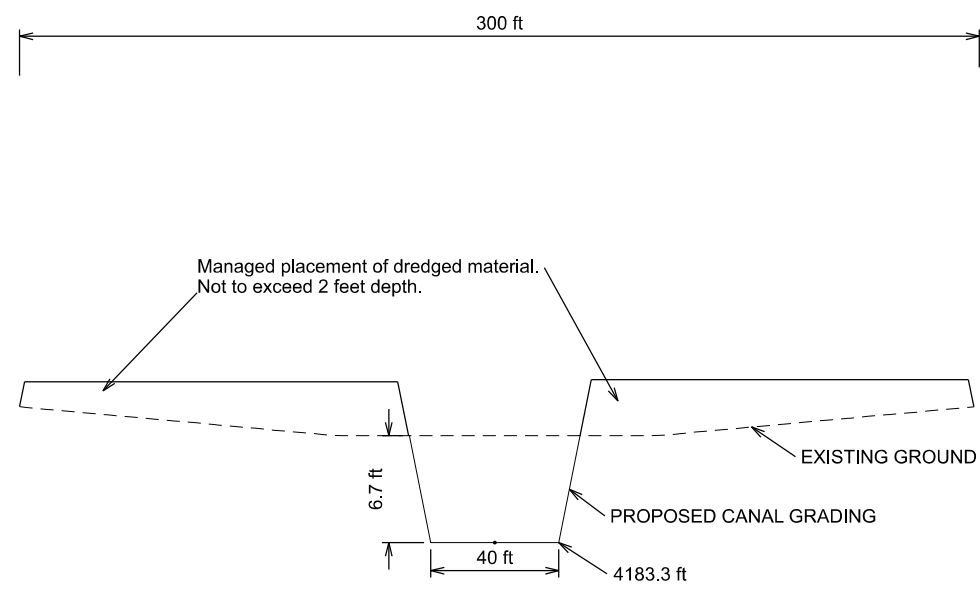
**Cross Section Locations
P-North Intake Facility**



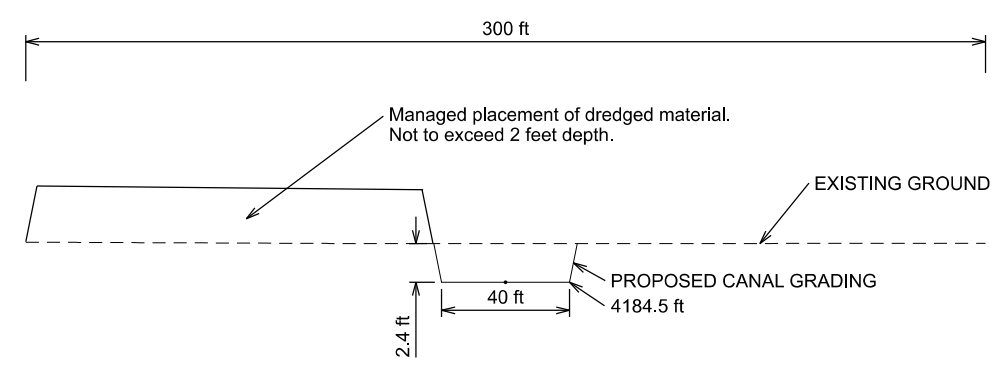
STA 7+87 AT OHWM



STA 20+00



STA 40+00



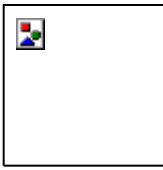
STA 80+00

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PROJECT		P-NORTH INTAKE FACILITY	
PROJECT NUMBER	PIN	APPROVED	DATE
SHEET NO.		PROFESSIONAL ENGINEER	DATE
DRAWN BY		QC CHECKED BY	APPROVED BY
NO.		DATE	REMARKS
<p style="text-align: center;">HDR</p>			
<p style="text-align: center;">PROPOSED CROSS SECTIONS</p>			
<p style="text-align: center;">REVISIONS</p>			

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Appendix C



State of Utah

SPENCER J. COX
Governor

DEIDRE M. HENDERSON
Lieutenant Governor

Office of the Governor

Public Lands Policy Coordinating Office

REDGE B. JOHNSON
Executive Director

April 19, 2022

Mr. Jason Gipson
Branch Chief
United States Army Corps of Engineers
533 West 2600 South #150
Bountiful UT

