

# AP-5 Pond Closure Plan

## Nevada Environmental Response Trust Site

### Henderson, Nevada

#### PREPARED FOR

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#### **Nevada Environmental Response Trust**

35 E. Wacker Drive, Suite 1550  
Chicago, IL 60601

#### PRESENTED BY

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#### **Tetra Tech, Inc.**

1489 West Warm Springs Road, Suite 110  
Henderson, NV 89014

**November 17, 2016**

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## LIST OF ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
AP	Ammonium perchlorate
AHA	Activity hazard analysis
BISC	Bureau of Industrial Site Cleanup
BWPC	Bureau of Water Pollution Control
CFR	Code of Federal Regulations
DCN	Document Control Number
FBR	Fluidized bed reactors
GPR	Ground penetrating radar
GPS	Global positioning system
HASP	Health and safety plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HDPE	High-density polyethylene
HSM	Health and Safety Manual
lbs	Pounds
LQG	Large quantity generator
Mil	One thousandth of an inch
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NERT	Nevada Environmental Response Trust
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
PHA	Process Hazard Analysis
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
SLMW	Stabilized Lake Mead water
SVOCs	Semi-Volatile Organic Compound
SWPs	Safe work practices
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compound

## CERTIFICATION

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I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been prepared in a manner consistent with the current standards of the profession, and to the best of my knowledge, comply with all applicable federal, state, and local statutes, regulations, and ordinances.

**Description of Services Provided:** Preparation of a Closure Plan for the AP-5 Pond at the Nevada Environmental Response Trust Site, Henderson, Nevada.



November 17, 2016

**Kyle Hansen, CEM**

Field Operations Manager/Geologist

Tetra Tech, Inc.

Date

Nevada CEM Certificate Number: 2167

Nevada CEM Expiration Date: September 18, 2018

## 1.0 PROJECT OVERVIEW

At the direction of the Nevada Environmental Response Trust (NERT or Trust), Tetra Tech, Inc. (Tetra Tech) has prepared this Closure Plan for removal of the AP-5 Pond liner at the NERT site (the Site). The pond will be closed following removal of the solids currently in the pond in accordance with a work plan approved by the Nevada Division of Environmental Protection (NDEP) – Bureau of Corrective Action on March 24, 2015. The Closure Plan was requested by the NDEP Bureau of Water Pollution Control (BWPC). This Closure Plan outlines the following elements as directed by BWPC in reference to the NDEP letter dated October 8, 2015 (NDEP, 2015):

- When the abandonment will occur (see Section 3.2);
- How the abandonment will occur (see Section 3.1);
- What type of wastes will be disposed or treated (see Section 4.3); and
- How the wastes will be disposed or treated (see Section 4.3).

### 1.1 PURPOSE

The primary purpose of this project is to remove the AP-5 Pond liner to close the pond and remove it from the Groundwater Discharge Permit for the pond. Removal of the liner will also reduce safety hazards associated with potentially contaminated material in and around the AP-5 Pond liner and prepare the area for investigation as part of the Remedial Investigation/Feasibility Study (RI/FS) work being conducted at the site (ENVIRON, 2014). In addition, the existing berms will be removed and the land surface will be graded to reduce the potential for ponding of surface water run-off. All work will be performed in accordance with guidance provided by BWPC on September 27, 2016.

### 1.2 OBJECTIVES

This AP-5 Pond liner removal project has the following objectives:

- Remove and properly dispose of liner materials;
- Remove and properly dispose of leak detection sump materials; and
- Remove or cap pond inlets and outlets, if encountered.

### 1.3 BACKGROUND

The AP-5 Pond is a lined pond within the Site that was constructed in 1983 and removed from service in 2001 (ENVIRON, 2012a). Figure 1 provides the pond location. The pond was used by others in the manufacturing process for ammonium perchlorate (AP). The AP-5 Pond is currently maintained under Groundwater Discharge Permit NS2001515 issued by BWPC. The permit requires that the primary liner system be free of leaks. Due to the presence of a leak in the primary liner system for the pond, the solids must be removed to either repair the leak to maintain compliance with the permit or to close the pond and remove it from the permit. NERT is proceeding with removing the solids and closing the pond. The GW-11 Pond is maintained under the same Groundwater Discharge Permit NS2001515, but is not part of this project and will continue to be maintained and operated in accordance with the permit.

The AP-5 Pond liner design consists of a three-layer design including (1) a 60-mil high-density polyethylene (HDPE) primary (top) liner, (2) an interstitial geotextile polypropylene fabric drainage layer, and (3) a 40-mil HDPE secondary (bottom) liner (Operation and Maintenance Manual, 2011). The pond has one leak detection well that consists of an ~6 inch diameter HDPE pipe installed between the two liners, with the end of the pipe situated in a

gravel filled depression in the low spot of the pond (Operation and Maintenance Manual, 2011). There are no known inlets or outlets to the pond.

