



Memorandum

MONTEREY REGIONAL WASTE MANAGEMENT DISTRICT

Reviewed by Wmm Date 9/12/07
General Manager

DATE: September 14, 2007
TO: General Manager
FROM: Senior Engineer
SUBJECT: Authorize Three-year Contract to Vector Engineering, Inc. for Sliver Fill Final Cover Construction Quality Assurance Services

RECOMMENDATION: That the Board of Directors authorize the execution of a three-year contract with Vector Engineering, Inc., of Grass Valley, California, to provide Construction Quality Assurance (CQA) services related to the placement of final cover on the Sliver Fill of Modules 2 and 3. This work is required by the California Regional Water Quality Control Board (CRWQCB), and will take place over the next three years, during the month of October of 2007, 2008, and 2009. The cost for the required services will be billed on a time and materials basis, not to exceed a total cost of \$80,340 for the three years of services.

BACKGROUND

Vector Engineering provided the District with an Updated Landfill Master Plan that includes the utilization of the sliver fill technique for the existing northern exterior slopes of Modules 1, 2, and 3. This overfilling of the side slopes captures the airspace created by the settlement of these previously closed areas of the landfill. The general concept is to steepen the exterior slopes of the landfill by placing additional waste as a sliver fill. By removing the existing final cover soils and placing additional waste as a sliver fill on these slopes, a significant increase in the overall site capacity could be realized. Furthermore, the use of the sliver fill airspace delays the construction of the Module 5 liner, a \$2,000,000 capital outlay, by several years.

The sliver fill concept was approved by the California Regional Water Quality Control Board (CRWQCB) and was included in the revised Waste Discharge Requirements (WDRs) Order No. R302006-0017, adopted on February 10, 2006. The sliver fill operation is documented in the *Sliver Fill Design Report for the Monterey Peninsula Landfill, Addendum to the June 2003 Updated Master Plan Report* (Vector Engineering, December 2004).

The WDRs allow the use of the sliver fill only during the dry season, from April through September. The first year of the sliver fill operation (on Module 1) began during the spring of 2006, with final cover placement during October 2006. Each year, prior to the commencement of the sliver fill operation, the 12-inch landfill gas header and any landfill gas wells in the vicinity must be relocated, and the engineered fill/soil buttress must be placed at the toe of the existing landfill slope in anticipation of the sliver fill operation.

A CQA Monitoring Plan for the final cover placement was prepared by Vector Engineering and approved by the CRWQCB. A key component of the CQA work is to assure that the placement of the one-foot thick clay barrier layer meets the required permeability of 1×10^{-6} cm/sec. Clay that was excavated and stockpiled during the construction of the Module 4 liner is used in the sliver fill final cover. Vector provided the CQA services for the first year sliver fill final cover placement on Module 1 during October 2006.

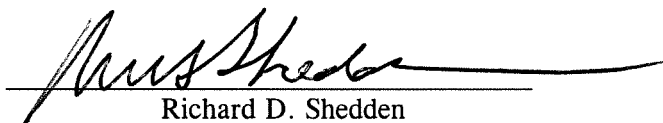
VECTOR'S PROPOSAL

Vector has submitted a proposal to provide the required CQA services for the next three years. A copy of Vector's proposal, dated August 23, 2007, is attached. Vector has a wealth of specialized experience directly related to landfill liner design and CQA services at municipal solid waste landfills in California. In fact, in addition to the landfill master plan update, Vector provided the District with engineering design and CQA services for Modules 3 and 4 liner construction, and CQA services for the 2006 sliver fill final cover. They did an outstanding job.

Vector's proposal demonstrates a thorough understanding of the required scope-of-work. The proposed budget of \$80,340 for the next three years of services is reasonable and appropriate. Vector is well qualified and their proposal is very cost-effective. Vector is a relatively small company (70 employees) with a low overhead.