Re: US Magnesium, LLC (the “Company”):
Notification of Application, 404 General Permit #8 – Emergency Repair and
Protection Activities, dated March 7, 2022 (the “Application”)

Dear Mr. Gipson:

I am writing this letter in support of, and to request the expeditious approval of the Notice of Application, 404 General Permit #8 – Emergency Repair and Protection submitted by US Magnesium, LLC on March 7, 2022. As set out in the Application, current drought conditions in the West, in general, and the State of Utah (the “State”), in particular, have caused historic lows in the water levels of the Great Salt Lake (the “Lake”). In October of 2021, water levels dropped below the previous record set in 1963 and set a new record low.¹ The open waters of the Lake’s Gilbert Bay on which the Company’s facilities are located are receding, leaving the Company hampered in its efforts to connect to the Lake and the resources it requires. The Company should, right now, be pulling water from the Lake and delivering it to its evaporation ponds for the evaporation period that commences in May and typically extends through July.² However, the Company must reestablish canals to access the lower water surface elevation of the Lake to reach the brine source necessary for its operations. These conditions have created not only “an imminent threat of economic hardship and loss of property for the US Magnesium,”³ but also for the State and the defense and security of the United States as a whole.

¹ <https://water.utah.gov/great-salt-lake/>.

² See Application, p. 2

³ See Application, p. 1.

US Magnesium Emergency Application

April 19, 2022

Page 2

Presidential Determination No. 2022–11 of March 31, 2022⁴ found, “Action to expand the domestic production capabilities for such strategic and critical materials [including magnesium and lithium] is necessary to avert an industrial resource or critical technology item shortfall that would severely impair the national defense capability.” The U.S. Geological Survey listed both magnesium and lithium on the critical minerals list.⁵ The Company produces all of the primary magnesium metal in the U.S. and provides 14% of the world supply.⁶ Other magnesium production and reserves are primarily in China and Russia.⁷ The United States imports less than 50% of the magnesium that has been historically needed for national defense and economic prosperity.

In 2020, the Company started harvesting lithium carbonate that comes as a byproduct from the streams related to its operations and has begun to sell it commercially. Lithium primarily is imported from Argentina, Chile, China, and Russia and is used in the production of rechargeable batteries critical to existing and evolving sustainable technology.⁸ As detailed in the Company’s Application, the harvesting and production of both magnesium and lithium are severely threatened by the unprecedented drop in Lake water levels, and, therefore, threatens national security and defense.

Additionally, should the Company’s Application not be approved, the Company and the State will suffer significant economic losses. In 2010, the Mineral Sector (including activities of the Company) brought direct economic effects to the State of \$685.2 million and 1,967 jobs.⁹

These statistics demonstrate how critical it is that the Company’s emergency Application be fully processed as soon as possible to avoid the loss of the impending evaporation season and the production and jobs related thereto. The Application was submitted on March 7, 2022. It is my understanding that once the Army Corps receives adequate information, it will develop the final emergency permitting procedure and complete the permit action. I would appreciate it greatly if you could keep me informed of the

⁴ Federal Register/Vol. 87, No. 66/Wednesday, April 6, 2022/Presidential Documents
<https://www.govinfo.gov/content/pkg/FR-2022-04-06/pdf/2022-07421.pdf>

⁵ <https://www.usgs.gov/news/national-news-release/us-geological-survey-releases-2022-list-criticalminerals#:~:text=Magnesium%2C%20used%20as%20an%20alloy,steel%2C%20superalloys%2C%20and%20rechargeable%20batteries>

⁶ Economic Significance of the Great Salt Lake to the State of Utah, January 26, 2012, Prepared For: State of Utah Great Salt Lake Advisory Council; Bioeconomics, Inc., DWQ-2012-006864, <https://documents.deq.utah.gov/water-quality/standards-technical-services/great-salt-lake-advisory-council/Activities/DWQ-2012-006864.pdf>, p. 21.

⁷ <https://www.usgs.gov/centers/national-minerals-information-center/magnesium-statistics-and-information>

⁸ <https://pubs.usgs.gov/periodicals/mcs2022/mcs2022-lithium.pdf>

⁹ *Id.*, Table 21. Total Estimated Output, Income, and Employment Attributable to GSL Economic Activity, p. 46.