From 2006 to 2012, Stabilized Lake Mead Water (SLMW) was added to the pond to solubilize the AP residuals. Water was pumped from the AP-5 Pond to the GW-11 Pond and ultimately to the Fluidized Bed Reactors (FBRs) for treatment and discharge to the Las Vegas Wash under National Pollutant Discharge Elimination System (NPDES) permit NV0023060. This flushing and treatment process ceased in early 2012 at the direction of NDEP Bureau of Corrective Actions because the mass of perchlorate in the water pumped from the AP-5 Pond had dropped from 2,500 to 3,000 pounds per day (lbs/day) in 2009 to less than 500 lbs/day in 2011 (ENVIRON, 2012b). Composite samples of the residual solids were collected by ENVIRON (now Ramboll Environ) in June 2013. Testing to support waste characterization for transportation and disposal was performed by Test America and DEKRA Insight (Dekra). Laboratory testing results showed that the composite samples from the remaining pond solids contained perchlorate concentrations ranging from 19% to 38%. Tetra Tech subsequently developed a Phase II Work Plan for AP-5 Solids Removal (Tetra Tech, 2015) presenting a conceptual scope of work and design for on-site treatment, which was approved by NDEP Bureau of Industrial Site Cleanup (BISC). Tetra Tech is currently implementing the project under the approved Phase II Work Plan, and the solids are expected to be removed from the pond by the end of 2016.

## 2.0 SITE HEALTH AND SAFETY

Tetra Tech has developed a Health and Safety Plan for Site-Wide Investigation and Remedial Activities at the NERT Site (HASP), which specifies the minimum required work practices and procedures for Tetra Tech and its subcontractor personnel engaged in the planned Site-wide activities at the NERT site. The HASP addresses items specified under Occupational Safety and Health Administration (OSHA) Title 29 of the Code of Federal Regulations (CFR), Part 1910.120(b), Hazardous Waste Operations and Emergency Response (HAZWOPER) and applicable Nevada OSHA requirements. The HASP is supported by the Tetra Tech Health and Safety Manual (HSM) and safe work practices (SWPs), which were developed to comply with the OSHA HAZWOPER standard and applicable sections of 29 CFR Part 1910 (General Industry Standards) and Part 1926 (Construction Standards). The HASP also incorporates elements of the Tetra Tech Nevada Workplace Safety Program, Document Control Number 2-13 (DCN 2-13) which complies with the Nevada Administrative Code Sections 618.540 and 618.542.

The site-wide HASP will be revised to include the AP-5 Pond liner removal operations, the associated chemical and physical hazards, and the mandatory hazard controls to minimize the risk of injury to Site personnel and adverse impacts to the other Site operators, and the surrounding community.

## 3.0 PROJECT ACTIVITIES

### 3.1 POND LINER REMOVAL

The following are the anticipated steps for removing the AP-5 Pond liner:

- Step 1: After transferring slurry from AP-5 Pond to the newly constructed process tanks, conduct an inspection of the pond liner to look for signs of damage or stress that could indicate a breach in the primary liner. If any damage or stress points are discovered, they should be geographically documented through Global Positioning System (GPS) or other survey methods.
- Step 2: Wet and cut through the primary liner to collect polypropylene geotextile fabric liner samples for analysis to determine waste type and disposal method (see Section 4.2 for additional information).

- Step 3: Make small cuts in the 60-mil HDPE primary liner at the top of the anchor trench to apply SLMW to wet the underlying geotextile polypropylene fabric drainage layer to reduce the risk of encountering potentially dry AP.
- Step 4: After preliminary wetting of the geotextile fabric, continue cutting and separating the primary liner from the geotextile fabric while continuing to wet the fabric. The primary liner will be cut into manageable size pieces to facilitate removal from the pond and decontamination in the established wash station. See Figure 2 for wash station layout.
- Step 5: Transition cut primary liner sections to the wash station to decontaminate.
- Step 6: Once the cut primary liner sections have been thoroughly washed and dried, inspect the liner sections for residual waste material and place visually clean liner sections into covered, plastic-lined roll off bins identified for the specified waste stream. Liner sections that contain residual waste materials will be rewashed.
- Step 7: Upon removal of the primary liner, apply SLMW to the geotextile fabric liner to maintain wet conditions to reduce the risk of encountering dry AP. Cut the wetted geotextile fabric into manageable size pieces to facilitate removal from the pond.
- Step 8: Remove the wetted geotextile fabric sections from the pond. NERT will attempt to wash test pieces of the fabric, but it may not be feasible to wash this material given the small pore spaces characteristic of non-woven geotextile fabrics. If the fabric can be successfully washed, it will be placed in the covered, plastic-lined roll off bin identified for the specified waste stream. If the fabric cannot be successfully washed, it may require disposal in alternate containers that can allow the fabric to remain wet during transport and disposal.
- Step 9: Upon removal of all the geotextile fabric, conduct an inspection of the secondary 40-mil HDPE secondary layer to look for signs of damage or stress that would indicate a breach in the secondary liner. If any damage or stress points are discovered, they should be geographically documented through GPS or other survey methods.
- Step 10: Following the inspection of the secondary liner, remove the HDPE leak detection pipe located at the northern end of the pond. Wash the leak detection pipe in the wash station to decontaminate, inspect the pipe for residual waste material, and place the visually clean pipe in the covered, plastic-lined roll off bin identified for the specified waste stream. If the pipe contains residual waste materials, it will be rewashed.
- Step 11: Place the leak detection sump gravel into 55-gallon drums or lined roll-off bins and collect samples for analysis to determine waste type and disposal method (see Section 4.2 for additional information). Inspect the bottom of the sump for signs of damage or tears that would indicate a breach in the secondary liner and document.
- Step 12: Upon removal of the leak detection pipe and sump gravel, make small cuts in the 40-mil HDPE secondary liner at the top of the anchor trench to apply SLMW to wet the contact between the secondary liner and the underlying soil to reduce the risk of encountering potentially dry AP beneath the liner.
- Step 13: After preliminary wetting of the contact between the secondary liner and underlying soil, begin cutting the secondary liner into manageable size pieces to facilitate removal from the pond and decontamination in the established wash station. SLMW will be applied through the entire cutting process.
- Step 14: Relocate cut secondary liner sections to the wash station for decontamination.
- Step 15: Once the cut secondary liner sections have been thoroughly washed and dried, inspect the liner sections for residual waste material and place visually clean liner sections into covered, plastic-lined roll

