

September 9, 2008

Mr. Raj Guntnur, P.E.
Public Works and Transportation Engineering Section II
Oak Cliff Municipal Center
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Dallas, Texas 75203

Telephone: (214) 948-4011
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Re: Proposal for Simpkins Site:
Response to Notice of Violation (NOV) at Elam and South Loop Landfills,
Land-Use Planning and Development at Simpkins Tracts, and
Environmental Site Investigation for Related Simpkins Tracts
South and North of Highway Loop 12 and East of the Trinity River, Dallas, Texas
Terracon Proposal No. P08941302

Dear Mr. Guntnur:

Terracon Consultants, Inc. (Terracon) appreciates the opportunity to submit this proposal to provide environmental consulting and engineering services at the above-referenced Simpkins Tracts. An outline of the project, Terracon's engineering and environmental consulting scope of services, including schedule, and compensation are provided in the following sections:

A. PROJECT BACKGROUND

The site consists of approximately 1,415 acres of land located along the east bank of the Trinity River to the north and south of Loop 12 in the southeastern portion of Dallas, Dallas County, Texas. The site is currently owned by Metropolitan Sand & Gravel Co., L.L.C.

On behalf of the City of Dallas, Terracon conducted a *Phase I Environmental Site Assessment* (ESA Report No. 94057304A, dated August 24, 2005). In addition, Terracon prepared a *Limited Solid Waste Evaluation Report* (Report No. 94057304B, dated October 12, 2005), a *Limited Site Investigation* (LSI Report No. 94057304-Task D, draft dated January 8, 2008), and a *Methane and Landfill Cap Evaluation and Proposed Response Actions* (Report No. 94057304-Task A, dated January 30, 2008).

A.1. REGULATORY AUTHORITIES AND CITY OF DALLAS STAKEHOLDERS

A.1.A TCEQ SOLID WASTE SECTION

The Texas State Department of Health issued Municipal Solid Waste (MSW) Permit No. 88 on August 29, 1975 to operate the Elam and South Loop Landfills. The total permitted area for MSW No. 88 is approximately 340 acres. The permitted Elam Landfill occupies approximately 85 acres of land on the north side of Highway Loop 12. The Elam Landfill includes an unfilled area north of Elam Road and an approximate 5 acre unfilled area on neighboring property to the east of the Site. The permit application indicated that there were three additional landfill areas south, west, and northwest of the permitted Elam Landfill comprising approximately 30 acres, which were filled prior to the March 1975 permit application, and are not included in the permit. The permitted South Loop Landfill occupies approximately 255 acres of land on the south side of Highway Loop 12.

The site consisted primarily of undeveloped and agricultural land in the 1940s, prior to portions of the site being utilized for sand and gravel mining operations in the 1950s and 1960s. Based on a review of aerial photographs, approximately 160 acres or more have been used for gravel mining operations. In the late 1950s and early 1960s, it appears that landfilling operations began on-site. The Elam Landfill operated from approximately 1957 until closure in 1980, and the South Loop Landfill operated from approximately 1962 until closure in 1983.

The TCEQ Central Registry lists the South Loop 12 Landfill as Regulated Entity No. RN101665743, and lists the City of Dallas (CN600331730) as Operator and Metropolitan Sand & Gravel (CN600898811) as Owner. The South Loop 12 Landfill is recorded at 6000 E. South Loop 12, Dallas, TX, 75217, and is recorded to be in the Municipal Solid Waste Disposal Program (Permit No. 88).

The TCEQ Central Registry lists the Closed Elam Road Landfill as Regulated Entity No. RN104990460, and lists Metropolitan Sand & Gravel (CN600898811) as Owner. The Closed Elam Road Landfill is recorded at 5920 Elam Road, Dallas, TX 75217, and is recorded to be in the Municipal Solid Waste Non Permitted Program (ID No. 455040167).

The TCEQ Solid Waste Section issued an Amended Notice of Violation for the Closed South Loop Landfill on August 21, 2006.

A.1.B TCEQ VOLUNTARY CLEANUP PROGRAM

The City of Dallas intends to enroll the Simpkins Tracts in the Voluntary Cleanup Program (VCP). This proposal includes the environmental consulting support services and the \$1,000.00 Application fee associated with the enrollment of the non-capped areas of the Simpkins site into the VCP prior to its acquisition. The capped areas of the Simpkins site are currently subject to an NOV, and would not be initially included in the VCP. Following the closure of the NOV by the TCEQ Solid Waste Section, the City of Dallas enrolled the capped areas into the VCP on July 31, 2008 (included in these proposed activities). The City of Dallas intends to acquire

additional property east of the Elam Landfill and west of Pemberton Hill Road, which the City of Dallas may enroll in the VCP.

