SOIL REMOVAL ACTION

Rainier Avenue Facility Remediation
Seattle, Washington

Prepared for: Darigold, Inc.

Project No. 090066-005-03 • December 8, 2011

Aspect CONSULTING

earth + water

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1 Introduction

This report documents the Summer 2011 excavation and removal of fuel-impacted soil from the North Yard of the dairy-processing facility located at 4058 Rainier Avenue South in Seattle, Washington (Figure 1). The soil removal action was conducted on behalf of Darigold, Inc. (Darigold), as an independent cleanup action under the Washington Model Toxics Control Act (MTCA; WAC 173-340-515).

A dairy-processing facility has occupied the 6.8-acre property since the 1920s. Underground storage tanks (USTs) containing various petroleum hydrocarbon-based fuels were removed from the central portion of the facility's North Yard between 1990 and 2004. Releases from the former UST systems impacted soil and groundwater with petroleum hydrocarbons in the gasoline and diesel ranges. Groundwater has also been impacted by methyl tertiary-butyl ether (MTBE).

Environmental site investigations were conducted beginning in 1990 to delineate the nature and extent of contamination. A *Focused Feasibility Study* (*FFS*; Aspect Consulting, 2011a) was completed to assess remedial alternatives, and the selected remedial alternative was further developed in a *Cleanup Action Plan and Engineering Design Report* (*CAP/EDR*; Aspect Consulting, 2011b). The selected remedial alternative includes a soil removal action to address the most highly impacted soils, enhanced *in situ* degradation of contaminants in the remainder of the impacted area, and monitored natural attenuation to ultimately achieve site cleanup levels.

The soil removal action was completed in July/August 2011. Clearcreek Contractors (Clearcreek) was the construction contractor, and Aspect Consulting, LLC (Aspect) provided construction oversight and performance monitoring. The primary purpose of this report is to document the removal action construction and performance monitoring activities.

2 Removal Action Summary

Construction permitting was completed on July 13, 2011, upon receipt of a grading permit from the City of Seattle Department of Planning and Development (DPD). A DPD pre-construction meeting was conducted at the site the following day, and construction was initiated on July 15, 2011. Soil excavation activities were completed between July 16 and August 15, 2011. Construction photographs are provided in Appendices A and C.

Visual and olfactory observations and photo-ionization detector (PID) field screening were used to guide the excavation. As expected based on the results of previous investigations, field screening generally did not indicate significant soil impacts above the 7- to 8-foot depth range. However, space limitations and permit restrictions prevented any onsite stockpiling or segregation of soils.

Approximately 7,900 tons of soil were excavated, roughly 60 percent more than anticipated in the *CAP/EDR*. This was due to the fact that soils in areas adjacent to the anticipated excavation areas were found to be more highly impacted than expected, resulting in a larger-than-anticipated areal extent of excavation. Excavation expanded primarily into areas that, at the time the *CAP/EDR* was developed, were judged to be marginally impacted, and were slated for remediation via enhanced *in situ* degradation. Since contaminant concentrations were higher than anticipated, excavating these soils rather than relying on an *in situ* remediation technology ensured that the cleanup met substantive requirements under the MTCA regulations, that enhanced *in situ* degradation of contaminants in the remainder of the impacted area would be effective, and that cleanup levels would be achieved within a reasonable and cost-effective timeframe. Excavation also extended into limited areas that were thought to be "clean" (i.e., contaminant concentrations below MTCA Method A soil cleanup levels) based on interpretation of data previously collected at the site, but that field screening indicated were, in fact, contaminated.

The excavated soil volume also increased due to the contractor's ability to dig deeper than expected. At the time of the design of the removal action, it was assumed that excavation would be limited to a depth of roughly 10 feet below ground surface (bgs) in order to stay above the dry season groundwater table. However, DPD required that the contractor be prepared to manage potentially impacted storm water during construction by mobilizing water storage/pretreatment equipment to the site and by obtaining a King County construction dewatering permit to discharge pretreated water to sanitary sewer. This, combined with the fact that groundwater generally infiltrated relatively slowly through the low-permeability soils, allowed us to excavate below the groundwater table. Except for immediately adjacent to the building, where excavation below the base of the pile caps (approximately 11 feet bgs) was prohibited, the final excavation depth was determined based on field screening results. Excavation depths up to 14 feet bgs were recorded at some locations, with an average excavation depth of roughly 12 feet bgs.

Approximately 44,000 gallons of water were pumped from the excavation, pretreated to remove settleable solids and petroleum hydrocarbons, and discharged to the sanitary sewer. Rainfall contributed very little to this total. On July 25, 2011, 0.27 inches of precipitation were recorded at the Boeing Field weather station. That was the only significant rainfall event during excavation activities.

The areal extent of excavation was approximately 10,800 square feet (ft^2), compared with a design excavation bottom area of approximately 4,300 ft^2. These areas are shown on Figure 2. The excavation design was constrained by the requirement that sidewall slopes not exceed 1.5H:1V, whereas near-vertical sidewalls were actually achieved. This allowed the contractor to access a much larger volume of impacted soils at depth, while minimizing the volume of overburden soils generated.

Soil sampling was conducted during the removal action to characterize contaminant concentrations in soil left in place (excavation bottom and sidewall samples), as well as in excavated soil. A total of 62 grab samples were submitted for laboratory analysis of total petroleum hydrocarbon (TPH) in the gasoline, diesel, and lube oil ranges, and for the gasoline constituents benzene, toluene, ethylbenzene, and total xylenes (BTEX). Approximate sample depths and laboratory results are summarized in Table 1. Sampling

locations and laboratory results for benzene and TPH in the gasoline and diesel ranges are shown on Figure 3 for excavation bottom and sidewall samples, and on Figure B-1 (Appendix B) for over-excavated samples.

Excavation activities encountered one footing drain and two storm drain lines, which were removed and subsequently replaced. A sanitary sewer line was also encountered, which was protected in place during construction. The approximate locations of these lines are shown on Figure 5.

Two proprietary remediation products supplied by Regenesis were spread on the excavation bottom prior to backfilling, to promote chemical oxidation and bioremediation of residual contamination. Imported clean soil was then backfilled and compacted in the excavation.

Once backfill soil was compacted to the required densities and grades, the North Yard's asphalt pavement and concrete surfaces were restored, and a trench drain that captures leakage from trailers stationed at the truck bays along the north end of the building was replaced. Seven groundwater monitoring wells were installed and developed to replace the seven wells that were decommissioned prior to start of construction. All outdoor monitoring wells associated with the site were then surveyed. The locations of both existing and decommissioned monitoring wells, as well as the trench drain, are shown on Figure 5.

3 Removal Action Objectives

MTCA Method A soil cleanup levels for total petroleum hydrocarbon (TPH) and individual gasoline components are applicable to this soil removal action. Specific contaminants of concern (COCs) and corresponding cleanup levels are:

Gasoline-range TPH	30 milligrams per kilogram (mg/kg)
Diesel-range TPH	2,000 mg/kg
Benzene	0.03 mg/kg
Toluene	7.0 mg/kg
Ethylbenzene	6.0 mg/kg
Total Xylenes	9.0 mg/kg

Removal action objectives were: (1) to remove soils with contaminant concentrations exceeding the cleanup levels listed above; and (2) to remove soils with visual evidence of separate-phase hydrocarbon (SPH), regardless of contaminant concentrations in the soils determined through laboratory analysis. However, the ability to access impacted soils was limited by numerous physical and logistical constraints, including the following:

- Excavation next to the building could not extend below the base of the pile caps supporting the building (approximately 11 feet bgs).

- The northern excavation boundary required that a slope not greater than 1.5H:1V be maintained along the northern property line, unless special techniques were employed such as trench boxes. (Although much steeper sidewall slopes were typically achievable, this slope limitation was required by the City of Seattle to ensure protection of the South Andover Street right-of-way.)
- The western extent of excavation was limited by the water treatment equipment and the active Darigold truck bays.
- Excavation depth was limited by the groundwater table. (Excavation to several feet below the groundwater table was possible by pumping water from temporary sumps within the excavation.)
- A traffic lane generally needed to be maintained throughout the construction period for Darigold trucks to pass through the North Yard.

In addition, the majority of the field work needed to be completed between early July and mid-August. This is the school "summer break" period, during which there are fewer dairy product load-outs in the North Yard and truck bays along the eastern portion of the building's north side can be idled.

4 Construction Activities

4.1 Monitoring Well Decommissioning

Seven groundwater monitoring wells (MW02, MW03, MW04, MW07, MW10, MW11, and PE01), which were located in the immediate vicinity of the planned excavation, were decommissioned by Aspect prior to construction mobilization. Well locations are shown on Figure 5. Decommissioning was accomplished by filling the well casings with grout in accordance with WAC 173-160-460. All decommissioned wells, except MW11, were subsequently removed during excavation activities.

4.2 Soil Excavation and Disposal

Asphalt and concrete surfacing in the excavation area was broken up, loaded into dump trucks, and transported to Kangley Rock & Recycling in Renton.

A total of 7,858 tons of soil were excavated and direct-loaded into "solo" dump trucks. With a few exceptions, the trucks delivered the soil to Allied Waste's transfer station at 3rd Avenue S and S Lander Street in Seattle, for transport by rail to the Roosevelt Regional Landfill in southeastern Washington. Approximately 100 tons of soil were delivered instead to Waste Management's transfer station at 70 S Alaska Street in Seattle, for transport by rail to the Columbia Ridge Landfill in Arlington, Oregon. Truck trip tickets are provided in Appendix F, along with a table of summary information.

All soils were disposed of as Class III/IV petroleum-contaminated soil.

4.3 Excavation Dewatering and Water Treatment

To facilitate excavation and backfill of soil below the static water table, sump pumps were used to remove water accumulating in the excavation. The water was pumped to an onsite pretreatment system consisting of the following:

- an 18,100-gallon weir tank for removal of solids and SPH;
- a 21,000-gallon settling tank for storage and additional solids removal;
- a bag filter for removal of small particulates; and
- two vessels in series, each containing 2,000 pounds of granular activated carbon (GAC), for removal of dissolved petroleum hydrocarbons.

Treated water was discharged to sanitary sewer in accordance with a City of Seattle Side Sewer Permit for Temporary Dewatering (SSPTD) and King County Industrial Waste (KCIW) Discharge Authorization 11274-01. (Copies of the SSPTD and the discharge authorization letter are provided in Appendices B and C, respectively, of the *CAP/EDR*.)

Approximately 44,000 gallons of water were pumped from the excavation, pretreated, and discharged to the sanitary sewer.

4.4 Regenesis Product Placement in Excavation

Two proprietary remediation products supplied by Regenesis were spread on the excavation bottom prior to backfilling, to promote chemical oxidation and bioremediation of residual contamination. Application areas are shown on Figure 4. ORC Advanced®, which produces a controlled release of molecular oxygen to promote biodegradation of dissolved contaminants, was spread evenly over the entire excavation bottom. RegenOx™, a two-part formulation that promotes chemical oxidation of contaminants, was applied in selected areas where field screening indicated residual soil contamination. A low dose was applied over a large portion of the excavation bottom (roughly 6,800 ft^2), where field screening indicated potential low-level residual contamination. A higher (2x) dose was applied in the following three areas:

- along the north side of the building in the vicinity of former monitoring well MW07, where the excavation depth was limited by the need to protect the building's structural stability;
- along the southern portion of the excavation's east sidewall, where additional excavation eastward was limited by truck traffic considerations; and
- along the eastern portion of the excavation's north sidewall (in the vicinity of former monitoring well MW04), where additional excavation northward was limited by the north property boundary.

The total area receiving the higher dose of RegenOx™ was roughly 1,600 ft^2. All told, approximately 1,625 pounds (lbs) of ORC Advanced® and 3,090 lbs of RegenOx™ were applied to the excavation bottom.

4.5 Excavation Backfilling and Compaction

The excavation was backfilled with clean imported gravels. Backfill materials (as specified on the truck trip tickets) and tonnages are summarized as follows:

Material Type	Tons
Gravel Borrow	2,585
Type 17 Gravel	5,215
Crushed Surfacing Base Course (CSBC)	192
Crushed Surfacing Top Course (CSTC)	582

Gravel import trip tickets are provided in Appendix F, along with a table of summary information.

Backfill materials were placed in horizontal lifts not exceeding 12 inches in loose thickness and compacted using a 5-ton single-drum vibratory roller. Fill more than 2 feet below finish grade was compacted to minimum 90 percent of maximum dry density as determined by ASTM D-1557. Fill within 2 feet of finish grade was compacted to minimum 95 percent of maximum dry density. These compaction requirements are in accordance with the recommendations of the geotechnical engineering evaluation report for the project (SES, 2008).

Quarry samples were submitted for compaction testing prior to importing the gravel, and soil compaction testing was conducted in the field using a nuclear densometer. Soil compaction test and inspection reports are provided in Appendix C.

4.6 Site Restoration

Figure 5 shows the approximate locations of utilities intercepted by excavation activities. The sanitary sewer line was protected in place during construction. The two storm drain lines and the footing drain line were removed as excavation proceeded and subsequently replaced. A Side Sewer Permit, a copy of which is provided in Appendix E, was obtained for the storm drain line replacement work. It is noteworthy that the intercepted portion of the footing drain line was not perforated, although the 1987 foundation plumbing plan for the basement and milk cooler addition appears to specify perforated pipe.

Once backfill soil was compacted to the required densities and grades, the North Yard's asphalt pavement and concrete surfaces were restored. Approximately 248 tons of asphalt and 175 cubic yards (cy) of concrete were imported for this purpose. Asphalt and concrete import trip tickets are provided in Appendix F, along with a table of summary information.

Finally, a replacement trench drain was installed at the approximate location shown on Figure 5, and its eastern terminus piped into the sanitary sewer line. The purpose of the trench drain is to route to sanitary sewer any leakage from trailers stationed at the truck bays along the north end of the building.

4.7 Replacement Monitoring Well Installation

Seven groundwater monitoring wells (MW22 through MW28) were installed on August 25 and 26, 2011, replacing the wells that were decommissioned prior to start of construction. Figure 5 shows the locations of both existing and decommissioned monitoring wells. New well locations were selected as follows:

- MW22 replaces decommissioned well MW02 at the western (downgradient) edge of the excavation.
- MW23 replaces decommissioned well MW07, the well in which SPH was typically observed. Deep impacted soils could not be excavated at this location due to building foundation stability concerns.
- MW24 and MW25 were installed within the excavation area, downgradient of the former UST source areas.
- MW26 and MW27 were installed at the northeastern edge of the excavation, in the vicinity of MW12 and decommissioned well MW04. Because high contaminant concentrations in groundwater have been observed in this area, a denser concentration of monitoring wells is warranted.
- MW28 was installed in the northeastern (upgradient) portion of the former UST source areas.

All borings were advanced to 15 feet bgs and ¾-inch-diameter wells were installed using a direct-push probe rig. Soil sampling was conducted during well installation, as described in Section 5.3. Refer to the monitoring well construction logs in Appendix D for boring logs and well construction details.

Following new well installation and development, all outdoor monitoring wells associated with the site were surveyed. Survey results were provided to SoundEarth Strategies, Inc. (SES) for its use in future groundwater monitoring efforts.

5 Soil Sampling Results

Soil samples were collected for the following reasons:

- To document contaminant concentrations in soils that were excavated (these are referred to as over-excavated soil samples);
- To determine contaminant concentrations in soils that were left in place at the excavation limits (referred to as excavation bottom and sidewall samples); and
- To determine contaminant concentrations in soils at locations where replacement monitoring wells were installed (referred to as monitoring well boring samples).

All soil samples were collected in laboratory-provided, 4-ounce glass jars. Immediately following collection, all sample jars were placed in coolers with Blue Ice. The coolers were transported under chain-of-custody protocols to Friedman & Bruya, Inc. (F&BI) in

Seattle, Washington. Soil samples were analyzed for BTEX by EPA Method 8021, for TPH in the gasoline range by Method NWTPH-Gx, and for TPH in the diesel and lube oil ranges by Method NWTPH-Dx. Analytical results are summarized in Table 1 along with sampling date, approximate sample depth, and sample type. Laboratory reports are provided in Appendix G.

Soil sampling results, by sample type, are briefly discussed below.

5.1 Over-Excavated Soil Samples

A total of 23 samples of this type were collected. In general, samples were collected at locations where there were significant visual, olfactory, and/or PID indications of petroleum contamination. Approximate sample locations and analytical laboratory results for benzene and TPH in the gasoline and diesel ranges are shown on Figure B-1 in Appendix B. The highest benzene and gasoline-range TPH concentrations were detected in sample DG-009-8, collected at a depth of approximately 8 feet bgs. The benzene detection of 10 mg/kg is some 330 times the MTCA Method A soil cleanup level for that compound, and the gasoline-range TPH detection of 6,400 mg/kg is about 210 times the corresponding Method A cleanup level. A maximum diesel-range TPH concentration of 790 mg/kg was detected in sample DG-019-11-B, collected at a depth of approximately 11 feet bgs. None of the over-excavated soil samples contained diesel-range TPH at concentrations above the MTCA Method A soil cleanup level of 2,000 mg/kg.

5.2 Excavation Bottom and Sidewall Samples

A total of 23 excavation bottom and 16 sidewall samples were collected. At each sidewall sampling location, the soil sample was collected from whatever depth exhibited the greatest potential for contaminant impacts or, if there was no evidence of impacts, from near the base of the sidewall. Approximate sample locations and depths, and analytical laboratory results for benzene and TPH in the gasoline and diesel ranges, are shown on Figure 3. As previously noted, visual and olfactory observations and PID field screening were used to guide the excavation, which extended to the extent practical both downward and laterally in order to remove soils exceeding MTCA cleanup levels; however, numerous physical and logistical constraints limited the contractor's ability to access impacted soils.

5.2.1 Diesel-Range TPH Exceedences

The MTCA Method A soil cleanup level for diesel-range TPH (2,000 mg/kg) was achieved at all bottom sample locations, and at all sidewall sample locations except DG-068-12-SW. Based on the relatively low diesel-range TPH concentrations detected in the over-excavated soil samples, concentrations exceeding the Method A cleanup level were likely limited to the extreme eastern portion of the excavation, which is where the source USTs were formerly located. Diesel fuel is less likely than gasoline to migrate significantly downgradient from the source area.