off bins identified for the specified waste stream. Liner sections that contain residual waste materials will be rewashed.

- Step 16: Remove soil over the liner anchor. SLMW will be used as dust control and to ensure potential AP residue is wetted and rendered safe. All excavation work on the berms will be conducted in accordance with the Site Management Plan (ENVIRON, 2015).
- Step 17: Once the liner in the anchor trench is exposed, repeat Steps 3-10 and 13-15 to remove the liner in the anchor trench.
- Step 18: Upon removal of all liner material, inspect to confirm that there are no unexpected inlets or outlets. Should any inlet or outlet piping be identified, the preliminary plan will be to remove to a distance of approximately 10 feet from the edge of the pond and then cap the pipe. Removal, decontamination, and disposal procedures will require a separate safety review since these are unanticipated conditions that could represent a new safety risk that has not yet been addressed.
- Step 19: Sample and transfer all wash water to the GW-11 Pond or the AP-5 Process Tanks for ultimate treatment by the existing FBR system.

The anticipated steps above will undergo a thorough safety review prior to implementing, and may be modified to address any safety concerns raised during the review.

Following removal of the liners, the existing berms will be removed and the land surface will be graded to match surrounding topography and reduce the potential for ponding of surface water. A geotextile fabric or other visual demarcation will be placed in areas where fill is required to distinguish clean backfill from undisturbed soil underlying the pond. Figure 3 shows the existing conditions around the AP-5 Pond, and Figure 4 shows the final grading plan following removal of the liner and berms. All excavation work will be conducted in accordance with the Site Management Plan, which is a document designed to control exposure and risk by providing a decision framework for management of Site soils, and has also been approved by NDEP-BISC. Characterization of the berm soil is discussed in Section 4.2.4.

## 3.2 PROJECT SCHEDULE

The start of the project is contingent on the completion of the removal of solids from the AP-5 Pond and the abandoned equipment surrounding the pond. The solids removal activities are anticipated to be completed by the end of 2016. Some abandoned equipment removal activities may extend into early 2017. Subsequently, the anticipated start of liner removal activities is February 2017. The project is currently estimated to take approximately 55 working days from project initiation in the field to completing liner removal and disposal. However, the project schedule may be affected by the effort required to adequately remove and wash the materials sufficiently for disposal.

## 4.0 PROJECT LOGISTICS

### 4.1 TASK HEALTH AND SAFETY PLANNING

Tetra Tech prohibits its project employees and contractor employees from accessing the liner of AP-5 Pond and from disturbing any pond equipment (e.g. pumps, piping, hoses, etc.) due to potential perchlorate safety/explosive risks. Tetra Tech has posted warning signs stating "Do Not Walk on Liner" around the perimeters of AP-5 Pond as well as on the entry gate at the chain-link fence pond enclosure. Tetra Tech's safety team allows access to the AP-5 Pond berm access under the following conditions:



- Personnel wearing rubber over-boots may access the pond berm without wetting the surface soil.
- Minimally intrusive surface soil work, use of non-sparking and non-impact tools, and light weight equipment may be permitted on the pond berm after surface soil wetting.

The project team will develop an activity hazard analysis (AHA) which lists the safety-critical job steps (mobilization to construction debris removal), health and safety hazards, and control measures to be implemented. The AHA will be reviewed by the Tetra Tech Program Health and Safety Manager and appended to the site-wide HASP. A hazard operability study may also be performed due to the potential hazards associated with AP between the liners. There are known leaks in the primary liner that are being contained by the secondary liner and pumped back to the pond. The fabric drainage layer between the liners represents ideal conditions for formation of potentially explosive microcrystalline AP due to wicking or historic wetting and then drying of the fabric.

