

26 August 2015

Terrence Comiskey, AIA
Engineering Support Services Manager
Public Works Department
2600 Hollywood Boulevard
P.O. Box 229045
Hollywood, Florida 33021

**Re: Amendment to PSA PW 14-057
South Park Road Development
1600 S Park Road
Hollywood, Florida
Langan Project No.: 300171001**

Dear Terrence:

Under Professional Services Agreement (PSA) PW 14-057, which the City of Hollywood executed on 4 May 2015, Langan Engineering and Environmental Services, Inc. is preparing an engineering feasibility study for the redevelopment of the Hollywood Incinerator Ash Dump at 1600 S Park Road, Hollywood, Florida (the South Park Road Development). We completed the geotechnical and environmental engineering field work for the North Parcel (Folio No. 5142-20-00-0040, 14.8 acres) and a portion of the Middle Parcel (Folio No. 5142-20-00-0140, 10.4 acres) in June 2015. On 16 July 2015, we submitted to the city a memorandum summarizing the preliminary results of the four components of our investigation: geotechnical, environmental, planning/economic, and grant eligibility.

We discussed the results with the city on 5 August 2015. Our subconsultant, Lambert Advisory, Inc., pointed out that having access to Pembroke Road would be critical to the success of the future South Park Road Development. At that meeting the city asked Langan to submit an amendment to expand the geotechnical and environmental investigation to include the two parcels that border Pembroke Road and that are now being used by the City of Hollywood Department of Public Works: the Southwest Parcel (Folio No. 5142-20-00-0170, 2.4 acres) and the Southeast Parcel (Folio No. 5142-20-00-0150, 4.9 acres). This amendment responds to the city's request.

SCOPE OF WORK

Due Diligence Investigation

In contrast to the North and Middle parcels, the Southeast and Southwest parcels have been developed with buildings, a fuel station, and paved areas, which are being used by the city's Department of Public Works. A 2009 topographic survey (Avirom Associates, Inc.) shows monitoring wells, underground storage tanks, septic tanks, and "clean outs" in the parcels.

Because of the current use of the property, we recommend an environmental due diligence investigation, which will include a file review, a site visit, and an interview with facility and city personnel knowledgeable about the site's environmental history. This investigation will help the city understand whether the property has environmental concerns unrelated to its former use as an incinerator and landfill. The report will also be important to potential developers, who will want to understand their potential risks.

Depending upon what we find during our due diligence investigation, we will discuss with the client whether additional work is necessary. That effort would be in addition to the field work discussed herein.

Before beginning field work, Langan will initiate a public subsurface utility clearance through Sunshine State One-Call. We request that the city provide drawings showing the locations of utilities and to approve all sample and boring locations. Langan and its subcontractors will not be responsible for damage to utilities that are not disclosed to us. Because utility clearance on the North and Middle parcels required a couple of days of field time and coordination, we have included sufficient time for our staff to work with facility management to clear the proposed sample locations in the Southeast and Southwest parcels.

Additional Geotechnical Investigation

Historical aerial photographs indicate that the Southeast and Southwest parcels had lakes in the early 1960s. Those lakes have since been filled. We will drill four test borings, one to 100 feet and three to between 65 and 75 feet. Borings LB10 and LB12 will be in the former lakes. The borings will be drilled using mud rotary drilling techniques. Standard Penetration Tests (SPT) will be done continuously in the upper 10 feet of each boring and at 5-foot intervals thereafter. Additional continuous SPT sampling might be performed at other depths to verify specific subsurface conditions. The SPT provides index values (N-values) from which the density and compressibility of the subsurface layers can be inferred. They also provide samples of the subsurface materials for classification and laboratory index property testing.

We will excavate two 20-foot-deep test pits (TP10 and TP11) in the former lakes, and one 10-foot-deep test pit (TP9) in the northwest portion of the Southeast Parcel.

All subsurface investigation work will be done by specialty subcontractors and performed under the full-time inspection of one of our field engineers. Our engineer will mark the boring locations and examine and log the soil and rock samples. If a boring or test pit location conflicts with operations or underground utilities, our field engineer will adjust the location in the field.

We estimate that one staff engineer can complete the field work in five 8-hour days. We will include the results of this investigation in the Geotechnical Engineering Study we are preparing as part of the feasibility study.

Additional Environmental Investigation

Langan will conduct field work according to the FDEP Standard Operating Procedures (rev. July 2014). We will subcontract an environmental lab certified by the National Environmental Laboratory Accreditation Program to provide analytical services, and a Florida-licensed water well drill-

er to provide soil sampling and well installation services. Langan will notify the FDEP within seven days, but no less than one day, in advance of field work, in accordance with Chapter 62-780.220(1), Florida Administrative Code.

Soil Quality

Langan proposes to collect soil samples at the four geotechnical boring locations. The intervals of concern for direct exposure to contaminated soil are the first four feet below grade. At each location we will collect samples at two-foot intervals to 4 feet below grade. We will collect two composite samples of the fill material in the topographic high areas. We will decontaminate the sampling equipment between samples.

Groundwater Quality

Langan proposes to install and sample four shallow monitoring wells at the geotechnical boring locations. Figure 1 shows the locations. We will install the wells using the direct-push method.¹ The well driller will drive a pre-packed, 1-inch-diameter, polyvinyl chloride (PVC) well into the ground until the well screen intersects the water table, which is between 7 feet and 14 feet below grade; total well depths, therefore, will be between 15 feet and 22 feet. Langan will develop each well using a low-flow peristaltic pump to remove fine sediment from the sand pack around the well.

