OLYMPIC VIEW RESOURCE AREA

YEAR 2
ANNUAL MONITORING REPORT
2004

CITY OF TACOMA
November 30, 2004

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1.0 INTRODUCTION

This document presents the Year 2 Annual Monitoring Report for the Olympic View Resource Area (OVRA) Removal Action located in Tacoma, Washington (Figure 1). The City conducted the year 2 physical and chemical monitoring activities in the spring and summer of 2004.

The OVRA is located within the boundaries of the Commencement Bay Nearshore/Tideflats Superfund Site and includes approximately 12.9 acres of intertidal and subtidal area. The Removal Action involved excavation, backfilling, and capping of approximately 2.3 acres of contaminated marine sediments within the OVRA site. Chemical constituents of concern included dioxins (polychlorinated dibenzodioxins and dibenzofurans), metals (arsenic, copper, mercury, and zinc), polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs).

To evaluate alternatives for the Removal Action, the City prepared an Engineering Evaluation/Cost Analysis (EE/CA) in April 2001. The EE/CA summarized results of previous environmental investigations at the OVRA site. Following a public comment period, the EPA published an Action Memorandum in July 2001, which documented the selected alternative for the OVRA Non-Time-Critical Removal Action. Final Design Documents describing site construction activities for the Removal Action were completed in January 2002. The City completed sediment excavation and capping for the OVRA Removal Action in October 2002, and submitted a Removal Action Completion Report (RACR) to the U.S. Environmental Protection Agency (EPA) in March 2003. All design, construction, and reporting tasks for the OVRA Removal Action were completed in accordance with requirements of an Administrative Order on Consent (AOC – Docket Number CERCLA 10-2001-0069 dated July 2001) between the City and EPA. The City submitted the final Long-Term Monitoring and Reporting Plan (LMRP) to the U.S. Environmental Protection Agency (EPA) in August 2003.

The Year 1 Annual Report was submitted to EPA in final form on April 20, 2004 and approved by EPA on April 21, 2004.

2.0 PROJECT OBJECTIVES

The removal action objective for the OVRA, as described in the 2001 AOC and EPA's 2001 Action Memorandum, is to:

- Significantly reduce the potential risk to human health and/or marine ecological receptors resulting from potential exposure to contaminants present in sediments by removing and disposing of the contaminated sediment at an acceptable disposal site, or capping contaminated sediments in the project area.

The goals of the long-term monitoring program for the OVRA are to ensure that the selected cleanup action continues to be protective of human health and the environment. The specific objectives of the long-term monitoring program are to ensure that:

- The sediment cap continues to isolate toxic concentrations of previously identified chemicals of concern (COCs) in underlying sediments from marine biota and other biological receptors; and
- The sediment cap is not recontaminated with COCs from underlying sediments.

The integrity of the capped areas is fundamental to achieving these objectives. Cap integrity depends upon maintaining the designed cap thickness to avoid potential contaminant releases, and to attain the performance standards. To ensure cap integrity, monitoring activities included the following:

Physical Integrity Monitoring. Physical integrity monitoring was used to ensure that erosion is not occurring to an extent that would compromise the ability of the cap to physically isolate contaminated sediments from environmental receptors. As a result of comments by EPA on the Year 1 Annual Report, conventional transect surveys were conducted in April to monitor and document any potential for erosion.

Surface Sediment Quality Monitoring. In Year 2, the LMRP did not require that monitoring be conducted to evaluate contaminant movement through the cap via diffusion or other mechanisms, however sediment quality monitoring was conducted to evaluate the potential for contamination migrating from the adjacent cleanup of the Middle Waterway Problem Area.

3.0 MONITORING ACTIVITIES

3.1 Physical Integrity Monitoring

Physical integrity monitoring consisted of topographic surveys and visual inspections. In year 2, the LMRP did not require any topographic surveys. However, in comments on the Year 1 Annual Report, EPA required some additional conventional, shore – based topographic survey.