In accordance with the HASP, the following safety and emergency planning measures will be implemented for the AP-5 Pond liner removal operations:

- Site-specific training including review of HASP, standard operating procedures, and AHA prior to or on first day of operations;
- Site safety readiness review by qualified safety experts (perchlorate/explosives) on work permit;
- Pre-start courtesy notification of local emergency responders;
- Work area restriction to authorized personnel only and establishment of safe distances (outside blast zone);
- Protection of inhabited buildings with effective barricades (based on PHA findings); and
- Establishment and review of site emergency equipment (decontamination shower, jump tank) and emergency evacuation plans

Prior to the commencement of each day's activities, a tailgate Health and Safety meeting will be conducted. Onsite personnel will be required to be familiar with the HASP, attend the daily tailgate meeting, and sign the project HASP acknowledging familiarity with the contents of the document.

## 4.2 WASTE PROFILE SAMPLING

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This closure project is expected to encounter the following waste types:

- HDPE liner (60-mil primary and 40-mil secondary) and leak detection pipe;
- Polypropylene geotextile fabric;
- Gravel from leak detection sump;
- Potential solids residue between liners;
- Berm soil; and
- Wash water.

The HDPE liner materials and HDPE leak detection pipe are impervious materials and therefore will not be sampled for waste profiling purposes. Following washing procedures, these impervious materials will be visually inspected for residual waste material before being placed in a designated lined and sealed roll-off bin for disposal as nonhazardous waste.

The primary waste streams to be characterized for waste classification include the polypropylene geotextile fabric drainage layer, the leak detection sump gravel, potential solids residue between the liners, anchor trench and berm soil, and wash water. Samples for laboratory analysis will be collected in laboratory-supplied containers, labeled, placed in plastic bags, and stored in a cooler on ice for transport under chain-of-custody to the project analytical laboratory.

### 4.2.1 Polypropylene Geotextile Fabric Sample Collection

Samples of the polypropylene geotextile fabric will be collected from approximately five locations. One bottom center and one on the northwest, northeast, southwest and southeast slopes. Samples will be analyzed for volatile organic compounds (VOCs), semi-volatile organic compound (SVOCs), toxicity characteristic leaching procedure (TCLP) Resource Conservation and Recovery Act (RCRA) 8 metals, perchlorate, flashpoint/ignitability, and pH.

### 4.2.2 Leak Detection Sump Gravel

The leak detection sump gravel will be removed from the sump and placed into 55-gallon drums or lined roll-off bins during the liner removal process. One composite sample consisting of at least four subsamples of the gravel will be collected from the drums and analyzed for VOCs, SVOCs, TCLP RCRA 8 metals, perchlorate, flashpoint/ignitability, and pH.

### 4.2.3 Potential Residual Solids between Liners

Potential residual solids encountered between the liners or resulting from washing of the liners and geotextile fabrics will be placed into 55-gallons drums as it is encountered. One composite sample consisting of at least four subsamples of the residual solids will be composited from each drum and analyzed for VOCs, SVOCs, TCLP RCRA 8 metals, perchlorate, flashpoint/ignitability, and pH.

### 4.2.4 Berm Soil

The AP-5 Pond area is located in an Excavation Control Area per the Site Management Plan. Accordingly, the berm soil will be characterized prior to excavation. One composite sample will be collected for every 250 cubic yards for the first 1,000 cubic yards of berm soil to be removed, followed by one sample for every 1,000 cubic yards thereafter. Each composite sample will consist of at least four subsamples and will be analyzed for asbestos, VOCs, SVOCs, metals, hexavalent chromium, dioxins/furans, perchlorate, TCLP RCRA 8 metals, flashpoint/ignitability, and pH per Table A-1 in Appendix A of the Site Management Plan. As required by the Site Management Plan, confirmation soil samples will also be collected from the base of the excavated berms on 50 foot centers since the area to be exposed during this process is greater than 2,500 square feet. The samples will be analyzed for the same parameters identified above. No sidewall samples will be collected since the berms will be removed to match the surrounding grade. NDEP and the Trust will be provided copies of the sampling results. The Site Management Plan requires that over-excavation and additional confirmation sampling is required if confirmation soil samples contain concentrations above soil screening levels, unless otherwise approved by NDEP after review and concurrence from the Trust. Since there are RI/FS characterization borings planned following liner removal, a request will be made to forgo the required over-excavation and resampling in the event the confirmation sample contains concentrations above soil screening levels. The RI borings will be completed following berm removal and grading, and the results will be used to make final remediation decisions as part of the upcoming NERT Feasibility Study.

### 4.2.5 Wash Water

Wash water collected in the wash basin will be sampled for total chromium and perchlorate prior to discharge to the GW-11 Pond or the AP-5 Process Tanks for ultimate treatment by the FBRs.

## 4.3 WASTE MANAGEMENT

Each of these waste types will be sampled and analyzed for waste profiling and disposal per Section 4.2 above. Upon receipt of lab results, waste streams will be identified as hazardous or nonhazardous and managed

according to relevant regulations and the NERT Hazardous Waste Management Plan. Once these designations have been confirmed, the appropriate disposal facilities will be identified for each waste stream. Additionally, waste profiles will be created for each waste stream. Profiles will be forwarded to the appropriate disposal facility. During liner removal operations, waste will be accumulated in covered, plastic-lined 20- or 40-yard roll-offs (liner, geotextile fabric, and pipe) and 55-gallon drums or similar appropriate containers (sump gravel and residual solids).