A.2. RESPONSE TO NOTICE OF VIOLATION FOR LANDFILL CAPS

Terracon prepared the *Methane and Landfill Cap Evaluation and Proposed Response Actions* report, dated January 30, 2008, for the South Loop and Elam Landfills, which was submitted to the Texas Commission on Environmental Quality (TCEQ) on January 31, 2008. Based on the findings of this investigation, surface waste and exposed waste were identified on the capped areas. In addition, some borings installed on the capped areas encountered less than 2 feet of earthen cover and side slope problems were observed on portions of the South Loop Landfill. Limited ponding was observed on the capped areas during this investigation and in aerial photographs depicting the site. The presence of exposed waste and possible surface waste was observed along the bank of Pond J. In addition, although no methane was detected in hand augured soil gas probes installed on the east side of the drainage swale near the property boundary, concentrations of methane were observed to exceed 5% methane in 3 of the 7 soil gas probes constructed between the Elam Landfill and the north-south drainage swale that exists within the landfill permit boundary.

Based on these findings, Terracon recommended that prior to removal, the surface waste should be investigated to confirm it is not exposed landfill waste and the volume of surface waste should be estimated and subsequently removed. The landfill cap should be restored near waste removal areas and seeded to promote vegetated growth. The area of exposed waste within the capped areas should be capped with a minimum of 2 feet of cover and seeded to promote vegetative growth. An additional evaluation is needed to evaluate the occurrence of waste in the vicinity of Pond J, and an engineered response action should be performed to address the visible waste. The landfill cap should be restored near the eroded side slope on the South Loop Landfill, and the slope should be reduced or an engineering control should be implemented to mitigate potential side slope problems. In areas where the landfill cap exhibited less than 2 feet of cover, the capped area surrounding the boring should be evaluated for functionality. The areas that are susceptible to ponding should be filled and graded to prevent excessive ponding on the landfill cap, and then seeded to promote vegetative growth. Based on the initial methane monitoring along the property boundary, it does not appear that methane migrates across the permit boundary in excess of the 5% regulatory limit. In accordance with TCEQ's comment letter dated March 26, 2008, monitoring of the soil gas probes along the east side of the closed Elam Landfill shall be conducted at a frequency of at least once every three months until March 1, 2009, and during or following low pressure atmospheric conditions.

In a facsimile dated March 26, 2008, the TCEQ approved the proposed action plan, in conjunction with the facsimile transmitted February 19, 2008, with the following conditions:

- In order to provide the TCEQ the opportunity to observe the landfill gas probe monitoring and remediation activities, it is requested that the City of Dallas and Metropolitan Sand &

Gravel, LLC provide ten working days notice to the Region 4 office prior to conducting on-site remediation activities.

- It is requested that the City of Dallas and Metropolitan Sand & Gravel, LLC conduct methane monitoring of the soil gas probes located on the eastside of the closed Elam landfill at least once every three months until March 1, 2009. It is also requested that the methane monitoring be conducted during or following low pressure atmospheric conditions. The TCEQ acknowledges there may be difficulty associated with scheduling a monitoring event based of weather conditions ten working days in advance; therefore Terracon understands that the TCEQ will work with both parties regarding the ten day notice and the scheduling of soil gas probe monitoring.
- It is requested the earthen materials to be utilized to repair the landfill final cover system meet the requirements of 30 TAC 330.453.
- The stained areas observed at the South Loop Landfill and identified in the Evaluation and Response Action Plan should be monitored at least once every three months until March 1, 2009. If leachate seeps or the lack of vegetative growth are observed, then the area final cover should be restored and re-vegetated.

A.3. RESULTS OF LIMITED SITE INVESTIGATION FOR NON-CAPPED AREAS

Terracon prepared a *Limited Site Investigation* (LSI) report, draft dated January 8, 2008, for the Simpkins Tracts - South Loop and Elam Landfills, and submitted the report to the City of Dallas Office of Environmental Quality and the City Attorney's office for review in draft format on January 8, 2008.