5.2.2 Gasoline-Range TPH Exceedences

The Method A soil cleanup level for gasoline-range TPH (30 mg/kg) was exceeded at two bottom sample locations and at five sidewall sample locations. Two of the sidewall exceedences (DG-034-13-SW and DG-053-7-SW) are relatively minor (39 mg/kg and 75 mg/kg, respectively) and are isolated from other gasoline-range TPH exceedences. It is

reasonable to expect that residual concentrations at these locations will naturally attenuate to below the Method A cleanup level within a few years. The other five exceedences can be categorized as follows:

- Sidewall sample DG-010-11-SW is along the building's north wall, where the excavation depth was limited by the need to protect the building's structural stability. The higher dose of RegenOx™ (along with ORC Advanced®) was applied in this area (see Figure 4). Results of future quarterly groundwater monitoring at well MW23 will provide an indication of how effectively the Regenesis product applications remediate residual contamination in this area. Additional chemical injections may be needed to further enhance *in situ* degradation of gasoline-range TPH.
- Bottom sample DG-040-13-B is in the extreme southeastern corner of the excavation. This location also received a relatively high dose of RegenOx™. If future groundwater concentration trends are encouraging at MW23, it is reasonable to expect that the Regenesis product applications completed during the removal action will also be effective at this location.
- Bottom sample DG-064-12-B and sidewall samples DG-067-12-SW and DG-068-12-SW are in the central portion of the excavation's eastern edge. This is the former UST area, and the last area to be excavated in the removal action. Additional lateral excavation to the east was not pursued due to a combination of difficult excavation conditions (sloughing of the gravel that was used to backfill the former UST area) and schedule concerns. Residual contamination in the excavation bottom may be adequately addressed by the Regenesis product applications completed during the removal action. In addition, the gasoline-range TPH exceedence at DG-067-12-SW is relatively minor and should naturally attenuate within a few years. However, the unexcavated area east of DG-064-12-B and DG-068-12-SW should be considered for enhanced *in situ* degradation. The eastward extent of residual contamination appears to be limited because petroleum hydrocarbons have not been detected during recent groundwater monitoring rounds at MW05, a well located less than 20 feet east of the excavation sidewall.

5.2.3 Benzene Exceedences

The Method A soil cleanup level for benzene (0.03 mg/kg) was exceeded at nine bottom sample locations and three sidewall sample locations. (In addition, benzene detection limits exceeded the cleanup level at one bottom and two sidewall locations; refer to Figure 5.) It is notable that the benzene concentrations in the bottom samples generally represent a large percentage of the total concentration of gasoline-range compounds as measured by gasoline-range TPH. For example, benzene concentrations detected in bottom samples DG-020-13-B, DG-021-13-B, and DG-024-14-B represent 27 to 35 percent of the corresponding gasoline-range TPH concentrations.

Benzene is among the most soluble of gasoline components, which enhances its ability to migrate downgradient in groundwater. It is also a component that readily biodegrades under aerobic conditions. For this reason, it is often the first of the BTEX compounds to drop below detection levels as concentrations in groundwater attenuate at gasoline-impacted sites. At this site, however, observed ratios of benzene to gasoline-range TPH

are high at locations downgradient of the source (the former UST area), suggesting only limited aerobic biodegradation of contaminants to date.

The soil removal action has resulted in changed conditions for impacted soils remaining at the excavation bottom. Conditions may now be more favorable for aerobic biodegradation, primarily because the bulk of the contaminant mass has been removed from the soil column and the thickness of the impacted soil layer has been greatly reduced. The soil sample analytical data indicate that contamination does not extend below depths of 13 to 14 feet bgs. Benzene-impacted areas remaining in the excavation bottom are generally expected to be less than one foot thick.

In addition to being of limited thickness and low TPH concentration, the residual benzene-impacted areas are interspersed with areas where impacted soils have been completely removed. This, along with the fact that Regenesis products were spread on the excavation bottom prior to backfilling, should help promote the aerobic conditions needed for rapid biodegradation of benzene.

Two of the three sidewall samples with benzene exceedences (DG-033-14-SW and DG-034-13-SW) were collected from the central portion of the excavation's south sidewall. There were no field indications of sidewall contamination at this location, and sampling results confirm that the TPH loading is low. In addition, nearby excavation bottom sample results suggest that contamination has been completely removed from the upgradient area. Therefore, we also expect aerobic conditions to develop at this sidewall location, leading to rapid biodegradation of residual benzene.

The other sidewall sample exceedence was detected at DG-068-12-SW. As noted in Section 5.2.2, because that sample had a relatively high TPH loading, the unexcavated area to the east will be considered for enhanced *in situ* degradation.

5.2.4 Toluene, Ethylbenzene, and Xylenes Exceedences

The Method A soil cleanup level for toluene (7 mg/kg) was exceeded in only one sample, sidewall sample DG-010-11-SW. The Method A cleanup levels for ethylbenzene (6 mg/kg) and total xylenes (9 mg/kg) were also exceeded in this sample, as well as in bottom sample DG-040-13-B and sidewall sample DG-068-12-SW. As discussed in Section 5.2.2, these three samples also had significant gasoline-range TPH exceedences. Gasoline-range TPH is expected to be the remediation "driver" at these locations. That is, as concentrations decline over time due to either enhanced *in situ* degradation or natural attenuation, the cleanup level for gasoline-range TPH will likely be the last to be achieved.

5.3 Monitoring Well Boring Samples

During installation of the seven replacement monitoring wells, depth-discrete soil samples were collected from the direct-push probe tool and evaluated in the field. At each boring location, two samples were selected to submit for chemical analysis. At the five locations within the footprint of the recent excavation (MW22 through MW26), samples of pre-existing soil were collected at the transition from backfill to pre-existing soil and at the boring bottom (15 feet bgs). At the two locations outside the excavation (MW27 and MW28), samples were collected when wet conditions were first encountered (approximately 11 feet bgs) and at the boring bottom.

Lab results are summarized in Table 1. The upper sample from MW23 (collected at 13 feet bgs) contained benzene and gasoline-range TPH at concentrations above MTCA Method A soil cleanup levels, and the upper sample from MW24 (collected at 13.5 feet bgs) also exceeded the cleanup level for benzene. No other Method A cleanup level exceedences were detected in the monitoring well boring samples.

6 Water Treatment System Monitoring Results

Water samples collected from the pretreatment system discharge line were monitored in the field and chemically analyzed to document compliance with KCIW's Discharge Authorization 11274-01. Water was discharged to sewer on only two days; approximately 13,000 gallons on July 28, 2011, and approximately 31,000 gallons on August 5, 2011. Discharge rates were maintained below 100 gallons per minute. Settleable solids (by Imhoff Cone) and pH were monitored in the field on both days. No settleable solids were observed, and pH measurements in the range of 7.9 to 8.5 were obtained. SPH was not observed at any time in either the weir tank or the sewer discharge.

Samples were also collected for laboratory analysis of BTEX by EPA Method 8021 and non-polar fats, oils, and grease (FOG) by EPA Method 1664. Sample jars were placed in coolers with Blue Ice and transported under chain-of-custody protocols to F&BI. All water sample results were below detection limits, which were far below the KCIW discharge limitations. Laboratory reports (dated August 10 and 15, 2011) are provided in Appendix G.

The discharge was reported on a KCIW Self-Monitoring Report form, a copy of which is provided in Appendix E.

7 Next Steps

SES will continue to conduct groundwater monitoring at the site on a quarterly basis. As they become available, Aspect will evaluate monitoring results with respect to removal action effectiveness and the need for additional chemical injections to enhance *in situ* degradation in specific areas. It is anticipated that a detailed chemical injection work plan will be prepared in early 2012.

References

Aspect, 2011a, Focused Feasibility Study, Rainier Avenue Facility Remediation, February 18, 2011.

Aspect, 2011b, Cleanup Action Plan & Engineering Design Report, Rainier Avenue Facility Remediation, July 27, 2011.

SES, 2008, Letter to S. Rowe, Darigold, Inc., Subject: Geotechnical Engineering Evaluation, Interim Remedial Excavation and Parking Lot Restoration, Darigold Facility – North Yard, 4058 Rainier Avenue South, Seattle, Washington, Prepared by SES and Adapt Engineering, Inc., June 12, 2008.

Limitations

Work for this project was performed and this report prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of Darigold, Inc. for specific application to the referenced property. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

Table 1 - Soil Sampling Results

Darigold Rainier Avenue Facility 090066

Sample ID	DG-003-9	DG-004-11-SW	DG-005-11-B	DG-006-11-B	DG-007-11-SW	DG-008-10-SW	DG-009-8	DG-010-11-SW	DG-011-11-SW	DG-012-11-SW
Sampling Date	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/19/2011
Approximate Sample Depth (bgs)	(9 ft.)	(11 ft.)	(11 ft.)	(11 ft.)	(11 ft.)	(10 ft.)	(8 ft.)	(11 ft.)	(11 ft.)	(11 ft.)
Sample Type	EB	ESW	OE	EB	OE	ESW	OE	ESW	ESW	ESW
Total Petroleum Hydrocarbon (TPH)										
Gasoline Range	6.1	2 <	39	2 <	39	2 <	6,400	1,400	2 <	2 <
Diesel Range	50 <	50 <	150	50 <	84	50 <	170	130	50 <	50 <
Lube Oil Range	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <
Individual Constituents										
Benzene	0.23	0.02 <	0.85	0.02 <	0.13	0.02 <	10	2 <	0.02 <	0.02 <
Toluene	0.55	0.02 <	3.4	0.02 <	0.1 <	0.02 <	180	12	0.02 <	0.02 <
Ethylbenzene	0.63	0.02 <	4.7	0.02 <	0.46	0.02 <	150	28	0.02 <	0.02 <
Xylenes (total)	0.24	0.06 <	1.6	0.06 <	0.63	0.06 <	730	160	0.06 <	0.06 <

< Analyte was not detected at or above the reported result.

bgs below ground surface

MW monitoring well boring sample

OE over-excavated sample

EB excavation bottom sample

ESW excavation sidewall sample

x The sample chromatographic pattern does not resemble the standard used for quantitation.

Notes:

1) All concentrations are in milligrams per kilogram (mg/kg).

2) Refer to Figure 3 (EB and ESW samples) and Figure B-1 (OE samples) for sampling locations.

3) Laboratory reports are provided in Appendix G.

Table 1 - Soil Sampling Results

Darigold Rainier Avenue Facility 090066

Sample ID	DG-013-9	DG-014-8	DG-015-11-B	DG-016-8	DG-017-8	DG-018-11-B	DG-019-11-B	DG-020-13-B	DG-021-13-B	DG-022-8	DG-023-8
Sampling Date	7/19/2011	7/19/2011	7/19/2011	7/19/2011	7/19/2011	7/19/2011	7/19/2011	7/20/2011	7/20/2011	7/20/2011	7/20/2011
Approximate Sample Depth (bgs)	(9 ft.)	(8 ft.)	(11 ft.)	(8 ft.)	(8 ft.)	(11 ft.)	(11 ft.)	(13 ft.)	(13 ft.)	(8 ft.)	(8 ft.)
Sample Type	OE	OE	OE	OE	OE	OE	OE	EB	EB	OE	OE
Total Petroleum Hydrocarbon (TPH)											
Gasoline Range	1,200	38	850	430	310	120	740	6	10	27	610
Diesel Range	110 x	80 x	440	50 <	50 <	50 <	790	50 <	50 <	50 <	140
Lube Oil Range	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <
Individual Constituents											
Benzene	0.2 <	0.02 <	2.7	0.86	1.7	0.057	9.6	1.6	2.7	2.1	5.9
Toluene	1.4	0.15	0.79	0.41	1 <	0.054	2 <	0.02 <	0.02 <	0.087	0.36
Ethylbenzene	22	0.42	21	3.2	5.2	2.5	15	0.02 <	0.64	0.88	17
Xylenes (total)	21	1.9	110	6 <	20	9	72	0.06 <	0.06 <	3.7	47

< Analyte was not detected at or above the reported result.

bgs below ground surface

MW monitoring well boring sample

OE over-excavated sample

EB excavation bottom sample

ESW excavation sidewall sample

x The sample chromatographic pattern does not resemble the standard used for quantitation.

Notes:

1) All concentrations are in milligrams per kilogram (mg/kg).

2) Refer to Figure 3 (EB and ESW samples) and Figure B-1 (OE samples) for sampling locations.

3) Laboratory reports are provided in Appendix G.

Table 1 - Soil Sampling Results

Darigold Rainier Avenue Facility 090066

Sample ID	DG-024-14-B	DG-025-9	DG-030-8	DG-031-9	DG-032-14-B	DG-033-14-SW	DG-034-13-SW	DG-035-14-B	DG-036-12	DG-037-9	DG-038-13-B
Sampling Date	7/20/2011	7/20/2011	7/25/2011	7/25/2011	7/25/2011	7/25/2011	7/26/2011	7/26/2011	7/26/2011	7/26/2011	7/27/2011
Approximate Sample Depth (bgs)	(14 ft.)	(9 ft.)	(8 ft.)	(9 ft.)	(14 ft.)	(14 ft.)	(13 ft.)	(14 ft.)	(12 ft.)	(9 ft.)	(13 ft.)
Sample Type	EB	OE	OE	OE	EB	ESW	ESW	EB	OE	OE	EB
Total Petroleum Hydrocarbon (TPH)											
Gasoline Range	16	490	800	240	2 <	2 <	39	2 <	690	2 <	2 <
Diesel Range	50 <	130	450	50 <	50 <	50 <	84	450	300	50 <	50 <
Lube Oil Range	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <
Individual Constituents											
Benzene	5.6	4.8	4.1	1 <	0.02 <	0.31	3.7	0.02 <	2 <	0.02 <	0.02 <
Toluene	0.02 <	4.1	2 <	1 <	0.02 <	0.02 <	0.1 <	0.02 <	2 <	0.02 <	0.02 <
Ethylbenzene	0.38	7.5	20	4.2	0.02 <	0.02 <	2.5	0.02 <	14	0.02 <	0.02 <
Xylenes (total)	0.88	40	100	4.1	0.06 <	0.06 <	1.9	0.06 <	75	0.06 <	0.06 <

< Analyte was not detected at or above the reported result.

bgs below ground surface

MW monitoring well boring sample

OE over-excavated sample

EB excavation bottom sample

ESW excavation sidewall sample

x The sample chromatographic pattern does not resemble the standard used for quantitation.

Notes:

1) All concentrations are in milligrams per kilogram (mg/kg).

2) Refer to Figure 3 (EB and ESW samples) and Figure B-1 (OE samples) for sampling locations.

3) Laboratory reports are provided in Appendix G.

Table 1 - Soil Sampling Results

Darigold Rainier Avenue Facility 090066

Sample ID	DG-039-11	DG-040-13-B	DG-041-8	DG-042-12	DG-043-12-B	DG-044-10-B	DG-046-9-B	DG-047-8	DG-048-7	DG-049-12-B	DG-050-8
Sampling Date	7/27/2011	7/27/2011	7/27/2011	7/28/2011	7/28/2011	7/29/2011	7/30/2011	7/30/2011	7/30/2011	8/1/2011	8/1/2011
Approximate Sample Depth (bgs)	(11 ft.)	(13 ft.)	(8 ft.)	(12 ft.)	(12 ft.)	(10 ft.)	(9 ft.)	(8 ft.)	(7 ft.)	(12 ft.)	(8 ft.)
Sample Type	OE	EB	OE	EB	EB	EB	EB	OE	OE	EB	OE
Total Petroleum Hydrocarbon (TPH)											
Gasoline Range	450	570	2 <	4.8	2 <	2 <	2 <	390	220	2 <	110
Diesel Range	83	50 <	84	50 <	50 <	50 <	50 <	50 <	50 <	50 <	200
Lube Oil Range	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <
Individual Constituents											
Benzene	0.36	0.2 <	0.02 <	0.3	0.02 <	0.02 <	0.02 <	0.4 <	4.1	0.02 <	1.1
Toluene	0.2 <	2.9	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	2.6	1 <	0.02 <	1.1
Ethylbenzene	17	10	0.02 <	0.05	0.02 <	0.02 <	0.02 <	7	7.8	0.02 <	1.7
Xylenes (total)	38	56	0.06 <	0.06 <	0.06 <	0.06 <	0.06 <	40	3 <	0.06 <	9.9

< Analyte was not detected at or above the reported result.

bgs below ground surface

MW monitoring well boring sample

OE over-excavated sample

EB excavation bottom sample

ESW excavation sidewall sample

x The sample chromatographic pattern does not resemble the standard used for quantitation.

Notes:

1) All concentrations are in milligrams per kilogram (mg/kg).

2) Refer to Figure 3 (EB and ESW samples) and Figure B-1 (OE samples) for sampling locations.

3) Laboratory reports are provided in Appendix G.

Table 1 - Soil Sampling Results

Darigold Rainier Avenue Facility 090066

Sample ID	DG-051-12-B	DG-052-12-SW	DG-053-7-SW	DG-054-6-SW	DG-055-12-B	DG-056-12-B	DG-057-8	DG-058-12-B	DG-059-12-B	DG-060-12-B	DG-061-11-B
Sampling Date	8/1/2011	8/1/2011	8/1/2011	8/1/2011	8/1/2011	8/1/2011	8/1/2011	8/1/2011	8/2/2011	8/2/2011	8/3/2011
Approximate Sample Depth (bgs)	(12 ft.)	(12 ft.)	(7 ft.)	(6 ft.)	(12 ft.)	(12 ft.)	(8 ft.)	(12 ft.)	(12 ft.)	(12 ft.)	(11 ft.)
Sample Type	EB	ESW	ESW	ESW	EB	EB	OE	EB	EB	EB	EB
Total Petroleum Hydrocarbon (TPH)											
Gasoline Range	10 <	2 <	75	2 <	2 <	3.4	650	2 <	13	2 <	2 <
Diesel Range	50 <	50 <	50 <	50 <	50 <	50 <	430	50 <	50 <	50 <	50 <
Lube Oil Range	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <
Individual Constituents											
Benzene	0.48	0.02 <	0.1 <	0.02 <	0.034	0.053	2 <	0.02 <	1.8	0.02 <	0.02 <
Toluene	0.1 <	0.02 <	0.1 <	0.02 <	0.02 <	0.02 <	2 <	0.02 <	0.02 <	0.02 <	0.02 <
Ethylbenzene	0.36	0.02 <	0.1 <	0.02 <	0.02 <	0.23	12	0.02 <	1	0.02 <	0.02 <
Xylenes (total)	0.3 <	0.06 <	0.3 <	0.06 <	0.06 <	0.06 <	52	0.06 <	0.77	0.06 <	0.06 <

< Analyte was not detected at or above the reported result.

bgs below ground surface

MW monitoring well boring sample

OE over-excavated sample

EB excavation bottom sample

ESW excavation sidewall sample

x The sample chromatographic pattern does not resemble the standard used for quantitation.