### 4.3.1 Non-Hazardous Waste

Berm soil that is non-hazardous and below soil screening levels presented in the Site Management Plan may be used for fill as part of the AP-5 Pond grading or staged on Site for other future use. Berm soil that is non-hazardous and above soil screening levels and other non-hazardous waste will be disposed of at the Republic Services Apex Landfill.

### 4.3.2 Hazardous Waste

The Hazardous Waste Management Plan prepared for NERT specific activities, dated June 24, 2016 (Tetra Tech, 2016), will be updated in preparation for this task. If hazardous waste are generated, the waste will be managed in accordance with this updated plan. The Hazardous Waste Management Plan addresses management of hazardous waste, universal waste, and used oil to comply with State of Nevada laws and regulations for large quantity generators (LQGs), which incorporate by reference federal requirements under RCRA, with additions related to container labeling, documentation of weekly inspections, and submission of manifests back to the state.

### 4.3.3 Transportation and Disposal

The following subcontractors may likely be utilized to support transportation and disposal.

- Republic Services;
- Clean Harbors;
- Safety-Kleen; and
- US Ecology.

### 4.3.4 Inspections

During liner removal operations daily and weekly inspections of accumulated waste will be conducted to verify compliance with all local, state and federal regulations.

## 5.0 CLOSURE COMPLETION REPORT

Upon completion of the project, a closure completion report will be submitted to BWPC in order to have the AP-5 Pond removed from Permit # NS2001515. The progress report will include documentation of the following; as outlined in the NDEP letter, dated October 8, 2015:

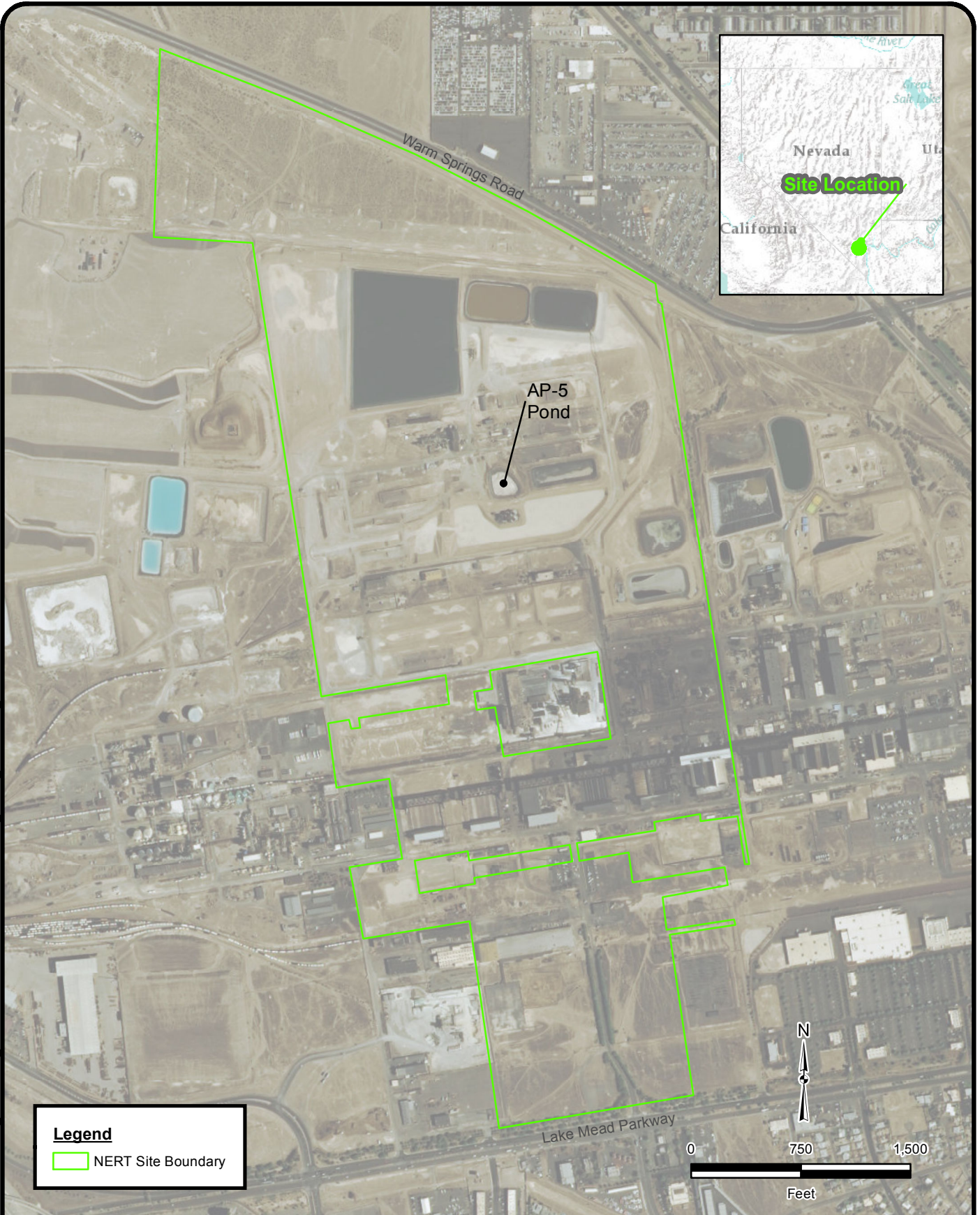
- Pond inlets and outlets capped or removed.
- Piping removed or cleaned thoroughly and capped if left in place.
- Lining material removed and properly disposed.

