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SUBJECT: Letter Work Plan for Geotechnical Borings on the Landfill Zone (OU2)
Former Lowry Air Force Base, Colorado

IRG Redevelopment I, LLC ("IRGI") submits this Letter Work Plan for geotechnical borings at the Lowry Vista development located at the former Lowry Air Force Base for the Department's review and approval. IRGI is also submitting this Letter Work Plan to the U.S. Air Force for its review and approval.

IRGI is preparing to perform a series of geotechnical investigations on the closed Landfill Zone ("OU2") at the former Lowry Air Force Base ("Lowry"). The preliminary approach to these geotechnical investigations as well as a Draft Materials Management Plan ("MMP") was presented by the IRGI in the 30% Revised Closure Plan for OU2 submitted on May 28, 2008. On July 11, 2008, IRGI received comments on the 30% Revised Closure Plan and draft MMP from the Colorado Department of Public Health and Environment ("CDPHE" or the "Department").

In response to those comments, this letter Work Plan has been prepared for a specific geotechnical investigation at a portion of the OU2 property comprised of approximately 9 acres of vacant land adjacent to the AMLI apartments, located north of East Alameda Avenue at its intersection with South Xenia Street in Denver, Colorado (see Figure 1). IRGI has prepared this

Work Plan to incorporate the comments presented by CDPHE on the 30% Revised Closure Plan, including incorporating the modified MMP that is specific to the geotechnical borings into this Work Plan. IRGI plans on providing a complete response to CDPHE comments to the 30% Revised Design Report, including a revised draft MMP as part of the 60% Revised Closure Plan.

Site Background

The OU2 Landfill Zone encompasses approximately 70 acres and is located in the southern portion of the former Lowry Air Force Base (LAFB) in the city of Denver, Colorado, approximately 5 miles east of downtown Denver. The OU2 Landfill Zone is bordered by Alameda Avenue to the south, the Westerly Creek Dam wetlands to the north, Westerly Creek to the east, and multi-family units to the west of the embankment.

The landfill was historically used for disposal of base-related waste and associated construction waste and debris primarily from training activities conducted at the former LAFB. Disposal most likely occurred from approximately 1948 until 1986. Drum disposal activities occurred during the 1950s and 1960s. Disposal was generally done in trenches that were excavated in the landfill surface. LAC conducted an extensive review of historical aerial photographs of the Lowry Vista site to identify trenching/disposal locations. Based on this analysis approximately 14 % of the overall area of the OU2 Landfill Zone is covered with waste disposal trenches. It is assumed that the remaining area outside of the trenches is native or disturbed fill materials. In addition, major investigations were conducted at the OU2 Landfill Zone during the 1990 Remedial Investigation (RI), 1995 Supplemental Remedial Investigation (SRI), and the 1998 Focused Feasibility Study (FFS) to determine the nature and extent of contamination present in soil, soil gas, surface water, and groundwater. Reports for all of these activities are available as part of the Administrative Record for the Lowry site.

Scope/Specified Procedures

The purpose of the geotechnical investigation discussed herein is twofold:

- Confirm the location and distribution of waste trenches and fill materials in the area to be investigated; and,
- Provide geotechnical information on the soils to determine engineering requirements for construction of buildings, roads, utilities, and parking structures.

Because of the likely presence of solid waste in the shallow subsurface, the following procedures and methods will be used to accomplish the initial subsurface boring exploration for the identified portion of the Lowry Vista development.

The geotechnical subsurface exploration will be performed to evaluate subsurface conditions, including depths to groundwater and bedrock, as well as to retrieve samples for geotechnical laboratory testing and analysis. Specific procedures for materials management for geotechnical borings have been incorporated below.

Subsurface exploration will be accomplished by the use of one of two investigation methods, depending on the conditions and the specific needs/requirements of a specific exploration location. The two methods will be used to provide for a shallow environmental subsurface exploration primarily focused on the location and character of the waste trenches, and a geotechnical subsurface exploration that will be focused on soils data to be used to determine structural elements of the development. These two investigations will be conducted concurrently

in order to reduce mobilization costs and avoid exploratory duplication and redundancy. The methods that are planned to be used include: A) truck-mounted, direct push methods; and, B) 4-inch diameter solid-stem auger drilling using a truck- or track-mounted CME 55 drilling rig.

The plan for conducting the investigations is as follows:

- Initial geotechnical exploration will be conducted at six (6) locations outside the environmental mitigation zone for the project. The approximate test hole locations are indicated on Figure 1. The six (6) geotechnical test holes will be advanced to depths of approximately 15 to 35 feet below the existing grades, or practical rig refusal, whichever occurs first. Final test hole depths will be determined in the field, however, as the subsurface profile becomes evident. Geotechnical sampling will be performed in the "native" site with the initial sample being obtained within the upper 5 feet and subsequent samples obtained at 5-foot intervals thereafter.

