STREAMBORN

Fax 528-2613

Amy Leech
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, #250
Alameda CA 94502-6577

22 December 1994

Project No. 170C

Addendum to Streamborn's 14 November 1994 Workplan
Soil and Groundwater Investigation
21031 Western Boulevard
Hayward CA

Dear Ms. Leech:

This letter constitutes an addendum to our 14 November 1994 Workplan for soil and groundwater investigation at the subject property. This addendum has been prepared pursuant to your letter to William and Kathy Florence dated 2 December 1994. The following workplan revisions apply:

- Three monitoring wells will be installed at least 20-feet apart near the former tank excavation. The revised locations were confirmed during a telephone conversation on 30 November 1994 between Keith D. Beury of Streamborn and Juliet Shinn of your office. The revised layout is attached.
- Wells will be screened from approximately 10-feet below to 5-feet above the water table (based on the depth at which groundwater is encountered during drilling). The revised well completion schematic and revised well completion specifications are attached.
- Well development and groundwater sampling will be performed in accordance with Title 23, Article 4, Section 2649d8 of the California Health & Safety Code. Specifically:
  - Wells will be developed 72 or more hours following well completion.
  - Groundwater sampling will be performed 24 hours or more following well development.

  These requirements are contained in the attached Table 5.
- Wells will be surveyed vertically (to the nearest 0.01-foot) relative to an established benchmark. These requirements are contained in the attached Table 5.

Mail: P.O. Box 9504, Berkeley CA 94709-0504

Office: 900 SantaFe Avenue, Albany CA 94706

- Groundwater elevations will be measured monthly for the first three months. If results reveal stable gradient conditions, measurements will continue on a quarterly basis. If the gradient is determined to be fluctuating significantly, monthly measurements will continue. These requirements are contained in the attached Table 5.
- Groundwater samples collected during the initial round of groundwater monitoring will be analyzed for lead. If found to be above background, lead analyses will continue; otherwise subsequent groundwater samples will be tested only for TPH-gasoline and BTEX. These requirements are contained in the attached Table 5.
- Soil samples will be analyzed for lead. The revised soil sampling and testing requirements are attached.

Please call us with any questions or comments.

Sincerely,
STREAMBORN

Keith Beury For

Douglas W. Lovell, PE
Geoenvironmental Engineer

Attachments

cc: William and Kathy Florence, Oakland CA

Table 3 (Revised)

Requirements for Sampling and Testing Soil Collected During Drilling

Item	Requirement
Sampling Interval and Sample Type	Collect discrete (grab) samples at selected intervals; typically at 5-foot centers or detectable changes in strata, whichever is more frequent. Collect additional liner samples if elevated organic vapor readings and/or contamination are observed.
Sampler	Split-spoon sampler, 2-inch inside diameter with liners.
Liners	2-inch diameter by 6-inch length, brass or stainless.
Sampler and Liner Decontamination	Wash or steam clean split-spoon between samples and borings. Wash liners with soap, rinse with tap water, rinse with distilled water.
Field Observations and Measurements	Screen samples with field organic vapor monitor. Note staining or odor. Visually classify samples according to ASTM D 2488 - Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Measure penetration resistance (blow/foot) during driving of split-spoon.
Hollow Stem Auger	Approximate 4-inch inside diameter, 8-inch outside diameter augers.
Samples Retained for Physical Testing	None.
Sample Handling for Physical Testing	Not applicable.
Samples Retained for Chemical Testing	If contamination is not observed during drilling, two samples from each boring will be analyzed for TPH-gasoline (EPA Method 5030 GCFID modified), BTEX (EPA Method 8020), and lead (EPA 6000 series or 7000 series). Select one sample from a depth coincident with the groundwater table for analysis. Select a second sample from the next-shallowest sampling interval for analysis. If field observations indicate the presence of soil contamination, additional soil samples may be analyzed.
Sample Handling for Chemical Testing	Cap liner with Teflon sheet, plastic cap, and duct tape (do not use electrical tape). Label liner, place in ziplock bag, and store on ice in cooler until delivery to the laboratory. Log chemical samples on chain-of-custody form and maintain sample security.
Quality Control Samples for Chemical Testing	None.