## 6.0 REFERENCES

- Nevada Division of Environmental Protection, 2015. Guidance for closure of AP-5 Pond, Permit # NS2001515, Nevada Division of Environmental Protection, Las Vegas, Nevada. October 8, 2015.
- ENVIRON, 2012a. Memo to Shannon Harbour of NDEP. AP-5 Pond Solids Characterization and Disposal Work Plan. Nevada Environmental Response Trust Site, Henderson, Nevada. September 28, 2012.
- ENVIRON, 2012b. Memo to Shannon Harbour of NDEP. Proposal to Discontinue Treatment of AP-5 Pond Water at NERT Facility. March 30, 2012.
- ENVIRON, 2014. Remedial Investigation and Feasibility Study Work Plan, Revision 2, Nevada Environmental Response Trust Site, Henderson, Nevada. June 19, 2014.
- ENVIRON, 2015. Site Management Plan, Revision 2, Nevada Environmental Response Trust Site, Henderson, Nevada. July 17, 2015.
- Operation and Maintenance Manual GWD Permit NEV2001515, Nevada Environmental Response Trust Site, Henderson, NV, 2011
- Tetra Tech, 2015. Phase II Work Plan for AP-5 Solids Removal. March 13, 2015.
- Tetra Tech, 2016. Hazardous Waste Management Plan, Nevada Environmental Response Trust Site, Henderson, Nevada. June 24, 2016.

# Figures

PATH: N:\AR\PRJ2\NERT\NERT\NERT\WORKING FILES\K05 AP-5 POND REMOVAL\AP-5 POND LOCATION MAP1.MXD



**Legend**

NERT Site Boundary

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 Phone: (702) 966-8340

**NEVADA ENVIRONMENTAL RESPONSE TRUST**

**AP-5 POND LOCATION MAP**

Project No.:	117-7502016
Date:	MAY 2016
Designed By:	JWR
Figure No.	<b>1</b>

\\GEO061\FS\1\GEO\VOL1\PROJECTS\DATA\NERT\GIS\AP-5\_POND\_LABELS\_LANDSCAPE3.MXD



Imagery Source: Google Earth, 2016



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Henderson, Nevada 89014  
PHONE: (702) 966-8340