Notes:

1) All concentrations are in milligrams per kilogram (mg/kg).

2) Refer to Figure 3 (EB and ESW samples) and Figure B-1 (OE samples) for sampling locations.

3) Laboratory reports are provided in Appendix G.

Table 1 - Soil Sampling Results

Darigold Rainier Avenue Facility 090066

Sample ID	DG-062-9-SW	DG-063-12-B	DG-064-12-B	DG-065-10-SW	DG-066-12-SW	DG-067-12-SW	DG-068-12-SW	DG-069-14-SW	MW-22-13	MW-22-15
Sampling Date	8/3/2011	8/3/2011	8/3/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/26/2011	8/26/2011
Approximate Sample Depth (bgs)	(9 ft.)	(12 ft.)	(12 ft.)	(10 ft.)	(12 ft.)	(12 ft.)	(12 ft.)	(14 ft.)	(13 ft.)	(15 ft.)
Sample Type	ESW	EB	EB	ESW	ESW	ESW	ESW	ESW	MW	MW
Total Petroleum Hydrocarbon (TPH)										
Gasoline Range	19	2 <	180	2 <	2 <	64	1,000	2 <	2 <	2 <
Diesel Range	50 <	50 <	410	50 <	50 <	1,000	7,100	50 <	50 <	50 <
Lube Oil Range	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <
Individual Constituents										
Benzene	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	0.86	0.02 <	0.02 <	0.02 <
Toluene	0.02 <	0.02 <	0.042	0.02 <	0.02 <	0.02 <	7	0.02 <	0.02 <	0.02 <
Ethylbenzene	0.47	0.02 <	1.1	0.02 <	0.02 <	0.02 <	6.6	0.02 <	0.02 <	0.02 <
Xylenes (total)	0.14	0.06 <	1.4	0.06 <	0.06 <	0.1	30	0.06 <	0.06 <	0.06 <

< Analyte was not detected at or above the reported result.

bgs below ground surface

MW monitoring well boring sample

OE over-excavated sample

EB excavation bottom sample

ESW excavation sidewall sample

x The sample chromatographic pattern does not resemble the standard used for quantitation.

Notes:

1) All concentrations are in milligrams per kilogram (mg/kg).

2) Refer to Figure 3 (EB and ESW samples) and Figure B-1 (OE samples) for sampling locations.

3) Laboratory reports are provided in Appendix G.

Table 1 - Soil Sampling Results

Darigold Rainier Avenue Facility 090066

Sample ID	MW-23-13	MW-23-15	MW-24-13.5	MW-24-15	MW-25-12	MW-25-15	MW-26-10	MW-26-15	MW-27-11	MW-27-15	MW-28-11	MW-28-15
Sampling Date	8/26/2011	8/26/2011	8/25/2011	8/25/2011	8/25/2011	8/25/2011	8/25/2011	8/25/2011	8/25/2011	8/25/2011	8/25/2011	8/25/2011
Approximate Sample Depth (bgs)	(13 ft.)	(15 ft.)	(13.5 ft.)	(15 ft.)	(12 ft.)	(15 ft.)	(10 ft.)	(15 ft.)	(11 ft.)	(15 ft.)	(11 ft.)	(15 ft.)
Sample Type	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW	MW
Total Petroleum Hydrocarbon (TPH)												
Gasoline Range	35	2 <	23	2 <	2 <	2 <	2 <	2 <	2 <	2 <	2 <	2 <
Diesel Range	50 <	50 <	460	50 <	50 <	50 <	50 <	50 <	50 <	50 <	50 <	50 <
Lube Oil Range	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <	250 <
Individual Constituents												
Benzene	0.42	0.02 <	2.3	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <
Toluene	0.97	0.02 <	0.034	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <
Ethylbenzene	1.1	0.041	1.1	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <	0.02 <
Xylenes (total)	5.0	0.13	1.3	0.06 <	0.06 <	0.06 <	0.06 <	0.06 <	0.06 <	0.06 <	0.06 <	0.06 <

< Analyte was not detected at or above the reported result.

bgs below ground surface

MW monitoring well boring sample

OE over-excavated sample

EB excavation bottom sample

ESW excavation sidewall sample

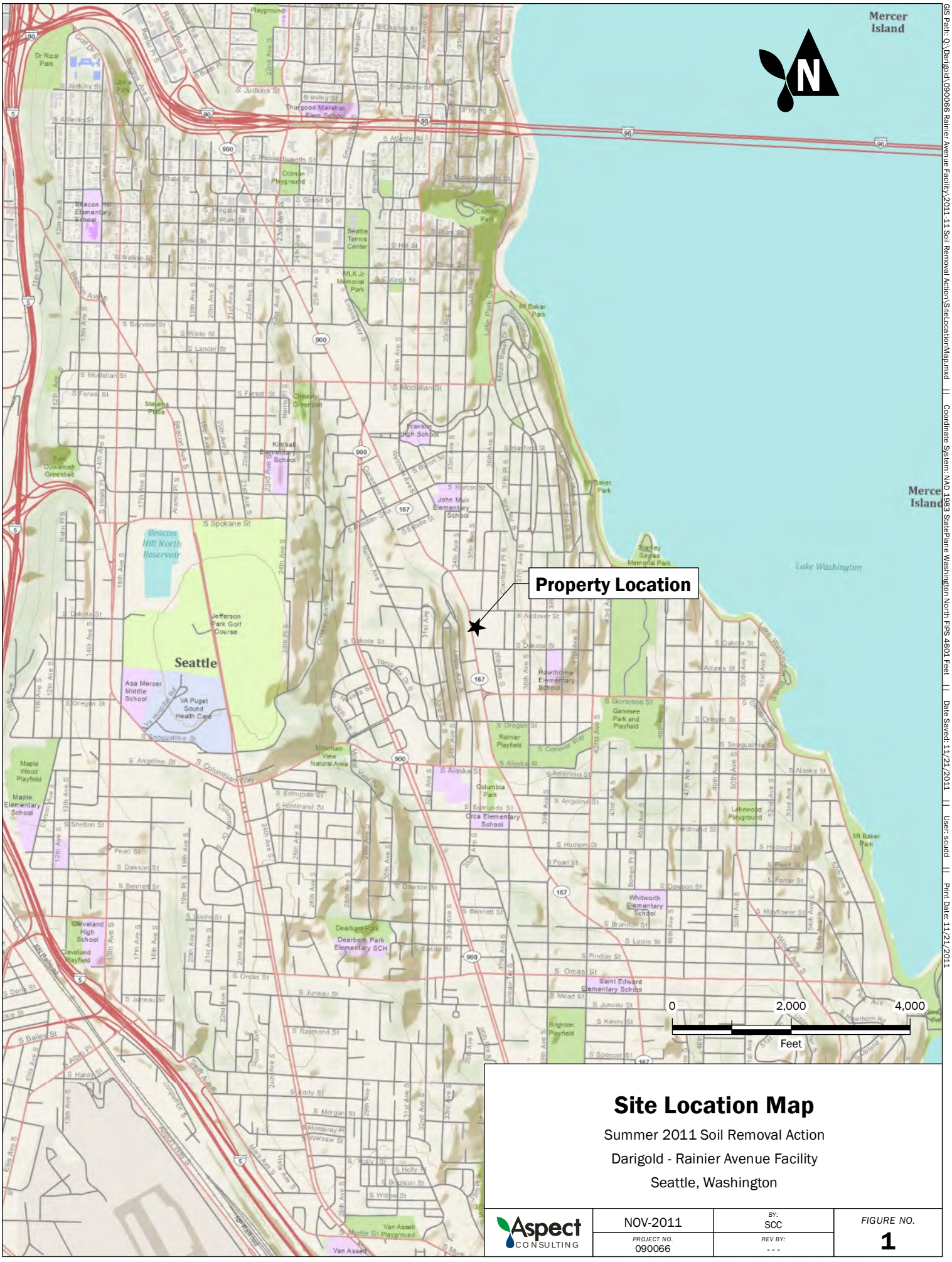
x The sample chromatographic pattern does not resemble the standard used for quantitation.

Notes:

1) All concentrations are in milligrams per kilogram (mg/kg).

2) Refer to Figure 3 (EB and ESW samples) and Figure B-1 (OE samples) for sampling locations.

3) Laboratory reports are provided in Appendix G.



Site Location Map

Summer 2011 Soil Removal Action

Darigold - Rainier Avenue Facility

Seattle, Washington

Aspect CONSULTING	NOV-2011	BY: SCC	FIGURE NO. 1
	PROJECT NO. 090066	REV BY: ---	

DRIVEWAY

DRIVEWAY

FOUND COPPER NAIL IN 4"x4" CONC. MON IN CASE, DOWN 0.40' (5/09/08), ON ℄ N=210565.081 E=1281252.008

FOUND COPPER CONC. MON IN 0.45' (5/09/0 0.02' N OF ℄

8' CLF W/RAZOR WIRE

231.18'

S. ANDOVER ST.

N 88°28'07" W 618.64'

156.56'

DRIVEWAY

DRIVEWAY

DRIVEWAY

DRIVEWAY

DRIVEWAY

DRIVEWAY

OHP OHP OHP OHP OHP OHP OHP OHP OHP

GATE MOTOR

GATE

EXTRUDED CURB

GATE

8"D

GATE

8' CLF W/RAZOR WIRE

28.36' (COS)

GATE MOTOR

PAD FOR FORMER UTILITIES

G

G

G

G

Actual Excavation Bottom (~10,800 sq ft)

Anticipated Excavation Bottom (~4,300 sq ft)

NORTHEAST CORNER OF EXISTING BUILDING

N

0 20 40

Feet

All locations and dimensions are approximate.

Site Plan Showing Excavation Bottom Areas: Anticipated Versus Actual

Summer 2011 Soil Removal Action

Darigold-Rainier Avenue Facility

Seattle, Washington

Aspect Consulting	NOV-2011	BY: MV/SCC	FIGURE NO. 2
	PROJECT NO. 090066	REV BY: SCC	

CAD Path: Q:\Darigold\090066 Rainier Avenue Facility\2011-11 Soil Removal Action\090066-02.dwg Soil Sampling || Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet || Date Saved: Nov 21, 2011 10:44am || User: scudd

DG-046-9-B
<0.02 | <2 | <50

DG-054-6-SW
<0.02 | <2 | <50

DG-053-7-SW
<0.1 (NOTE 1) | **75** | <50

DG-052-12-SW
<0.02 | <2 | <50

DG-062-9-SW
<0.02 | 19 | <50

DG-065-10-SW
<0.02 | <2 | <50

DG-058-12-B
<0.02 | <2 | <50

DG-060-12-B
<0.02 | <2 | <50

DG-049-12-B
<0.02 | <2 | <50

DG-044-10-B
<0.02 | <2 | <50

DG-066-12-SW
<0.02 | <2 | <50

DG-055-12-B
0.034 | <2 | <50

DG-063-12-B
<0.02 | <2 | <50

DG-067-12-SW
<0.02 | **64** | 1,000

DG-056-12-B
0.053 | 3.4 | <50

DG-012-11-SW
<0.02 | <2 | <50

DG-021-13-B
2.7 | 10 | <50

DG-024-14-B
5.6 | 16 | <50

DG-064-12-B
<0.02 | **180** | 410

DG-051-12-B
0.48 | <10 | <50

DG-059-12-B
1.8 | 13 | <50

DG-061-11-B
<0.02 | <2 | <50

DG-035-14-B
<0.02 | <2 | 450

DG-068-12-SW
0.86 | **1,000** | **7,100**

DG-069-14-SW
<0.02 | <2 | <50

DG-043-12-B
<0.02 | <2 | <50

DG-042-12
0.3 | 4.8 | <50

DG-006-11-SW
<0.02 | <2 | <50

DG-020-13-B
1.6 | 6 | <50

DG-032-14-B
<0.02 | <2 | <50

DG-038-13-B
<0.02 | <2 | <50

DG-003-9
0.23 | 6.1 | <50

DG-004-11-SW
<0.02 | <2 | <50

DG-034-13-SW
3.7 | **39** | 84

DG-033-14-SW
0.31 | <2 | <50

DG-040-13-B
<0.2 (Note 1) | **570** | <50

DG-008-10-SW
<0.02 | <2 | <50

DG-011-11-SW
<0.02 | <2 | <50

<2 (NOTE 1) | **1,400** | 130
DG-010-11-SW

Northeast Corner of Building

LEGEND

EXCAVATION BOTTOM

DG-003-9 — SOIL SAMPLE LOCATION & ID (2ND NUMBER IS ESTIMATED SAMPLE DEPTH IN FEET)

0.03 | 30 | 2,000 — SOIL CONCENTRATIONS IN MG/KG (MTCA METHOD A CLEANUP LEVELS ARE SHOWN HERE; BOLD VALUES EXCEED THE CORRESPONDING CLEANUP LEVEL.)

BENZENE | GASOLINE-RANGE TPH | DIESEL-RANGE TPH

(NOTE 1) THE DETECTION LIMIT ACHIEVED FOR BENZENE IN THE SAMPLE EXCEEDS THE MTCA METHOD A CLEANUP LEVEL.

N

0 10 20
Feet

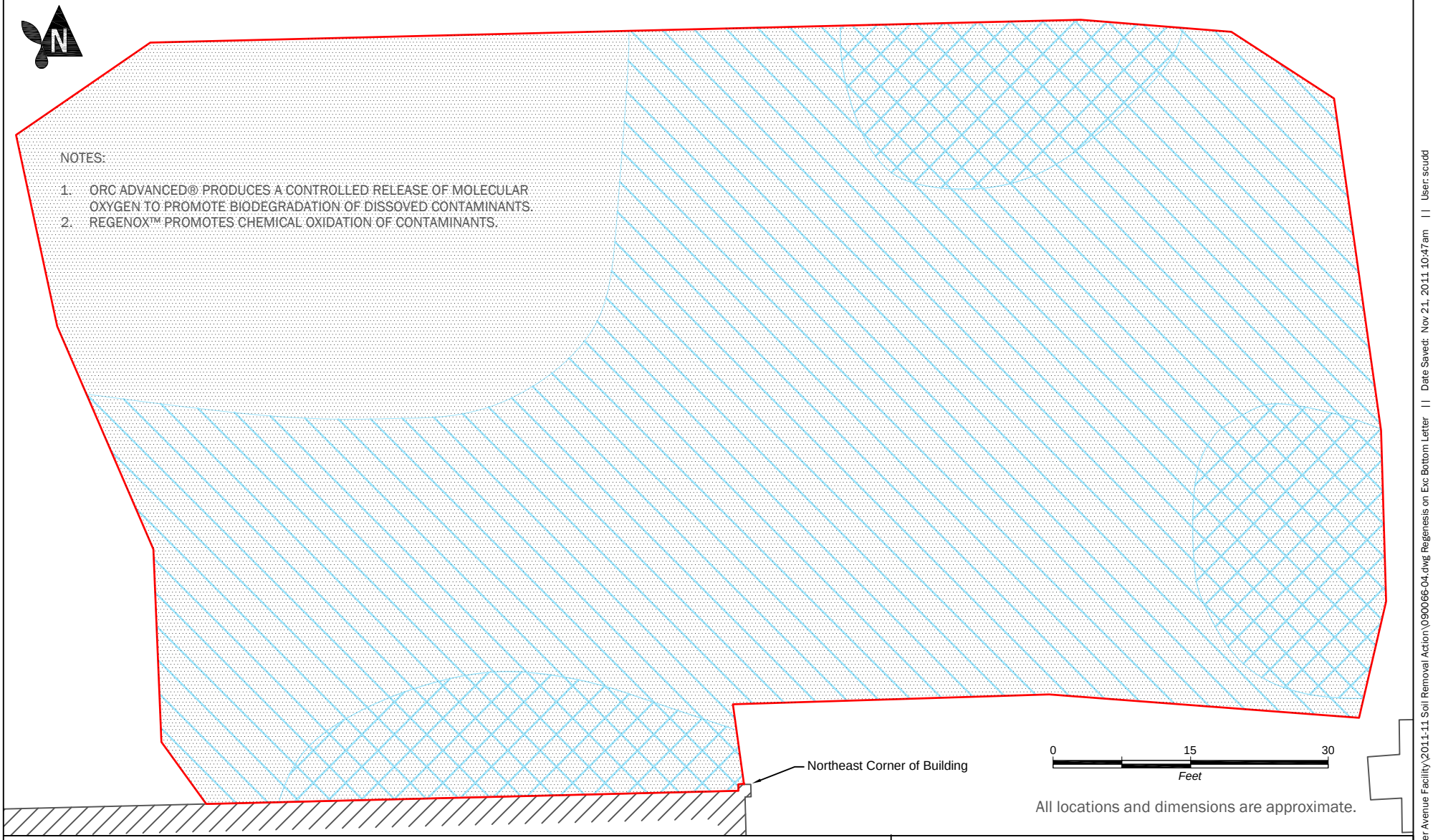
ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

Locations and Results Summary for Excavation Bottom and Sidewall Samples

Summer 2011 Soil Removal Action
Darigold-Rainier Avenue Facility
Seattle, Washington