- The shallow environmental subsurface exploration will be directed toward more closely defining the locations of the trenches containing landfill materials. This will be done by advancing approximately sixty (60) test holes within/adjacent to the boundaries of the identified trench locations. Continuous cores will be collected and logged when utilizing direct-push methods, however, it is not anticipated that samples will be taken for environmental analyses from these boreholes. The presence of landfill materials will be determined by both visual and olfactory observation of the direct push returns.

- Following coring utilizing direct-push methods and subsequent identification that "native" soils have been penetrated, the drilling method will switch to 4-inch solid-stem auger, and geotechnical soil samples will be retrieved, as necessary. The anticipated layout of these test holes also is shown on Figure 1. The actual number of test holes and their locations may vary slightly, depending on the anticipated dimensions of the trenches, site accessibility, etc.

- The geotechnical samples will be obtained for the purpose of conducting a laboratory testing program to determine the engineering characteristics of the materials at the site as well as to develop preliminary geotechnical recommendations regarding proposed structure foundation types, floor systems, site grading, etc., for use in building/development design.

- As necessary, sampling will be conducted at 5-foot intervals once "native" soils are encountered.

- All borings will be performed with the supervision of a qualified engineer/geologist who will log the test holes in the field and prepare the geotechnical soil samples for transport to our laboratory.

- Relatively undisturbed samples of the subsurface soils will be collected utilizing a 2-inch I.D. "California" type liner sampler. Disturbed samples also may be obtained using a 1.4-inch O.D. Standard Penetration Test Sampler as described by ASTM D1586 and collected as bulk samples.

- Public utilities will be notified through the Utility Notification Center of Colorado (UNCC) at least 2 days prior to beginning drilling to facilitate location of underground utility lines, etc.

- Fieldwork, engineering analyses, and report preparation will be conducted under the supervision of a registered professional engineer.

- The contractor will provide on-site personnel with operational protocols to complete the test hole advancement in compliance with applicable regulations and guidelines as they pertain to personnel safety, environmental monitoring, materials handling, equipment decontamination, etc., again, utilizing any mandatory procedures outlined herein.

- Daily field meetings involving the contractor and any additional subcontractors shall be held to review proper equipment usage, drilling procedures, and materials handling.

- Samples and materials brought to the surface will be assessed for the possible presence of solid waste, asbestos, hazardous materials, etc. This will be performed by the IRGI contractor performing the work, and in accordance with the Lowry Soils Management Program, Lowry Assumption, LLC ("LAC") will provide oversight of such activities to assure that materials are handled properly. If such materials are encountered, the IRGI contractor will be responsible for containing, characterizing, and arranging transport of those materials to an appropriate disposal facility. Specific requirements pertaining to environmental monitoring, specimen containment, and disposal procedures are described below.

- Drill cuttings shall be placed either into 55-gallon drums or rolloff by the drilling contractor. Each drum shall be filled to 90-percent of capacity and sealed with a compatible lid. Decontamination water will be placed into 55-gallon drums. All investigation derived waste (IDW) will be properly characterized for appropriate disposal. All IDW will be characterized as required for disposal; manifested according to the IDW characterization results and properly disposed of at the appropriate disposal facility.

- Equipment mobilizing from one area to another will be thoroughly decontaminated as to not spread contaminants across the Site. Heavy accumulations of potentially contaminated materials will be removed by scraping with a shovel or similar tool and, where appropriate, by brushing with stiff bristle brushes. The Construction Plan of Operation (CPO) to be submitted by the Contractor will describe the proposed equipment decontamination procedures.

- Test hole abandonment will be performed, at a minimum, in accordance with applicable State of Colorado regulations regarding test hole/borehole abandonment specifically the State Engineers Office RULE 16 STANDARDS FOR PLUGGING, SEALING, AND ABANDONING WELLS AND BOREHOLES. Specific additional requirements required by LAC include total test hole depth and depth to static water (if encountered) to be measured at each test hole prior to abandonment. Borings will be abandoned by filling each test hole with high solid bentonite grout to within five (5) feet of the ground surface. Grouting will be completed using a tremie pipe from the total depth of the penetration to ensure proper abandonment of the test hole. Cement grout will consist of 90 percent Portland cement and 10 percent by volume bentonite powder mixed with clean

water at a ratio of no more than seven gallons for 100 pounds of cement and bentonite. Settlement of the grout shall be checked 24 hours after it is placed. For the remainder of the test hole, medium bentonite chips will be poured directly into the test hole and hydrated with a minimum of 5 gallons of potable water. This will ensure that the permeability of the test hole will be greater than the permeability of the surrounding cap.

- Shallow-depth test holes utilizing direct-push only, will be abandoned by pouring grout into the test hole from the surface.

- No temporary piezometers or monitoring wells will be constructed as part of this work plan. Additionally, no trenching or larger-scale excavations will be performed.

