



Applied Geotechnical Engineering Consultants, P.C.

**PHASE I ENVIRONMENTAL SITE ASSESSMENT**

**TREASURE HILL SUBDIVISION, PHASE 4**

**PARK CITY, UTAH**

**PREPARED FOR:**

**MPE, INC.  
P.O. BOX 2429  
PARK CITY, UTAH 84060**

**ATTENTION: PAT SWEENEY**

**PROJECT NO. 1051008**

**NOVEMBER 14, 2005**

## TABLE OF CONTENTS

SUMMARY .....	2
SCOPE .....	4
SITE DESCRIPTION .....	5
Location and Legal Description .....	5
Site Conditions, Uses and Characteristics .....	6
Adjacent Property Conditions and Uses .....	7
Physiographic Site Conditions .....	7
SAMPLING RESULTS .....	8
HISTORICAL REVIEW .....	10
Past Uses of the Property .....	11
Past Uses of the Adjoining Properties .....	11
Aerial Photograph Review .....	11
PROPERTY TAX FILES .....	12
ENVIRONMENTAL RECORDS REVIEW .....	12
INTERVIEWS .....	16
FINDINGS .....	17
OPINION .....	18
CONCLUSIONS .....	18
LIMITATIONS .....	19
QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS .....	21
REFERENCES .....	24

### FIGURES AND TABLES

1955 AND 1975 USGS QUAD OF SITE	FIGURE 1
1999 AND 1998 USGS QUAD OF SITE	FIGURE 2
1997 AERIAL PHOTOGRAPH OF SITE	FIGURE 3
2004 AERIAL PHOTOGRAPH OF SITE	FIGURE 4
PARCEL MAP OF SITE	FIGURE 5
PHOTOGRAPHS OF SITE	APPENDIX A
LEGAL DESCRIPTION	APPENDIX B
SAMPLING TEST RESULTS AND PCMC ORDINANCE	APPENDIX C

## SUMMARY

1. Based on a historical review of government records, aerial photographs and interviews, the majority of the subject property has been undeveloped since at least the 1960s. A mine shaft and three adits were mined on the property in the late 1800s through the early 1900s when mining activities stopped with the exception of the Silver King aerial tramway. The native rock mined from the adits and mine shaft was dumped down slope of the shaft and adits (mine dumps). The openings of the shaft and adits have since been closed off. Buildings for the mine have long been removed from the property. By the 1920s the Creole mine dump was used for ski jumping. The Silver King aerial tramway was built across the property in 1901 and was abandoned in approximately 1951. The Kings Crown ski run was built on the west edge in the 1970s. The Quitting Time and Creole ski runs and the Mid Town ski lift were built across the property in the mid 1980s. With the exception of the towers for the ski lift and tramway, there are no structures on the property.
2. The majority of the property is covered with scrub oak, aspen, fir, spruce and maple trees. The ski runs are covered with tall grass, weeds and brush. Significantly stained soils or stressed vegetation was not observed on the property. Our site visit, interviews and records research indicate no evidence of underground storage tanks on the property. Debris on the property was limited to scattered lumber and loose trash. Overhead power lines cross the northwest corner of the property. Electrical transformers were not observed on the property.
3. The on-site native rock contains silver/lead/zinc mineralization the miners were exploring to find. The rock outcroppings by the Southeast Adit and Northwest Adit indicated that there was a potential for veins or fissures that contained ore grade silver, lead and zinc minerals. Because these two adits did not contain ore grade mineralization, the adits were abandoned after being extended into Treasure Hill less than 200 feet. The Creole Adit extended into Treasure Hill several thousand feet and was part of the Creole Mine underground workings. Samples obtained from the mine dumps associated with the Creole Mine shaft and the three adits contain significant concentrations of lead and arsenic. The native rock was not milled or processed on site. The mine dump samples contain lead and arsenic above the residential action levels as set by the PCMC, and the mine dumps will need to be capped in place with clean soil or excavated and capped elsewhere on site in a manner consistent with the guidelines as set by the PCMC building code.
4. Government agency inquiry indicates there are no NPL, RCRA TSD or CORRACTS sites within 1 mile of the subject property. There is one CERCLIS site within ½ mile of the property at the Marsac Mill site approximately 600 feet to the northeast and down gradient. An ore mill operated on the Marsac Mill site from the mid 1870s to the early 1900s. Some tailings and ore fragments from the mill remain in the Marsac Mill site soils. Most of the site is covered with building or pavement. Soils with elevated metals were scheduled to be removed during the construction of the Old Town Intermodal Transit Center on the property with oversight by the Utah DERR Voluntary Cleanup Program.
5. There are no LUST sites or landfills within ½ mile of the property. There are no UST, RCRA generators, NRC or DERR incident sites on or adjacent to the property.