Aspect Consulting

NOV-2011	BY: MV/SCC	FIGURE NO. 3
PROJECT NO. 090066	REV BY: SCC	



LEGEND

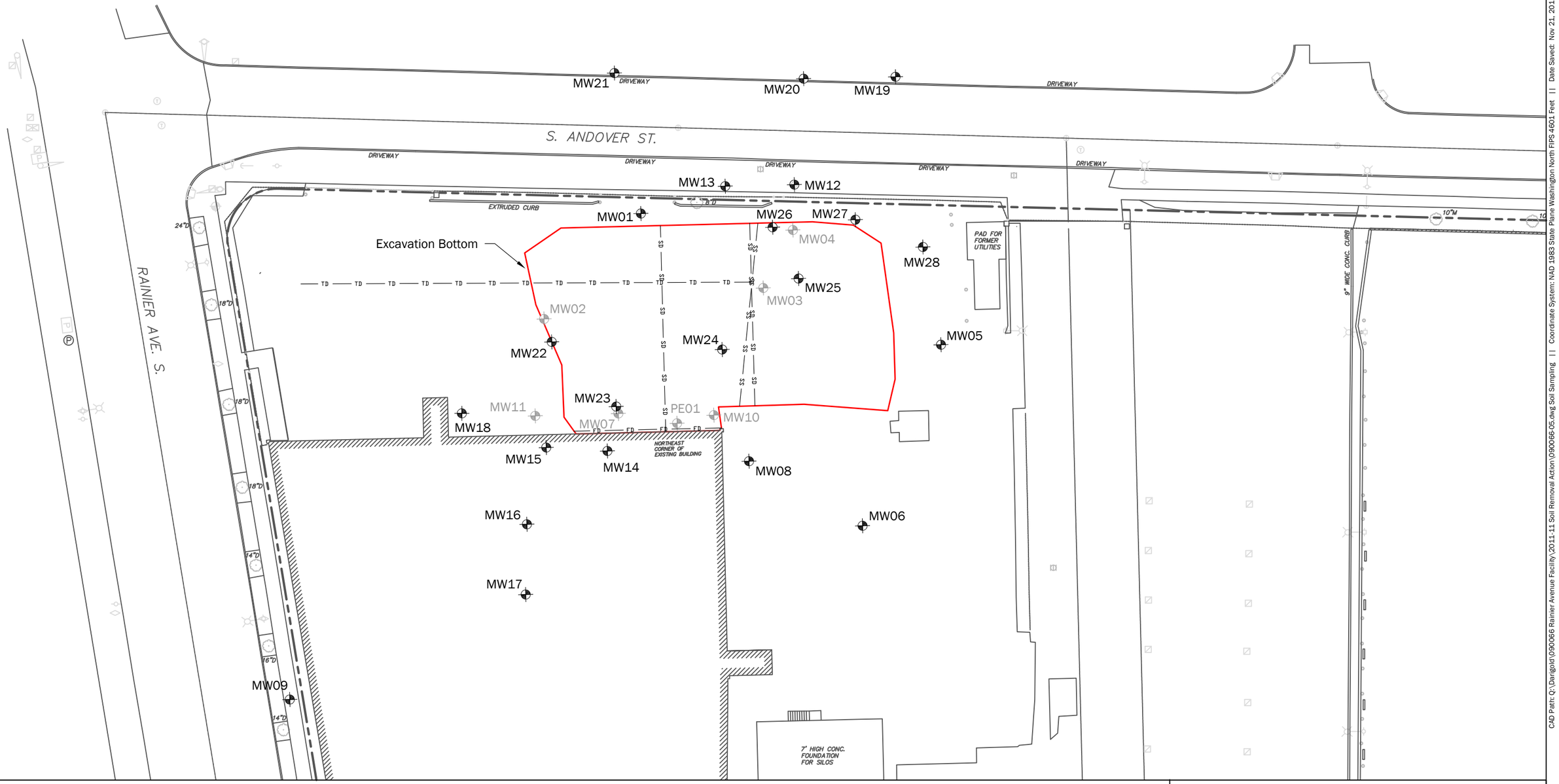
- EXCAVATION BOTTOM
- AREA OF ORC ADVANCED® APPLICATION (APPROX. 0.15 LB/FT²)
- AREA OF REGENOX™ APPLICATION (APPROX. 0.31 LB/FT²)
- AREA OF HEAVY REGENOX™ APPLICATION (APPROX. 0.62 LB/FT²)

Application of Regenesis Products on Excavation Bottom

Summer 2011 Soil Removal Action
Darigold-Rainier Avenue Facility
Seattle, Washington

Aspect CONSULTING	NOV-2011	BY: MV/SCC	FIGURE NO. 4
	PROJECT NO. 090066	REV BY: SCC	

CAD Path: Q:\Darigold\090066 Rainier Avenue Facility\2011-11 Soil Removal Action\090066-04.dwg Regenesis on Exc Bottom Letter || Date Saved: Nov 21, 2011 10:47am || User: scudd



LEGEND

- MW24 — MONITORING WELL LOCATION (ASPECT, AUGUST 2011)
- MW01 — MONITORING WELL LOCATION (SES, 2004-2009)
- MW7 — MONITORING WELL LOCATION (DECOMMISSIONED)

UTILITIES

- FD — FOOTING DRAIN (REMOVED AND REPLACED)
- SD — STORM DRAIN (REMOVED AND REPLACED)
- SS — SANITARY SEWER (PROTECTED IN PLACE)
- TD — TRENCH DRAIN (REMOVED AND REPLACED)

N

0 40 80
Feet

All locations and dimensions are approximate.

Groundwater Monitoring Wells and Utilities

Summer 2011 Soil Removal Action
Darigold-Rainier Avenue Facility
Seattle, Washington

Aspect Consulting	NOV-2011	BY: MV/SCC	FIGURE NO. 5
	PROJECT NO. 090066	REV BY: SCC	

CAD Path: Q:\Darigold\090066 Rainier Avenue Facility\2011-11 Soil Removal Action\090066-05.dwg Soil Sampling || Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet || Date Saved: Nov 21, 2011 10:48am || User: scudd

APPENDIX A

Photographs of Construction

Photo 1: Initial Excavation in the Vicinity of Former Monitoring Well MW07, 7/16/2011

Photo 2: Southwest Corner of Excavation with Water Treatment System in Background, 7/18/2011

Photo 3: Excavation East of Former Monitoring Well MW02, 7/19/2011

Photo 4: Excavation Showing Exposed North Wall Beneath Truck Bays, 7/20/2011

Photo 5: Start of Backfilling Activities (Note Regenesis Products Spread on Excavation Bottom), 7/20/2011

Photo 6: Excavation Backfilling and Compaction, with Dewatering Pump, 7/21/2011

Photo 7: Sanitary Sewer Line Protected during Construction (Note Regenesis Products Spread on Excavation Bottom), 7/26/2011

Photo 8: Storm Drain Line Replacement (Green Pipe), 7/26/2011

Photo 9: Excavation in Northwest Corner (Note Temporary Truck Lane Over Backfilled Southern Portion of Excavation), 7/30/2011

Photo 10: Backfilling and Compaction in Northeast Corner of Excavation, 8/4/2011

APPENDIX B

Locations and Results Summary for Over-Excavated Soil Samples

DG-048-7
4.1 | 220 | <50

DG-047-8
<0.4 | 390 | <50

DG-057-8
<2 | 650 | 430

DG-017-8
1.7 | 310 | <50

DG-050-8
1.1 | 110 | 200

DG-018-11-B
0.057 | 120 | <50

DG-019-11-B
9.6 | 740 | 790

DG-022-8
2.1 | 27 | <50

DG-013-9
<0.2 | 1,200 | 110 *(Note 1)*

DG-014-8
<0.2 | 38 | 80 *(Note 1)*

DG-016-8
0.86 | 430 | <50

DG-036-12
<2 | 690 | 300

DG-009-8
10 | 6,400 | 170

DG-015-11-B
2.7 | 850 | 440

DG-007-11-SW
0.13 | 39 | 84

DG-023-8
5.9 | 610 | 140

DG-025-9
4.8 | 490 | 130

DG-005-11-B
0.85 | 39 | 150

DG-030-8
4.1 | 800 | 450

DG-039-11
0.36 | 450 | 83

DG-041-8
<0.02 | <2 | 84

DG-031-9
<1 | 240 | <50

DG-037-9
<0.02 | <2 | <50

Northeast Corner of Building

LEGEND

EXCAVATION BOTTOM

DG-009-8 — SOIL SAMPLE LOCATION & ID (2ND NUMBER IS ESTIMATED SAMPLE DEPTH IN FEET)

0.03 | 30 | 2,000 — SOIL CONCENTRATIONS IN MG/KG (MTCA METHOD A CLEANUP LEVELS ARE SHOWN HERE)

BENZENE | GASOLINE-RANGE TPH | DIESEL-RANGE TPH

(Note 1)
The sample chromatographic pattern did not resemble the diesel fuel standard used for quantitation.

N

0 10 20
Feet

All locations and dimensions are approximate.

Locations and Results Summary for Over-Excavated Soil Samples

Summer 2011 Soil Removal Action
Darigold-Rainier Avenue Facility
Seattle, Washington

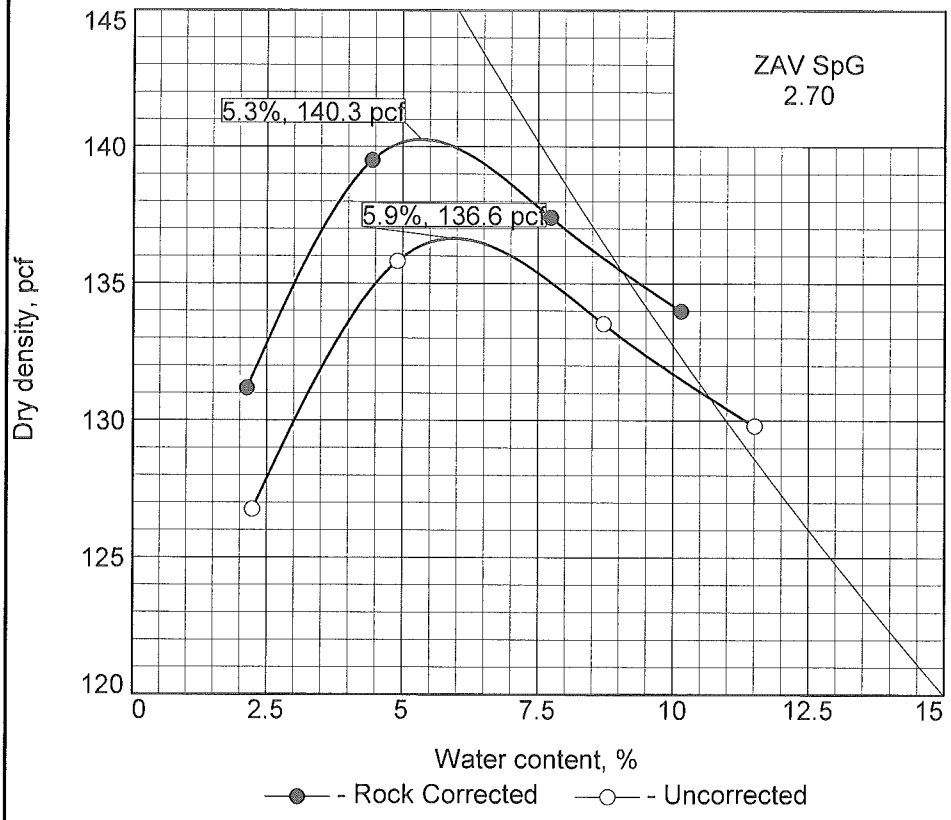
Aspect Consulting	NOV-2011	BY: MV/SCC	FIGURE NO. B-1
	PROJECT NO. 090066	REV BY: SCC	

CAD Path: Q:\Darigold\090066 Rainier Avenue Facility\2011-11 Soil Removal Action\090066-B1.dwg || Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet || Date Saved: Nov 21, 2011 10:45am || User: scudd

APPENDIX C

Soil Compaction Test and Inspection Reports

COMPACTION TEST REPORT



Curve No.
7144

Test Specification:
ASTM D 1557-02 Method C Modified
ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

Preparation Method _____
Hammer Wt. 10 lb.
Hammer Drop 18 in.
Number of Layers five
Blows per Layer 56
Mold Size 0.075 cu. ft.

Test Performed on Material Passing 3/4 in. **Sieve**

NM _____ **LL** _____ **PI** _____
Sp.G. (ASTM D 854) 2.7
%>3/4 in. 13.6 **%<No.200** 5.7
USCS SW-SM **AASHTO** _____
Date Sampled 7/27/11
Date Tested 7/22/11
Tested By RF

TESTING DATA

	1	2	3	4	5	6
WM + WS	9971.3	10409.7	10501.0	10486.9		
WM	5562.9	5562.9	5562.9	5562.9		
WW + T #1	1303.7	1420.5	1538.9	6240.8		
WD + T #1	1277.8	1359.5	1425.1	5680.1		
TARE #1	118.5	115.0	118.7	809.3		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	2.1	4.4	7.7	10.1		
DRY DENSITY	131.2	139.5	137.4	134.0		

ROCK CORRECTED TEST RESULTS	UNCORRECTED
Maximum dry density = 140.3 pcf	136.6 pcf
Optimum moisture = 5.3 %	5.9 %

Material Description
Sand with Silt and Gravel

Remarks:

Project No. 11-376 **Client:** Aspect Consulting, LLC
Project: Darigold - Rainier Ave

○ **Location:** On-site **Sample Number:** 7144

Hayre McElroy & Associates, LLC

Redmond, WA

Checked by: Jay
Title:

Figure

MOISTURE DENSITY TEST DATA

7/27/2011

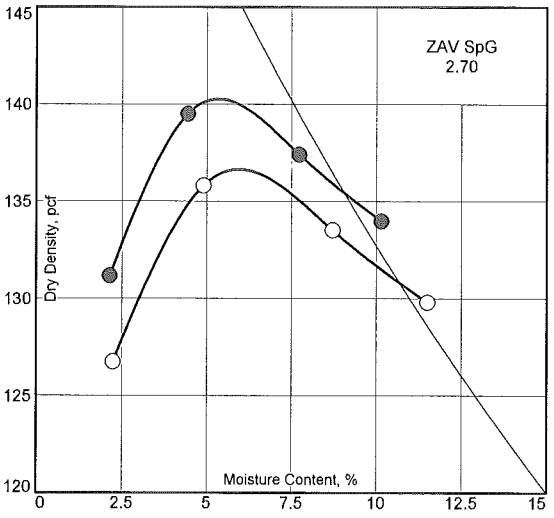
Client: Aspect Consulting, LLC
Project: Darigold - Rainier Ave
Project Number: 11-376
Location: On-site
Sample Number: 7144
Description: Sand with Silt and Gravel
Sample Date: 7/27/11
USCS: SW-SM
Tested By: RF **Test Date:** 7/22/11

Test Data and Results For Curve 7144

Test Specification:

Type of Test: ASTM D 1557-02 Method C Modified

Mold Dia: 6.00 **Hammer Wt.:** 10 lb. **Drop:** 18 in. **Layers:** five **Blows per Layer:** 56



Point No.	1	2	3	4
Wt. M+S	9971.3	10409.7	10501.0	10486.9
Wt. M	5562.9	5562.9	5562.9	5562.9
Wt. W+T	1303.7	1420.5	1538.9	6240.8
Wt. D+T	1277.8	1359.5	1425.1	5680.1
Tare	118.5	115.0	118.7	809.3
Moist.	2.2	4.9	8.7	11.5
Moist.*	2.1	4.4	7.7	10.1
Dry Den.*	131.2	139.5	137.4	134.0

Rock Corrected Results: **Max. Dry Den.=** 140.3 pcf **Opt. Moist.=** 5.3%
Uncorrected Results: **Max. Dry Den.=** 136.6 pcf **Opt. Moist.=** 5.9%

Rock Correction Data:

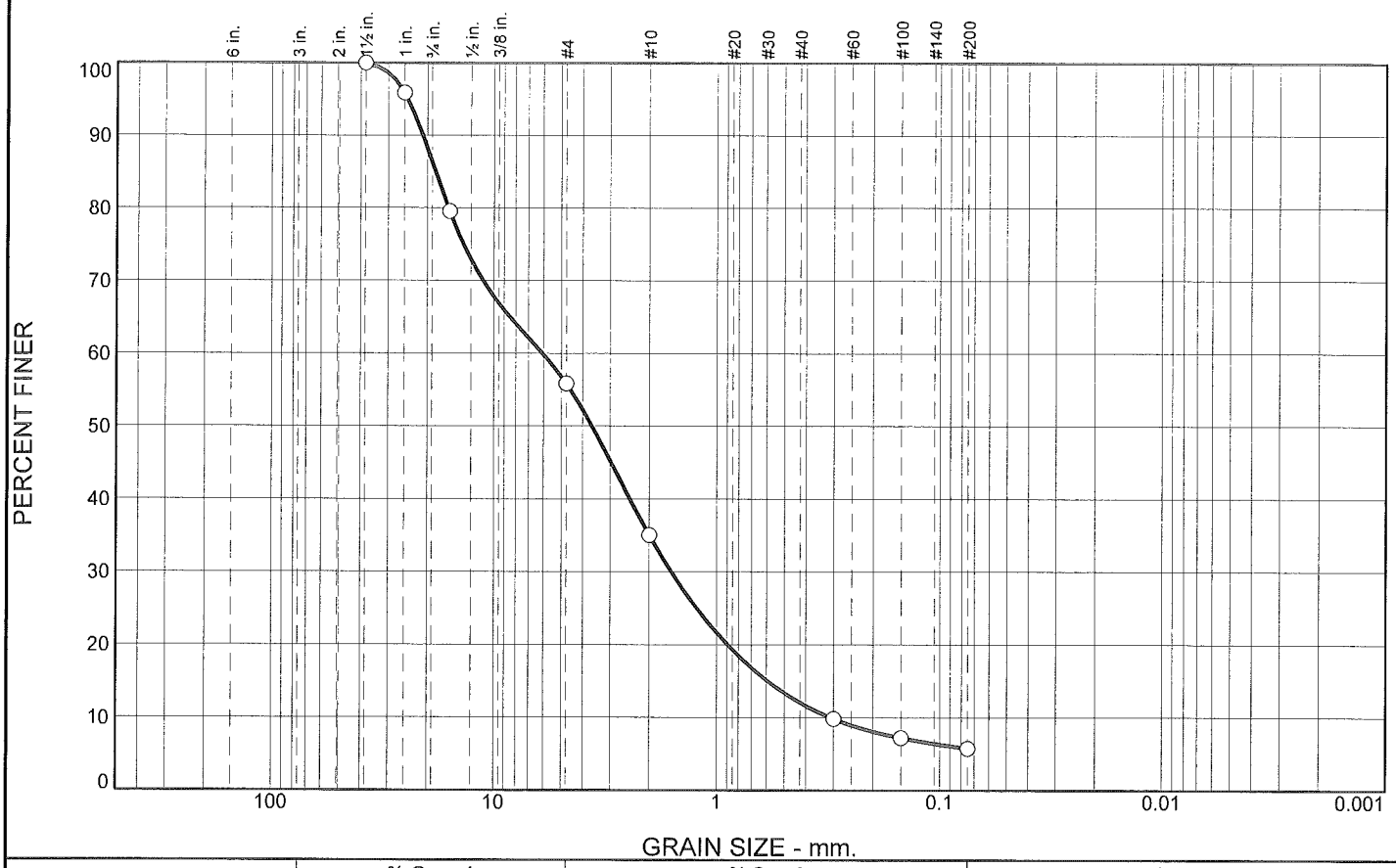
Correction Method: ASTM D 4718-87

Percentage of Oversize Material (%> 3/4 in.): 13.6 **Bulk Specific Gravity of Oversize Material:** 2.7