US Magnesium Emergency Application

April 19, 2022

Page 3

progress of the Application. If the State can provide you with any additional information to assist in the process, please let me know.

Thank you for your consideration.

Best regards,

A handwritten signature in black ink, appearing to read 'R. Johnson', with a long horizontal flourish extending to the right.

Redge Johnson

Executive Director

Appendix D

P-North Intake Facility			
Summary of Proposed Dredging Quantities and Placement Footprint			
Analysis Alternative	Analysis Description	Volume	*Placement Footprint
		Cu Yd	Acre
1	.03% Slope	1,702,744	39.1
2	3.0 ft profile drop with 1 ft step	N/A	N/A
3	Prefered Alternative: 2.1 ft profile drop with 0.5 foot step	68,695	37.1

*Placement footprint located within the 300 foot wide construction limits area. Depths vary, not to exceed 2 foot depth

P-0 Intake Facility			
Summary of Proposed Dredging Quantities and Placement Footprint			
Analysis Alternative	Analysis Description	Volume	*Placement Footprint
		Cu Yd	Acre
1	.03% Slope	257,912	N/A
2	3.0 ft profile drop with 1 ft step	220,847	87.9
3	Prefered Alternative: 2.1 ft profile drop with 0.5 foot step	203,583	88

*Placement footprint located within the 300 foot wide construction limits area. Depths vary, not to exceed 2 foot depth

Appendix E



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Utah Ecological Services Field Office
2369 West Orton Circle, Suite 50
West Valley City, UT 84119-7603
Phone: (801) 975-3330 Fax: (801) 975-3331
<http://www.fws.gov>
<http://www.fws.gov/utahfieldoffice/>

In Reply Refer To:
Project Code: 2022-0012653
Project Name: U.S. Magnesium Intake

February 25, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

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A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of

SPK-2008-01773-UO

this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Utah Ecological Services Field Office

2369 West Orton Circle, Suite 50

West Valley City, UT 84119-7603

(801) 975-3330

Project Summary

Project Code: 2022-0012653
Event Code: None
Project Name: U.S. Magnesium Intake
Project Type: Surface Extraction - Non Energy Materials
Project Description: Rehabilitation of existing pump station and rehabilitation and 3.0-mile extension of intake canal. Facilities are located at the edge and within the Great Salt Lake.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@40.965233850000004,-112.69316477513127,14z>



Counties: Tooele County, Utah

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

THERE ARE NO FWS MIGRATORY BIRDS OF CONCERN WITHIN THE VICINITY OF YOUR PROJECT AREA.

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical](#)

[Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

IPaC User Contact Information

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State: UT
Zip: 84121
Email: michael.perkins@hdrinc.com
Phone: 8017437864