6. With the exception of the elevated metals in the mine dumps, there do not appear to be current or past property conditions that would be a significant environmental concern on the subject property. A reconnaissance and data base search of properties in the vicinity of the subject property finds no evidence of off-site facilities or environmental conditions that have adversely impacted the subject property.
7. We have performed a Phase I Environmental Site Assessment in general conformance with the scope and limitations of ASTM Practice E 1527-00 of the property described in the Property Location and Legal Description section of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the property with the following exception:

Samples obtained from the four mine dumps on site contain significant concentrations of lead and arsenic due to naturally occurring elevated metal concentrations in the native rock. The elevated lead and arsenic concentrations in the mine dumps (unprocessed mine waste) is not unexpected given that the Park City Mining District was one of the richest silver mining districts in the United States. These mine dumps should be capped in place with clean soil or excavated and capped elsewhere on site in a manner consistent with the guidelines as set by the PCMC building code.

## SCOPE

Applied Geotechnical Engineering Consultants, P.C. (AGEC) was retained by MPE, Inc. to conduct a site specific Phase I Environmental Site Assessment for 63.9 acres of property located west of Park City, Utah. The site location is shown on Figures 1 to 5. The study was conducted in general accordance with our proposal dated October 5, 2005.

The purpose of a Phase I Environmental Site Assessment (ESA) is to address the potential environmental liabilities on a specific parcel of commercial real estate in order to qualify with the due diligence property inspection requirements of the Comprehensive Environmental Response, Compensation and Liability Act's (CERCLA) "Innocent Purchaser (Landowner) Defense" of 1980 and subsequent amendments. This legislation, amended in 1986 by the Superfund Amendment and Reauthorization Act (SARA), requires that "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" is performed. This Phase I ESA, as performed by AGEC, is in general conformance with the 2000 American Society for Testing and Materials (ASTM) standard for environmental assessments (E 1527-00).

A review of the site was conducted to identify *recognized environmental conditions* on the property due to present or previous activities or land uses. ASTM E 1527-00 defines recognized environmental conditions as the presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with the law. The term is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

Our study includes a site reconnaissance of the subject and adjoining properties to identify recognized environmental conditions in connection with the property including a reasonable observation of the property and structures, the perimeter of the property and the interior common areas of the structures when accessible. A historical review of the site is performed dating back

to the first obvious developed use or back to 1940, whichever is earlier (where practical) via a combination of reasonably ascertainable records and sources such as aerial photographs, USGS maps, fire insurance maps, historical city directories and county tax and recorder records when available. A records review of local, state and federal government records including the following: Federal NPL, CERCLIS, RCRA TSD, RCRA CORRACTS, RCRA Generator and NRC lists; State spill incidents, landfill, LUST and UST lists is performed. Interviews are conducted with past and present owners, occupants, neighbors or persons familiar with the site history when available. Interviews with local government officials such as fire marshals and environmental personnel are conducted.

This assessment does not address other issues (not all-inclusive) including the presence of asbestos containing materials, lead-based paint, radon, "toxic" mold and lead in the drinking water. Liability/risk evaluations, wetland studies or remediation techniques are not within the scope of this report. No sampling or chemical analysis of structural materials, soil, water or air was performed unless specifically stated.

This report has been prepared to summarize the data obtained during the study and to present our conclusions. Results of the environmental site assessment are summarized and findings and conclusions relating to the apparent environmental conditions at the site are discussed.

#### Related Geological Investigations

An engineering geology reconnaissance for the subject property was conducted by SHB AGRA, Inc for Sweeney Properties. The findings of the study were reported under Project No. E93-2267, dated April 22, 1994.

### **SITE DESCRIPTION**

#### Location and Legal Description

The subject property is located in the south half of Section 16, Township 2 South, Range 4 East, Salt Lake Base and Meridian on the west side of Park City, Utah. See Figure 1.

According to the Summit County Recorder's Office, the subject property is located on seven parcels. The legal description for the subject property is included in Appendix B of this report.

### Site Conditions, Uses and Characteristics

At the time of our field reconnaissance on Thursday, October 6, 2005, the majority of the subject property was an undeveloped tree and oak brush covered mountainside. The Kings Crown ski run extends along the west edge of the property. The Quitting Time ski run (Photograph 1) extends along the south edge and the Creole ski run crosses the middle of the property in a generally southwest to northeast direction (Photographs 2 to 4). The Town Lift ski lift crosses the property from near the northeast corner to the southwest corner (Photographs 5 and 6). Steel towers for the abandoned Aerial Tramway extend along the south side of the ski lift. A road/ski run extends along the east edge in a north-south direction. A hairpin curved road between Lowell Avenue and Empire Avenue crosses the north edge of the property. Numerous narrow bike trails cross the property.

There is the historic Creole Mine shaft in the west center of the property and three adits (Creole Adit, Northwest Adit and Southeast Adit) on the east side of the property (Figure 4). Unprocessed rock from the mining was dumped down slope of the shaft and adits (Photographs 7 to 13). The openings of the shaft and adits have been closed off. Several smaller prospect workings are scattered across the site.

The majority of the property is covered with scrub oak, aspen, fir, spruce and maple trees. The ski runs are covered with tall grass, weeds and brush. Significantly stained soils or stressed vegetation was not observed on the property. Our site visit, interviews and records research indicate no evidence of underground storage tanks on the property. Debris on the property was limited to scattered lumber and loose trash. Overhead power lines cross the northwest corner of the property (Photograph 14). Electrical transformers were not observed on the property.