Oversize Material Moisture Content: 1.5

*Note: the rock correction was applied to every test point's density and moisture value.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	13.6	30.6	20.8	22.9	6.4	5.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/2"	100.0		
1"	95.9		
5/8"	79.6		
#4	55.8		
#10	35.0		
#50	9.8		
#100	7.2		
#200	5.7		

* (no specification provided)

Material Description

Sand with Silt and Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 20.9824 D_{85}= 18.3839 D_{60}= 6.0695
D_{50}= 3.6353 D_{30}= 1.5931 D_{15}= 0.5904
D_{10}= 0.3093 C_u= 19.63 C_c= 1.35

Classification

USCS= SW-SM AASHTO=

Remarks

Location: On-site
Sample Number: 7144

Date: 7/27/11

Hayre McElroy & Associates, LLC

Redmond, WA

Client: Aspect Consulting, LLC
Project: Darigold - Rainier Ave

Project No: 11-376 **Figure**

Tested By: GG **Checked By:** JAM

GRAIN SIZE DISTRIBUTION TEST DATA

7/27/2011

Client: Aspect Consulting, LLC
Project: Darigold - Rainier Ave
Project Number: 11-376
Location: On-site
Sample Number: 7144
Material Description: Sand with Silt and Gravel
Date: 7/27/11
USCS Classification: SW-SM
Tested by: GG **Checked by:** JAM

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 1832.10
Tare Wt. = 114.40
Minus #200 from wash = 5.7%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
1935.50	114.40	1-1/2"	0.00	0.00	100.0
		1"	1544.80	1469.60	95.9
		5/8"	1769.90	1472.70	79.6
		#4	1789.80	1358.10	55.8
		#10	1553.20	1174.10	35.0
		#50	1367.20	908.40	9.8
		#100	891.40	844.00	7.2
		#200	1039.30	1012.30	5.7

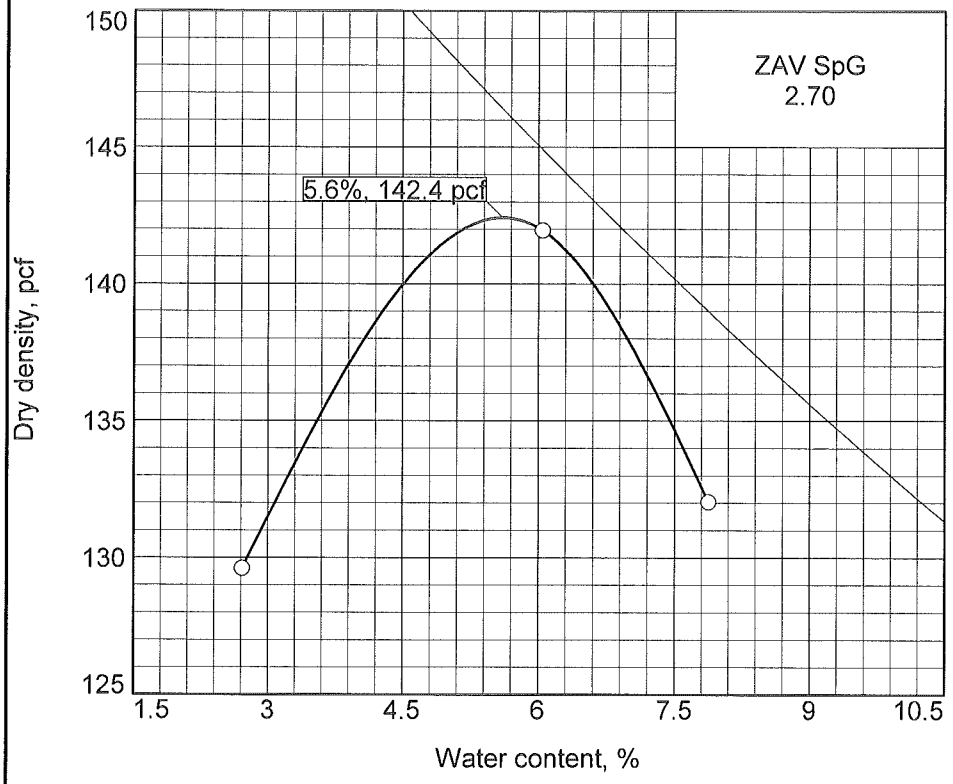
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	13.6	30.6	44.2	20.8	22.9	6.4	50.1			5.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.3093	0.5904	0.8925	1.5931	3.6353	6.0695	16.0803	18.3839	20.9824	24.5294

Fineness Modulus	C_u	C_c
4.95	19.63	1.35

COMPACTION TEST REPORT



Curve No.
1

Test Specification:
ASTM D 698-91 Procedure C Standard

Preparation Method
Hammer Wt. 5.5 lb.
Hammer Drop 12 in.
Number of Layers three
Blows per Layer 56
Mold Size 0.075 cu. ft.

Test Performed on Material
Passing 3/4 in. Sieve

NM **LL** **PI**
Sp.G. (ASTM D 854) 2.7
%>3/4 in. 0 **%<No.200**
USCS **AASHTO**
Date Sampled
Date Tested 8/9/2011
Tested By RF

TESTING DATA

	1	2	3	4	5	6
WM + WS	10091.1	10683.3	10407.8			
WM	5562.2	5562.2	5562.2			
WW + T #1	1106.6	1352.7	1468.5			
WD + T #1	1082.5	1286.6	1375.6			
TARE #1	194.2	193.1	196.2			
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	2.7	6.0	7.9			
DRY DENSITY	129.6	142.0	132.0			

TEST RESULTS

Maximum dry density = 142.4 pcf

Optimum moisture = 5.6 %

Material Description

5/8" Crushed aggregate

Remarks:

Project No. 11-376 **Client:** Aspect Consulting, LLC
Project: Darigold - Rainier Ave

○ **Location:** 5/8" Crushed Glacier **Sample Number:** 7163

Checked by: JAM
Title:

Hayre McElroy & Associates, LLC

Redmond, WA

Figure

hayremcelroy & associates, llc

SPECIAL INSPECTION DAILY REPORT

Project Information		Contract Information	
Date:	7-21-2011	Permit No:	6282853
Project Name:	Dari-gold Rainier Ave.	Contract Duration:	--
Project No:	11-376	Reviewed by:	J. McElroy
DFR No:	11.07.21NAY	Date Reviewed:	7/22/2011
Project Location:	4058 Rainier Ave. S., Seattle, WA	Revised Duration:	--
Client :	Aspect Consulting, LLC	Contract Calendar Days Used:	--
Contractor:	Clearcreek Contractors	Contract Calendar Days Remaining:	--

Work Conditions		Inspection Type (s) / Coverage
Temperature	56-76	Documents Referenced:
Weather	Mostly Sunny	IBC Chapter 17:
Site Condition	Good	Site Equipment:

☐ **Structural Masonry**	☐ **Reinforced Concrete**
☐ **Structural Steel/Welding**	☐ **Post-Tensioned Concrete**
☒ **Foundation/Soils**	☐ **Shotcrete**
☐ **TESC/BMP**	☐ **Post-Tensioned Concrete**
☐ **Auger Cast Pile**	☐ **Light Gauge Steel**
☐ **Lateral Wood Framing**	☐ **Fire-Proofing**

Location and Description of Inspection

A) H.M.A. representative arrived at the request of the client to excess in monitoring the placement of structural fill material and perform in place density tests on each lift of material being placed in excavated area.

B) The contractor excavated down and removed the contaminated native material to approximately 11ft. Once the chemicals were applied to aid in the removal of the gas product, back-fill operations started.

C) The contractor imported gravel with sand material from Cadman, lab # 7138, and pushed each lift out to 1ft or less. Each lift was compacted with a 5 ton single drum vibratory rolled until specified levels of density was achieved . Below 3ft 90% compaction is required, above 3ft 95% is required.

D) The approximate size of work area is 60’ wide x 80’ long x 11’ deep.

Starting back-fill operations at -11ft

Ramp built to push-out each lift

Drain pipe connected to existing Drain at 8ft level

Items requiring correction

HMA Inspector Print Name	Noah A. Young
HMA Representative Signature	
Acknowledged By Signature	

hayremcelroy & associates, llc

Nuclear Densometer (Gauge) Test Results

Client Name: Aspect Consulting, LLC

Address: 401 2nd Ave. S. Suite 201
Seattle WA 98104

Project Name: Dari gold-Rainier Ave.

Location: 4058 Rainier Ave S.,Seattle

Datum:

Project Number: 11-376

Date of Report: 6-21-2011

Laboratory Compaction Characteristics:

LabTest Method: ASTM - D 1557

Field Test Method: ASTM - D 2922

Material Tested: 1) 7138=Gravel w/ Sand 141.4 @6.1%

Field Technician: Noah Young

Gauge ID: 08306

Reviewed. by: JAM

Mode: Direct

Test No.	Date	Probe Depth	Location	Lift or Elev.	Wet Unit Wt., pcf	Dry Unit Wt., pcf	Lab Max. Dry Unit Wt., pcf	% Max Dry Unit Wt.	Specified.% Max Dry Unit Wt.	% Water Content	Optimum Water Content	Mat'l Designation	Pass/Fail
1	7-21	8"	30' North of bay door 13 on ramp	-4'	139.1	133.5	141.4	94.4	90	4.2	6.1	1	Pass
2	7-21	8"	40' North of bay door 9	-7'	139.1	133.4	141.4	94.3	90	4.2	6.1	1	Pass
3	7-21	8"	40' North of bay door 12	-4'6"	142.4	136.4	141.4	96.4	90	4.4	6.1	1	Pass
4	7-21	8"	40' North of bay door 11	-6'	137.6	131.4	141.4	92.9	90	4.7	6.1	1	Pass
5	7-21	8"	20' North of bay door10	-6'6"	138.7	133.2	141.4	94.1	90	4.2	6.1	1	Pass
6													
7													
8													
9													
10													
11													

hayremcelroy & associates, llc

SPECIAL INSPECTION DAILY REPORT

Project Information		Contract Information	
Date:	7/22/2011	Permit No:	6282853
Project Name:	Dari-gold Rainier Ave.	Contract Duration:	--
Project No:	11-376	Reviewed by:	J. McElroy
DFR No:	11.07.22NAY	Date Reviewed:	7/25/2011
Project Location:	4058 Rainier Ave. Seattle, WA	Revised Duration:	--
Client :	Aspect Consulting, LLC	Contract Calendar Days Used:	--
Contractor:	Clearcreek Contractors	Contract Calendar Days Remaining:	--

Work Conditions		Inspection Type (s) / Coverage
Temperature	56-74	Documents Referenced:
Weather	Clear Sunny	IBC Chapter 17:
Site Condition	Good	Site Equipment:

☐ **Structural Masonry**	☐ **Reinforced Concrete**
☐ **Structural Steel/Welding**	☐ **Post-Tensioned Concrete**
☒ **Foundation/Soils**	☐ **Shotcrete**
☐ **TESC/BMP**	☐ **Post-Tensioned Concrete**
☐ **Auger Cast Pile**	☐ **Light Gauge Steel**
☐ **Lateral Wood Framing**	☐ **Fire-Proofing**

Location and Description of Inspection

A) H.M.A. representative arrived at the request of the client, to continue monitoring and accessing in the back-fill operations and perform in place density tests on structural fill material.

B) The contractor continued importing structural fill from Cadman (lab # 7138), and pushing each lift out to 1ft or less. Each lift was compacted with a 5 ton single drum vibratory roller until specified levels of density was achieved (90% below 3ft, 95% above 3ft).

C) The client spray painted lift marks on the wall to maintain 1ft lifts or less. Each lift was placed in a controlled fashion and well consolidated. In several times when a failing test was performed the entire area was rerolled and retested.

Lift marks for maintaining each lift

Back-fill operations

Rolling fill at 3’6”

Items requiring correction

HMA Inspector Print Name	Noah A. Young
HMA Representative Signature	
Acknowledged By Signature	

hayremcelroy & associates, llc

Nuclear Densometer (Gauge) Test Results

Client Name:	Aspect Consulting, LLC	Project Number:	11-376
Address:	401 2nd Ave. S. Suite 201 Seattle, WA 98104	Laboratory Compaction Characteristics:	
		LabTest Method:	ASTM - D 1557
		Field Test Method:	ASTM - D 2922
Project Name:	Dari-gold-Rainier Ave.	Material Tested:	1) 7138=Gravel w/ Sand 141.4 @6.1%
Location:	4058 Rainier Ave. S, Seattle, WA	Field Technician:	Noah Young
Datum:		Gauge ID:	08306
		Revwd. by:	JAM
		Mode:	Direct

Date of Report: 6-22-2011

Test No.	Date	Probe Depth	Location	Lift or Elev.	Wet Unit Wt., pcf	Dry Unit Wt., pcf	Lab Max. Dry Unit Wt., pcf	% Max Dry Unit Wt.	Specified.% Max Dry Unit Wt.	% Water Content	Optimum Water Content	Mat'l Designation	Pass/Fail
1	7-22	8"	35' North of bay 9	-6'	136.1	130.3	141.4	92.1	90	4.4	6.1	1	Pass
2	7-22	8"	15" North of bay 11	-6'	141.7	135.9	141.4	96.1	90	4.3	6.1	1	Pass
3	7-22	8"	10' North inbetween 12 &13	-5'	135.6	129.9	141.4	91.8	90	4.3	6.1	1	Pass
4	7-22	8"	50' North of bay 12	-4'	138.9	132.4	141.4	93.6	90	4.9	6.1	1	Pass
5	7-22	8"	45' North of bay 9	-5'6"	136.2	130.6	141.4	92.3	90	4.3	6.1	1	Pass
6	7-22	8"	25'North inbetween 11 & 12	-4'6"	143.3	137.7	141.4	97.4	90	4.0	6.1	1	Pass
7	7-22	8"	20'North inbetween 9 & 10	-4'6"	136.2	130.6	141.4	92.3	90	4.3	6.1	1	Pass
8	7-22	8"	30' North of bay 13	-3'6"	142.2	136.3	141.4	96.4	90	4.3	6.1	1	Pass
9	7-22	8"	5' North of bay 10	-4'	137.8	131.9	141.4	93.2	90	4.5	6.1	1	Pass
10	7-22	8"	30' North of Bay 10	-4'	141.8	136.2	141.4	96.3	90	4.1	6.1	1	Pass
11	7-22	8"	20' North inbetween 11 & 12	-4'	137.5	131.9	141.4	93.2	90	4.3	6.1	1	Pass

hayremcelroy & associates, llc

Nuclear Densometer (Gauge) Test Results

Client Name:	Aspect Consulting, LLC	Project Number:	11-376
Address:	401 2nd Ave. S. Suite 201 Seattle, WA 98104	Laboratory Compaction Characteristics:	
		LabTest Method:	ASTM - D 1557
		Field Test Method:	ASTM - D 2922
Project Name:	Dari-gold Rainier Ave.	Material Tested:	1) 7138=Gravel w/ Sand 141.4 @6.1%
Location:	4058 Rainier Ave. S, Seattle WA	Field Technician:	Noah Young
Datum:		Gauge ID:	08306
		Revwd. by:	JAM
		Mode:	Direct
		Date of Report:	6-22-2011

Test No.	Date	Probe Depth	Location	Lift or Elev.	Wet Unit Wt., pcf	Dry Unit Wt., pcf	Lab Max. Dry Unit Wt., pcf	% Max Dry Unit Wt.	Specified.% Max Dry Unit Wt.	% Water Content	Optimum Water Content	Mat'l Designation	Pass/Fail
1	7-22	8"	25' North of bay 13	-4'	136.1	137.9	141.4	97.5	90	4..1	6.1	1	Pass
2	7-22	8"	35'North of bay 10	-3'6"	141.7	136.5	141.4	96.5	90	4.1	6.1	1	Pass
3	7-22	8"	45' North of bay 12	-3'6"	135.6	138.1	141.4	97.6	90	4.4	6.1	1	Pass
4	7-22	8"	10' North of bay 12	-3'	138.9	138.7	141.4	98.0	90	4.1	6.1	1	Pass
5	7-22	8"	15'North of bay 10	-3'	136.2	138.8	141.4	98.1	90	4.2	6.1	1	Pass
6	7-22	8"	25' North of bay 10	-3'	143.3	136.0	141.4	96.1	90	4.3	6.1	1	Pass
7	7-22	8"	50' North of bay 13	-2'	136.2	135.8	141.4	96.0	95	3.6	6.1	1	Pass
8	7-22	8"	20' North of bay 12	-2'	141.5	135.3	141.4	95.6	95	4.6	6.1	1	Pass
9	7-22	8"	35' North of bay 10	-1'	140.4	134.5	141.4	95.1	95	4.4	6.1	1	Pass
10	7-22	8"	40' North of bay 12	-1'	142.2	136.7	141.4	96.6	95	4.0	6.1	1	Pass
11	7-22	8"	10' North inbetween 10 &11	-2'	140.2	133.7	141.4	94.5	95	5.0	6.1	1	Pass

hayremcelroy & associates, llc

Nuclear Densometer (Gauge) Test Results

Client Name:	Aspect Consulting, LLC	Project Number:	11-376
Address:	401 2nd Ave. S. Suite 201	Date of Report:	6-22-2011
	Seattle, WA 98104	Laboratory Compaction Characteristics:	
		LabTest Method:	ASTM - D 1557
		Field Test Method:	ASTM - D 2922
Project Name:	Dari-gold-Rainier Ave.	Material Tested:	1) 7138=Gravel w/ Sand 141.4 @6.1%
Location:	4058 Rainier Ave. S, Seattle WA	Field Technician:	Noah Young
Datum:		Gauge ID:	08306
		Reviewed. by:	JAM
		Mode:	Direct

Test No.	Date	Probe Depth	Location	Lift or Elev.	Wet Unit Wt., pcf	Dry Unit Wt., pcf	Lab Max. Dry Unit Wt., pcf	% Max Dry Unit Wt.	Specified.% Max Dry Unit Wt.	% Water Content	Optimum Water Content	Mat'l Designation	Pass/Fail
1	7-22	8"	10' North of bay 12	-1'	140.2	134.4	141.4	95.0	95	4.2	6.1	1	Pass
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													

hayremcelroy & associates, llc

SPECIAL INSPECTION DAILY REPORT

Project Information		Contract Information	
Date:	7/28/2011	Permit No:	6282853
Project Name:	Dari-gold Rainier Ave	Contract Duration:	--
Project No:	11-376	Reviewed by:	J. McElroy
DFR No:	11.07.28AH	Date Reviewed:	7/29/2011
Project Location:	Seattle Washington	Revised Duration:	--
Client :	Aspect Consulting, LLC	Contract Calendar Days Used:	--
Contractor:	Clearwater Construction	Contract Calendar Days Remaining:	--

Work Conditions		Inspection Type (s) / Coverage
Temperature	70º	Documents Referenced:
Weather	Sunny / Clear	IBC Chapter 17:
Site Condition	Clean	Site Equipment:

☐ **Structural Masonry**	☐ **Reinforced Concrete**
☐ **Structural Steel/Welding**	☐ **Post-Tensioned Concrete**
☒ **Foundation/Soils**	☐ **Shotcrete**
☐ **TESC/BMP**	☐ **Post-Tensioned Concrete**
☐ **Epoxy Anchors**	☐ **Light Gauge Steel**
Lateral Wood Framing	☐ **Fire-Proofing.**

Location and Description of Inspection

On site as requested for compaction tests for backfill material being placed at the northeast side of existing building. Upon arrival to the site, met with Mat w/ Aspect Consulting and he explained that the material being placed was from Glacier, product #8128, and that the material would be delivered to fill area that had been deemed contaminated. The excavation to acceptable / suitable conditions was at approximately 13ft. below asphalt below asphalt, minus 6 inches.