Table 4 (Revised)
Well Completion Specifications

Item	Requirement
Number of Wells	Three
Casing Type	Schedule 40 PVC, flush-threaded couplings.
Casing Diameter	Nominal 2-inch inside diameter.
Total Length of Well	The well will extend approximately 10-feet below the groundwater table. Assuming the groundwater table is at 15-feet, the well will extend approximately 25-feet below ground surface.
Centralizers	None.
Bottom Cap	Threaded or slip-on (use stainless steel screws for slip-on cap, do not use glue).
Sediment Trap	None.
Screen Length	15-feet.
Position of Screen with Respect to Groundwater Table	Position screen to provide ±10-feet below and ±5-feet above the groundwater table (as encountered during drilling).
Slots	0.01-inch, factory-slotted.
Casing and Screen Decontamination	Steam clean, pressure wash, or soap wash prior to installation.
Filter Pack	#2/12 or similar silica sand.
Filter Pack Interval	6-inches below bottom cap to approximately 2-feet above top of screened interval.
Bentonite Seal	Natural bentonite chips or pellets, minimum 2-foot layer above filter pack.
Grout	Cement-bentonite (approximately 5% bentonite).
Surface Completion	Flush-mounted traffic-rated box with locking top cap.

Table 5 (Revised)

Well Surveying, Well Development, Water Level Monitoring, and Well Purging, Sampling, and Testing Requirements

Item	Requirement
Well Surveying	Measure well elevations (measuring point = top of PVC casing, north side) within an accuracy of 0.01-feet. Reference elevations to site-specific benchmark.
Delay Between Well Installation and Well Development	Wait at least 72 hours after well installation before initiating well development.
Delay Between Well Development and Initial Sampling	Wait at least 24 hours after well development before the initial well sampling.
Frequency and Duration of Water Level Monitoring	Measure water levels monthly for the first quarter after well installation. If fluctuations in gradient or gradient direction are observed during the first quarter of water level monitoring, continue to measure water levels on a monthly basis for the next 3 quarters. Otherwise, water levels need only be measured during sampling events.
Frequency and Duration of Sampling	Quarterly for one year (4 events, 1 every 3 months).
Purge Equipment	Bailer.
Purge Equipment Decontamination	Wash with soap, rinse with tap water, rinse with distilled water.
Field Measurements and Observations During Purging	Water level prior to purge. Turbidity (qualitative clarity and color), pH, temperature, dissolved oxygen, specific conductivity, purge volume.
Purge Criteria	Wells that recharge in a timely manner should be purged of at least 3 static casing volumes and sampled after field parameters stabilize, provided that the wells are sampled before 10 static casing volumes are removed. Wells that recharge slowly may be purged dry once and sampled after recharge is sufficient to submerge the bailer.
Sampler	Teflon bailer with bottom-emptying device.
Sampler Decontamination	Wash with soap, rinse with tap water, rinse with distilled water.
Sample Collection	Lower bailer to midpoint of standing water column to collect sample. Discharge sample from bottom of bailer to bottom of sample containers without aeration.
Sample Analysis	Analyze all samples for TPH-gasoline (EPA Method 5030 GCFID modified) and BTEX (EPA Method 8020). During the initial monitoring event, also analyze samples for total (not dissolved) lead (EPA 6000 or 7000 series). If lead is measured above background levels, continue analysis during subsequent sampling events.
Sample Containers	Three 40-milliliter glass vials for TPH-gasoline and BTEX. One 150-milliliter plastic bottle for total lead.
Sample Handling and Preservation	Verify no headspace in 40-milliliter vials. Acidify 150- milliliter bottle to pH<2. Label containers, place in ziplock bags, store on ice in cooler, enter onto chain-of-custody, maintain sample custody until sent to laboratory.
Quality Control Samples	None.