The majority of the site is relatively steep mountainside sloping down to the northeast. The U.S. Geological Survey quadrangle map indicates the elevation for the site ranges from approximately 7,760 feet above mean sea level on the southwest corner to 7,080 feet on the northeast corner. Photographs of the site were taken in various locations and are included in Appendix A.

### **Adjacent Property Conditions and Uses**

South, north and west of the property is a continuation of the tree-covered mountain slope with several Park City Mountain ski resort ski runs to the west. Several houses are to the southeast. East of the property are houses along Woodside Avenue.

### **Physiographic Site Conditions**

#### **Geologic Conditions**

The Geologic Map of the Park City West Quadrangle by Calvin S. Bromfield and Max Crittenden, Jr. published in 1971 was reviewed. The majority of the west side of the property is mapped as Permian Park City Formation (Ppc) consisting of pale-gray-weathered fossiliferous and cherty limestone containing a medial phosphatic shale member. The east side of the property is mapped as Pennsylvanian Weber Quartzite consisting of pale-gray, tan-weathered quartzite and limy sandstone with some interbedded gray to white limestone and dolomite. The Weber Quartzite is the geological rock formation that was mined and the source of the rock contained in the mine dumps.

#### **Hydrogeological Setting**

Based on the geological study by SHB AGRA, static groundwater is at a significant depth. Near surface perched groundwater is likely present in the spring and summer months. Based on the topography of the area, the groundwater is expected to flow to the northeast.

A search of the Utah Division of Water Rights database was conducted to determine the location of water rights diversions within ½ mile of the center of the property. There are no water right points of diversion within ½ mile of the center of the property. There are no water rights listed on the subject property.

#### **Surface Water**

Surface water was not observed on the property.

### Flood Hazard Potential

The on-line Federal Emergency Management Agency (FEMA) flood insurance rate map for the surrounding area (Map Panel 4901390005B, dated July 16, 1987) was reviewed. The subject property is not located within a 100 or 500-year flood plain area.

### Wetlands Map Review

The on-line National Wetlands Inventory map provided by the US Fish and Wildlife Service indicates that the property is not located in a mapped wetland area.

### Soil Survey Characterization

The US Department of Agriculture soil survey map of Summit County was not available for review.

## **SAMPLING RESULTS**

The on-site native rock contains silver/lead/zinc mineralization the miners were exploring to find. The rock outcroppings by the Southeast Adit and Northwest Adit indicated that there was a potential for veins or fissures that contained ore grade silver, lead and zinc minerals. Because these two adits did not contain ore grade mineralization, the adits were abandoned after being extended into Treasure Hill less than 200 feet. The Creole Adit extended into Treasure Hill several thousand feet and was part of the Creole Mine underground workings. The resulting native rock in the mine dumps at the openings of the adits and shaft was not milled or processed on site.

Eight composite samples were obtained from the surface of the mine dumps by the Creole Mine shaft and the three adits on site (Figure 4). The indigenous soil is covered by the mine dumps in these areas. The sampling is intended to comply with the Park City Municipal Corporation (PCMC) "Landscaping and Maintenance of Soil Cover Ordinance" within the Park City building code. Jeff Schoenbacher, the environmental coordinator with PCMC, requested that representative samples of the mine dumps be obtained for laboratory analyses for total lead and arsenic. The action level for residential development is 200 parts per million (ppm) lead in the ordinance.

Two samples were obtained from each of the four sites to help provide a representative indication of the lead and arsenic concentrations at these sites. Each sample is a composite of two or three smaller subsamples. The composite samples were collected by hand from the upper several inches of the mine dumps and were placed in labeled plastic resealable bags by a Utah Certified Groundwater and Soil Sampler (Certification Number GS1083) in general accordance with the sampling protocol as set by Utah State and the Environmental Protection Agency. The samples were returned to AGEC's laboratory and screened through a No. 8 mesh screen (particle size less than 0.093 inches in diameter) to remove the gravel particles and to help mix the subsamples into a relatively homogeneous sample. The particle size collected is the same as in a soil sample consistent with the guidelines as set by the PCMC building code. The sample was returned to the original sample bag for submission to the analytical laboratory. Chain of Custody forms supplied by the analytical laboratory were used.

The samples were submitted to American West Analytical Laboratories for analysis of total lead and arsenic. The laboratory results for the eight samples are as follows:

Location	Total Lead (ppm)	Total Arsenic (ppm)
Southeast Adit - SS#1	30,000	6,200
Southeast Adit - SS#2	380,000	8,800
Northwest Adit - SS#3	290	27
Northwest Adit - SS#4	350	36
Creole Shaft - SS#5	2,200	290
Creole Shaft - SS#6	1,500	200
Creole Adit - SS#7	11,000	1,700
Creole Adit - SS#8	11,000	1,800

As the lead concentrations in all four sample locations are above the residential action levels as set by the PCMC, the Northwest Adit and Southeast Adit mine dumps should be capped in place with clean soil or excavated and capped elsewhere on site in a manner consistent with the guidelines as set by the PCMC building code. The Creole Mine dump should be capped in place and the Creole Adit mine dump should be excavated (as set forth below) and capped in a manner consistent with the guidelines as set by the PCMC building code.