The material was bladed and graded and compacted to an approximate lift of 12 inches and compacted in place with a smooth roller drum in both heavy and light vibratory mode. Due to water being accumulated for existing storm drain that was not on the as builts plans was allowed water to leach into excavated area, it was allowed for material to have been placed and compacted in 12 inch loose lifts and compact material to approximately 3ft. above bottom grade level before compaction testing to start.

Test results of a minimum of 90% and 95% compaction percentage achieved at specified elevations and tested locations. See attached soil compaction test report for compaction test results and test locations.

Water From Existing Storm Drain At Bottom Grade Elevation

Type 17 Being Compacted @ 00+10 Grid / South View

Type 17 Being Placed Over Top Of ORC /Oxygen Release Compound

Items requiring correction

HMA Inspector Print Name	Abe Hernandez 7/28/11
HMA Representative Signature	
Acknowledged By Signature	

hayremcelroy & associates, llc

Nuclear Dens meter (Gauge) Test Results

Client Name:	Aspect Consulting Co, LLC	Project Number:	11-376	Date of Report:	7/28/11
Address:	4058 Rainier Ave South Seattle Ave South	Laboratory Compaction Characteristics: Lab Test Method:			
		Field Test Method:	ASTM D-155 ASTM D-2922		
Project Name:	Dari-gold Rainier Ave	Material Tested:	Type 17 / Glacier Source		
Location:	Seattle Washington.	Field Technician:	Abe Hernandez		
Datum:	Project	Gauge ID:	633385		
		Reviewed. by:	JAM	Mode:	Direct

Test No.	Date	Probe Depth	Location	Lift or Elev.	Wet Unit Wt., Pcf	Dry Unit Wt., Pcf	Lab Max. Dry Unit Wt., Pcf	% Max Dry Unit Wt.	Specified. % Max Dry Unit Wt.	% Water Content	Optimum Water Content	Material Designation	Pass/Fail
1	7/28/11	12”	00 + 50 / -11ft. Below Asphalt Subgrade	12”	132.5	129.0	140.3	92	90	3.5	5.3	Glacier Type 17	Pass
2	7/28/11	12”	00+40 / -9ft Below Asphalt Subgrade	12”	131.7	127.6	140.3	91	90	3.2	5.3	Glacier Type 17	Pass
3	7/28/11	12”	00 + 30 / -6ft Below Asphalt Subgrade	12”	133.8	129.1	140.3	92	90	3.7	5.3	Glacier type 17	Pass
4	7/28/11	12”	00+20 / Approx 20ft North OF South Side / Minus 2ft Below Asphalt Subgrade	12”	137.3	133.7	140.3	95	90	2.7	5.3	Glacier Type 17	Pass
5	7/28 11	12”	00+40 / approx 15ft North of South Wall / -7ft	12”	129.7	125.7	140.3	90	90	3.2	5.3	Glacier Type 17	Pass
6													
7													
8													

hayremcelroy & associates, llc

SPECIAL INSPECTION DAILY REPORT

Project Information		Contract Information	
Date:	7/29/11	Permit No:	6282853
Project Name:	Dari-gold Rainier	Contract Duration:	--
Project No:	11-376	Reviewed by:	J. McElroy
DFR No:	11.07.29AH	Date Reviewed:	8/1/2011
Project Location:	4058 Rainier Ave, Seattle, WA	Revised Duration:	--
Client :	Aspect Consulting LLC	Contract Calendar Days Used:	--
Contractor:	Clearcreek Contractors	Contract Calendar Days Remaining:	--

Work Conditions		Inspection Type (s) / Coverage
Temperature	68º	Documents Referenced:
Weather	Sunny / Clear	IBC Chapter 17:
Site Condition	Clean	Site Equipment:

☐ **Structural Masonry**	☐ **Reinforced Concrete**
☐ **Structural Steel/Welding**	☐ **Post-Tensioned Concrete**
☒ **Foundation/Soils**	☐ **Shotcrete**
☐ **TESC/BMP**	☐ **Post-Tensioned Concrete**
☐ **Epoxy Anchors**	☐ **Light Gauge Steel**
Lateral Wood Framing	☐ **Fire-Proofing.**

Location and Description of Inspection

On site as requested for compaction tests for backfill material being placed at the northeast side of existing building. Upon arrival to the site, met with Mat w/ Aspect Consulting and he explained that the material being placed was from Glacier, product #8128, and that the material would be delivered to fill area that had been deemed contaminated. The excavation to acceptable / suitable conditions was at approximately 13ft. below asphalt below asphalt, minus 6 inches.

The material was bladed and graded and compacted to an approximate lift of 12 inches and compacted in place with a smooth roller drum in both heavy and light vibratory mode. Water was added to increase the moisture percentage and assist in achieving adequate compaction

Test results of a minimum of 90% and 95% compaction percentage achieved at specified elevations and tested locations. See attached soil compaction test report for compaction test results and test locations.

Type 17 Material Being Bladed
And Water Being Added / East View

Type 17 Material being Pushed
Stockpile / South View

Items requiring correction

HMA Inspector Print Name	Abe Hernandez 7/29/11
HMA Representative Signature	
Acknowledged By Signature	

hayremcelroy & associates, llc

Nuclear Dens meter (Gauge) Test Results

Client Name:	Aspect Consulting Co, LLC	Project Number:	11-376	Date of Report:	7/29/11
Address:	4058 Rainier Ave South Seattle Ave South	Laboratory Compaction Characteristics: Lab Test Method:			
		Field Test Method:	ASTM D-155 ASTM D-2922		
Project Name:	Dairigold / I Rainier Ave.	Material Tested:	Type 17 / Glacier Source		
Location:	Seattle Washington.	Field Technician:	Abe Hernandez		
Datum:	Project	Gauge ID:	633385		
		Reviewed. by:	JAM	Mode:	Direct

Test No.	Date	Probe Depth	Location	Lift or Elev.	Wet Unit Wt., Pcf	Dry Unit Wt., Pcf	Lab Max. Dry Unit Wt., Pcf	% Max Dry Unit Wt.	Specified. % Max Dry Unit Wt.	% Water Content	Optimum Water Content	Material Designation	Pass/Fail
1	7/29/11	12”	00 + 40 / 10ft North & -4ft	12”	131.5	127.2	140.3	91	90	3.3	5.3	Glacier Type 17	Pass
2	7/29/11	12”	00+10 / 10ft North & -2ft	12”	135.7	132.6	140.3	95	95	2.4	5.3	Glacier Type 17	Pass
3	7/29/11	12”	00 + 55 / 15ft North & -5ft	12”	131.7	127.7	140.3	91	90	3.1	5.3	Glacier type 17	Pass
4	7/29/11	12”	00+10 / 10ft North & -2ft	12”	139.1	134.5	140.3	96	95	3.4	5.3	Glacier Type 17	Pass
5	7/29/11	12”	00+55 / 10ft North & -3ft	12”	140.1	135.0	140.3	96	95	3.8	5.3	Glacier Type 17	Pass
6	7/29/11	12”	00+10 / 6ft North & -1ft	12”	138.3	132.5	140.3	95	95	4.4	5.3	Glacier Type 17	Pass
7	7/29/11	12”	00+20 / 20ft North, 20ft East & -6 Inches	12”	140.4	134.6	140.3	96	95	4.3	5.3	Glacier Type 17	Pass
8	7/29/11	12”	00+60 / 12ft North, 6ft East & -6 Inches	12”	138.1	133.0	140.3	95	95	3.8	5.3	Glacier Type 17	Pass

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SPECIAL INSPECTION DAILY REPORT

Project Information		Contract Information	
Date:	8-4-2011	Permit No:	6282853
Project Name:	Dari-gold Rainier Ave.	Contract Duration:	--
Project No:	11-376	Reviewed by:	J. McElroy
DFR No:	11.08.04NAY	Date Reviewed:	8/5/2011
Project Location:	4058 Rainier Ave. Seattle, WA	Revised Duration:	--
Client :	Aspect Consulting, LLC	Contract Calendar Days Used:	--
Contractor:	Clearcreek Contractors	Contract Calendar Days Remaining:	--

Work Conditions		Inspection Type (s) / Coverage	
Temperature	62-78	Documents Referenced:	
Weather	Clear Sunny	IBC Chapter 17:	
Site Condition	Good	Site Equipment:	

☐ **Structural Masonry**	☐ **Reinforced Concrete**
☐ **Structural Steel/Welding**	☐ **Post-Tensioned Concrete**
☒ **Foundation/Soils**	☐ **Shotcrete**
☐ **TESC/BMP**	☐ **Post-Tensioned Concrete**
☐ **Auger Cast Pile**	☐ **Light Gauge Steel**
☐ **Lateral Wood Framing**	☐ **Fire-Proofing**

Location and Description of Inspection

A) H.M.A. representative arrived at the request of the contractor to continue monitoring the placement of structural back-fill.

B) The contractor continued with the excavation of contaminated native soils and the back-fill of structural fill imported from Glacier.

C) The material was pushed out with a dozer in lifts of 1ft or less and each lift was compacted with a 5 ton vibratory roller until specified levels of density was achieved.

D) 90% Below 3ft, 95% above 3ft.

E) A proctor sample of 5/8" crushed stone was obtained by contractor and delivered to lab for analysis.

Next area of excavation 12 ft below Existing asphalt

de-watering area before back-fill operations starts

Items requiring correction

HMA Inspector Print Name	Noah A. Young
HMA Representative Signature	
Acknowledged By Signature	

hayremcelroy & associates, llc

Nuclear Densometer (Gauge) Test Results

Client Name:	Aspect Consulting, LLC	Project Number:	11-376
Address:	401 2nd Ave. S. Suite 201 Seattle Wa. 98104	Laboratory Compaction Characteristics:	
		LabTest Method:	ASTM - D 1557
		Field Test Method:	ASTM - D 2922
Project Name:	Darigold-Rainier Ave.	Material Tested:	1) Gravel w/ Sand 140.3 @5.1
Location:	4058 Rainier Ave.S. Seattle Wa.	Field Technician:	Noah Young
Datum:		Gauge ID:	38835
	** Locations are measured from northeast corner of building	Revwd. by:	JAM
		Mode:	Direct

Test No.	Date	Probe Depth	Location	Lift or Elev.	Wet Unit Wt., pcf	Dry Unit Wt., pcf	Lab Max. Dry Unit Wt., pcf	% Max Dry Unit Wt.	Specified.% Max Dry Unit Wt.	% Water Content	Optimum Water Content	Mat'l Designation	Pass/Fail
1	8-4	8"	45" east 65' north	-7'	140.7	135.4	140.3	96.4	90	4.0	5.3	1	Pass
2	8-4	8"	60'east 75' north	-8'	138.0	132.9	140.3	94.7	90	3.9	5.3	1	Pass
3	8-4	8"	35'east 60' north	-5'	144.5	139.1	140.3	99.1	90	3.9	5.3	1	Pass
4	8-4	8"	45'east 60'north	-5'6"	143.4	137.7	140.3	98.2	90	4.2	5.3	1	Pass
5	8-4	8"	60'east 75'north	-6'6"	145.5	139.6	140.3	99.5	90	4.2	5.3	1	Pass
6	8-4	8"	50'east 70' north	-5'	141.3	135.4	140.3	96.5	90	4.4	5.3	1	Pass
7	8-4	8"	40' east 70' north	-3'6"	141.4	134.8	140.3	96.1	90	4.9	5.3	1	Pass
8	8-4	8"	55'east 35'north	-11'	139.7	134.6	140.3	95.9	90	3.8	5.3	1	Pass
9	8-4	8"	60'east 40' north	-10'	142.4	137.2	140.3	97.8	90	3.7	5.3	1	Pass
10	8-4	8"	55'east 75'north	-3'	141.9	136.0	140.3	97.0	90	4.3	5.3	1	Pass
11	8-4	8"	55'east 55'north	-9'	146.0	139.8	140.3	99.6	90	4.5	5.3	1	Pass

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SPECIAL INSPECTION DAILY REPORT

Project Information		Contract Information	
Date:	8-5-2011	Permit No:	6282853
Project Name:	Dari-gold Rainier Ave.	Contract Duration:	--
Project No:	11-376	Reviewed by:	J. McElroy
DFR No:	11.08.05NAY	Date Reviewed:	8/8/2011
Project Location:	4058 Rainier Ave. Seattle, WA	Revised Duration:	--
Client :	Aspect Consulting, LLC	Contract Calendar Days Used:	--
Contractor:	Clearcreek Contractors	Contract Calendar Days Remaining:	--

Work Conditions		Inspection Type (s) / Coverage
Temperature	58-73	Documents Referenced:
Weather	Clear Sunny	IBC Chapter 17:
Site Condition	Good	Site Equipment: Nuc density machine #38835

☐ **Structural Masonry**	☐ **Reinforced Concrete**
☐ **Structural Steel/Welding**	☐ **Post-Tensioned Concrete**
☒ **Foundation/Soils**	☐ **Shotcrete**
☐ **TESC/BMP**	☐ **Post-Tensioned Concrete**
☐ **Auger Cast Pile**	☐ **Light Gauge Steel**
☐ **Lateral Wood Framing**	☐ **Fire-Proofing**

Location and Description of Inspection

A) H.M.A. representative arrived at the request of the client to continue monitoring the placement of structural fill.

B) The contractor continued with the placement of imported fill material imported from Glacier, proctor used was 140.3 @ 5.1% moisture.

C) The contractor pushed each load of material in lifts of 1ft or less and each lift was consolidated using a 5 ton vibratory roller.

D) The contractor consolidated each lift until specified levels of density was achieved. 90%below 3ft and 95% from 3ft and above.

Items requiring correction

HMA Inspector Print Name	Noah A. Young
HMA Representative Signature	
Acknowledged By Signature	

hayremcelroy & associates, llc

Nuclear Densometer (Gauge) Test Results

Client Name:	Aspect Consulting, LLC	Project Number:	11-376
Address:	401 2nd Ave. S. Suite 201 Seattle WA 98104	Laboratory Compaction Characteristics:	
		LabTest Method:	ASTM - D 1557
		Field Test Method:	ASTM - D 2922
Project Name:	Dari-gold-Rainier Ave.	Material Tested:	1) 7138=Gravel w/ Sand 141.4 @6.1%
Location:	4058 Rainier Ave S. Seattle WA	Field Technician:	Noah Young
Datum:	The locations measured from Northeast corner of building.	Gauge ID:	08306
		Reviewed by:	JAM
		Mode:	Direct
Date of Report:	6-21-2011		

Test No.	Date	Probe Depth	Location	Lift or Elev.	Wet Unit Wt., pcf	Dry Unit Wt., pcf	Lab Max. Dry Unit Wt., pcf	% Max Dry Unit Wt.	Specified.% Max Dry Unit Wt.	% Water Content	Optimum Water Content	Mat'l Designation	Pass/Fail
1	8-5	8"	65' east 25'north	-2'6"	140.0	135.1	140.3	96.3	95	3.7	5.3	1	Pass
2	8-5	8"	50'east 40'north	-2'6	142.3	136.9	140.3	97.6	95	3.9	5.3	1	Pass
3	8-5	8"	45"east 65'north	-2'6"	142.9	137.5	140.3	98.0	95	3.9	5.3	1	Pass
4	8-5	8"	45'east 30'north	-2'	143.3	138.0	140.3	98.4	95	3.8	5.3	1	Pass
5	8-5	8"	65'east 50'north	-2'	143.7	138.9	140.3	99.0	95	3.5	5.3	1	Pass
6													
7													
8													
9													
10													

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SPECIAL INSPECTION DAILY REPORT

Project Information		Contract Information	
Date:	8-8-2011	Permit No:	6282853
Project Name:	Darigold- Rainier Ave.	Contract Duration:	--
Project No:	11-376	Reviewed by:	J. McElroy
DFR No:	11.08.08NAY	Date Reviewed:	8/9/2011
Project Location:	4058 Rainier Ave. Seattle, WA	Revised Duration:	--
Client :	Aspect Consulting, LLC	Contract Calendar Days Used:	--
Contractor:	Clearcreek Contractors	Contract Calendar Days Remaining:	--

Work Conditions		Inspection Type (s) / Coverage
Temperature	56-73	Documents Referenced:
Weather	Mostly Sunny	IBC Chapter 17:
Site Condition	Good	Site Equipment: Nuc Density Machine #38835

☐ **Structural Masonry**	☐ **Reinforced Concrete**
☐ **Structural Steel/Welding**	☐ **Post-Tensioned Concrete**
☒ **Foundation/Soils**	☐ **Shotcrete**
☐ **TESC/BMP**	☐ **Post-Tensioned Concrete**
☐ **Auger Cast Pile**	☐ **Light Gauge Steel**
☐ **Lateral Wood Framing**	☐ **Fire-Proofing**

Location and Description of Inspection

A) H.M.A. representative arrived at the request of the client to continue monitoring the placement of imported fill material.