Appendix F

SPK-2008-01773-UO

P NORTH CANAL

PARCEL OWNERSHIP

SIX MILE RANCH CO

US MAGNESIUM LLC

AMOCO OIL CO

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DELBERT A COOK

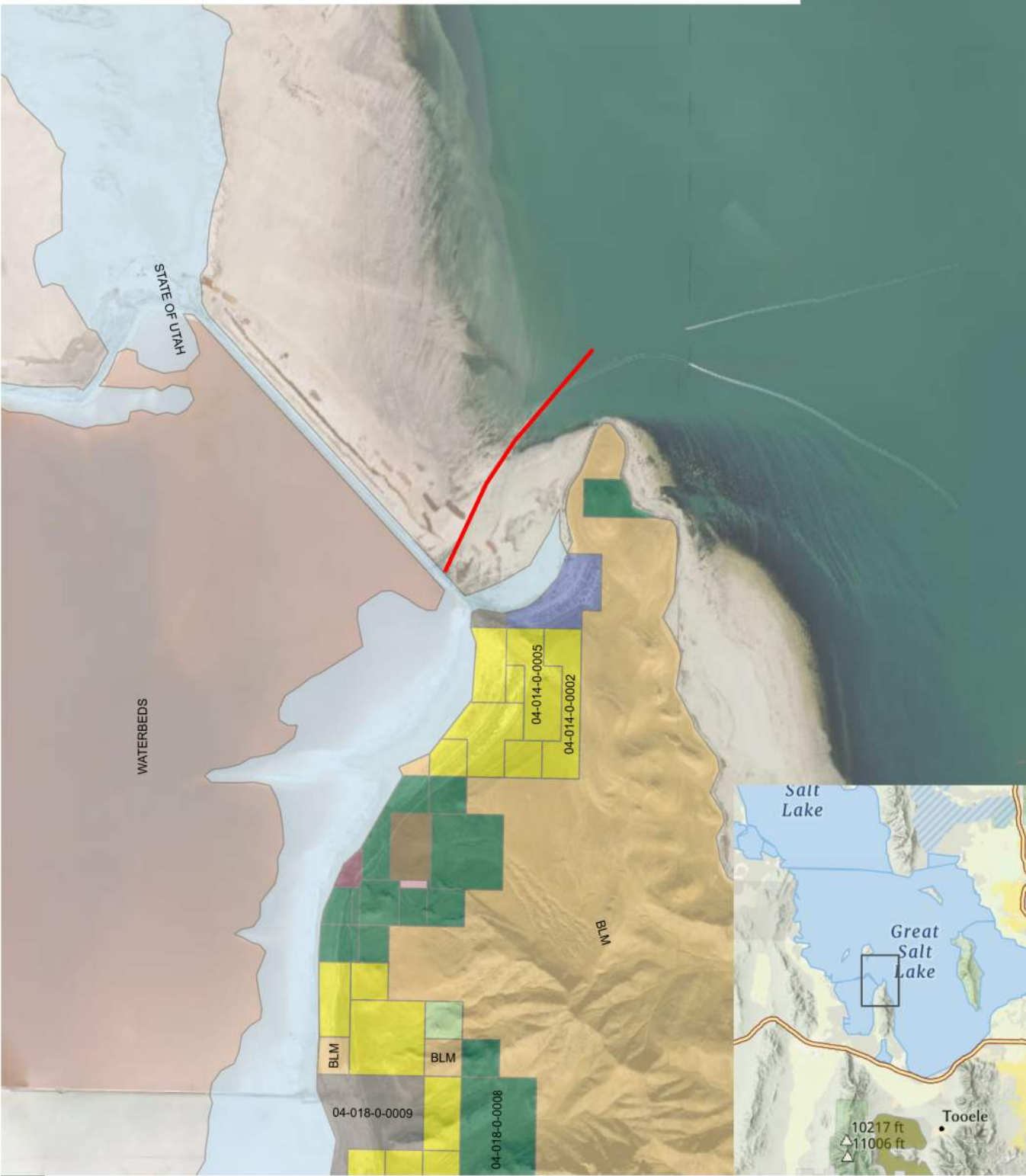
JERED L ANDERSON TRUSTEE

MARK C BLEAZARD ET AL

SANDERS BRINE SHRIMP COMPANY L C

BLM

STATE OF UTAH



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US MAGNESIUM CANAL PROJECT
ADJACENT LANDOWNERS
SPK-2008-01773

P0 CANAL

BLM

PARCEL OWNERSHIP

JOHNSON JOSEPH EDWARD TRUSTEE

ATI TITANIUM LLC

STATE OF UTAH

US MAGNESIUM LLC



0 1 mi



US MAGNESIUM CANAL PROJECT
ADJACENT LANDOWNERS
SPK-2008-01773

	Property Owner	Mailing Address
1	Amoco Oil Co	PO Box 941709, BP Property Tax, Houston TX 77094
2	ATI Titanium LLC	PO Box 460, 1600 Old Salem RD, Albany, OR 97321
3	BLM	440 West 200 South Suite 500, SLC UT 84101
4	Cooley Vergie Jane Est of	PO Box 118 Grantsville UT 84029
5	Delbert A Cook	PO Box 633 Grantsville UT 84029
6	Jered L Anderson Trustee	Jered Anderson Trustee, 2116 S 750 W, Woods Cross UT 84087
7	Johnson Joseph Edward Trustee	PO Box 460, 1600 Old Salem RD, Albany, OR 97321
8	Mark C Belazard Et Al	160 East North Street, Grantsville UT 84029
9	Sanders Brine Shrimp Company L C	1750 W 2450 S, Ogden UT 84401
10	Six Mile Ranch	PO Box 222, Grantsville UT 84029
11	State of Utah (FFSL)	1594 West North temple, Suite 33520, SLC UT 84114-5703
12	US Magnesium LLC	238 North 2200 West SLC UT 84006-2921