We understand that during the site grading operations for Treasure Hill Phase 4, approximately 500,000 cubic yards of soil and native rock will be excavated and moved to the open space areas in the vicinity of the Creole ski run. The Creole Mine shaft and the Creole Adit mine dump rock should be capped by the excavated material. AGEC recommends the mine dump near the Creole Adit first be excavated and moved to and stabilized in the Creole gulch area. Subsequent placement of the mass grading soil on top of the mine dump rock should significantly exceed the required 6-inch clean soil cap. Confirmation soil samples should be required after the mine dump rock has been moved to ensure that the Creole Adit mine dump has been adequately excavated. Additionally, soil samples should be obtained from the proposed "clean" soil area to indicate that this material will meet the "approved topsoil" standard of 200 ppm lead prior to its use as soil cover. The PCMC ordinance is included in Appendix C with the laboratory test results.

With respect to the Southeast Adit and Northwest Adit mine dumps, AGEC recommends that these mine dumps be covered in place with a minimum 6-inch clean soil cap. This will reduce the impact to the surrounding trees and vegetation that would be necessary during the construction of a haul road between the current mine dump locations and the alternative final repository location on site. Due to the slope of the mine dumps by these adits, the soil cap in these areas should be secured with a geogrid or other anchoring devices until the soil cap can be vegetated and stabilized.

The PCMC ordinance requires that the current locations of the mine dumps and proposed moved locations of the mine dumps' material be identified and the estimated quantities calculated before the material is moved.

## **HISTORICAL REVIEW**

A historical review of the property and surrounding properties was conducted by reviewing aerial photographs, topographic maps and performing interviews. Historical fire insurance maps (Sanborn), county tax records and local street directories in the vicinity of the property were not available.

### **Past Uses of the Property**

The first mine claims for the Creole Mine were located in 1880. By 1902 the Creole Mine shaft was approximately 265 feet deep and was extended to a depth of 600 feet after a more efficient hoist was built. The Creole Adit extended several thousand feet to the west into the mountain side. The Southeast and Northwest Adits likely only extended less than 200 feet into Treasure Hill. Buildings for the mine have long been removed from the property. The mining activities likely ended by the early 1900s. By the 1920s the Creole mine dump was used for ski jumping. The Silver King aerial tramway was built in 1901 and was abandoned in approximately 1951. The Kings Crown ski run was built in the 1970s. The Quitting Time and Creole ski runs and the Mid Town ski lift were built in the mid 1980s.

### **Past Uses of the Adjoining Properties**

Most of the adjacent properties to the south, west and north have been undeveloped or used for mining and skiing. The houses to the southeast were built in the 1980s and 1990s.

### **Aerial Photograph Review**

Aerial photographs taken of the property and surrounding areas in 1962, 1967, 1978, 1987, 1993, 1997 and 2004, were reviewed for the study. The photographs reviewed indicate that the majority of the property has been undeveloped since the 1960s.

A brief description of conditions and changes observed on and adjacent to the site, based on our review of photographs is given below.

August 2, 1962 - Photograph No. 3BB-176 - The majority of the property appears to be a tree-covered mountain side. The mine dumps for the Creole Mine and the three adits are visible. The aerial tramway towers are present on the property. The surrounding properties to the north, west and south are tree-covered mountain sides. Houses along Woodside Avenue are to the northeast.

July 11, 1967 - Photograph 3HH-145 - The property and surrounding property conditions are similar to those of 1962.

August 24, 1978 - Photograph No. 178-176 - The hairpin curve between Lowell and Empire Avenues has been built. The Kings Crown (formerly Natar) ski run has been built on the west edge. A trail or ski run is present near the location of the Quitting Time run.

September 2, 1987 - Photograph No. 312-31 - The Town Lift ski lift, Quitting Time and Creole ski runs have been built. Additional ski runs are to the west.

August 23, 1993 - Photograph No. 5911-124 - The property and surrounding property conditions are similar to those of 1987.

September 12, 1997 - Photograph No. 10095-35 (Figure 3) - The houses are under construction to the southeast.

August 2004 - Figure 4 - The property and surrounding property conditions are similar to those of 1997.

## **PROPERTY TAX FILES**

A review of the Summit County Tax Assessor records indicates that the subject property is located on seven parcels. Parcel No. PC-338A contains 0.05 acres. Parcel No. PC-351 contains 0.19 acres. Parcel No. PC-321 contains 0.01 acres. Parcel No. PC-325B contains 0.13 acres. Parcel No. PC-364A contains 20.05 acres. Parcel No. PC-800-1 contains 40.29 acres. Parcel No. PC-800-1A contains 1.68 acres. All seven parcels are owned by Sweeney Land Company.

## **ENVIRONMENTAL RECORDS REVIEW**

### **1. Federal NPL Site List**

The National Priorities List (NPL) of November 30, 2004, was reviewed for sites listed within 1 mile of the property. The NPL is an information and management tool of the Superfund site cleanup process. The NPL sites are those considered by EPA to have the

highest priority for cleanup pursuant to the EPA's Hazard Ranking System and have been targeted for long term remediation under the Superfund program. The NPL serves primarily informational purposes, identifying for the States and the public those sites or other releases that appear to warrant remedial actions.

There are no NPL sites within 1 mile of the subject site. The nearest NPL site is the Richardson Flat Tailing site located approximately 2 ½ miles to the northeast and not up gradient.

## 2. Federal CERCLIS Site List

The EPA Comprehensive Environmental Response, Compensation and Liability Act Information System (CERCLIS) site listing of September 8, 2005, was examined for sites located within ½ mile of the subject property. CERCLIS is the Superfund database which is used to support management in all phases of the Superfund program. This list reports facilities with potential to cause human health or safety problems or significant ecological or environmental damage.

There is one CERCLIS site within ½ mile of the property being investigated at the Marsac Mill site at Marsac Avenue and Herber Avenue 600 feet to the northeast and down gradient. The ore mill operated on the site from the mid 1870s to the early 1900s. An elementary school was built on the property in the early 1900s and is now used as an office building. Tailings and ore fragments remained in the Marsac Mill site soils. Most of this site is covered with building or pavement. Soils with elevated metals were scheduled to be removed during the construction of the Old Town Intermodal Transit Center on the property with oversight by the Utah DERR Voluntary Cleanup Program.

## 3. Federal RCRA TSD Facility List

The EPA Resource Conservation and Recovery Act (RCRA) Treatment, Storage and Disposal (TSD) Master Facility List of September 22, 2005, was reviewed for facilities within one mile of the site. Facilities are listed if they treat, store or dispose of hazardous waste as defined and regulated by RCRA. This list does not infer that the facility has released any hazardous substance to the environment.

There are no RCRA TSD sites listed within one mile of the property. There are no TSD facilities in Summit County.

4. **Federal RCRA CORRACTS Facility List**

The EPA RCRA CORRACTS List of September 22, 2005, was reviewed for facilities within one mile of the site. Facilities are listed if they are hazardous waste handlers who have been notified by the EPA to undertake corrective action under RCRA.

There are no RCRA CORRACTS sites listed within one mile of the property. There are no CORRACTS sites in Summit County.

5. **Federal RCRA Generators List**

The EPA RCRA Master Facilities List dated September 22, 2005, was reviewed for facilities on or adjacent to the subject property. Facilities are listed if they generate, transport or store hazardous materials as defined and regulated by RCRA. The list does not infer that the facility has released any hazardous substance to the environment.

There are no RCRA generator facilities listed on or adjoining the property. The nearest RCRA generator is Albertsons at 1760 North Park Avenue, greater than 1 mile to the northwest.

6. **Federal NRC List**

The US Coast Guard National Response Center (NRC) list dated October 2, 2005, was reviewed for sites located on or adjacent to the subject property. The list was formerly maintained by the EPA as the Emergency Response Notification System (ERNS) and was redesigned in 2000 with the data now residing at the NRC. The primary function of the National Response Center is to serve as the sole national point of contact for reporting all oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories. In addition to gathering and distributing spill data for Federal On-Scene Coordinators and serving as the communications and operations center for the National Response Team, the NRC maintains agreements with a variety of federal entities to make additional notifications regarding incidents meeting established trigger criteria.

There are no NRC sites listed on or adjacent to the property being investigated. The nearest NRC site is located at 2105 Prospector Avenue, greater than 1 mile to the north.

7. **DERR Incident Notification Summary List**

The Utah DERR Incident Notification Summary list dated April 30, 2005, was reviewed for sites on or adjacent to the subject property. This list is a compilation of phone calls to the Utah DERR concerning potentially hazardous materials that may have been accidentally or negligently released, including spills, leaks, illegal dumping, fish kills and fires.

There are no DERR Incident sites listed on or adjacent to the property being investigated. The nearest DERR incident site is a gas spill at 5<sup>th</sup> Avenue and Swede Alley, approximately 800 feet to the east and not up gradient.

8. **State Landfill and/or Solid Waste Disposal Site List**

The Utah State Landfill and Solid Waste Disposal Site list of March 2004, was reviewed for landfills or disposal sites within ½ mile of the subject property.

The closest landfill to the property being investigated is the closed Park City landfill located approximately 4,500 feet to the north and not up gradient.

9. **Utah Department of Environmental Quality Leaking Underground Storage Tank (LUST) Sites**

The Utah Department of Environmental Quality Leaking Underground Storage Tank (LUST) list dated July 5, 2005, was reviewed for sites within ½ mile of the subject property. The list identifies only those facilities that have been reported to the DERR as potential leaking underground storage tank sites. The list is limited to information in the data base at the time the list was printed.