Crews from the Public Works Department Survey Section, under the direction of the City's Licensed Professional Land Surveyor, conducted the conventional topographic survey transects in April 2004. The locations of these transects are shown in Appendix A, Sheet 1 of 2 and the data are listed in Table 1. The survey reoccupied Transect T1 and established a new Transect T0 to the west of T1. These field activities were schedule around the low tide events. Shore based surveys for vertical elevation have an accuracy of +0.01 foot and, for horizontal control are accurate to +0.01 foot.

Environmental professionals from the Science and Engineering Division conducted visual inspections in April, 2004 and again in August, 2004.

3.2 Surface Sediment Quality Monitoring

The LMRP requires surface sediment chemistry sampling in year 2 on the eastern boundary of the site to evaluate the potential for off-site migratory contamination related to remediation in an adjacent part of the Middle Waterway Problem Area. The samples and analyses called out in the LMRP for year 2 sediment chemistry monitoring are listed in Table 2.

Sampling for surface sediment chemistry was accomplished on September 10, 2004. The field effort was conducted at low tide and all sample grabs were obtained from the beach. City environmental samplers used conventional location control to document the locations of the grab samples. Sampling techniques were consistent with the requirements of the LRMP. Each sample was the composite of three individual grab samples from within the each sampling grid (i.e. grabs C-9A, C-9B & C-9C were composited to form sample C-9). These sample locations are shown in Appendix A, on Sheet 1 of 2 and are listed in Table 3. Qualitative sample characteristics were recorded for each sample and these forms are presented in Appendix B.

Samples were transported under chain of custody to the City's Environmental laboratory for analysis. All analyses were conducted in accordance with the LMRP.

In addition to the field samples listed in Table 3, two Quality Control samples were collected in the field as well. Sample C-11 is a field duplicate of sample C-10. The field duplicate was prepared by homogenizing sediment for the composite sample C-10 and filling 2 separate containers, one labeled C-10 and the other labeled C-11. The duplicate was submitted as a separate sample to the lab for analysis. An equipment rinseate blank (RB-2004) was collected in the field by rinsing sampling equipment with deionized water. The rinseate water was submitted to the lab for analysis of all constituents.

4.0 MONITORING RESULTS

4.1 Physical Integrity Monitoring Results

Results of survey transects are presented in Table 1 and graphically depicted in Appendix A, Sheet 2 of 2. Early warning levels are set at a loss of cap material of 0.5 feet between the as-built survey and the monitoring results in Area B, and again at a loss of 1 foot of material in this area. Early warning levels are not performance standards, but are set at more stringent levels to assess whether performance standards could be exceeded in the future. The performance standards are set at minimum cap thickness in Table 1 of the LMRP.

The survey monitoring results show that there has been no exceedance of the Performance Standards.

There was one instance of exceedance of the early warning values at 1 of 4 Transect 1 stations in capped area B in the Year 1 Annual Report. Therefore EPA required survey of Transect 1 again in April 2004 along with the establishment of the new Transect T0 to the east of T1. There were nominal changes (a loss of up to 0.3 feet) in Transect T1 between years 1 and 2, and there was no exceedance of the performance standard. The lone exceedance of the early warning value remains. For the newly established Transect T0, the April 2004 monitoring represents the baseline that future monitoring events will be compared against. Based on Year 2 results for Area B, there is an approximately 11 inch buffer of clean sediment over the required cap thickness of 32 inches.

Visual inspections were conducted during April and August of 2004. Photos and notes from the inspections are presented in Appendix C. Areas with erosion protection material were probed to confirm the presence of this larger rock. The erosion protection material appears to have remained stable and is covered with a sandy gravel – likely the habitat mix from the construction activities. The erosion protection material is estimated to be several inches thick, with a minimum of 3 to 4 inches. It appears from the visual inspections that the erosion protection material coverage is similar to the post construction condition. Photos were taken in to document the presence of the erosion protection materials. There are no apparent signs of significant erosion. Additionally close up photos of the sediments were taken as requested in EPA comments on the Year 1 Annual Report. Photo points 8B & 8C were not taken in April due to equipment failure.