Surface and Subsurface Soil

Based on the findings of the LSI, waste (including paper, plastic, glass and/or rusted metal) was observed in various soil borings installed on the site, indicating buried waste located outside the known landfill areas in the vicinity of the assessed areas. Based on the analytical results of soil samples collected at the site, total petroleum hydrocarbons (TPH), semi-volatile organic compounds (SVOCs), pesticides, and herbicide were not detected above the applicable Texas Risk Reduction Program (TRRP) Tier 1 Residential Critical Protective Concentration Levels (PCLs). On-site soils collected from three soil borings exhibited relatively low concentrations of volatile organic compounds (VOCs) that were below applicable Tier 1 Residential Critical PCLs. Additionally, various metals were detected in the on-site soils. On-site soils exhibited concentrations of arsenic, cadmium, lead, silver, and thallium above the applicable TRRP Tier 1 Critical PCLs, Texas-specific background concentrations, and/or site-specific background concentrations. Further evaluation indicated the metals concentration detected in soil were either protective of groundwater, below site-specific background concentrations, or below calculated site-specific Tier 2 PCLs.

Groundwater

Based on laboratory analysis, a VOC compound, chlorobenzene, was detected in the groundwater samples collected at the site at concentrations below the applicable TRRP Tier 1 Critical PCL. Additionally, SVOC compounds, and a pesticide compound gamma-BHC were detected above the laboratory SQL but below the applicable Tier 1 Residential Critical PCLs during the 2007 LSI. Based on laboratory analysis, groundwater samples collected from on-site monitoring wells did not exhibit metals at concentrations above the laboratory SQLs and/or applicable TRRP Tier 1 Critical PCLs.

Surface Water

Based on laboratory analysis of surface water and seep samples collected at site during the 2007 LSI, VOCs, TPH, pesticides, herbicides, and PCBs were not detected above laboratory SQLs. Two seep samples collected at the site exhibited SVOC compounds, di-n-butyl phthalate and bis (2-ethyl-hexyl) phthalate (possible laboratory contaminant), above the laboratory SQL, but below the applicable Tier 1 Residential Critical PCL. Additionally, VOCs, SVOCs, TPH, pesticides, and herbicides were identified in the surface water samples collected in 2005 as part of the Limited Solid Waste Evaluation Report (dated October 12, 2005).

Sediment

Based on laboratory analysis of sediment samples collected at the site, VOCs, TPH, pesticides, herbicides, and SVOCs were not detected in the sediment samples at concentrations above laboratory SQLs. Analytical results indicated various metals were detected in sediment samples; however, the metals concentrations were below Ecological Benchmarks for Sediment, Second Effects Levels for Sediment, and TRRP Tier 1 Sediment PCLs.

Based on these findings, Terracon recommended that the extent and thickness of the waste should be evaluated and the waste located outside of the designated/permitted landfill areas should be excavated from the site and disposed at an approved facility. Based on the metals analytical results and limited spatial assessment of soil across the site, additional investigation to evaluate the magnitude and extent of lead in surface soils in the vicinity of MW-Q17 and in the area southwest of the South Loop Landfill in the vicinity of B-V9, B-W5 and MW-W8, appears warranted at this time. Due to the distribution of chlorobenzene, absence of information regarding a potential source, and relatively limited spatial assessment of groundwater across the site, additional evaluation of the magnitude and extent of VOCs in groundwater appears warranted at this time. Since the on-site ponds and seeps may be subject to periodic flooding from the Trinity River, surface water conditions may vary over time. Therefore, additional assessment of surface water may be necessary to further evaluate the presence of COCs in surface water on the site.

General Site Considerations

Concentrations of metals detected at the site exceeded applicable PCLs/benchmarks in soil and surface water. Based on a review of current site data for soil, groundwater, sediment, and surface water, additional evaluation of metals appears warranted to assess whether metals and

other COCs are a result of natural and/or anthropogenic events or activities (i.e., Trinity River flooding, non-native fill material) or a result of releases from potential on-site sources areas.

B. SCOPE OF SERVICES

Based on the findings of previous site investigations, and at the direction of the City of Dallas, this project includes the following two Tasks:

TASK 1 – INVESTIGATION

Response to NOV Capped Areas of Simpkins Tracts

- TCEQ-directed compliance methane monitoring at Elam Landfill and observation of stained areas at South Loop Landfill,
- Survey of metes and bounds of Simpkins tracts and deed recorded limits of solid waste,
- Survey of landfill topography, and
- Assessment of Pond J, apparent surface waste, and cap functionality.

Additional Investigations to Support Site Development and the Affected Property Assessment Report (APAR)

- Assessment of subsurface methane concentrations on selected interior portions of the Simpkins Site.
- Additional surface waste and subsurface waste investigation, and
- Additional soil, groundwater, and surface water investigations to supplement the findings of the draft LSI dated January 8, 2008.

TASK 2 – REMEDIATION DESIGN

Response to NOV Capped Areas of Simpkins Tracts

- Preparation of 30%, 60%, and 95% designs for landfill restoration,
- Preparation of Pre-Construction Notification (PCN) to USACE,
- Meetings and communication with the City of Dallas and regulatory authorities, and
- Bidding assistance.