CONCLUSION

The final cover CQA work is required by the CWQCB to certify that the final cover is constructed in accordance with the approved construction drawings and CQA Plan. Vector Engineering has submitted a proposal for CQA services that is most responsive to the District's needs. It is therefore recommended that the Board of Directors authorize the General Manager to execute an agreement with Vector Engineering to provide CQA monitoring services related to the construction of the sliver fill on Modules 2 and 3. Funding for this work has been included in the next three fiscal years (FY 2007/08, FY 2008/09, and FY 2009/10) Capital Outlay Budget.



Richard D. Shedden

Attachment

August 23, 2007
Proposal No. 071695.00

Mr. Richard Shedden, P.E.
Senior Engineer
Monterey Regional Waste Management District
P.O. Box 1670
Marina, CA 93933-1670

**Re: Sliver Fill Construction Quality Assurance Services
Three Year Contract Period 2007-2009
Monterey Peninsula Landfill, Marina, California**

Dear Rick,

Vector Engineering, Inc. (Vector) is pleased to provide this proposal to provide construction quality assurance (CQA) services related to the sliver fill closure construction at the Monterey Peninsula Landfill (MPL), Marina, California. Vector will provide our CQA services on a time and materials basis in accordance with our June 30, 2007 Schedule of Charges (attached). The attached detailed cost estimate provides our services for a three year period of closure construction inspection beginning in fall of 2007 and ending in fall of 2009.

Task 1: Construction Meetings

Vector's project principal, Scott Purdy, CEG, will attend a construction meeting at the MPL to meet with District operations staff to discuss the procedures to be followed for placing final cover in the sliver fill area. This meeting will be held at the beginning of cover construction for three consecutive years.

Task 2: Construction Quality Assurance Services

During the placement of final cover material over the additional sliver fill waste, Vector will provide a full-time CQA Monitor to test and observe the construction. Vector will conduct testing and observation during low permeability soil placement. The inspection activities to be followed during the placement of this component are as follows:

Low Permeability Soil Barrier Layer

The construction inspection activities of Vector's CQA Monitor to be performed during sliver fill cover layer installation for the next three years are as follows:

1. Inspection and observation of the low permeability soil layer construction for conformity to the Contractor's (or Districts) approved construction methods and equipment.
2. Observe that all cracks, depressions, and irregularities in the foundation soils have been filled in and compacted to the specified relative compaction prior to placement of the low permeability soil layer.
3. Visually inspect the low permeability soils for material characteristics such as gradation, clod size, excessive organic material, and other characteristics that do not meet the CQA Plan requirements.
4. Measure compacted lift thickness. This thickness must not exceed the thickness required in the CQA Plan.
5. Perform periodic sampling and testing of low permeability soils at the frequencies specified to ensure conformance with the CQA Plan.
6. Observe the equipment type and number of passes for compaction and identify areas that have been poorly compacted or left uncompacted.
7. Record any damage to the compacted low permeability soil layer resulting from operation of equipment.
8. Observe that all cracks, depressions, and irregularities in the low permeability soil layer are filled in and compacted to the specified moisture content and relative compaction.
9. Identify any changes in material used in constructing the low permeability soil layer.
10. Observe all phases of the construction and document the Contractor's (or Districts) compliance or noncompliance with the CQA Plan.

Task 3: CQA Documentation Report

Within 30 days of project completion, Vector will prepare a final construction report suitable for presentation to RWQCB and CIWMB. Copies of all reports and test results prepared by our CQA Monitor will be submitted to our CQA Officer for review. Copies of all the documents shall be maintained at Vector's office. This report will verify that the work has been performed in compliance with the CQA Plan. At a minimum this report will contain:

1. A summary of all construction activities.

2. A description of significant construction problems and the resolution of these problems.
3. A list of changes (if any) from the CQA Plan and the justification for these changes.
4. A statement signed and sealed by a Registered Civil Engineer or Certified Engineering Geologist registered in the State of California verifying that the project was constructed in general accordance with the Construction Drawings and CQA Plan.

Vector will provide a summary of costs with our invoice that clearly states the fees associated with each work task. For proposal purposes, Vector has assumed that full-time CQA services (40 hours per week) will be necessary for a period of three weeks. Should the construction continue, Vector will provide our services at the same unit rates presented in our detailed cost estimate (attached).