Section 7.5

Not Applicable - No Exhibit Provided

Section 7.6 Name and Addresses of Landowners Adjacent to Project Site

See attached property maps and property owner information

P NORTH CANAL

PARCEL OWNERSHIP

SIX MILE RANCH CO

US MAGNESIUM LLC

AMOCO OIL CO

COOLEY VERGIE JANE EST OF

DELBERT A COOK

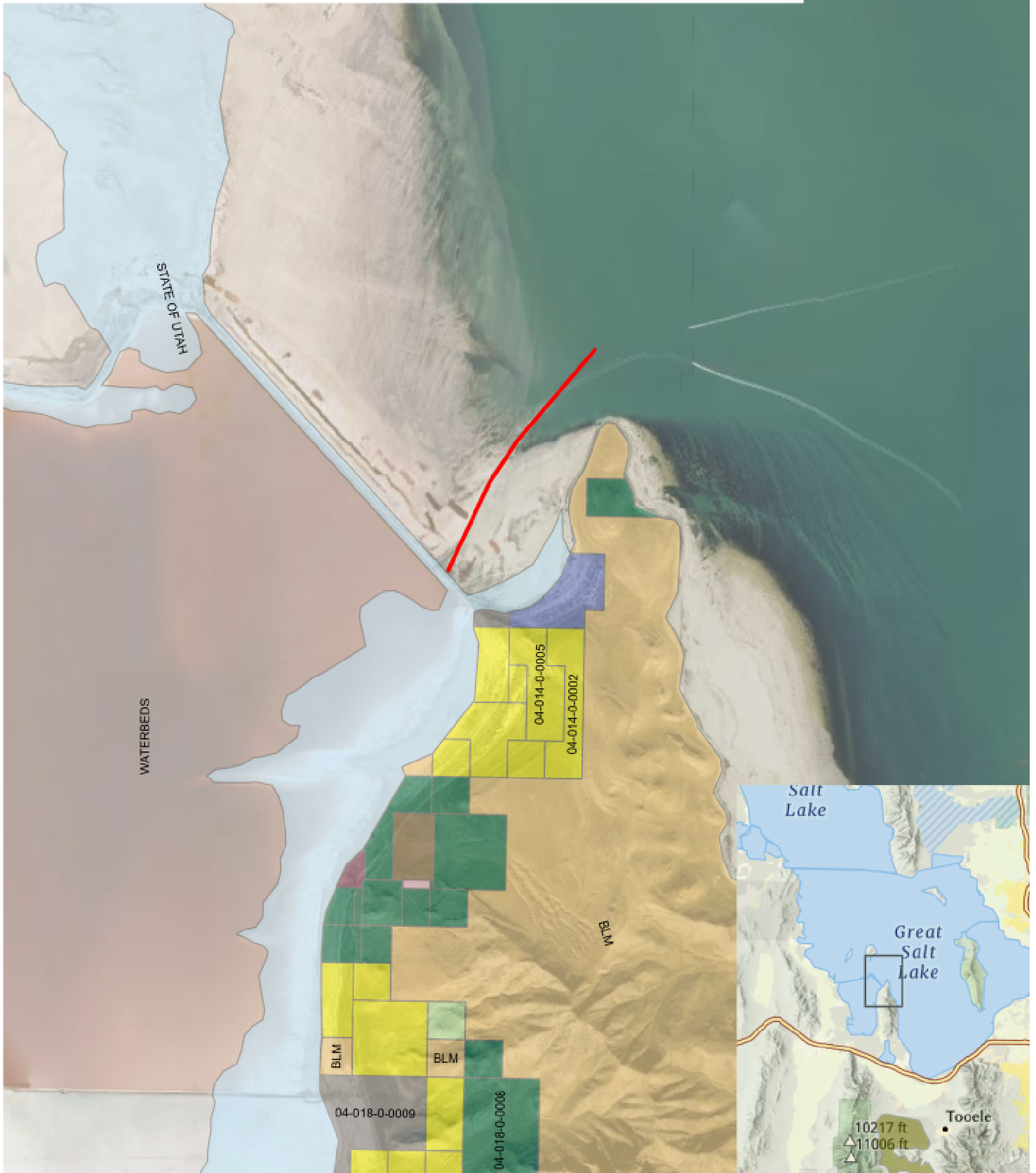
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