Development and Waste Removal Activities for Simpkins Tracts

- MSW permit modification of non-capped areas of the Elam Landfill
- Assessment of land-use restrictions and 10% design for vehicular and bicycle paths across South Loop and Elam Landfills,
- Assessment and design for the development and enhancement of wetlands adjacent to landfills,
- Design of surface waste and subsurface waste removal from non-capped areas and site restoration,
- Meetings and communication with the City of Dallas and regulatory authorities, and
- Bidding assistance.

Regulatory Interaction and Reporting for Non-Capped Areas of Simpkins Tracts

- Assist City of Dallas to enroll the non-capped areas of the Simpkins tracts in the VCP,
- Preparation of Affect Property Assessment Report (APAR), and
- Meetings and communication with the City of Dallas and regulatory authorities.

NOTE: This proposal does not include response action costs associated with soil, groundwater, surface water, or sediment mitigation. Additionally, Terracon assumes that construction contractors and fees associated with the removal of surface and subsurface waste materials identified outside the capped areas will be billed directly to the City of Dallas subsequent to the completion of a formal bidding process. The preparation of a Response Action Plan (RAP) and Response Action Completion Report (RACR), and TCEQ interaction subsequent to the approval of an APAR are not included in this proposal. These costs, and costs associated with implementation of response action will be presented to the City of Dallas for approval, upon request.

Additionally, costs associated with ecological risk assessments are not included in this proposal. Subsequent to the completion of the proposed investigation activities presented herein, and upon request from the City of Dallas, Terracon will prepare a proposal to address these out-of-scope items, if required.

Terracon assumes that all construction contractors and fees, to be determined subsequent to the completion of this scope of work, will be billed directly to the City of Dallas subsequent to the completion of a formal bidding process.

B.1 TASK 1 – INVESTIGATION

Response to NOV for Capped Areas of Simpkins Tracts

B.1.A Methane Monitoring at the Elam Landfill

Terracon will monitor the thirteen soil gas probes on the east side of the Elam Landfill at least once every three months, beginning immediately upon notification to proceed and concluding in March 2009 (assumes four quarters). The probes include the seven soil gas probes (SGP-1, SGP-2, SGP-3, SGP-5, SGP-6, SGP-7, and SGP-8) located on the west side of the drainage swale and the six probes (SGP-2a, SGP-3a, SGP-4a, SGP-5a, SGP-6a, and SGP-7a) located on the east of the drainage swale. Given TCEQ's request to sample the probes following low pressure atmospheric conditions, Terracon will budget two monitoring events every three months, but will conduct sampling in compliance with TCEQ's request. Terracon will notify the City of Dallas and the TCEQ Region 4 Waste Section Manager 10 days in advance of scheduled methane monitoring activities. When monitoring is conducted in conjunction with unanticipated low pressure atmospheric conditions, Terracon will notify the City and the TCEQ

in advance of monitoring at the earliest practicable time. Terracon will prepare a quarterly methane monitoring report for submission to the TCEQ.

B.1.B Observation of Stained Areas at South Loop Landfill

As requested by the TCEQ, Terracon will observe the stained areas of the landfill cap at least every three months, beginning immediately upon notification to proceed and concluding in March 2009 (assumes four quarters). Terracon will visually observe the stained areas for water, evidence of ponded water, stressed vegetation, bacterial growth, and staining. Terracon will visit the site at regularly scheduled quarterly intervals, and will attempt additional trips after storm events provided the site is physically accessible. Terracon will prepare a quarterly observation report for submission to the TCEQ.

B.1.C Survey of Metes and Bounds of Property and Waste Limits and Topography of the Capped Areas

A registered professional land surveyor (RPLS) will be contracted to survey the landfill capped areas. For the purpose of this proposal, Terracon will subcontract Pacheco Koch to perform the survey. Pacheco Koch is currently contracted through BRW Architects, Inc. to provide surveying services for the proposed City of Dallas' Texas Horse Park development, which is immediately north of the Elam Landfill. Pacheco Koch has already surveyed portions of the Elam Landfill, which can be used for this proposal. Terracon assumes that the City of Dallas and BRW Architects will permit Pacheco Koch to share survey information pertinent to this proposal with Terracon. This will permit a continuity of survey products and prevent duplicity of effort. The estimated survey costs assume that Terracon will be provided access to aerial surveys that may include pertinent information for the evaluation of borrow sources in the site vicinity.