Again, Vector appreciates the opportunity to provide the District engineering services for the Monterey Peninsula Landfill.

Regards,

VECTOR ENGINEERING, INC.

A handwritten signature in black ink that reads "Scott Purdy". The signature is written in a cursive, flowing style.

Scott Purdy, C.E.G.
Vice President, Vector Engineering

**COST ESTIMATE
MONTEREY PENINSULA LANDFILL
SLIVER FILL ENGINEERING SUPPORT AND CQA SERVICES
COSTS FOR THREE YEAR CONSTRUCTION PERIOD 2007-2009**

Task 1: CONSTRUCTION MEETINGS			
Personnel	Hours	Rate per Hour	Subtotal Cost
Principal (Purdy) (3 yrs-10 hr/yr)	30	\$175.00	\$5,250.00
Total Personnel Costs - Task 1			\$5,250.00

ESTIMATE OF EQUIPMENT AND DIRECT EXPENSES - Task 1			
Description	Rate per Unit	Units	Subtotal Cost
Travel Expenses - Meetings (3 yrs-1 trip/yr)	\$500	3	\$1,500.00
Phone/FAX/Postage (3 years)	\$50	3	\$150.00
Total for Equipment and Direct Expenses - Task 1			\$1,650.00

TOTAL COSTS - Task 1	\$6,900.00
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Task 2: CONSTRUCTION QUALITY ASSURANCE SERVICES			
Personnel	Hours	Rate per Hour	Subtotal Cost
Principal (Purdy) (3 yrs-4hr/yr)	12	\$175.00	\$2,100.00
Senior Civil Engineer (3yrs-10hrs/yr)	30	\$155.00	\$4,650.00
Senior Engineering Technician*	360	\$85.00	\$30,600.00
Clerk (3 yrs-4hrs/yr)	12	\$55.00	\$660.00
* assumes 3 weeks at 8 hours per day 5 days per week for 3 years			
Total Personnel Costs - Task 2			\$38,010.00

ESTIMATE OF EQUIPMENT AND DIRECT EXPENSES - Task 2			
Description	Rate per Unit	Units	Subtotal Cost
Mob/Demob Personnel (lump sum) (3yrs)	\$850	3	\$2,550.00
Per Diem (per day) (20 days/yr-3yrs)	\$100	60	\$6,000.00
Vehicle (per week) (3 wks/year-3yrs)	\$300	9	\$2,700.00
Nuclear Density Gauge (1 month/yr-3yrs)	\$800	3	\$2,400.00
Shipping (soil samples) (\$250/yr-3yrs)	\$250	3	\$750.00
Laboratory Permeability(10/yr-3yrs)	\$270	30	\$8,100.00
Field Permeability (monthly-3yrs)	\$750	3	\$2,250.00
Misc Field Equipment/Supplies (monthly-3yrs)	\$300	3	\$900.00
Phone/FAX/Postage (monthly-3yrs)	\$100	3	\$300.00
Total for Equipment and Direct Expenses - Task 2			\$25,950.00

TOTAL COSTS - Task 2	\$63,960.00
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Task 3: REPORT PREPARATION			
Personnel	Hours	Rate per Hour	Subtotal Cost
Principal (Purdy) (2hr/yr-3yrs)	6	\$170.00	\$1,020.00
Senior Civil Engineer (10hrs/yr-3yrs)	30	\$155.00	\$4,650.00
Senior Engineering Technician (4hrs/yr-3yrs)	12	\$85.00	\$1,020.00
Clerical (Dermer) (6hrs/yr - 3yrs)	18	\$55.00	\$990.00
Total Personnel Costs - Task 3			\$7,680.00

ESTIMATE OF EQUIPMENT AND DIRECT EXPENSES - Task 3			
Description	Rate per Unit	Units	Subtotal Cost
Publication / Reproduction (3 yrs)	\$500	3	\$1,500.00
Shipping / Postage (Documents) (3 yrs)	\$100	3	\$300.00
Total for Equipment and Direct Expenses - Task 3			\$1,800.00