NEVADA ENVIRONMENTAL RESPONSE TRUST

HENDERSON, NEVADA

### AP-5 POND LINER REMOVAL LAYOUT

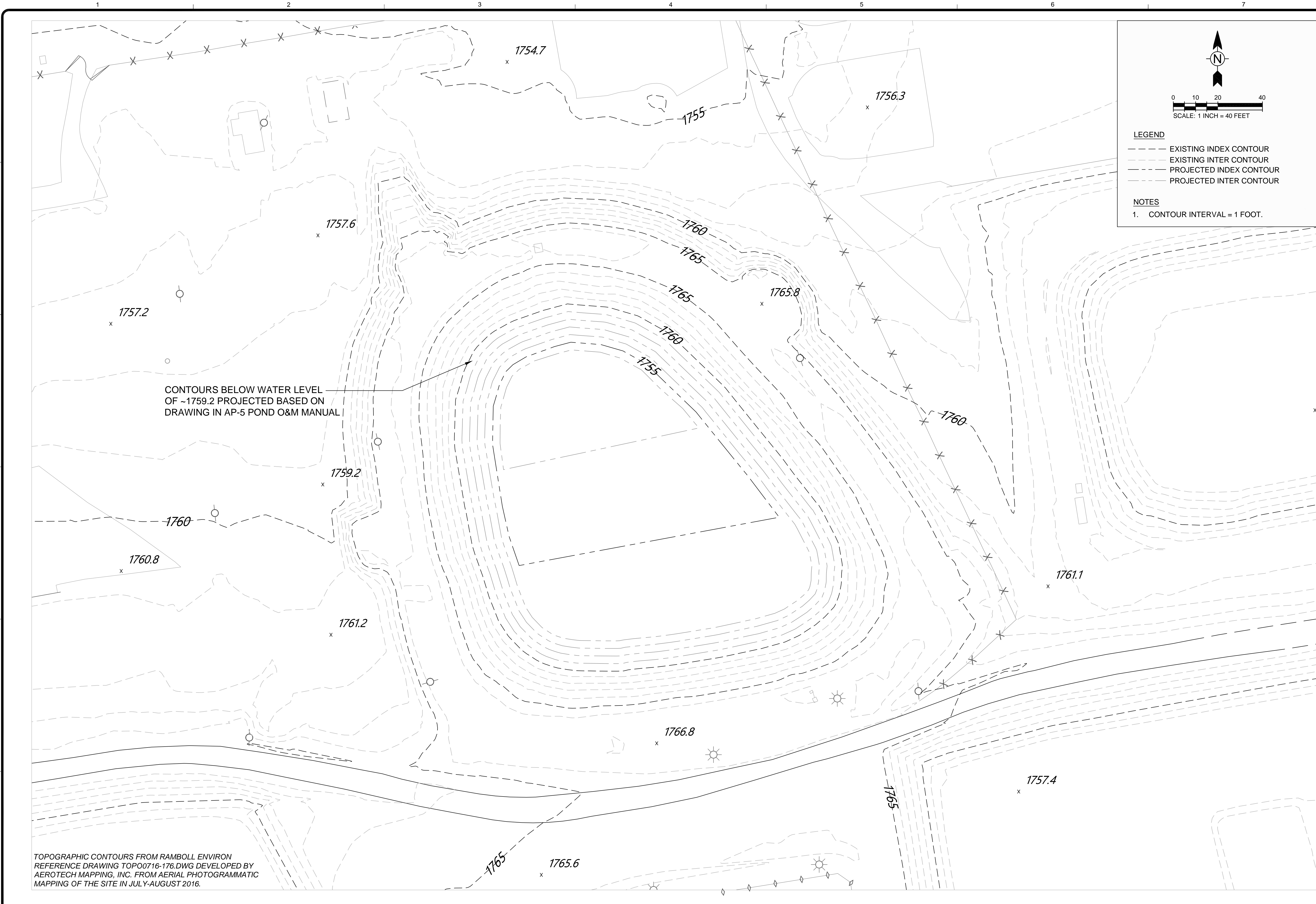
Project No.: 117-7502016

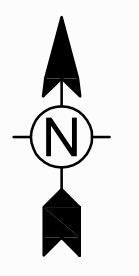
Date: SEPTEMBER 2016

Designed By: LAD

Figure No.

2



  
 SCALE: 1 INCH = 40 FEET

**LEGEND**

- EXISTING INDEX CONTOUR
- EXISTING INTER CONTOUR
- PROJECTED INDEX CONTOUR
- PROJECTED INTER CONTOUR

**NOTES**


- CONTOUR INTERVAL = 1 FOOT.

CONTOURS BELOW WATER LEVEL OF -1759.2 PROJECTED BASED ON DRAWING IN AP-5 POND O&M MANUAL

TOPOGRAPHIC CONTOURS FROM RAMBOLL ENVIRON REFERENCE DRAWING TOPO0716-176.DWG DEVELOPED BY AEROTECH MAPPING, INC. FROM AERIAL PHOTOGRAMMATIC MAPPING OF THE SITE IN JULY-AUGUST 2016.