Cap Repair and revegetation for boreholes will not be required due to the fact that the size of the disturbance is expected to be small and since the bentonite seals are expected to be better than or equal to the existing cap. If the soil cap is disturbed in the area of the boreholes by the drill rig, then the cap will be repaired and revegetated as recommended by EPA, 1993, *Technical Guidance Document, Quality Assurance and Quality Control for Waste Containment Facilities*, EPA/600/R-93/182

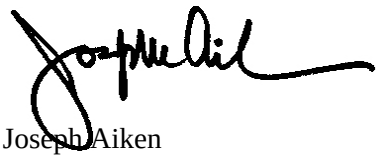
Reporting

A report will be prepared that outlines the procedures and findings of the geotechnical investigation, including a more detailed map of the identified waste trenches.

Thank you for your attention to this matter and if you have any questions, please call me at 303-972-6633.

Sincerely,

On behalf of IRG Redevelopment I, LLC



Joseph Aiken
Regional Manager

Attachment – Figure 1 – Map of Geotechnical Boring Locations

Distribution:
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Ann Wei, IRG
Brent Anderson, IRG
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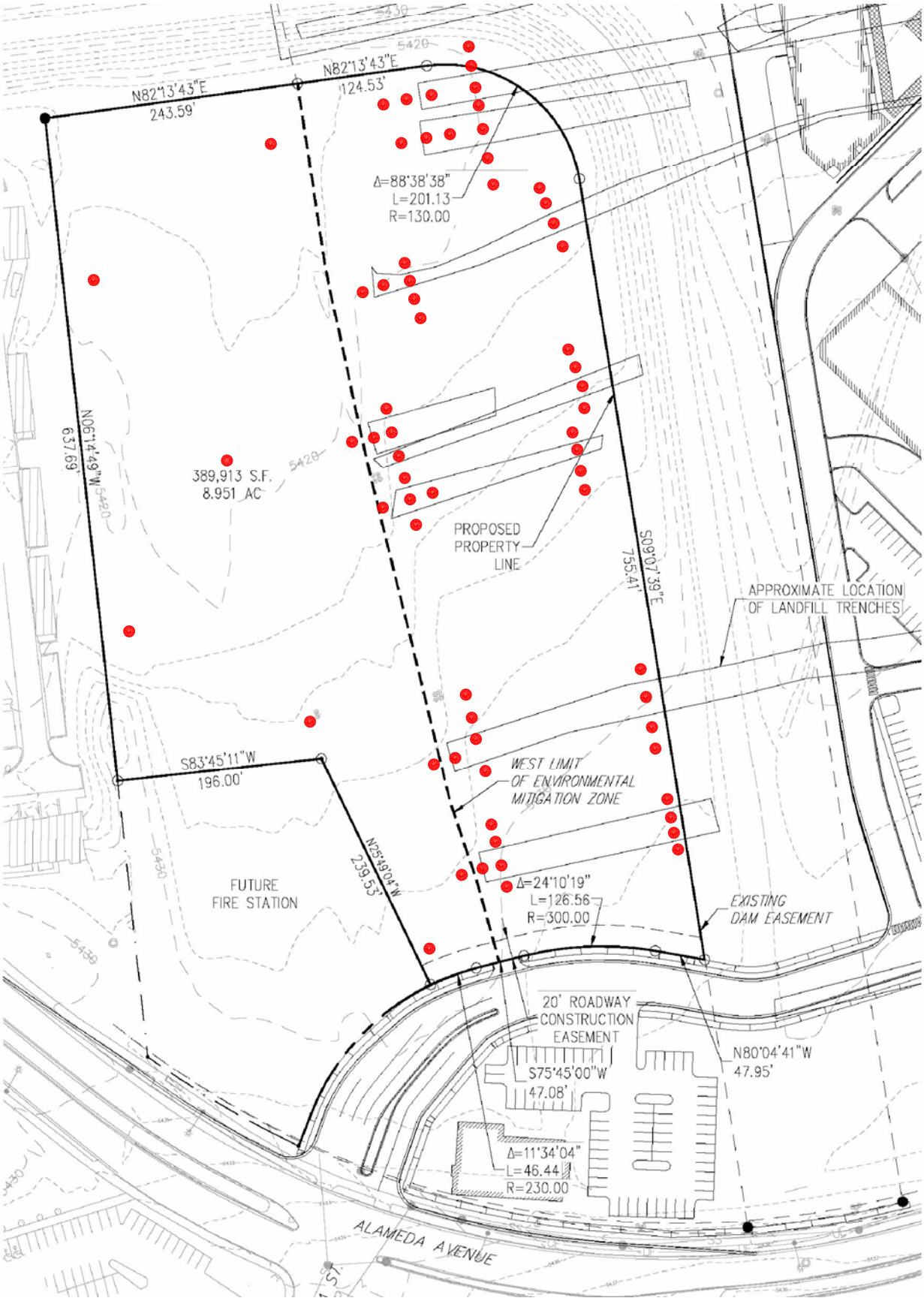

● Indicates approximate location of test hole

(Not to Scale)

GROUND
ENGINEERING CONSULTANTS

PROPOSED LOCATION OF TEST HOLES

JOB NO. 07-3066	DRAWN BY: HS
FIGURE: 1	APPROVED BY: BHR
CADFILE NAME: 07-3066SITE.DWG	