TOTAL COSTS - Task 3			\$9,480.00
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SUMMARY OF PROJECT COSTS - 3 YEARS

Task 1: CONSTRUCTION MEETINGS	\$6,900.00
Task 2: CONSTRUCTION QUALITY ASSURANCE SERVICES	\$63,960.00
Task 3: REPORT PREPARATION	\$9,480.00
TOTAL PROJECT COSTS	\$80,340.00

SCHEDULE OF CHARGES

Effective June 30, 2007

ENGINEERING SERVICES

Principal Professional III	\$180.00/hr
Principal Professional II	\$175.00/hr
Principal Professional I	165.00/hr
Senior Professional II	155.00/hr
Senior Professional I	145.00/hr
Project Professional III	135.00/hr
Project Professional II	125.00/hr
Project Professional I	110.00/hr
Staff Professional III	100.00/hr
Staff Professional II	90.00/hr
Staff Professional I	80.00/hr
Laboratory/Field Manager	125.00/hr
Assistant Laboratory/Field Manager	100.00/hr
Engineering Technician	85.00/hr
Engineering Technician Overtime	115.00/hr
Engineering Technician Double Overtime	130.00/hr
Technician Assistant	55.00/hr
CAD Operator with System	80.00/hr
Clerk	55.00/hr
Laboratory	85.00/hr
Overtime	1.5 x reg. rate
Expert Witness/Testimony (4 hour minimum)	275.00/hr

PER DIEM \$ 100.00/day
Or Cost + 10%

VEHICLE - 0.50/mi
or 65.00/day
or 300.00/week

OUTSIDE SERVICES (Backhoe, drilling, subconsultants, etc.) Cost + 10%

REPRODUCTION COSTS

Photocopies	\$ 0.30 each
Blue or Blacklines (24 x 36)	3.75 each
Plotter Originals - Bond or Vellum	7.00 each

LABORATORY / FIELD SERVICES

GENERAL *

Nuclear Moisture/Density Meter	\$10.00/hr
.....	or 75.00/day
.....	or 800.00/mo
Peel & Shear Strength Apparatus (FML Seams).....	800.00/mo
Portable Laboratory (8' x 32' trailer) with Equipment	900.00/mo
Portable Laboratory (mob / demob).....	\$1500.00

FIELD PERMEABILITY TESTING*

BAT Porous Probe.....	\$200.00/day
.....	or 750.00/mo
Sealed Single Ring Infiltrometer (SSRI)	200.00/day
.....	or 750.00/mo
Sealed Double Ring Infiltrometer (SDRI).....	Call for Quote

ENVIRONMENTAL

Call for Quote

1. All Test methods are ASTM unless otherwise noted.
2. All laboratory test rates are for standard turn-around time and normal reporting procedures. Rush orders will be subject to a 25% premium. Manpower requirements or test protocol may preclude the granting of a rush request.
3. Compression test rate applies once sample has been received, whether tested or not.
* Selected items may be rented without operator for 200% of the rates stated herein.

LABORATORY SERVICES - SOILS

MOISTURE / DENSITY RELATIONS - COMPACTIONS

Standard Proctor - 4"	D-698.....	\$ 160.00 each
Standard Proctor - 6"	D-698.....	170.00 each
Modified Proctor - 4"	D-1557.....	180.00 each
Modified Proctor - 6"	D-1557.....	190.00 each
California Impact.....	Cal 216.....	205.00 each
Harvard Miniature		235.00 each
Check Point		105.00 each
R-Value.....	D-2844.....	300.00 each
California Bearing Ratio	D-1883.....	Call for Quote

MECHANICAL ANALYSIS

Sieve Analysis,
Minus #4 Sieves with #200 Wash

D-422/C-136.....	100.00 each	
Sieve Analysis, Full Sieve	D-422/C-136.....	130.00 each
Percent Passing #200 Sieve.....	D-1140/C-117.....	70.00 each
Hydrometer Analysis, Full Sieve	D-422.....	160.00 each
Sand Equivalent	Caltrans 217/D-2419	120.00/set
Pinhole Dispersion Test; 4 increments (remold sample).....	D-4647.....	310.00/set