While there have been some early warning value exceedances, there have been no exceedances of the performance standards for physical integrity monitoring. Therefore the removal action has been successful, to date, in the physical isolation of contaminated sediments from environmental receptors.

4.2 Surface Sediment Quality Monitoring Results

Laboratory results from the sampling described in Section 3.2 are presented in Table 4. None of the chemical analytes have exceeded the early warning values or the performance standards. (As mentioned above, there has been one exceedance of the early warning value for Physical Integrity Monitoring at one station of Transect 1.) Laboratory analysis was conducted according to the provisions of Appendix A of the LMRP. The data reports, QA/QC information and data validation reports for the year 2 monitoring samples are presented in Appendix D of the report. The samples were analyzed twice, because the original Quality Control data were outside of normal laboratory limits. The second analysis was performed on retained portions of the original sediment sample within appropriate holding times (i.e. within 28 days for mercury and 180 days for the other metals). The retained sample was handled in accordance with the approved project plans. Data, as reported, was of an acceptable quality.

All metals concentrations were less than 15% of the OVRA Sediment Quality Criteria (SQC), provided in Table 2 of the LMRP. Given that the Middle Waterway cleanup

adjacent to this site was completed prior to these samples being taken, it appears that there was no cross-contamination from those cleanup activities.

The field duplicate results showed good agreement between the splits. The rinseate blank had a low level detection of zinc. However the level was much less than the associated samples and no data quality is affected.

5.0 CONTINGENCY PLANNING AND RESPONSE

Year 2 monitoring results have confirmed the continuing success of the removal action at the OVRA. Based on Year 2 monitoring results, no contingency actions are required.

6.0 SITE ACCESS AND INSTITUTIONAL CONTROLS

6.1 DNR Environmental Reserve

The Washington State Department of Natural Resources (DNR) re-evaluated the status of this site as an Aquatic Environmental Reserve under RCW 79.68. 060 and the reserve status was rescinded by order of the Commissioner of Public Lands. Therefore, DNR simultaneously invoked a new order that withdraws the OVRA project area from leasing under RCW 79.90.460. This withdrawal is intended to protect regionally valuable aquatic resources from further commercial use and potential development or commercial leasing. A copy of the Commissioner's Order is attached in Appendix E.

Table 1 Conventional Survey Transect Elevations (elevations in feet MLLW unless noted otherwise)

Transect	Capped Area	As built Elevation	Year 1 Monitoring	Diff.[1] (feet)	Year 2 Monitoring	Diff b/w Year 1&2	Diff b/w Year 2 &As built	> Early Warning	Post-constr Cap thickness[2]	Min Design Cap[3]	>Perf Std
T1	B	6.8	7.8	1.0	8.3	0.5	1.5	No			
T1	B	4.8	5.2	0.4	5.4	0.2	0.6	No			
T1	B	3.0	2.8	-0.2	2.5	-0.3	-0.5	No			
T1	B	1.8	0.9	-0.9	0.8	-0.1	-1.0	Yes	55 inches	32 inches	No
T1	No Cap	1.0	0.7	-0.3	0.6	-0.1	-0.4				
T1	No Cap	0.6	0.5	-0.1	0.5	0.0	-0.1				
T1	No Cap	0.3	0.4	0.1	0.4	0.0	0.1				
T1	No Cap	-0.1	0.2	0.3	0.1	-0.1	0.2				
T1	No Cap	-0.2	-0.1	0.1	0.0	0.1	0.2				
T1	No Cap	-0.5	-0.7	-0.2	-0.7	0.0	-0.2				
T1	No Cap	-1.0	-1.0	0.0	-0.9	0.1	0.1				
T1	No Cap	-0.9	-1.5	-0.6	-1.4	0.1	-0.5				
T0[4]	B				6.05						
T0	B				3.41						
T0	B				1.15						
T0	No Cap				0.3						
T0	No Cap				0.11						
T0	No Cap				0.14						
T0	No Cap				-0.27						
T0	No Cap				-0.58						
T0	No Cap				-0.81						
T0	No Cap				-1.24						
T0	No Cap				-1.65						
T0	No Cap				-1.76						