B) The contractor imported -5/8" crushed stone as specified under proposed asphalt area.

C) The material was pushed out into lifts of 1ft with a dozer and consolidated with a vibratory roller. The contractor only had two guys working so the work was very slow. No density tests were performed. Water was added to aid in compaction.

D) A sample was obtained by inspector, for lab analysis.

E) Density tests shall be performed on next working day.

Items requiring correction

HMA Inspector Print Name	Noah A. Young
HMA Representative Signature	
Acknowledged By Signature	

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SPECIAL INSPECTION DAILY REPORT

Project Information		Contract Information	
Date:	8/9/2011	Permit No:	6282853
Project Name:	Dari-gold Ave	Contract Duration:	--
Project No:	11-376	Reviewed by:	G. Hayre
DFR No:	11.08.09AH	Date Reviewed:	8/10/2011
Project Location:	Seattle Washington	Revised Duration:	--
Client :	Aspect Consulting LLC	Contract Calendar Days Used:	--
Contractor:	Clearwater Construction	Contract Calendar Days Remaining:	--

Work Conditions		Inspection Type (s) / Coverage
Temperature	67º	Documents Referenced:
Weather	O/C	IBC Chapter 17:
Site Condition	Clean	Site Equipment:

☐ **Structural Masonry**	☐ **Reinforced Concrete**
☐ **Structural Steel/Welding**	☐ **Post-Tensioned Concrete**
☒ **Foundation/Soils**	☐ **Shotcrete**
☐ **TESC/BMP**	☐ **Post-Tensioned Concrete**
☐ **Epoxy Anchors**	☐ **Light Gauge Steel**
Lateral Wood Framing	☐ **Fire-Proofing.**

Location and Description of Inspection

On site as requested for compaction tests on 5/8" crushed minus aggregate being placed for preparation to place asphalt. The material, 5/8" minus supplied by Cadman product #92250, was observed being placed in 6 to 8 inch loose lifts and compacted with smooth roller drum. Water was added to increase the moisture level and aide in achieving adequate compaction.

Test results of 95% or greater achieved at the tested locations. See attached compaction test report for test results and test locations.

Water Being Added to 5/8" Crushed Minus
While Compacting With Smooth Roller Drum

Items requiring correction

HMA Inspector Print Name	Abe Hernandez 8-9-11
HMA Representative Signature	
Acknowledged By Signature	

hayremcelroy & associates, llc

Nuclear Dens meter (Gauge) Test Results

Client Name:	Aspect Consulting Co, LLC	Project Number:	11-376	Date of Report:	8-9-11
Address:	4058 Rainier Ave South Seattle Ave South	Laboratory Compaction Characteristics: Lab Test Method:			
		Field Test Method:	ASTM D-155 ASTM D-2922		
Project Name:	Dairigold / I Rainier Ave.	Material Tested:	5/8" Crushed Minus		
Location:	Seattle Washington.	Field Technician:	Abe Hernandez		
Datum:	Project	Gauge ID:	633385		
		Reviewed. by:	JAM	Mode:	Direct

Test No.	Date	Probe Depth	Location	Lift or Elev.	Wet Unit Wt., Pcf	Dry Unit Wt., Pcf	Lab Max. Dry Unit Wt., Pcf	% Max Dry Unit Wt.	Specified. % Max Dry Unit Wt.	% Water Content	Optimum Water Content	Material Designation	Pass/Fail
1	8-9-11	8"	Approx 25ft West of 00 Point & 70ft North	8"	138.4	135.5	142.4	95	95	2.2	5.6	5/8" Crushe3d Minus Base Course	Pass
2	8-9-11	8"	Approx 40ft East of 00 Point & 60ft north	8"	137.8	135.1	142.4	95	95	2.0	5.6	5/8" Crushed Minus Base Course	Pass
3	8-9-11	8"	Approx 100ft West of 00 Point and 65ft North	8""	138.8	135.7	142.4	95	95	2.3	5.6	5/8" Crushed Minus Base Course	Pass
4	8-9-11	8"	Approx 75ft West of 00 Point & 75ft North	8"	138.5	135.4	142.4	95	95	2.7	5.6	5/8" Crushed Minus Base Course	Pass
5	8-9-11	8"	Approx 50ft East of 00 Point & 85ft North	8"	139.8	135.5	142.4	95	95	3.2	5.6	5/8" Crushed Minus Base Course	Pass
6	8-9-11	8"	Approx 40ft West of 00 Point & 80ft North	8"	138.7	135.9	142.4	95	95	2.1	5.6	5/8" Crushed Minus Base Course	Pass

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SPECIAL INSPECTION DAILY REPORT

Project Information		Contract Information	
Date:	8/13/2011	Permit No:	6282853
Project Name:	Dari-gold Rainier Ave	Contract Duration:	--
Project No:	11-376	Reviewed by:	G. Hayre
DFR No:	11.08.13AH	Date Reviewed:	8/14/2011
Project Location:	Seattle Washington	Revised Duration:	--
Client :	Aspect Consulting LLC	Contract Calendar Days Used:	--
Contractor:	Clearwater Construction	Contract Calendar Days Remaining:	--

Work Conditions		Inspection Type (s) / Coverage
Temperature	66º	Documents Referenced:
Weather	O/C	IBC Chapter 17:
Site Condition	Clean	Site Equipment:

☐ **Structural Masonry**	☐ **Reinforced Concrete**
☐ **Structural Steel/Welding**	☐ **Post-Tensioned Concrete**
☒ **Foundation/Soils**	☐ **Shotcrete**
☐ **TESC/BMP**	☐ **Post-Tensioned Concrete**
☐ **Epoxy Anchors**	☐ **Light Gauge Steel**
Lateral Wood Framing	☐ **Fire-Proofing.**

Location and Description of Inspection

On site as requested for compaction tests on type 17 import material being placed along north side of existing building loading dock area. The type 17 material, provided by Glacier product #8128, was observed being placed 12 to 14 inch loose lifts and compacted in place with smooth roller drum. Water was added to increase moisture level and assist in achieving compaction.

Test results of a minimum of 95% or greater achieved at the tested locations. See attached soil compaction report for test locations and test results.

Type 17 Import Material At the North Loading Dock Area

Type 17 Material Being Rolled and Compacted / East View

Items requiring correction

HMA Inspector Print Name	Abe Hernandez 8-13-11
HMA Representative Signature	
Acknowledged By Signature	

hayremcelroy & associates, llc

Nuclear Dens meter (Gauge) Test Results

Client Name:	Aspect Consulting Co, LLC	Project Number:	11-376	Date of Report:	8-13-11
Address:	4058 Rainier Ave South	Laboratory Compaction Characteristics:			
	Seattle Ave South	Lab Test Method:			
		Field Test Method:	ASTM D-155 ASTM D-2922		
Project Name:	Dairigold / I Rainier Ave.	Material Tested:	Type 17 / Glacier		
Location:	Seattle Washington.	Field Technician:	Abe Hernandez		
Datum:	Project	Gauge ID:	633385		
		Reviewed. by:	JAM	Mode:	Direct

Test No.	Date	Probe Depth	Location	Lift or Elev.	Wet Unit Wt., Pcf	Dry Unit Wt., Pcf	Lab Max. Dry Unit Wt., Pcf	% Max Dry Unit Wt.	Specified. % Max Dry Unit Wt.	% Water Content	Optimum Water Content	Material Designation	Pass/Fail
1	8-13-11	12”	Approx 80ft West of 00 Point & 25ft North	12”	141.7	137.6	140.3	98	95	3.0	5.3	Type 17 Import	Pass
2	8-13-11	12”	Approx 60ft West of 00 Point & 10ft North	12”	138.8	135.0	140.3	96	95	2.8	5.3	Type 17 Import	Pass
3	8-13-11	12”	Approx 20ft West of 00 Point & 20ft North	12”	138.0	133.7	140.3	95	95	3.2	5.3	Type 17 Import	Pass
4	8-13-11	12”	Approx 75ft West of 00 Point & 75ft North	12”	138.9	134.9	140.3	96	95	3.0	5.3	Type 17 Import	Pass
5	8-13-11	12”	Approx 45ft West of 00 Point & 30ft North	12”	138.8	134.5	140.3	96	95	3.2	5.3	Type 17 Import	Pass

APPENDIX D

Replacement Monitoring Well Construction Logs

Coarse-Grained Soils - More than 50% [1] Retained on No. 200 Sieve	Gravels - More than 50% [1] of Coarse Fraction Retained on No. 4 Sieve	≤5% Fines [5]	GW	Well-graded gravel and gravel with sand, little to no fines
			GP	Poorly-graded gravel and gravel with sand, little to no fines
		≥15% Fines [5]	GM	Silty gravel and silty gravel with sand
			GC	Clayey gravel and clayey gravel with sand
	Sands - 50% [1] or More of Coarse Fraction Passes No. 4 Sieve	≤5% Fines [5]	SW	Well-graded sand and sand with gravel, little to no fines
			SP	Poorly-graded sand and sand with gravel, little to no fines
		≥15% Fines [5]	SM	Silty sand and silty sand with gravel
			SC	Clayey sand and clayey sand with gravel
Fine-Grained Soils - 50% [1] or More Passes No. 200 Sieve	Silts and Clays Liquid Limit Less than 50		ML	Silt, sandy silt, gravelly silt, silt with sand or gravel
			CL	Clay of low to medium plasticity; silty, sandy, or gravelly clay, lean clay
			OL	Organic clay or silt of low plasticity
	Silts and Clays Liquid Limit 50 or More		MH	Elastic silt, clayey silt, silt with micaceous or diato-maceous fine sand or silt
			CH	Clay of high plasticity, sandy or gravelly clay, fat clay with sand or gravel
			OH	Organic clay or silt of medium to high plasticity
Highly Organic Soils			PT	Peat, muck and other highly organic soils

Terms Describing Relative Density and Consistency

Coarse-Grained Soils	Density	SPT [2] blows/foot
	Very Loose	0 to 4
	Loose	4 to 10
	Medium Dense	10 to 30
	Dense	30 to 50
	Very Dense	>50

Fine-Grained Soils	Consistency	SPT [2] blows/foot
	Very Soft	0 to 2
	Soft	2 to 4
	Medium Stiff	4 to 8
	Stiff	8 to 15
	Very Stiff	15 to 30
	Hard	>30

Test Symbols

FC = Fines Content
G = Grain Size
M = Moisture Content
A = Atterberg Limits
C = Consolidation
DD = Dry Density
K = Permeability
Str = Shear Strength
Env = Environmental
PiD = Photoionization Detector

Component Definitions

Descriptive Term	Size Range and Sieve Number
Boulders	Larger than 12"
Cobbles	3" to 12"
Gravel	3" to No. 4 (4.75 mm)
Coarse Gravel	3" to 3/4"
Fine Gravel	3/4" to No. 4 (4.75 mm)
Sand	No. 4 (4.75 mm) to No. 200 (0.075 mm)
Coarse Sand	No. 4 (4.75 mm) to No. 10 (2.00 mm)
Medium Sand	No. 10 (2.00 mm) to No. 40 (0.425 mm)
Fine Sand	No. 40 (0.425 mm) to No. 200 (0.075 mm)
Silt and Clay	Smaller than No. 200 (0.075 mm)

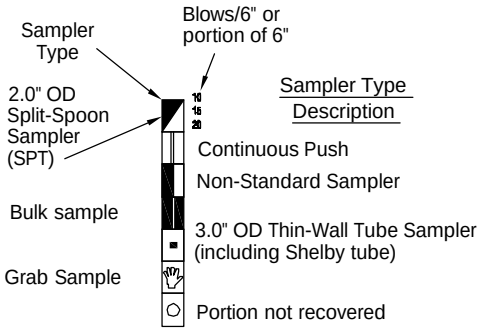
[3] Estimated Percentage

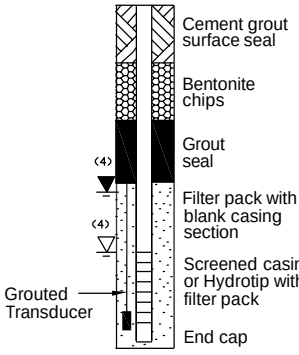
Percentage by Weight	Modifier
<5	Trace
5 to 15	Slightly (sandy, silty, clayey, gravelly)
15 to 30	Sandy, silty, clayey, gravelly)
30 to 49	Very (sandy, silty, clayey, gravelly)

Moisture Content

Dry - Absence of moisture, dusty, dry to the touch
Slightly Moist - Perceptible moisture
Moist - Damp but no visible water
Very Moist - Water visible but not free draining
Wet - Visible free water, usually from below water table

Symbols





(1) Percentage by dry weight
(2) (SPT) Standard Penetration Test (ASTM D-1586)
(3) In General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)
(4) Depth of groundwater — ATD = At time of drilling; Static water level (date); BGS = below ground surface
(5) Combined USCS symbols used for fines between 5% and 15% as estimated in General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)

Classifications of soils in this report are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D-2488 were used as an identification guide for the Unified Soil Classification System.

Aspect CONSULTING

Exploration Log Key

DATE:
DESIGNED BY:
DRAWN BY:
REVISED BY:

PROJECT NO.

FIGURE NO.
D-1

Q:_ACAD Standards\Standard Details\Exploration Log Key A1.dwg

Monitoring Well Construction Log

Aspect CONSULTING

Project Number	Well Number	Sheet
090066	MW-22	1 of 1

Project Name: Darigold
Location: Rainier Avenue South, Seattle, WA
Driller/Method: Cascade Drilling - Kasey / Direct push - Geoprobe 7730DT
Sampling Method: Continuous core

Ground Surface Elev:
Top of Casing Elev.:
Depth to Water (ft BGS): 11.5
Start/Finish Date: 8/26/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
1	5" diam monument flush mounted in concrete						Concrete	1
2	0'-5': 3/4" diam Sch 40 PVC riser						**Fill** Slightly moist to moist, gray and brown, sandy GRAVEL (GP); pit run (recent excavation backfill)	2
3								3
4	1.5'-4': Bentonite chips							4
5	4'-13': #2/12 sand pack							5
6								6
7	5'-12.5': 3/4" diam Sch 40 PVC 0.010"-slot prepacked screen							7
8								8
9								9
10								10
11	▽ 8/26/2011			0			**Recessional lacustrine deposits (Qvrl)** Moist, brown CLAY (CL); trace sand, rare organics	11
12	Threaded cap			0			Becomes wet, becomes gray.	12
13			MW-22-13 NWTPH-Dx, -Gx, BTEX	0 0				13
14	Slough			0			**Recessional outwash deposits (Qvrf)**	14
15			MW-22-15 NWTPH-Dx, -Gx, BTEX	0			Wet, gray, silty SAND (SM); well-graded fine to coarse sand Bottom of boring at 15' Ecology well tag # AAF630	15
16								16
17								17
18								18
19								19
20								20
21								21
22								22
23								23
24								24

Sampler Type:
- ◯ No Recovery
- ▮ Continuous Core
- ▮ Soil sample

PID - Photoionization Detector
- ▼ Static Water Level
- ▽ Water Level (ATD)

Logged by: Mv
Approved by: DAH
Figure No. D - 2

MONITORING WELL DARIGOLD-RAINIER.GPJ December 6, 2011

Monitoring Well Construction Log

Aspect CONSULTING

Project Number	Well Number	Sheet
090066	MW-23	1 of 1

Project Name: Darigold
Location: Rainier Avenue South, Seattle, WA
Driller/Method: Cascade Drilling - Kasey / Direct push - Geoprobe 7730DT
Sampling Method: Continuous core

Ground Surface Elev:
Top of Casing Elev.:
Depth to Water (ft BGS): 12.5
Start/Finish Date: 8/26/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
1	5" diam monument flush mounted in concrete						Concrete	1
2	0'-5': 3/4" diam Sch 40 PVC riser						**Fill** Slightly moist to moist, gray and brown, sandy GRAVEL (GP); pit run (recent excavation backfill)	2
3								3
4	1.5'-4': Bentonite chips							4
5	4'-13': #2/12 sand pack							5
6								6
7	5'-12.5': 3/4" diam Sch 40 PVC 0.010"-slot prepacked screen							7
8								8
9								9
10								10
11				0				11
12	▽ 8/26/2011 Threaded cap						**Recessional outwash deposits (Qvrf)**	12
13			MW-23-13 NWTPH-Dx, -Gx, BTEX	5			Wet, brown, silty SAND (SM); fine sand. Becomes gray.	13
14	Slough			30			**Recessional outwash deposits (Qvrf)** Wet, gray SAND (SW); well-graded fine to coarse sand, trace silt	14
15			MW-23-15 NWTPH-Dx, -Gx, BTEX	10			Bottom of boring at 15'.	15
16							Ecology well tag # AAF629	16
17								17
18								18
19								19
20								20
21								21
22								22
23								23
24								24

Sampler Type:
- ○ No Recovery
- ▮ Continuous Core
- ▮ Soil sample

PID - Photoionization Detector
- ▼ Static Water Level
- ▽ Water Level (ATD)

Logged by: Mv
Approved by: DAH
Figure No. D - 3

_MONITORING WELL_DARIGOLD-RAINIER.GPJ December 6, 2011

Monitoring Well Construction Log

Aspect CONSULTING

Project Number	Well Number	Sheet
090066	MW-24	1 of 1

Project Name: Darigold
Location: Rainier Avenue South, Seattle, WA
Driller/Method: Cascade Drilling - Kasey / Direct push - Geoprobe 7730DT
Sampling Method: Continuous core