CLASSIFICATION AND INDEX PROPERTIES

Unified Soil Classification, includes Atterberg
and Full Sieve

D-2487.....	210.00 each	
Atterberg Limits, Multi-point Method...D-4318.....	110.00 each	
Moisture Content.....	D-2216.....	30.00 each
Moisture Content & Dry Density.....		40.00 each
Specific Gravity.....	D-854.....	110.00 each
Soil pH.....		55.00 each

CONSOLIDATION / EXPANSION (SWELL)

One-Dimensional Consolidation / Swell
or Settlement Potential

D-2435 / D-4546.....	105.00 set up	
Load Increments/Decrements	35.00 each	
Time-Deformation Readings	50.00 each	
Expansion Index	UBC29-2/D-4829	210.00 each

HYDRAULIC CONDUCTIVITY

Flexible-Wall Permeability	
Undisturbed Soil, 2-4" dia.D-5084.....	\$ 270.00
Remolded Soil, Add.....D-5084.....	60.00
Fixed-Wall Permeability (Modified D-2435/USBR-560)	
Coarse Grained Soils (6-8" mold), remolded.....	260.00
Coarse Grained Soils (12" mold), remolded.....	410.00
Fine Grained Soils (2-4" dia.).....	270.00
Additional Costs: Special preparation or remolding.....	60.00/sample
Test time over 5 days.....	30.00/day
Additional Consolidation Stresses, per stage.....	95.00
Air PermeabilityD-6539.....	285.00

SHEAR STRENGTH

Unconfined Compression.....D-2166.....	95.00
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Triaxial Shear

Unconsolidated / UndrainedASTM D-2850.....	110.00/point
Unconsolidated / Undrained with Back Pressure Saturation.....	140.00/point
Consolidated / Undrained with Back Pressure & Pore Pressure.....	310.00/point
Consolidated / Drained with Back Pressure Saturation.....	360.00/point
Staged (Progressive) Test: TX (CU/S/P).....	1000.00/set
Additional Cell Time, Per Day.....	30.00/day

Direct Shear

Unconsolidated-Undrained (Quick).....	85.00/point
Consolidated-Undrained.....	85.00/point
Consolidated-DrainedASTM D-3080.....	160.00/point
Machine Time over 24 Hours, Add.....	60.00/day
Sample Preparation and Remolding.....	60.00/sample
Additional Saturation Time (>24 hours).....	60.00/day
Large Shear Box 12 x 12.....	110.00/sample

SPECIALTY TESTING

GEOSYNTHETIC MATERIALS

Seam Coupon Series (thickness, peel, and shear)

Set of 5 each (Qty 1-10).....D-6392.....	\$75.00
(Qty 10 or more)	55.00
Asperity Height.....GRI GM12.....	35.00
Liner Puncture Testing up to 350 psi	260.00
Liner Puncture Testing up over 350 psi	410.00

Large Scale Direct Shear D-5321 & D-6321

Geosynthetic vs. Geosynthetic - Method A	210.00/point
Soil vs. Geosynthetic Friction - Method B	260.00/point
GCL Internal Shear	310.00/point
Shear Speed (< 0.04).....	110.00/point

(Shear rate is dependent on soil drainage characteristics and engineering specifications)

Substrate Remolding Fee	60.00/test
Additional Saturation Time (>24 hours)	60.00/day
GCL Index Flux Testing.....D-5887.....	270.00/test
GCL, Fluid Loss	D-5891..... 75.00/test
GCL, Swell Index	D-5890..... 70.00/test
GCL, Mass per Unit Area.....D-5993.....	70.00/sample
Custom Liner Testing	Call for Quote

ROCK TESTING

Rock Density	35.00
Bulk Density, Porosity, Specific Gravity, Water Content.....	110.00
Point Load Index, Single Break	35.00
Point Load Index, Average 10-15 Breaks	180.00
Indirect Tensile Strength (Brazilian), Single Break	55.00
Indirect Tensile Strength (Brazilian), 10-15 Breaks.....	210.00
Uni-axial Strength (Peak Only), Including Prep (2.5" Maximum)	130.00
Uni-axial Strength (with Stress-Strain Curve).....	160.00
Add Modulus and Poisson Ratio	60.00
Rock Joint Direct Shear, per point.....	260.00
Joint Direct Shear, additional normal load	95.00
Rock Preparation, Cutting and Grinding (per hour).....	85.00