The survey will include:

- The surveyor will locate Tract No. 1, Tract No. 2, and the Description of Landfill Boundary as identified in the Affidavit to the Public filed in the deed records, dated May 6, 1982, for the Elam Landfill. The surveyor will locate the Description of the Property Boundary and the Description of the Landfill Boundary (Tract No. 1 and Tract No. 2) as identified in the Affidavit to the Public filed in the deed records, dated June 18, 1984, for the South Loop Landfill. The surveyor will designate the limits of any Special Flood Hazard Area depicted on the most recent Flood Insurance Map (FIRM), published by Federal Emergency Management Agency (FEMA).
- The South Loop Landfill, the Elam Landfill, and the pre-permitted fill areas south and west of the Elam Landfill will be surveyed for topography. The survey will provide the topography of the landfill. Pacheco Koch conducted a recent aerial photogrammetric survey of the Elam Landfill, north of Highway Loop 12 and east of the Dallas Power & Light easement. The surveyor will subcontract with Dallas Aerial Surveys, Inc. to conduct an aerial photogrammetric survey of the South Loop Landfill. Photogrammetric

surveys may achieve 0.3-foot accuracy, and meet national map accuracy standards. The surveyor will measure the topography of the Elam Landfill west of the Dallas Power & Light easement using a total station or GPS receiver. The surveyor will provide a topographic survey to the limits of solid waste with 1-foot topographic contours.

- The waste limits of the fill area northwest of the Elam Landfill will be determined from the waste limits recorded in the deed records. The surveyor will measure the size and surrounding topography of the large apparent surface waste area on the south side of the fill area and confirm whether the apparent surface waste is within the recorded waste limits of the fill area. The surveyor will provide locations, common name, and trunk diameter of trees greater than 8 inches in diameter or the outline of heavily wooded areas.
- The location, extent, gradient, and surrounding topography of the eroded side slope and active seeps will be measured for the approximately 500-foot long side slope on the south side of the South Loop Landfill northwest of Pond S. The surveyor will provide locations, common name, and trunk diameter of trees greater than 8 inches in diameter or the outline of heavily wooded areas.
- The surrounding topography and location and extents of solid waste will be measured for the banks of Pond J. The survey will also include the subsurface topography of the pond, the location of the investigation borings, the location of the drainage feature on the south side of Pond J, and the identification of the discharges paths from the drainage feature and Pond J to their nexus. The surveyor will provide locations, common name, and trunk diameter of trees greater than 8 inches in diameter or the outline of heavily wooded areas.

The survey will be scheduled upon client notice to proceed. The surveyor is anticipated to initiate the topographical survey within 1 week of the notification to proceed, and the topographic survey is anticipated to take 3 weeks. An additional week is anticipated for the preparation of the deliverable. The remaining surveying tasks are assumed to be performed concurrently, but have the same deliverable schedule. Thus, the surveying task is assumed to require 5 weeks after the notification to proceed.

B.1.D Investigation of Pond J

The *Methane and Landfill Cap Evaluation and Proposed Response Actions* report (January 30, 2008) suggests that the approximate 1.8-acre Pond J may require partial draining (if necessary) to facilitate additional assessment. Because the dewatering of the pond is potentially subject to regulation by the Corps of Engineers under Section 404 of the Clean Water Act, and because of the consequential lengthy permitting process, Terracon recommends that the limits of solid waste at Pond J be evaluated using conventional means without lowering the water level.

Terracon visited Pond J to preliminarily assess its status as a "water of the United States" and a wetland. During this visit, the water level was lower than previously encountered, and additional solid waste was observed along its banks. A band of solid waste, approximately 1 foot in thickness, was observed to extend along most of the southern bank of Pond J. The depth of Pond J is unknown.

The nature and extent of solid waste will be visually examined along the banks of Pond J. Terracon will install hand-augured borings through the banks and sediment of Pond J, and will examine the cuttings for the presence of waste material. The borings will be stepped out from the bank of Pond J, as needed and as feasible, to determine extent of solid waste. The borings will be installed by personnel wading into the pond and/or sitting in a low-profile water craft. The borings will be attempted to a maximum depth of 4 feet below grade. The borings above the water line will be filled with native fill material. Any waste material removed from the borings will be containerized in 55-gallon drums and disposed appropriately.