**TETRA TECH**

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 Phone: 702.946.6700



MARK	DATE	DESCRIPTION

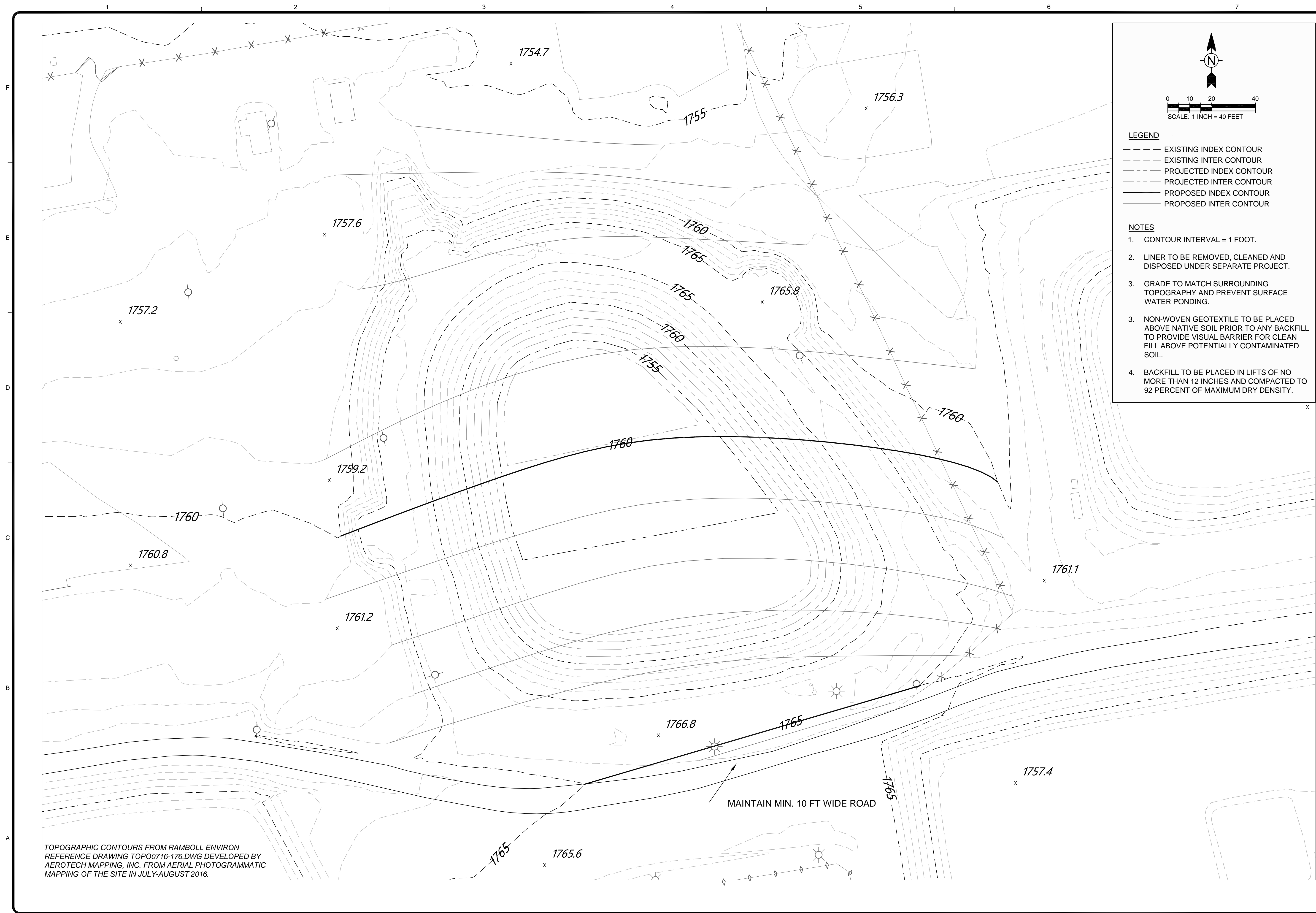
NEVADA ENVIRONMENTAL RESPONSE TRUST  
 HENDERSON, NEVADA

**AP-5 POND CLOSURE PLAN  
 EXISTING CONDITIONS**

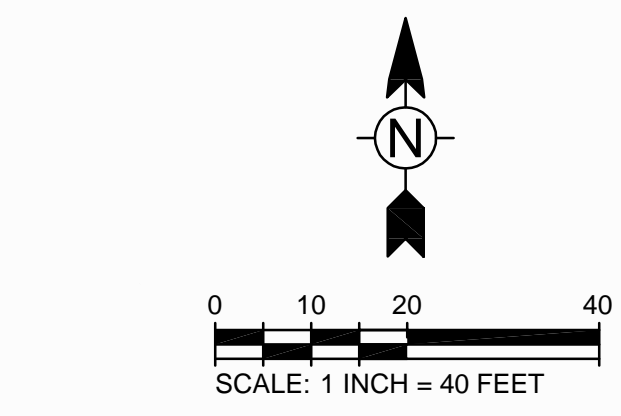
Project No.: 117-7502016-K05  
 Designed By: DJB  
 Drawn By: LD  
 Checked By: DJB  
 FIGURE:

3





TOPOGRAPHIC CONTOURS FROM RAMBOLL ENVIRON  
 REFERENCE DRAWING TOPO0716-176.DWG DEVELOPED BY  
 AEROTECH MAPPING, INC. FROM AERIAL PHOTOGRAMMATIC  
 MAPPING OF THE SITE IN JULY-AUGUST 2016.



**LEGEND**

- EXISTING INDEX CONTOUR
- - - EXISTING INTER CONTOUR
- - - PROJECTED INDEX CONTOUR
- - - PROJECTED INTER CONTOUR
- PROPOSED INDEX CONTOUR
- PROPOSED INTER CONTOUR

**NOTES**

1. CONTOUR INTERVAL = 1 FOOT.
2. LINER TO BE REMOVED, CLEANED AND DISPOSED UNDER SEPARATE PROJECT.
3. GRADE TO MATCH SURROUNDING TOPOGRAPHY AND PREVENT SURFACE WATER PONDING.
3. NON-WOVEN GEOTEXTILE TO BE PLACED ABOVE NATIVE SOIL PRIOR TO ANY BACKFILL TO PROVIDE VISUAL BARRIER FOR CLEAN FILL ABOVE POTENTIALLY CONTAMINATED SOIL.
4. BACKFILL TO BE PLACED IN LIFTS OF NO MORE THAN 12 INCHES AND COMPACTED TO 92 PERCENT OF MAXIMUM DRY DENSITY.

**TETRA TECH**

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MARK	DATE	DESCRIPTION

NEVADA ENVIRONMENTAL RESPONSE TRUST  
 HENDERSON, NEVADA

**AP-5 POND CLOSURE PLAN  
 GRADING PLAN**

Project No.: 117-7502016-K05  
 Designed By: DJB  
 Drawn By: LD  
 Checked By: DJB  
 FIGURE: