



November 11, 2009

Mr. Lee Pivonka
Colorado Department of Public Health and Environment
Hazardous Materials and Waste Management Division
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

RE: Post-Closure Operation and Maintenance Report
November 2008 through October 2009
Operable Unit 2 (OU-2) Landfill Site
Former Lowry Air Force Base
Denver, Colorado

Dear Mr. Pivonka:

LT Environmental, Inc. (LTE) has been retained by Lowry Assumption, LLC (LAC) to conduct post-closure operation and maintenance monitoring at the above-referenced site (Figure 1). In accordance with the requirements set forth in the Colorado Department of Public Health and Environment (CDPHE) approved *Phase 2 Corrective Action Plan for the Operable Unit 2 Landfill Closure at Lowry (MACTEC, 2004) (Phase 2 CAP)*, LTE conducted the Operable Unit (OU)-2 post-closure operation and maintenance activities from November 2008 through October 2009; the third year of post-closure. During this period, LTE performed four quarterly monitoring inspections of the landfill cap, the surface conveyance structure, and the soil vents and gas probes. Site inspections occurred on January 21, 2009, April 24, 2009, July 28, 2009, and October 23, 2009. An additional monitoring inspection was conducted on March 11, 2009 to examine conditions resulting from a grass fire that occurred on March 8, 2009. Photographs and cap monitoring and maintenance activity reports are included as Attachments 1 and 2, respectively.

The March 8, 2009 grass fire burned approximately 60 percent of the landfill cap. The fire damage consisted of burned vegetation, melted erosion control matting, and damaged landfill signs. The results from the fire damage are discussed below with the quarterly monitoring inspection results.

During each monitoring event, LTE conducted inspections of the OU-2 landfill (Figure 2) for the items described below.

Subsidence Areas and Cover Cracking

LTE inspected the landfill cap for signs of excessive settlement. During the settlement monitoring, LTE walked the landfill surface and did not find evidence of ponding water, surface depressions, cracking of cover soil, or visible displacement. Minor impacts from routine cover mowing operations were observed during the January 21, 2009 inspection and



from the fire trucks driving on the landfill cap during the March 8, 2009 grass fire. Slight impressions were noticed in the landfill cap resulting from the weight of the mowers and the fire trucks, but no significant depressions were noticed during the last three monitoring inspections since the grass fire occurred. These observations are depicted in Photographs 1 through 5.

Burrowing Animals

LTE walked the landfill surface and inspected the cap for the presence of animal burrows on the landfill cap surface. LTE found evidence of animal burrows at one location on the site during the initial inspection on January 21, 2009. LTE monitored the burrow during all subsequent inspections and concluded that the burrow was likely created by small rodents and had minimal impact on the integrity of the cover. LTE did not find any new burrows during any of the subsequent inspections. The burrow is still active but does not need to be backfilled at this time. This burrow is shown in Photograph 6.

Surface Water Controls

LTE performed a walking inspection of surface water controls, including drainage berms, erosion control mats, and outlet structures, during each monitoring event. During the initial inspection on January 21, 2009, LTE observed several locations along the North Drainage where the erosion control mat was slightly torn (Photograph 7). LTE determined that the damage did not warrant mat replacement or repairs at the time, and the findings were not reported to LAC as an item requiring resolution.

LTE conducted an additional walking inspection on March 11, 2009 to document any damage that may have occurred during the grass fire on March 8, 2009. LTE observed significant damage to the erosion control mats for all surface controls, drainage berms and erosion control. LTE notified the LAC of the results of the additional walking inspection immediately. These observations are depicted in Photographs 8 through 11.

LAC completed installation of new erosion control mats on June 23, 2009. LTE examined the erosion control mats during subsequent inspections. The observations from the July 28, 2009 and October 23, 2009 inspections are depicted in Photographs 12 through 14.

Vegetation

LTE inspected the vegetative cover, specifically looking for signs of stress and barren areas. Since the March 8, 2009 grass fire, significant new growth was apparent throughout the burn area. There were no signs of stressed or dying vegetation at the site in any of the subsequent inspections. These observations are represented in Photographs 15 through 18. Mowing of the vegetation on landfill cover and along the perimeter fencing was completed by LAC in September 2009.



Culvert Extension

LTE inspected surface topography above the culvert extension pipe and discharge from the pipe. No changes were evident.

LTE performed a video inspection of the culvert extension on July 17, 2009. The video results showed that there are no blockages or debris inside the pipe, and no offsets or displacements to the pipe alignment were observed.

Fences, Gates and Signage

LTE inspected all fences, gates, and signage surrounding the site for damage and accumulated debris. By walking the fence line during each monitoring event, LTE was able to identify problems in three separate locations. The problems found are outlined below:

- March 11, 2009 – Three landfill signs were damaged during the grass fire along the western and northern edge of the landfill;
- July 28, 2009 – Landfill sign damaged during mowing activities along the service road at the southern end of the landfill. One sign damaged by the mowing operations is shown in Photograph 19 and the damaged fence is shown in Photograph 20; and
- July 28, 2009 – Wire and zip-tie attachments in the southwest corner of the perimeter fence had been cut to allow access for unauthorized personnel into the landfill. Wire had been separated from one fence post.

The signage that had been damaged was repaired and enhanced by LAC on October 19, 2009. LTE reconnected the existing fence to the fence post on July 28, 2009. Because the fence damage noted on July 28, 2009 was minor, the required repairs were made by LTE during the inspection event. LTE then notified LAC that the fencing had been corrected in a timely manner.

Gas Vents and Probes

LTE inspected the passive gas venting and monitoring system for damage and accumulated debris in the bug screen on a quarterly basis. During the March 11, 2009 and April 24, 2009 inspection events, no damage was found on any of the passive gas vents and monitoring system due to the grass fire. Observations of the monitoring probes after the grass fire are depicted in Photographs 21 and 22.

Summary

Scheduled quarterly operation and maintenance cap inspection events were completed in January 2009, April 2009, July 2009, and October 2009 for the third year of post-closure monitoring. The cover damage that occurred as a result of a grass fire during March 2009 was repaired during June 2009. Operation and maintenance monitoring events for post-



closure years 3 through 10 are scheduled to be conducted on a quarterly basis; the next monitoring event is scheduled for January 2010.

Please contact our office at 303-433-9788 if you have any questions about the data provided or need further information regarding the monitoring event results.

Sincerely,

LT ENVIRONMENTAL, INC.

Chris Purcell
Staff Geologist

Chris Shephard, P.E.
Project Manager

- cc: Tom Berger – LRA
David Erickson – CCD DEH
Stanley Pehl – AFCEE (2)
Roger Pennifill - Chartis
Don Roche – Aurora
Pat Smith – EPA Region 8
Elizabeth Sopher - IRGA (2)
Paul Weaverling – IRGA

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Figure 1 – Aerial Site Photograph
Figure 2 – Site Map

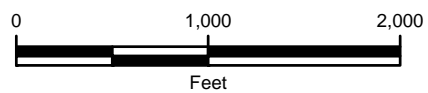
Attachment 1 – Photograph Log
Attachment 2 – Cap Monitoring and Maintenance Activity Reports

FIGURES





IMAGE SOURCE: DENVER REGION AERIAL PHOTOGRAPHY PROJECT 2006



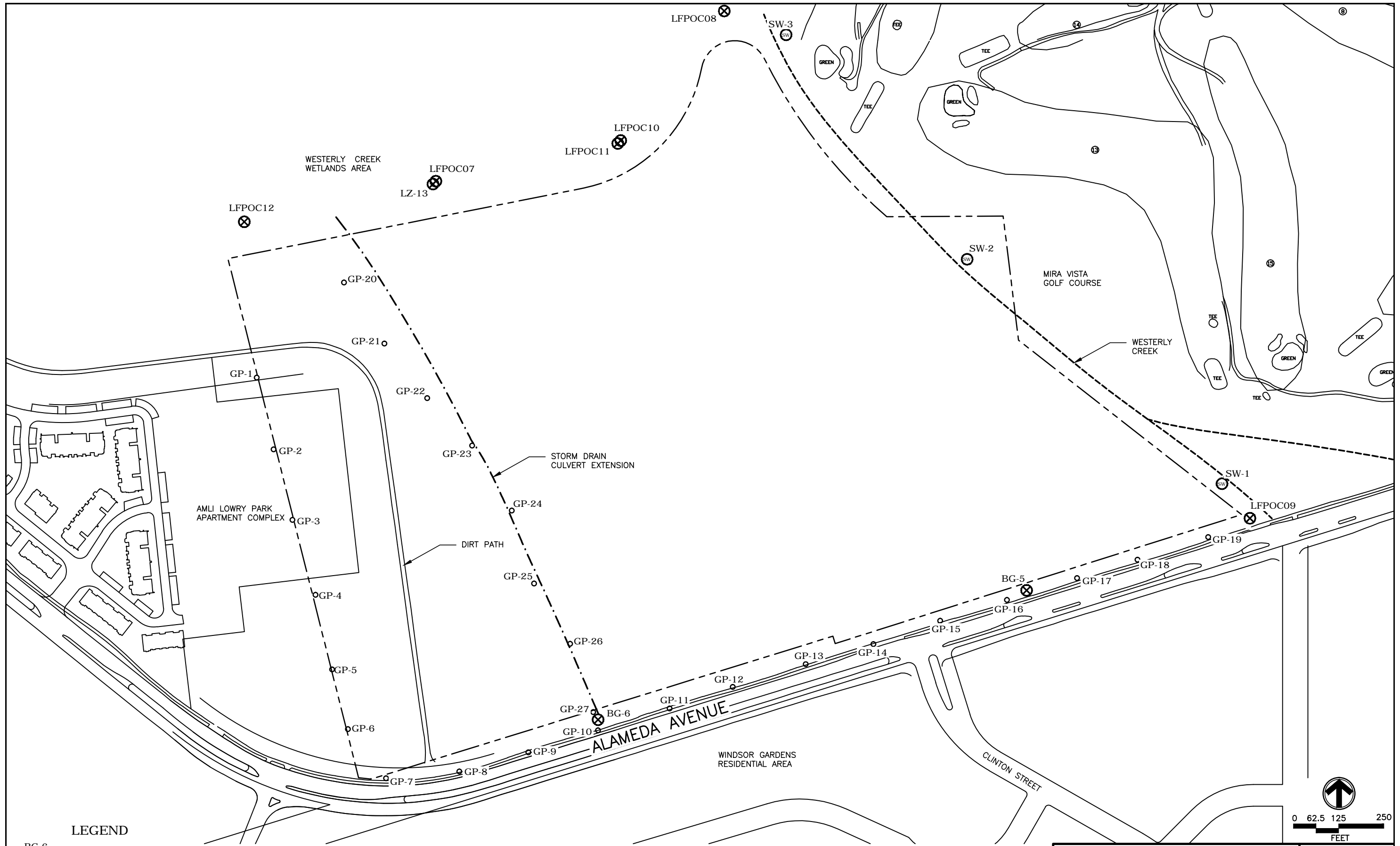
LEGEND

 OU2





FIGURE 1
AERIAL SITE PHOTOGRAPH
LOWRY OU2 LANDFILL SITE
DENVER, COLORADO

LOWRY ASSUMPTION, LLC





LEGEND

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 BG-6 POST-CLOSURE GROUNDWATER MONITORING WELL LOCATION
- 
 SW-1 SURFACE WATER SAMPLING LOCATION
- 
 GP-1 GAS MONITORING PROBE LOCATION
- 
 LANDFILL PROPERTY BOUNDARY

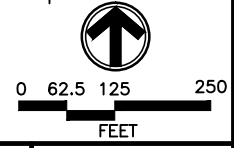



FIGURE 2
SITE MAP
LOWRY OU2 LANDFILL SITE
DENVER, COLORADO
LOWRY ASSUMPTION LLC.



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