The limits and quantity of solid waste will be examined on the south side of Pond J. The deed recorded waste limits extend on the south side of Pond J, and the area is overgrown with mature trees. This area was not accessible for the purposes of the *Methane and Landfill Cap Evaluation and Proposed Response Actions* (January 30, 2008) investigation. A drainage area is located approximately 100 feet south of Pond J, and the area between Pond J and the drainage area is presumed to contain solid waste. Depending on physical access, a truck- or track-mounted hydraulic push rig will be utilized to advance up to four (4) soil borings along the edge of the drainage area and four (4) soil borings between Pond J and the drainage area. The borings will be attempted to 2 feet below the limit of solid waste, if encountered or auger refusal. Upon completion, the soil borings will be filled with soil cuttings to 2 feet below the surface, and the final 2 feet of the borings will be filled with bentonite chips.

Terracon will assist the City of Dallas in assessing whether Pond J and the drainage feature to its south meet the statutory definition of a "water of the United States." Terracon will evaluate the hydrology, soils, and vegetation at Pond J and the drainage feature to its south to assess their potential classification as a wetland. Terracon will provide a recommendation to the City of Dallas with regards to the classification of the water bodies, and will provide technical support during City of Dallas meeting with the USACE.

As part of the evaluation of Pond J, Terracon will collect a surface water sample from Pond J and analyze the sample for the parameters specified in 40 CFR 122 Appendix D Tables II, III, and V (toxic pollutants) and additional conventional and non-conventional pollutants listed in the City of Dallas storm water analytical sweep list.

The exploratory assessment within Pond J will begin within 2 weeks of the notification to proceed. Terracon estimates that 2 to 3 weeks will be required to complete the exploratory assessment associated with Pond J and south of Pond J.

B.1.E Characterization of Apparent Surface Waste on Capped Areas

Terracon will locate and measure the extents of the waste areas, eroded areas, and non-vegetated areas on the capped areas using a Trimble GeoXH GPS receiver. The specified GPS measurements have a horizontal accuracy of less than 1 foot. The recorded locations will be integrated with the topographic map to facilitate the restoration design. Terracon will use an all-terrain vehicle (ATV) to facilitate the GPS survey.

The areas identified in the *Methane and Landfill Cap Evaluation and Proposed Response Actions* report (January 30, 2008) will be further investigated to evaluate whether the waste on the capped areas is surface waste or exposed waste. A truck- or track-mounted hydraulic push rig will be used to install exploratory soil borings adjacent to the apparent surface waste and the soil samples/cuttings will be evaluated to assess whether landfill cover exists between apparent surface waste and the underlying capped waste. The thickness of the cap and the differences in the surface waste and capped waste will be documented. Any waste material removed from the borings will be containerized in 55-gallon drums and disposed appropriately. The borings will be filled with soil cuttings to 2 feet below the surface, and the final 2 feet of the borings will be filled with bentonite chips. The volume of surface waste will be estimated using the GPS and boring results.

Subsequent to the City of Dallas' notification to proceed, Terracon will schedule the drilling subcontractor and complete the assessment within 2 to 3 weeks. The field investigation for this task is anticipated to take 5 days.

B.1.F Evaluation of Cap Functionality

As part of the *Methane and Landfill Cap Evaluation and Proposed Response Actions* report (January 30, 2008), the thickness of the South Loop and Elam landfill caps were assessed by installing 170 soil borings through the cap on an approximate 250-foot by 250-foot grid. Eight (8) of the borings at the Elam Landfill and adjacent fill areas and 33 of the borings at the South Loop Landfill encountered less than 2 feet of cap. Based on the findings of the previous assessment activities, the capped areas where soil borings encountered less than 2 feet of cap will be further evaluated for functionality. The cap evaluation will consist of a visual assessment of the cap for ponding, stressed or lacking vegetation, erosion, cracking, stained soils, and exposed waste. The vegetation growth will be evaluated using a representative number of yard square assessments of the cap per TCEQ guidelines. The drainage pattern will be observed in the area for proper storm water routing and management.

Terracon will begin evaluating the cap functionality following the characterization of the apparent surface waste. The evaluation is anticipated to take 5 days.

Additional Investigations to Support Site Development and the Affected Property Assessment Report (APAR)

B.1.G Assessment of Subsurface Methane Concentrations on Interior of Simpkins Site

At the request of the City of Dallas, Terracon will perform an additional evaluation of subsurface methane concentrations on the interior portions of the Site. The objective of the additional methane evaluation is to assess the magnitude and extent of subsurface methane concentrations on the interior portions of the Site related to proposed future uses of the Site by the City of Dallas Parks and Recreation Department.

For the purpose of this proposal and estimated costs associated with evaluation of methane in these areas, up to fifty (50) soil gas probes will be installed on the interior portions of the Site, proximate to buried waste areas and/or proposed future land use areas. The probes will be installed under the supervision of a State of Texas licensed well driller utilizing a track-mounted drilling rig equipped with solid flight augers. The probes will be advanced to maximum depths ranging from 10 to 30 feet bgs, and will be terminated into bedrock or groundwater, whichever is encountered first. The probes will generally be completed as follows:

- Installation of approximately 5 to 25 feet (depending on probe total depth) of 1-inch diameter, machine-slotted PVC well screen assembly with a threaded bottom plug;
- Installation of approximately 5 feet of riser pipe to the surface;
- Addition of graded silica sand for annular sand pack around well screen from bottom of the probe to one foot above the top of screen;
- Addition of cement/bentonite slurry to the surface; and
- Installation of a locking well cap and flush-mount concrete-pad completion.

Following installation, the soil gas probes will be monitored on a bi-weekly basis for a period of approximately two months. The probes will be monitored using a landfill gas meter capable of measuring methane, carbon dioxide, oxygen, and balance gas at percent concentrations. In addition to soil gas readings, the landfill gas meter will be used to record ambient methane concentrations at the ground surface at each of the sampling locations.

Verbal results of the methane monitoring events will be provided to the City of Dallas after completion of each event, and the findings presented in a final report to the City of Dallas.

B.1.H Additional Waste Investigation

Buried Waste

The extent and thickness of the waste located outside of designated/permitted landfill areas (areas not subject to the current NOV) will be evaluated to further characterize the areas to assist in eventual excavation of the areas and disposal of the buried wastes at an approved facility.

Approximately forty (40) exploratory soil borings will be advanced on the site to delineate buried waste in the vicinity of borings B-O4, B-N4A, B-N4B, B-N4C, B-L4, and B-U7. The borings will be advanced utilizing ATV-mounted direct-push drilling equipment under the supervision of a State of Texas licensed water well driller. The boring will be advanced to a maximum depth of 16 feet bgs, or until the vertical limit of buried waste is observed. Soil/buried waste samples will be collected continuously using core-barrels samplers to document waste type and extent, lithology, color, relative moisture content, and visual or olfactory evidence of impact. In addition, the samples collected from the exploratory borings will be scanned with a PID for the presence of VOCs. The horizontal limits of the identified waste will be subsequently surveyed using Trimble GeoXH GPS receiver to later assist in waste volume characterization.

It should be noted that, due to limited information available on the extent of buried wastes located outside of the capped areas, Terracon is unable to provide accurate estimates of the amount of buried wastes that will require removal and disposal. Likewise, conceptual costs for removal and disposal of buried wastes located outside of the capped area are not included in this proposal. Characterization of the buried wastes will provide the information necessary to provide these estimates at a later date.

Surface Waste

Terracon will locate previously identified surface waste and will identify and locate additional surface waste discovered in the non-capped areas of the Simpkins Site. The horizontal limits of the identified waste will be subsequently surveyed using Trimble GeoXH GPS receiver to later assist in waste volume characterization. The thickness of the waste will be non-invasively estimated.

B.1.1 Additional Soil and Groundwater Investigation

Installation of Soil Borings and Monitoring Wells

Seven (7) soil borings converted into permanent groundwater monitoring wells will be installed on the site to further evaluate the presence of chemicals of concern in soil and groundwater at the Site. Two monitoring wells are proposed in the vicinity of MW-M10, two wells are proposed in the vicinity of MW-O6, and three wells are proposed in the vicinity of MW-U15. An additional nine (9) soil borings will be drilled in the vicinity of B-L4, MW-P21, and MW-U22 to further evaluate soil. Three soil borings are proposed in the vicinity of MW-U22, two soil borings are proposed in the vicinity of MW-P21, and four soil borings are proposed in the vicinity of B-L4. In addition, forty-five (45) shallow soil samples will be collected (nine [9] samples in the vicinity of each soil boring/monitoring well MW-Q17, B-V7, B-V9, B-W5, and MW-W8) to further evaluate lead in surface soil.

The proposed soil borings will be installed on-site using a track-mounted hollow-stem auger drilling rig or ATV-mounted direct-push technology drilling equipment under the supervision of a State of Texas licensed well driller. The soil borings to be converted to monitoring wells will be advanced to approximate depths ranging from 20 to 30 feet bgs, 5 feet into groundwater, or refusal, whichever occurs first. The remaining soil borings will be advanced to a maximum depth of approximately

16 feet bgs. Shallow soil samples will be collected by a Terracon environmental scientist using a hand auger. Hand auger borings will be advanced to a maximum depth of 4 feet bgs.

Following completion of sampling activities, borings not converted to monitoring wells will be closed in place in accordance with applicable state regulations and guidelines. In the event there are no applicable state regulations or guidelines, the wells to be closed will be backfilled with bentonite pellets, then hydrated and grouted to the surface.