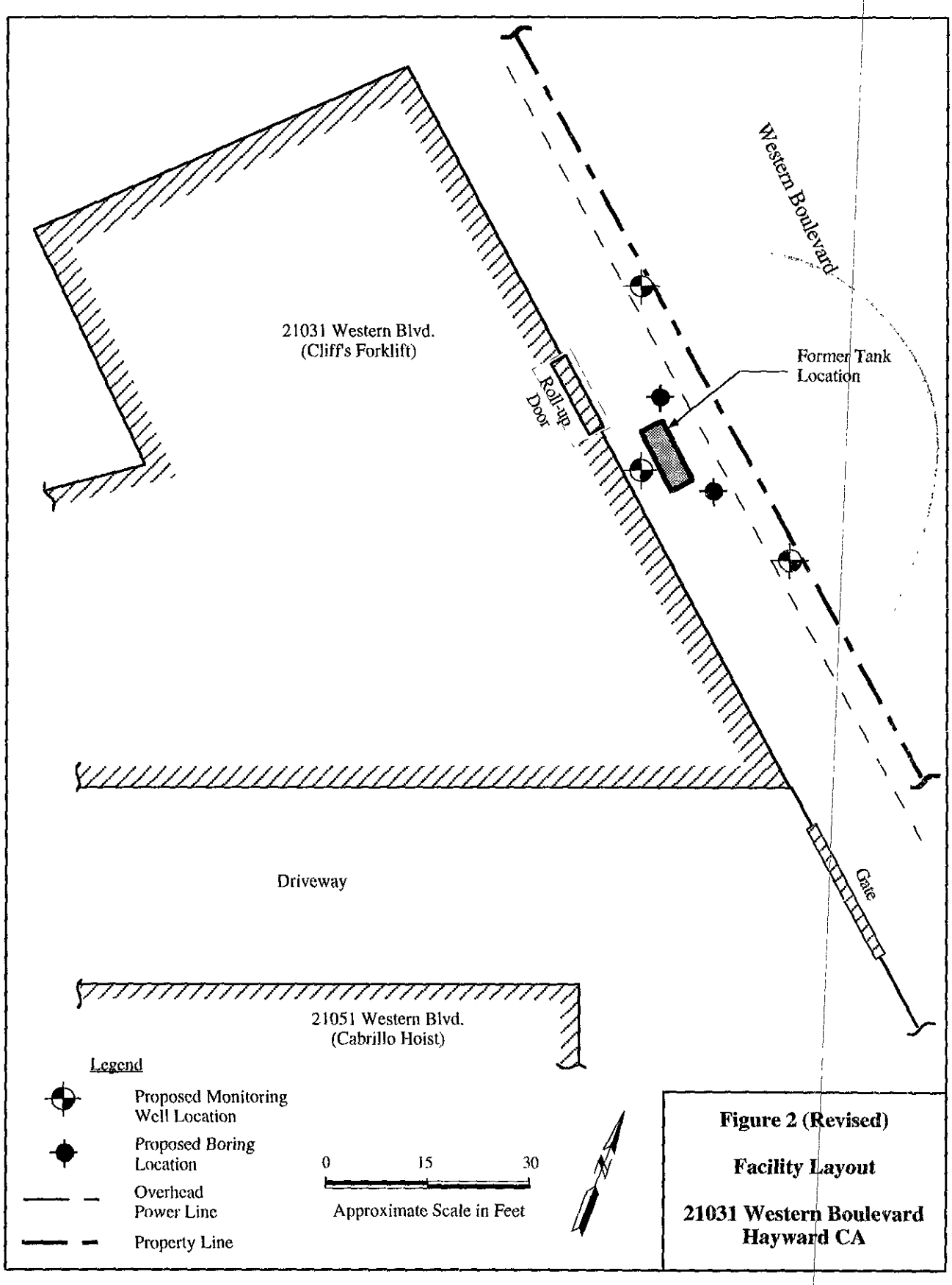
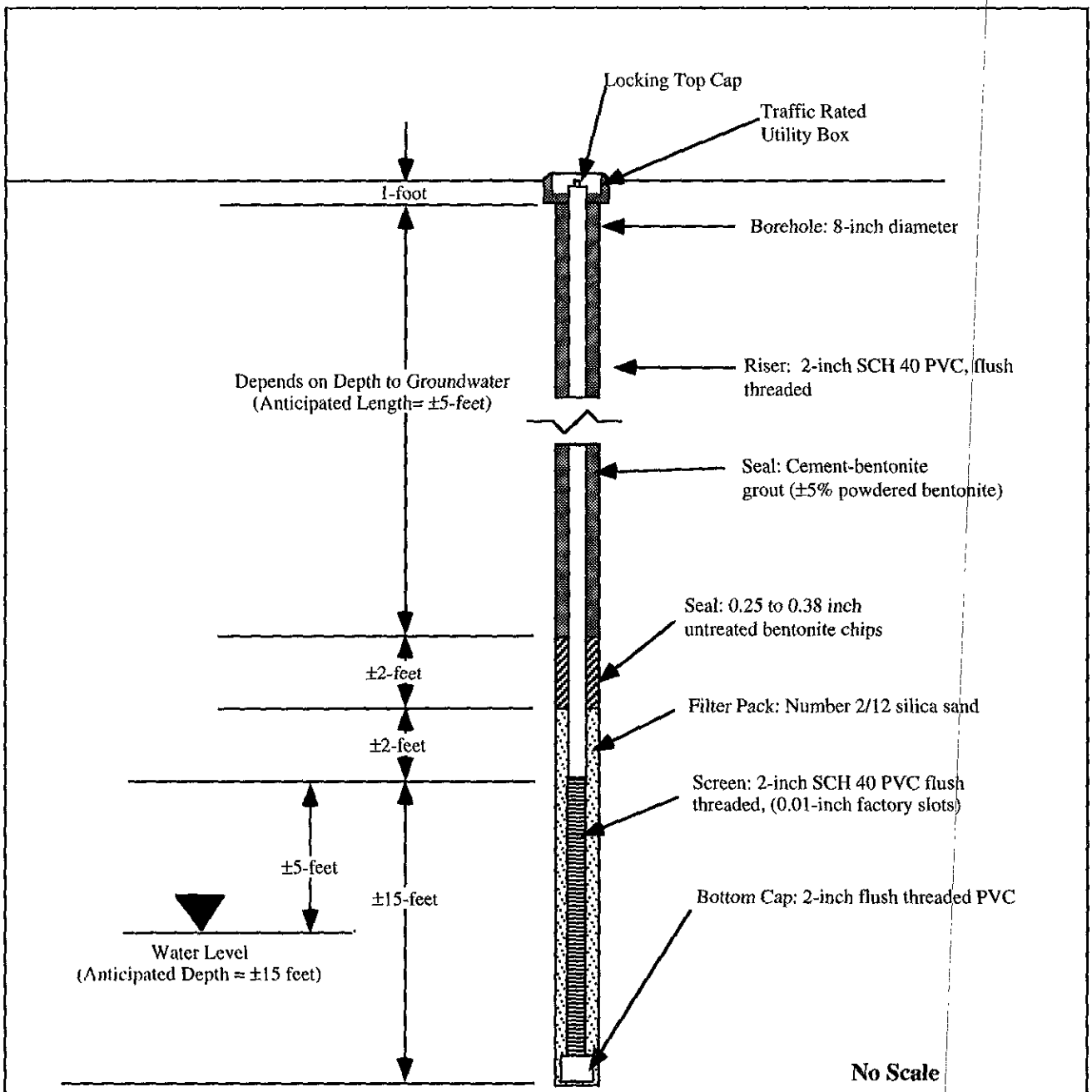


Figure 2 (Revised)

Facility Layout

21031 Western Boulevard
Hayward CA

STREAMBORN



Note: This design should be modified to conform to site-specific conditions observed during drilling.

Figure 3 (Revised)

Monitoring Well Completion Schematic

21031 Western Boulevard Hayward CA

STREAMBORN