There is one site listed on the LUST list within ½ mile of the property being investigated at the Park City Fire Service District at 1353 Park Avenue, approximately 2,300 feet to the north and not up gradient. This facility has been sufficiently remediated to the satisfaction of the DERR and the LUST case file was closed with no further remedial action in October 1998. No registered tanks remain at this facility.

**10. Utah Department of Environmental Quality Underground Storage Tank (UST) Sites**

The DERR UST list of July 5, 2005, was reviewed for sites on or adjacent to the subject property. This is a list of registered USTs in the State of Utah. The list is limited to information in the database at the time the list was printed.

There are no UST sites located on or adjacent to the subject property. The nearest UST site is the Kimball Arts Center at 638 Park Avenue, approximately 400 feet to the northeast and not up gradient. There are no registered tanks remaining at this facility.

**11. Utah Power and Light**

Utah Power and Light (UP&L) was contacted in regards to transformers in the area. They indicate that all UP&L high hazard transformers (> 500 ppm of PCBs) in the State of Utah have been replaced with PCB "free" transformers with less than one ppm PCBs.

**12. Park City Fire Department**

Scott Adams, the assistant fire marshal for the Park City Fire Department, was contacted by telephone. He indicated that he was not aware of fire department calls to the subject property.

## **INTERVIEWS**

Interviews were conducted in order to obtain information indicating recognized environmental conditions in connection with the property.

Patrick Sweeney, a property owner representative, was interviewed on site. He indicated that he was not aware of milling of the mined rock on site. The ski lift and several runs were built across the property in the mid 1980s. The aerial tramway operated across the property from the early 1900s to the early 1950s. He was not aware of underground storage tanks or hazardous materials on the property.

## FINDINGS

The majority of the subject property has been undeveloped since at least the 1960s. A mine shaft and three adits were excavated on the property in the late 1800s and early 1900s. The mining activities likely ended by the early 1900s. Unprocessed native rock from mining was dumped down slope of the shaft and adits. The openings of the shaft and adits have since been closed off. Buildings for the mine have long been removed from the property. By the 1920s the Creole mine dump was used for ski jumping. The Silver King aerial tramway was built across the property in 1901 and was abandoned in approximately 1951. The Kings Crown ski run was built on the west edge in the 1970s. The Quitting Time and Creole ski runs and the Mid Town ski lift were built across the property in the mid 1980s. With the exception of the towers for the ski lift and tramway, there are no structures on the property.

The majority of the property is covered with scrub oak, aspen, fir, spruce, maple and other trees. The ski runs are covered with tall grass, weeds and brush. Significantly stained soils or stressed vegetation was not observed on the property. Our site visit, interviews and records research indicate no evidence of underground storage tanks on the property. Debris on the property was limited to scattered lumber and loose trash. Overhead power lines cross the northwest corner of the property. Electrical transformers were not observed on the property.

The on-site native rock contains silver/lead/zinc mineralization the miners were exploring to find. The rock outcroppings by the Southeast Adit and Northwest Adit indicated that there was a potential for veins or fissures that contained ore grade silver, lead and zinc minerals. Because these two adits did not contain ore grade mineralization, the adits were abandoned after being extended into Treasure Hill less than 200 feet. The Creole Adit extended into Treasure Hill several thousand feet and was part of the Creole Mine underground workings. The resulting native rock in the mine dumps at the openings of the adits and shaft was not milled or processed on site.

Government agency inquiry indicates there are no NPL, RCRA TSD or CORRACTS sites within 1 mile of the subject property. There is one CERCLIS site within ½ mile of the property at the Marsac Mill site approximately 600 feet to the northeast and down gradient. An ore mill operated on the site from the mid 1870s to the early 1900s. Some tailings and ore fragments from the mill

remain in the Marsac Mill site soils. Most of the mill site is covered with building or pavement. Soils with elevated metals were scheduled to be removed during the construction of the Old Town Intermodal Transit Center on the property with oversight by the Utah DERR Voluntary Cleanup Program.

There are no LUST sites or landfills within ½ mile of the property. There are no UST, RCRA generators, NRC or DERR incident sites on or adjacent to the property.

## **OPINION**

The unprocessed native mine rock dumped near the Creole Mine shaft and the three adits contain significant concentrations of lead and arsenic. The elevated metals detected in the mine dumps are commonly found in mine workings in the Park City area. These mine dumps contain lead and/or arsenic above the residential action levels as set by the PCMC, and should be capped in place with clean soil or excavated and capped elsewhere on site in a manner consistent with the guidelines as set by the PCMC building code.

With the exception of the elevated metals in the mine dumps, there do not appear to be current or past property conditions that would be a significant environmental concern on the subject property. A reconnaissance and data base search of properties in the vicinity of the subject property finds no evidence of off-site facilities or environmental conditions that have adversely impacted the subject property.