1 – Survey accuracy is +/- 0.01 feet in the horizontal and the vertical.
2 - Estimated post construction cap thickness in inches.
3 - Minimum design cap thickness from Table 1 of the LMRP, in inches.
4 – Transect 0 was added for the first time in year 2 monitoring. Year 2 will be the baseline for comparison in future monitoring events.

Table 2 Samples and Analyses

Sampling Area	Analyses
C-9	Arsenic, Copper, Mercury and Zinc
C-10	Arsenic, Copper, Mercury and Zinc

Table 3 Grab Sample Locations

Grab Sample	Northing	Easting	Elevation
C-10A	709653.7	1160252.2	2.5
C-10B	709683.1	1160246.5	2.7
C-10C	709693.0	1160270.6	3.0
C-9A	709724.5	1160188.4	1.0
C-9B	709720.8	1160206.2	0.5
C-9C	709699.2	1160187.2	0.5

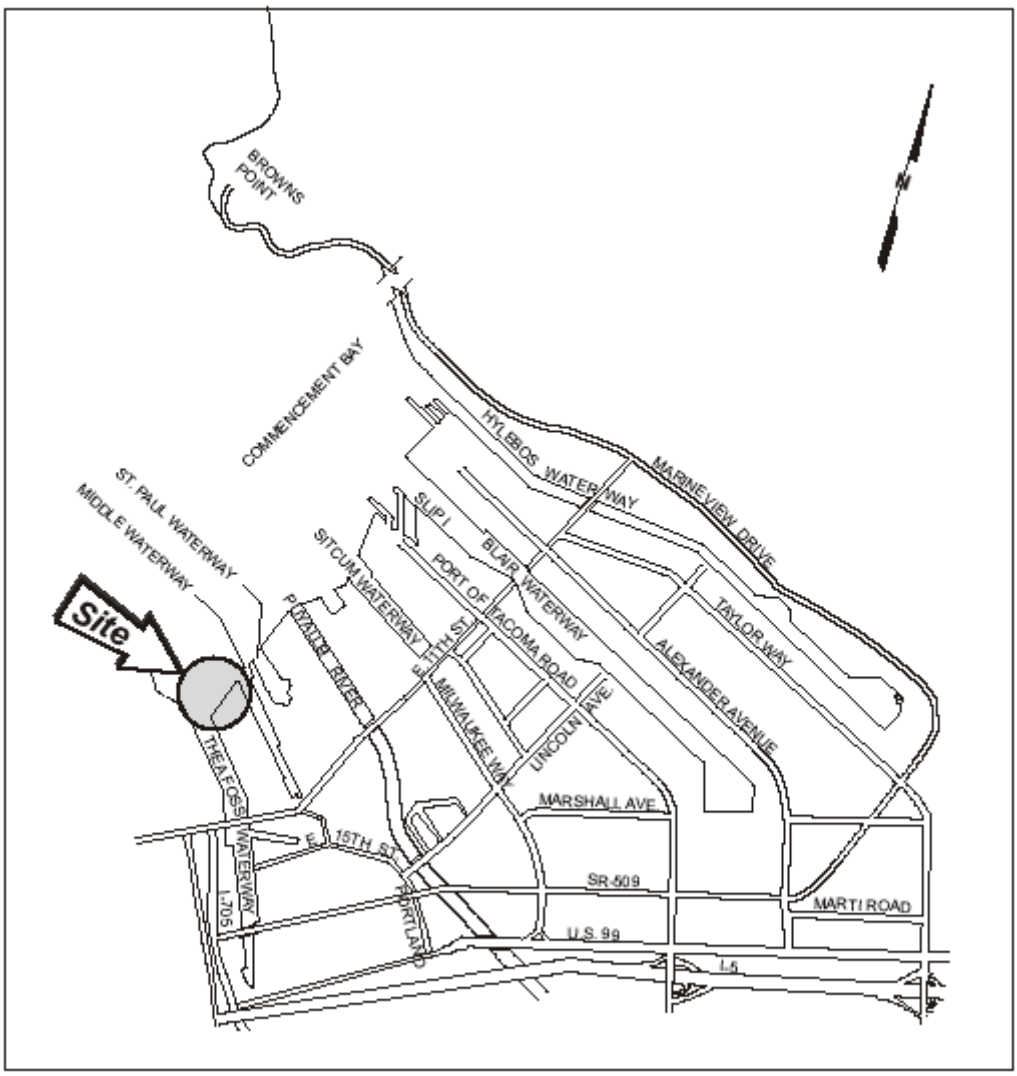
Table 4 Surface Sediment Chemistry Data

	OVRA	*Station Name*								
	SQC	**C-9**		**C-10**		**C-11**			**Rinse**	
Constituents		**0-10cm**		**0-10cm**		**0-10cm**		***Constituents***	**Blank**	
Metals (mg/kg)								**Metals (ug/L)**		
Arsenic	57	0.15	U	1.12		0.62		Arsenic	1.5	U
Copper	390	18.0	J	13.2	J	11.5	J	Copper	3.9	U
Mercury	0.41	0.0620		0.0437		0.0359		Mercury	0.050	U
Zinc	410	24.0	J	16.1	J	20.5	J	Zinc	1.3	

Data Qualifiers:
U – The analyte was not detected at or above the reported value.
J – The analyte was positively identified. The associated value is an estimate.

Note: Sample C-11 is a field duplicate of sample C-10, created by filling two separate containers (labeled C-10 and C-11) from the same homogenized sediment sample compositing bowl.