CONSTRUCTION MATERIALS

AGGREGATE

Sieve Analysis - Coarse (w/o wash).....	C-136.....	\$100.00 each
#200 Wash - Coarse Aggregate	C-117.....	70.00 each
Sieve Analyses - Fine w/wash - #200	C-136.....	110.00 each
Spec. Gravity, Bulk, SSD w/ Absorption.....	C-128 / C127	110.00 each
Injurious Organic Matter	C-40.....	60.00 each
Unit Weight per Cubic Foot	C-29.....	60.00 each
Sand Equivalent	D-2419.....	135.00 / set
Crushed Particles (Fractured Faces)		95.00 each
Flat and Elongated Particles.....	CRD-119, 120	105.00 each
Clay Lumps and Friable Particles	C-142.....	80.00 each
Lightweight Pieces in Aggregate	C-123.....	95.00 each
Sulfate Soundness, per Sieve Size	C-88.....	135.00 each
Los Angeles Abrasion Test	C-131.....	260.00 each
Durability Index D _i		160.00 each
Durability Index D _c		160.00 each

ADDITIONAL TERMS AND CONDITIONS

1. Invoices are issued once or twice monthly, or on completion of the project, whichever comes first. Invoices are payable when received unless otherwise agreed. A late payment service charge will be computed at the periodic rate of 1.5% per month and will be applied to any unpaid balance commencing 15 days after the date of the original invoice.
2. Laboratory prices include the reporting of routine results not calling for comment, recommendation or conclusions. Hourly rates are charged for sampling, specification review, discussion, report preparation and field testing.
3. Many risks potentially affect CONSULTANT by virtue of entering into this AGREEMENT to perform professional engineering services on behalf of CLIENT. The principal risk is the potential for human error by CONSULTANT or the occurrence of unforeseen underground conditions. For CLIENT to obtain the benefit of a fee which includes a nominal allowance for dealing with CONSULTANT's liability, CLIENT agrees to limit CONSULTANT's liability to CLIENT and to all other parties for claims arising out of CONSULTANT's performance of the services described in this AGREEMENT. ***The aggregate liability of CONSULTANT will not exceed the CONSULTANT's fee for the project in question, or \$20,000 for professional services (or \$5,000 for laboratory services), whichever is less, for negligent professional acts, errors, or omissions, and CLIENT agrees to indemnify and hold harmless CONSULTANT from and against all liabilities in excess of the monetary limit established above.*** If CLIENT wishes to discuss higher limits and the charges involved, he or she should speak with CONSULTANT. Higher limits, to be valid, must be made a written addendum to this or any other contract. If this clause conflicts with a separate limitation clause in another agreement for the same services, then the lower limits shall apply.
4. Unless specific arrangements are made, all samples will be disposed of 30 days after the submission of our final report. Storage arrangements can be made at the Client's request for a monthly charge, or the samples can be delivered to the Client with freight being billed to the Client.
5. Field and office services are charged at a minimum of two (2) hours. Field time is billed portal to portal. Vehicle mileage is charged for travel beyond 30 miles of our office. When the job requires that a vehicle be left on site or away from our office for a significant time, the daily rate may apply in lieu of the mileage rate.
6. Unless otherwise provided for, two (2) copies of reports or laboratory test results are provided. Additional copies can be provided on a time-and-material basis.
7. Proper disposal or handling of contaminated soil boring cuttings, well development and purge waters, decontamination solutions, and other contaminated or potentially contaminated materials and samples are the responsibility of the Client.
8. Site to residence travel expenses a minimum of once per month for personnel on extended field projects will be charged. Travel hours will be invoiced for these trips. Expenses and travel hours associated with the initial mobilization and final demobilization of personnel and equipment will be invoiced.