## **CONCLUSIONS**

We have performed a Phase I Environmental Site Assessment in general conformance with the scope and limitations of ASTM Practice E 1527-00 of the property described in the Property Location and Legal Description section of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the property with the following exception:

Samples obtained from the four mine dumps on site contain significant concentrations of lead and arsenic due to naturally occurring elevated metal concentrations in the native rock. The elevated lead and arsenic concentrations in the mine dumps (unprocessed mine waste) is not unexpected given that the Park City Mining District was one of the richest silver mining districts in the United States. These mine dumps should be capped in place with clean soil or excavated and capped elsewhere on site in a manner consistent with the guidelines as set by the PCMC building code.

## LIMITATIONS

This Phase I Environmental Site Assessment has been prepared in general conformance with the scope and limitations of ASTM E 1527-00 and generally accepted practices in this area for the use of the client. The conclusions of the report are based on the information obtained from site visits, a review of government records, aerial photographs and interviews with government officials and a property owner as described in the report. Except as described in this report, we have made no independent investigation as to the accuracy or completeness of the information derived from these sources. We have assumed that the information provided by these sources is accurate and complete.

The findings and conclusions presented in this report are intended only for the purpose, site specific location and client as indicated. As per ASTM E 1527-00, this report is valid for 180 days after the date of the report. An evaluation of the subsurface soil and groundwater conditions was not performed and therefore is not a definitive study of the potential for contamination on the subject property. No sampling or chemical analysis of structural materials, soil, water or air was performed unless specifically stated.

Applied Geotechnical Engineering Consultants, P.C. does not represent that the site contains no hazardous materials or other latent conditions beyond that observed during the site assessment. Changes in the environmental conditions on this property may occur with the passage of time due to natural processes or human activities on or adjacent to this property. In addition, changes in applicable or appropriate standards and regulations may occur, whether the result of legislation,

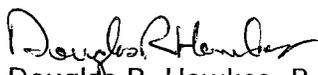
from the broadening of knowledge, or from other reasons. Therefore, the findings and conclusions in this report may be partially or completely invalid due to changes outside of our control. Our findings and conclusions are not presented as scientific certainties, but rather as professional opinions based on the limited data obtained by the assessment.

Applied Geotechnical Engineering Consultants, P.C. has no present or contemplated future ownership interest or financial interest in the real estate that is the subject of this Phase I Environmental Site Assessment report; and Applied Geotechnical Engineering Consultants, P.C. has no personal interest with respect to the subject matter of the Phase I Environmental Site Assessment report or the parties involved and Applied Geotechnical Engineering Consultants, P.C. has no relationship with the property or the owners thereof which would prevent an independent analysis of the environmental or other conditions of the property.

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, P.C.



Prepared by Thomas R. Atkinson, REPA



Reviewed by Douglas R. Hawkes, P.E., P.G.

**QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS**

**THOMAS R. ATKINSON**

**Manager / Environmental Professional Services**



**PROJECT RESPONSIBILITY:** Project Manager, Environmental Services

As the AGECE Environmental Services Manager, Mr. Atkinson will be responsible for environmental site assessments and environmental sampling in support of AGECE investigations. He will be responsible to complete assigned projects on time and within budget.

**EDUCATION:** B.S. Geography, Minor, Geology, Northern Arizona University, 1987.  
 OSHA Hazardous Waste Training Program - 40 hours, 1989.  
 ASTM Environmental Site Assessment Course, 1996.  
 Utah UST - Groundwater and Soil Sampler (GS-1083), 1997  
 NREP Registered Environmental Property Assessor, 2000.  
 State of Nevada Certified Environmental Manager (EM-1711), 2000.

**PROFESSIONAL EXPERIENCE:**

**ENVIRONMENTAL PROFESSIONAL** - Applied Geotechnical Engineering Consultants, P.C.  
 Sandy, Utah, 1994 to Present

**Completed over 600 Phase I and Phase II Environmental Site Assessments** for apartment complexes, commercial strip malls, office complexes, industrial and manufacturing facilities, communication towers, and an entire downtown block of Salt Lake City. Prepared sampling/analysis plans and conducted investigations of soil contamination for projects in western Salt Lake County.

**SPECIAL PROJECTS MANAGER** - Applied Geotechnical Engineering Consultants, P.C.  
 Sandy, Utah, 1995 to Present

Managed construction quality control personnel for large earthwork construction projects by interviewing, training and supervising technicians, writing and reviewing daily construction reports and writing final construction reports. Major projects supervised included the Micron facility in Lehi, Utah; Juniper Tailing Expansion at the Santa Fe - Twin Creeks Mine; and Landfill Cell 7 and Pond Closure 3 at the Safety-Kleen Grassy Mountain Facility.

**ENGINEERING TECHNICIAN** - Applied Geotechnical Engineering Consultants, P.C. Sandy, Utah, 1990 to Present

Performed construction quality control and construction quality assurance testing for major earthwork construction projects by supervising technicians and observing earthwork operations. Major projects include earth embankments for hazardous waste disposal facilities, leach pads and tailings dams; clay liners for ponds, hazardous waste disposal facilities, heap leach pads and tailings dams; and foundations for small and large buildings located in Utah, Wyoming, Oklahoma, Nevada and Minnesota. Office work included preparing daily construction reports, compiling and reviewing field and laboratory test data, writing final construction reports, and scheduling technicians.