Ground Surface Elev:
Top of Casing Elev.:
Depth to Water (ft BGS): 9
Start/Finish Date: 8/25/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
1	5" diam monument flush mounted in concrete						Asphalt	1
2	0'-5': 3/4" diam Sch 40 PVC riser						**Fill** Slightly moist to moist, gray and brown, sandy GRAVEL (GP); pit run (recent excavation backfill)	2
3								3
4	1.5'-4': Bentonite chips							4
5	4'-13': #2/12 sand pack							5
6								6
7	5'-12.5': 3/4" diam Sch 40 PVC 0.010"-slot prepacked screen							7
8								8
9	▽ 8/25/2011						Becomes wet.	9
10								10
11								11
12	Threaded cap							12
13			MW-24-13.5 NWTPH-Dx, -Gx, BTEX					13
14	Slough						**Recessional lacustrine deposits (Qvrl)** Moist, brown CLAY (CL); trace sand, rare organics	14
15			MW-24-15 NWTPH-Dx, -Gx, BTEX				**Recessional outwash deposits (Qvrf)** Wet, brown, SAND (SP); poorly graded fine to medium sand, trace silt.	15
16							Bottom of boring at 15'. Ecology well tag # AAF624	16
17								17
18								18
19								19
20								20
21								21
22								22
23								23
24								24

Sampler Type:
- ◯ No Recovery
- ▮ Continuous Core
- ▮ Soil sample

PID - Photoionization Detector
- ▼ Static Water Level
- ▽ Water Level (ATD)

Logged by: Mv
Approved by: DAH
Figure No. D - 4

_MONITORING WELL_DARIGOLD-RAINIER.GPJ December 6, 2011

Monitoring Well Construction Log

Aspect CONSULTING

Project Number	Well Number	Sheet
090066	MW-25	1 of 1

Project Name: Darigold
Location: Rainier Avenue South, Seattle, WA
Driller/Method: Cascade Drilling - Kasey / Direct push - Geoprobe 7730DT
Sampling Method: Continuous core

Ground Surface Elev:
Top of Casing Elev.:
Depth to Water (ft BGS): 10.5
Start/Finish Date: 8/25/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
1	5" diam monument flush mounted in concrete						Asphalt	1
2	0'-5': 3/4" diam Sch 40 PVC riser						**Fill** Slightly moist to moist, gray and brown, sandy GRAVEL (GP); pit run (recent excavation backfill)	2
3								3
4	1.5'-4': Bentonite chips							4
5	4'-13': #2/12 sand pack							5
6								6
7	5'-12.5': 3/4" diam Sch 40 PVC 0.010"-slot prepacked screen							7
8								8
9							Becomes wet.	9
10	▽ 8/25/2011							10
11								11
12	Threaded cap		MW-25-12 NWTPH-Dx, -Gx, BTEX				**Recessional lacustrine deposits (Qvrl)** Wet, mottled brown and gray CLAY (CL); trace sand, rare organics	12
13								13
14	Slough							14
15			MW-25-15 NWTPH-Dx, -Gx, BTEX				**Recessional lacustrine deposits (Qvrl)** Wet, gray SILT (ML); micaceous silt Bottom of boring at 15'.	15
16							Ecology well tag # AAF628	16
17								17
18								18
19								19
20								20
21								21
22								22
23								23
24								24

Sampler Type:
- ○ No Recovery
- ▮ Continuous Core
- ▮ Soil sample

PID - Photoionization Detector
- ▼ Static Water Level
- ▽ Water Level (ATD)

Logged by: Mv
Approved by: DAH
Figure No. D - 5

_MONITORING WELL_DARIGOLD-RAINIER.GPJ December 6, 2011

Monitoring Well Construction Log

Aspect CONSULTING

Project Number	Well Number	Sheet
090066	MW-26	1 of 1

Project Name: Darigold
Location: Rainier Avenue South, Seattle, WA
Driller/Method: Cascade Drilling - Kasey / Direct push - Geoprobe 7730DT
Sampling Method: Continuous core

Ground Surface Elev:
Top of Casing Elev.:
Depth to Water (ft BGS): 7.5
Start/Finish Date: 8/25/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
0	5" diam monument flush mounted in concrete						Asphalt	0
1							[no recovery 0.8'-10.0']	1
2	0'-5': 3/4" diam Sch 40 PVC riser							2
3								3
4	1.5'-4': Bentonite chips							4
5	4'-13': #2/12 sand pack							5
6								6
7	▽8/25/2011							7
8	5'-12.5': 3/4" diam Sch 40 PVC 0.010"-slot prepacked screen							8
9								9
10			MW-26-10 NWTPH-Dx, -Gx, BTEX				**Recessional lacustrine deposits (Qvrl)** Wet, mottled brown and gray CLAY (CL); trace sand, rare organics	10
11								11
12								12
13	Threaded cap							13
14	Slough							14
15			MW-26-15 NWTPH-Dx, -Gx, BTEX				Bottom of boring at 15'.	15
16							Ecology well tag # AAF625	16
17								17
18								18
19								19
20								20
21								21
22								22
23								23
24								24

Sampler Type:
- ◯ No Recovery
- ▮ Continuous Core
- ▮ Soil sample

PID - Photoionization Detector
- ▼ Static Water Level
- ▽ Water Level (ATD)

Logged by: Mv
Approved by: DAH
Figure No. D - 6

_MONITORING WELL_DARIGOLD-RAINIER.GPJ December 6, 2011

Monitoring Well Construction Log

Aspect CONSULTING

Project Number	Well Number	Sheet
090066	MW-27	1 of 1

Project Name: Darigold
Location: Rainier Avenue South, Seattle, WA
Driller/Method: Cascade Drilling - Kasey / Direct push - Geoprobe 7730DT
Sampling Method: Continuous core

Ground Surface Elev:
Top of Casing Elev.:
Depth to Water (ft BGS): 7.5
Start/Finish Date: 8/25/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
0	5" diam monument flush mounted in concrete						Asphalt	0
1							**Fill** Slightly moist, dark gray, sandy GRAVEL (GP); poorly graded fine, angular gravel	1
2	0'-5': 3/4" diam Sch 40 PVC riser						**Recessional lacustrine deposits (Qvrl)** Slightly moist to moist, mottled brown and gray SILT(ML); trace fine sand	2
3								3
4	1.5'-4': Bentonite chips							4
5	4'-13': #2/12 sand pack							5
6							Becomes gray-green, becomes trace organics	6
7	▽8/25/2011							7
8	5'-12.5': 3/4" diam Sch 40 PVC 0.010"-slot prepacked screen						Becomes wet.	8
9								9
10								10
11			MW-27-11 NWTPH-Dx, -Gx, BTEX				**Recessional lacustrine deposits (Qvrl)** Moist to wet, mottled brown and gray or laminated CLAY (CL)	11
12	Threaded cap							12
13								13
14	Slough							14
15			MW-27-15 NWTPH-Dx, -Gx, BTEX				Bottom of boring at 15'.	15
16							Ecology well tag # AAF627	16
17								17
18								18
19								19
20								20
21								21
22								22
23								23
24								24

Sampler Type:
- ◯ No Recovery
- ▮ Continuous Core
- ▮ Soil sample

PID - Photoionization Detector
- ▼ Static Water Level
- ▽ Water Level (ATD)

Logged by: Mv
Approved by: DAH
Figure No. D - 7

_MONITORING WELL_DARIGOLD-RAINIER.GPJ December 6, 2011

Monitoring Well Construction Log

Aspect CONSULTING

Project Number	Well Number	Sheet
090066	MW-28	1 of 1

Project Name: Darigold
Location: Rainier Avenue South, Seattle, WA
Driller/Method: Cascade Drilling - Kasey / Direct push - Geoprobe 7730DT
Sampling Method: Continuous core

Ground Surface Elev:
Top of Casing Elev.:
Depth to Water (ft BGS): 9
Start/Finish Date: 8/25/2011

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
	5" diam monument flush mounted in concrete						Asphalt	
1							**Fill** Slightly moist to moist, gray and brown, sandy GRAVEL (GP); pit run (former UST excavation backfill)	1
2	0'-5': 3/4" diam Sch 40 PVC riser							2
3								3
4	1.5'-4': Bentonite chips							4
5	4'-13': #2/12 sand pack							5
6								6
7	5'-12.5': 3/4" diam Sch 40 PVC 0.010"-slot prepacked screen							7
8								8
9	▽ 8/25/2011						Becomes wet.	9
10								10
11			MW-28-11 NWTPH-Dx, -Gx, BTEX					11
12								12
13	Threaded cap						**Recessional lacustrine deposits (Qvrl)** Moist, brown CLAY (CL); trace sand, rare organics	13
14	Slough						Becomes gray.	14
15			MW-28-15 NWTPH-Dx, -Gx, BTEX				Bottom of boring at 15'.	15
16							Ecology well tag# AAF626	16
17								17
18								18
19								19
20								20
21								21
22								22
23								23
24								24

Sampler Type:
- ◯ No Recovery
- ▮ Continuous Core
- ▮ Soil sample

PID - Photoionization Detector
- ▼ Static Water Level
- ▽ Water Level (ATD)

Logged by: Mv
Approved by: DAH
Figure No. D - 8

MONITORING WELL DARIGOLD-RAINIER.GPJ December 6, 2011

APPENDIX E

Permit-Related Information

City of Seattle

Department of Planning & Development
Diane M. Sugimura, Director

July 19, 2011

JUL 28 2011
BY:

ASPECT CONSULTING LLC
179 MADRONE LANE
BAINBRIDGE ISLAND, WA 98110

ASPECT CONSULTING LLC is hereby authorized by the Director of Planning and Development to provide Special Inspection in accordance with the provisions of the 2006 Seattle Building Code and Seattle Municipal Code, permit documents, and special inspection requirements for the following project:

Permit Number:	6282853
Project Address:	4058 RAINIER AVE S
Owner/Lessee:	JAMES WEGNER
Engineer:	ASPECT CONSULTING LLC - (206) 780-9370
Description:	Excavate approximately 3,000 cubic yards of petroleum-contaminated soil and import clean fill to grade.

TYPES OF GEOTECHNICAL INSPECTIONS:

1. MONITOR GRADING SEASON RESTRIC
2. VERIFY FILL & COMPACTION
3. OBSERVE AND MONITOR EXCAVATION
4. EROSION CONTROL - TEMPORARY
5. MONITOR DEWATERING
   temporary

A pre-construction meeting is required. All inspection reports must be filed promptly with the Department of Planning and Development. Reports may be sent via mail, FAX (206-233-7902), or email (dpdgeo@seattle.gov). One copy of each field report shall be maintained at the jobsite. Submit a final report at the completion of the job. Confirmation of the authority to do the work should be obtained from the owner or the owner's authorized agent. Failure to comply with the above requirements may be cause for revocation of this authority. All costs of the inspections shall be the responsibility of the project owner.

If you have any questions concerning this matter, please contact the Geotechnical Engineering Group at (206) 684-8860. Send all correspondence to: Department of Planning and Development - Geotechnical Engineering Group - 700 5th Ave Suite 2000 - PO Box 34019 - Seattle, WA 98124-4019.

Sincerely,
The Geotechnical Engineering Group

cc: JON O'HARE
26456 MARINE VIEW DR S
DES MOINES, WA 98198

October 6, 2011

City of Seattle
Department of Planning and Development
Site Team/Geotechnical Inspections
700 Fifth Avenue, Suite 2000
Post Office Box 34019
Seattle, Washington 98124-4019

Re: Summary of Geotechnical Special Inspections (Revision 1)
4058 Rainier Ave S, Seattle, WA – DPD Permit No. 6282853
Aspect Consulting Project No. 090066

To Whom It May Concern:

As requested by the Department of Planning and Development (DPD), Aspect Consulting, LLC (Aspect) is submitting this final letter of special inspections permit requirements, as outlined in the DPD letter to Aspect, dated July 19, 2011. Plans were approved and special inspections authorized by DPD under Permit No. 6282853 for the excavation of approximately 3,000 cubic yards of petroleum-contaminated soil and importing of clean fill to restore grade. Geotechnical construction elements covered under this permit are in compliance. On-grade paving was completed in August of 2011.

Aspect attended the pre-construction meeting for this site on July 14, 2011.

We completed the City of Seattle's required geotechnical special inspections for this project in the following areas:

1. **Monitor Grading Season Restriction –** No construction was planned or performed during the wet season. All work was performed in July and August of 2011.

2. **Verify Fill & Compaction –** Aspect or its subcontractor tested all backfill by T-probe or nuclear densitometer. All fill compaction was found to meet or exceed the 90 percent of maximum density specifications in the approved site plans.

3. **Observe and Monitor Excavation –** Aspect observed and monitored all excavation. Soil was excavated on the site to a depth of 8' to 14' below ground surface (BGS). The southern boundary of the excavation was immediately adjacent to the northern wall of the principal building. The northern boundary of the excavation was approximately 15' south of the northern property boundary. During construction, a sanitary sewer pipeline and three storm drains and associated storm water pipelines were exposed.

   Aspect monitored construction activities and confirmed that no damage to the above-mentioned infrastructure occurred. No earth movement was observed beyond the limits of excavation. All temporary cuts have been backfilled to re-establish the required lateral support.

4. **Erosion Control - Temporary** – Aspect monitored erosion and sedimentation control on the site. Standard TESC materials and practices were in place at all times. No soil was blown, tracked, or eroded from the site during construction. The site has been re-paved to match the original impervious surface

5. **Monitor Dewatering - Temporary**– Aspect monitored dewatering activities on site. Dewatering was carried out in compliance with King County Industrial Waste Letter of Authorization 11274-01.

Based on the results of our visits, the work we observed was performed in general accordance with the geotechnical engineering recommendations made by Aspect and the City of Seattle approved plans.

If you have any questions, please do not hesitate to call me at (206) 780-9370.

Sincerely,

Aspect consulting, LLC

John L. Peterson, PE
Senior Associate Geotechnical Engineer
jpeterson@aspectconsulting.com

S:\Darigold\Rainier Ave Facility\Soil Removal Action\Permitting\DPD Geotech Final Ltr rev1.doc

Department of Planning
and Development
700 Fifth Ave., Suite 2000
P.O. Box 34019
Seattle, WA 98124-4019
(206) 684-8600

CITY OF SEATTLE
Side Sewer Permit

6291352
Permit Number

DISTRICT 9

Site Address: 4058 RAINIER AVE S, SEATTLE, WA
Location:

OWNER	CONTRACTOR	
BRUCE BENNETT 1130 RAINIER AV S SEATTLE, WA 98144	CLEARCREEK CONTRACTORS 3203 15TH ST EVERETT, WA 98201 Ph: (425) 252-5800 Fax: (425) 252-1093	**Application Date:** 08/03/2011 **Issue Date:** 08/03/2011 **Expiration Date:** 02/03/2013 **Fees Paid:** $375.00 **As of Print Date:** 08/03/2011
	Primary Applicant/Installer	

Description of Work: FINAL REPAIR OF 10" ID STORM DRAIN LINE FOLLOWING TEMPORARY REMOVAL FOR EXCAVATION OF CONTAMINATED SOILS. ASSOC BLDG PERMIT #6282853.

Side Sewer

Activity in the Right-of-Way

Curb Crossing and/or Staging:	N
Excavation:	N
Street Restoration by Registered Contractor:	N

Intake Reviewer DONNELLY, KEVIN

Drainage System

Action Type:	ADD/ALT

Drainage Criteria

Flow Control Type:	
Treatment Type:	
Discharge Point:	
Total Development Coverage:	Sq. Ft.
New Impervious Surface:	Sq. Ft.
New Plus Replace Impervious Surface:	Sq. Ft.
Total Area Mitigated by GSI:	Sq. Ft.

ATTENTION:
Additional inspection time will be billed at $172.00 per hour per SMC 21.24.021 and Director's Rule 9-2005

Erosion Control required at ground disturbance.

Permitted work must not be covered until inspected. When ready for inspection, make request with the Department of Planning and Development at (206) 684-8900. Provide site address and permit number.

Permission is hereby given to do the above work at the site address shown, according to the conditions hereon and according to the specification pertaining thereto, subject to compliance with Ordinances of the City of Seattle. Correct information is the responsibility of the applicant. Permits with incorrect information may be subject to additional fees. Permit fee includes one hour of inspection. Inspection time includes office, travel, and inspection time. **Call Street Use prior to any work in ROW at (206) 684-5270 or online at SDOTJobStart@seattle.gov**

PERMIT PLACARD MUST REMAIN POSTED AT THE WORK SITE

Aspect CONSULTING

FAX

Project No.: 090066-005-01

August 19, 2011 Page 1 of 1

To:	King County Industrial Waste	**Fax:**	206-263-3001	**Phone:**	206-263-3000
cc:		**Fax:**		**Phone:**	
		Fax:		**Phone:**	

From: David Heffner

Re: **Authorization 11274-01 to Discharge to Sanitary Sewer**

Comments:

The completed Industrial Waste Self-Monitoring Report for Discharge Authorization No. 11274-01 is attached. As indicated on the report, sewer discharges associated with construction dewatering occurred only on July 28 and August 5, 2011. Construction is now complete. Thank you.

Please call (206) 328-7443 if transmission is incomplete or illegible.

S:\Darigold\Rainier Ave Facility\Soil Removal Action\Permitting\Constr Dewatering\Fax to KCIW cover_19Aug11.docx

King County

Industrial Waste Self-Monitoring Report

Mail or FAX to: King County Industrial Waste Program
130 Nickerson Street, Suite 200
Seattle, WA 98109-1658
Phone 206-263-3000 / FAX 206-263-3001

Project Name: Darigold Inc. - Rainier Plant Soil Removal Action **Authorization No.:** 11274-01

Project Location: 4058 Rainier Avenue South, Seattle

Sample Date	pH (s.u.) Min.	pH (s.u.) Max.	Settleable Solids, (mL/L)	Nonpolar FOG (mg/L)	Benzene (µg/L)	Ethylbenzene (µg/L)	Toluene (µg/L)			Discharge Volume (gallons)	Notes
7/28/11	7.9	8.1	0	<3	<1	<1	<1			13,000	no visible turbidity
8/5/11	8.3	8.5	0	<3	<1	<1	<1			31,000	minor, slight visible turbidity
									Total Discharge Volume:	44,000	

Signature of Principal Executive or Authorized Agent: [signature]

Date: 8/11/11

The permit holder is responsible for monitoring the discharge in accordance with the monitoring requirements specified in King County Letter of Authorization No. 11274-01. This report form must be completed and submitted to King County by September 15, 2011.

Your King County Industrial Waste Program contact: Jim Sifford, 206-263-3008

APPENDIX F

Material Import/Export Summary Table and Records (on CD)

APPENDIX G

Laboratory Reports
Friedman & Bruya, Inc.
(on CD)