Monitoring wells MW-4A (18 feet deep with 10 feet of screen) and MW-4B (40 feet deep with 5 feet of screen) were part of the program in 2009 that monitored arsenic in groundwater. These wells were installed in the southern portion of the Southeast Parcel. Because those wells have not been sampled since 2009, we propose to include them in this investigation. If MW-4A is present and in good condition, then we will install three additional wells rather than four. For estimating purposes, we have budgeted for four new wells. Figure 1 shows the well locations.

At least 24 hours after we install the new wells, we will sample them and the previously installed wells. Before sampling, we will purge the wells with a peristaltic pump and polyethylene tubing and monitor water quality parameters (dissolved oxygen, temperature, conductivity, pH, and turbidity) until values stabilize within FDEP-approved ranges. We will calibrate the field meters in accordance with manufacturer specifications and record the calibration on FDEP logs. We will place the samples in containers provided by the laboratory, place the containers on ice in coolers, and transport the coolers to the laboratory under chain-of-custody procedures.

We will drum development and purge water pending laboratory analysis. We will return excess drill cuttings to the borehole.

Laboratory Analysis

The laboratory will analyze the eight soil and five groundwater samples for volatile organic compounds by EPA Method 8260, polynuclear aromatic hydrocarbons by EPA Method 8270, total recoverable petroleum hydrocarbons by the FL-PRO Method, organochlorine pesticides by EPA Method 8081, organophosphorous pesticides by EPA Method 8041, polychlorinated

¹ A previous assessment encountered refusal at 60 feet below grade; Langan believes that direct push will work in the shallower material.

dibenzodioxins and polychlorinated dibenzofurans by EPA Method 8290, and 8 RCRA metals. We will also analyze the soil samples for polychlorinated biphenyls by EPA Method 8082.

If laboratory analysis detects contaminants of concern (COCs) at concentrations above cleanup target levels, Langan will discuss with the city whether to install deeper monitoring wells to delineate the contamination vertically. The cost of installing such wells is not included in this scope of work.

Depending on the soil analytical results, Langan might recommend additional shallow or deeper borings. The cost of such borings is not included in this scope of work.

Methane

At each of the soil sample locations, the driller will install a temporary well screen to two feet above the water table, i.e., about 10 feet below grade. Langan will use a gas emissions monitor (Landtec GEM 2000 or similar equipment) to measure methane concentrations (percent by volume and percent of the lower explosive limit). The monitor will be calibrated with a standard calibration gas containing 15% methane by volume and 15% carbon dioxide by volume, and another gas cylinder containing 4% oxygen by volume. We will record the methane concentration at each sample location for at least five minutes and until the methane concentration stabilizes within 0.5% by volume for three consecutive readings, to determine the steady-state concentration. Depending on the results of this investigation, Langan will evaluate whether methane co-generation is an option to consider during site development.

We estimate that one staff engineer/geologist can complete the field work in five 8-hour days. We will include the results of this investigation in the Environmental Investigation Summary that we are preparing as part of the feasibility study.

Site Restoration

Unlike the North and Middle parcels, most of the Southeast and Southwest parcels are paved, which means that our borings, test pits, methane vapor wells, and groundwater monitoring wells will be drilled or excavated through the asphalt. We will patch the borings with asphalt patch and we will backfill the test pits to grade. *We assume that the city will repave the test pit locations. We have not included the cost of repaving in this amendment.*

ESTIMATED FEE

We propose to complete this scope of work for a time-and-materials, not-to-exceed fee of \$56,900. This fee includes \$23,600 in subcontracted laboratory, drilling, and backhoe costs. This fee also includes sufficient field time for utility clearance and subcontractor coordination. The following table summarizes the estimated costs.

Task	Estimated Fee
<i>Due Diligence Investigation</i>	\$3,000
<i>Additional Geotechnical Evaluation</i>	
Langan fee (drilling oversight, data evaluation)	\$20,500
Drilling (subcontracted)	\$6,000
Backhoe (subcontracted)	\$1,000
<i>Subtotal:</i>	\$27,500

Task	Estimated Fee
<i>Additional Environmental Investigation</i>	
Langan fee (sampling, drilling oversight, data evaluation)	\$9,800
Direct-push drilling (subcontracted)	\$3,500
Laboratory analysis (subcontracted)	<u>\$13,100</u>
<i>Subtotal:</i>	\$26,400
Total:	\$56,900

SCHEDULE

We expect to complete the field work within one month of authorization. This schedule could be affected by what we find during the field work.

LIMITATIONS AND ASSUMPTIONS

The limitations and assumptions specified in the Langan scope of work incorporated in PSA PW 14-057 apply to this amendment.

CLOSING

Thank you for the opportunity to continue to work with the City of Hollywood on this project. Please let us know if you have questions or concerns.

Sincerely,

Langan Engineering and Environmental Services, Inc.



Daniel Spector, P.G.
Senior Project Manager



Vincent D. Yarina, P.G., CEM
Senior Associate/Vice President

DS:vdy

Enclosure: Figure 1 – Proposed Sample Locations

cc: Roger Archabal, Feng Lu – Langan

FL Certificate of Authorization No. 6601
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