**DOUGLAS R. HAWKES, P.E., P.G.**

**Senior Engineering Geologist/Geotechnical Engineer  
Manager, Engineering Services Group (Sandy)**

**PROJECT RESPONSIBILITY:** Project/Review Engineer

As Engineering Services Manager, Mr. Hawkes, P.E., P.G. is responsible for all AGEC geotechnical/geological engineering consultation projects. He holds responsibilities to designate appropriate resources to bring the projects in on time and within budget. In his capacity as Project/Review Engineer, he is responsible for geotechnical/geologic engineering aspects of assigned projects.

**EDUCATION:** Bachelor of Science in Engineering Geology.  
Brigham Young University, April 1981

**PROFESSIONAL REGISTRATION:** Professional Engineer, Utah  
Professional Geologist, Utah and Wyoming

**PROFESSIONAL EXPERIENCE:**

**ENGINEERING GEOLOGIST/GEOTECHNICAL ENGINEER** - Applied Geotechnical Engineering Consultants, P.C. Sandy, Utah - 1991 to present.

Supervise the field exploration, laboratory testing, field observation and testing, engineering analysis and report preparation of geologic and geotechnical investigations. Performs the review of environmental site assessments. Projects include the evaluation of earthquake related hazards, landslide and slope stability, debris flow, rockfall and other geologic hazards in areas of proposed development. Geotechnical studies have been completed for commercial, retail and residential buildings, roads, highways, utilities, bridges, dams and other development projects.

**ENGINEERING GEOLOGIST** - Chen-Northern, Inc., Salt Lake City, Utah - 1981 to 1991

Supervised the field exploration, laboratory testing, field engineering and report preparation for the engineering geology section. Supervised drilling operations at the Salt Lake City office. Projects included an investigation for tunnel and large rock cuts through Provo Canyon, evaluation of rock cuts for various highway projects, geologic hazard studies for a major pipeline and residential and commercial developments, landslide studies, slope stability and earth embankment studies.

**PROFESSIONAL SOCIETIES:**

Association of Engineering Geologists

**REFERENCES**

- Adams, Scott, Park City Fire Department, telephone interview, October 11, 2005.
- Bromfield, Calvin S., Geologic Map of the Park City West Quadrangle, Summit and Wasatch Counties, Utah, US Geological Survey, Map GQ-535, 1966.
- Phillips, Craig, Utah Power and Light Company, November 6, 1995.
- Schoenbacher, Jeff, Park City Municipal Corporation, telephone interview, October 12, 2005.
- Slam, Muhammad, Utah Department of Environmental Quality, interview, June 28, 2005.
- Sweeney, Patrick, property owner, interview, October 6, 2005.
- United States Coast Guard National Response Center (NRC) list, October 2, 2005.
- United States Department of Agriculture, Aerial Photography of various dates, Aerial Photograph Field Office, Salt Lake City, Utah.
- United States Environmental Protection Agency, Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Site Listing, September 8, 2005.
- United States Environmental Protection Agency, Utah National Priorities List (NPL) sites, November 30, 2004.
- United States Environmental Protection Agency, Resource Conservation and Recovery Act (RCRA) TSD Facility List, September 22, 2005.
- United States Environmental Protection Agency, RCRA CORRACTS Facility List, September 22, 2005.
- United States Environmental Protection Agency, RCRA Generators List, September 22, 2005.
- United States Federal Emergency Management Agency (FEMA) Flood Hazard Map - <http://store.msc.fema.gov/>
- United States Fish and Wildlife Service Geotract Internet Mapping Utility - <http://wetlandsfws.er.usgs.gov/wtlnds/launch.html>
- United States Geological Survey, Park City East and Park City West quadrangles, Summit County, Utah, 1955, 1975, 1998 and 1999.
- Utah Department of Environmental Quality, Division of Environmental Response and Remediation, Incident Notification Summary List, April 30, 2005.
- Utah Department of Environmental Quality, Division of Environmental Response and Remediation, Leaking Underground Storage Tank (LUST) Site Listing, July 5, 2005.

Utah Department of Environmental Quality, Division of Environmental Response and Remediation,  
Underground Storage Tank (UST) Site Listing, July 5, 2005.

Utah Department of Environmental Quality, Division of Solid and Hazardous Waste, Utah Landfill  
Inventory and Utah Closed Landfill Lists, March 2004.



## **FIGURES**

- 1. 1955 AND 1975 USGS QUAD OF SITE**
- 2. 1999 AND 1998 USGS QUAD OF SITE**
- 3. 1997 AERIAL PHOTOGRAPH OF SITE**
- 4. 2004 AERIAL PHOTOGRAPH OF SITE**
- 5. PARCEL MAP OF SITE**

**APPENDIX A**  
**PHOTOGRAPHS OF SITE**

**APPENDIX B**  
**LEGAL DESCRIPTION**

**APPENDIX C**

**SAMPLING TEST RESULTS AND  
PCMC "LANDSCAPING AND MAINTENANCE OF SOIL COVER ORDINANCE"**