Soil samples will be collected continuously using a hand auger, or core barrel, split spoon, or Shelby tube samplers to document lithology, color, relative moisture content, and visual or olfactory evidence of petroleum hydrocarbons. In addition, the samples collected from the soil borings will be scanned with a photoionization detector (PID) for the presence of VOCs.

Prior to commencement of the project and following the installation of each soil boring, the sampling and drilling equipment will be decontaminated by high pressure cleaning. Drill cuttings will be stored temporarily on-site in labeled, 55-gallon, DOT-approved drums in accordance with applicable regulations pending the results of the laboratory analyses. The drum labels will bear the apparent contents of the drum and the accumulation date. Upon completion of the investigation, the drill cuttings will be disposed in accordance with applicable regulations.

Groundwater monitoring wells will be completed according to standard industry practices, and actual monitoring well construction will vary depending on first occurrence of groundwater and total depth of the monitoring well. The monitoring wells will be developed by surging and removing groundwater until fluids appear relatively free of fine-grained sediment. Drill cuttings and development groundwater will be stored temporarily on-site in labeled 55-gallon drums pending the results of the laboratory analyses. The drum labels will identify the apparent contents of the drum and the initial accumulation date.

Following development of the monitoring wells and prior to groundwater sample collection, each well will be purged with low-flow sampling equipment until consistent values (i.e., less than 10% variance between consecutive readings) are obtained for pH, temperature, and conductivity. Subsequent to parameter stabilization, one groundwater sample will be collected from each monitoring well using low-flow sampling equipment. Groundwater samples will be collected from the seven (7) soil borings converted into permanent groundwater monitoring wells and five (5) of the previously installed groundwater monitoring wells (MW-M10, MWO6, MWU8, MW-V12 and MW-U15) to further evaluate groundwater on the site.

In order to evaluate groundwater flow direction, the top of casing of the monitoring wells will be surveyed relative to a City of Dallas benchmark elevation near the site. The groundwater levels will be gauged in each monitoring well to assist in evaluation of the direction of groundwater flow. The corrected groundwater elevations will be used to construct a groundwater flow direction map.

Environmental Media Sampling Program

Terracon's environmental media sampling program will consist of the following:

- Collection of one or more selected samples from the soil borings at the surface, the zone exhibiting the highest concentration of VOCs based on visual and olfactory evidence and/or PID readings, from the bottom of observed fill material (if encountered), from the capillary fringe zone, from the interval above bedrock, from the bottom of the boring, or from the interval of most likely environmental impact as determined in the field by the sampling professional. A total of 2 to 3 soil samples will be collected from each soil boring (based on the above criteria) for laboratory analysis;
- Collection of surface water samples from selected on-site seeps; and
- Collection of one groundwater sample from each of twelve (12) monitoring wells using low flow sampling equipment following purging.

Soil, groundwater, and surface water samples will be collected in pre-cleaned glassware and placed on ice in a cooler which will be sealed with custody tape. The samples will be transported to a selected, NELAC-accredited analytical laboratory along with a completed chain-of-custody form.

Environmental Laboratory Analytical Program

Selected samples collected at the site will be analyzed for VOCs by EPA Method SW-846 #8260B, semi-volatile organic compounds (SVOCs) by EPA Method SW-846 #8270C, pesticides by EPA Methods SW-846 #8081/8141, herbicides by EPA Method SW-846 #8151, RCRA 8 Metals (or Priority Pollutant metals including vanadium, barium, and cobalt) by EPA Method SW-846 #6010/7000, and pH by EPA Method SW-846 #9045C.

For quality assurance/quality control (QA/QC) purposes, duplicate samples will be collected and analyzed for VOCs for each sampled media at an approximate frequency of 10 percent. In addition, a QC field blank sample will be collected and analyzed for VOCs.

The following general criteria will be used for the selection of analysis of sampled media:

- Previously reported analytical data for each location and sampled media;
- Soil samples exhibiting elevated PID readings – analysis for presence of VOCs;
- Non-native fill areas identified during sampling – analysis for presence of VOCs, SVOCs, and metals (in addition, pesticides and herbicides will be collected at shallow intervals of non-native fill areas);
- Surface soil areas – analysis for presence of metals;
- Groundwater samples – analysis for presence of VOCs and metals (pesticides and herbicides will be analyzed in the vicinity of wells MW-O6 and MW-Q17);
- Surface water samples – analysis for presence of VOCs, SVOCs, metals, pesticides, herbicides, and geochemical parameters;