Vicinity Map



NOT TO SCALE

Figure 1

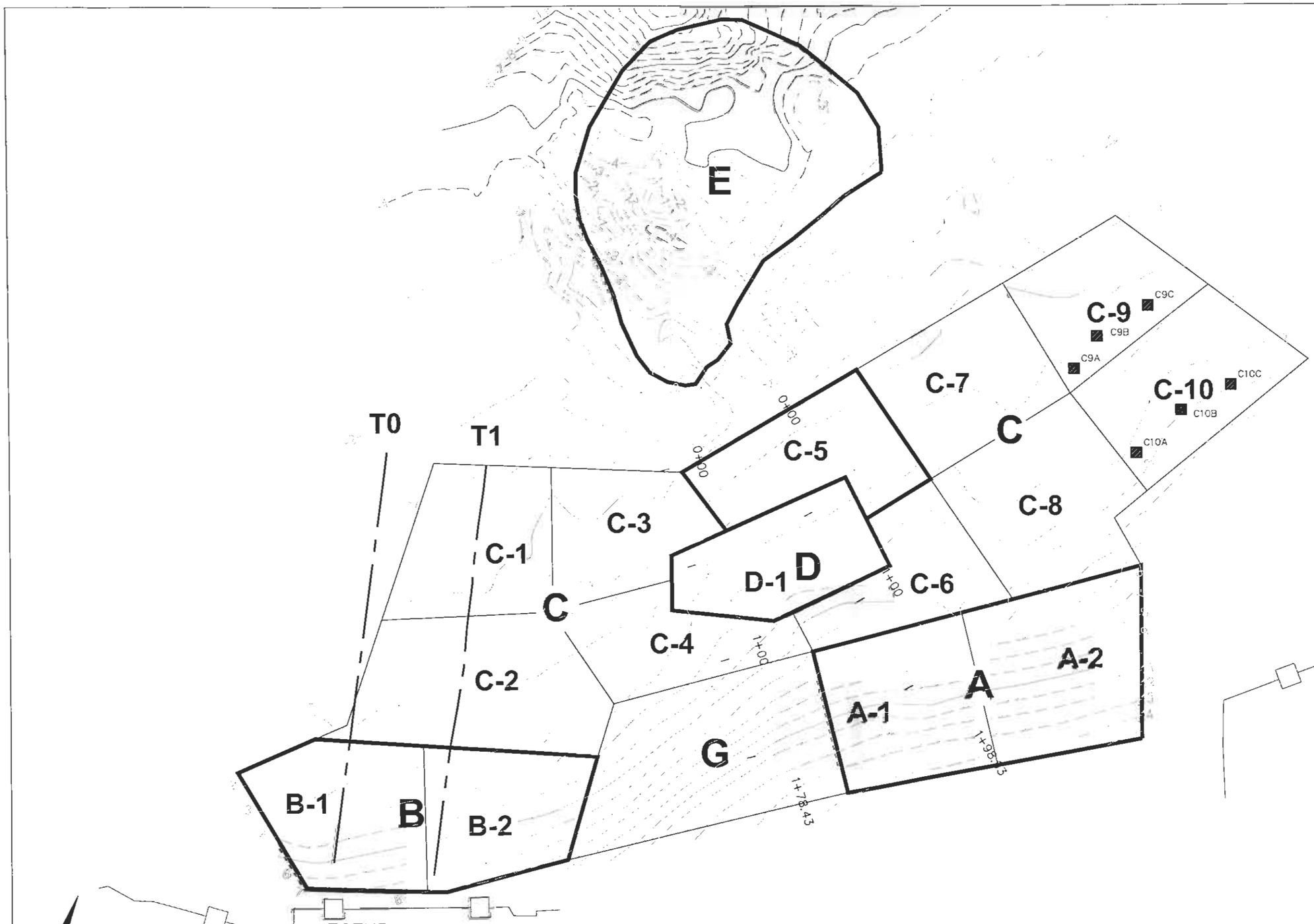
OLYMPIC VIEW RESOURCE AREA

YEAR 2
ANNUAL MONITORING REPORT
2004

APPENDIX A

DRAWINGS

CITY OF TACOMA
November 30, 2004



LEGEND:

CAPPED AREAS ARE A,B,C–5,D, AND E

C10C GRAB SAMPLE LOCATION

TRANSECTS

0 50'

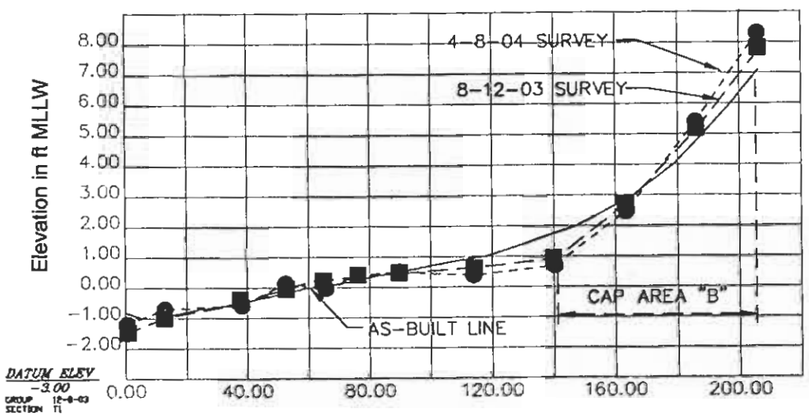
1"=50'

VERTICAL DATUM: MLLW ACOE

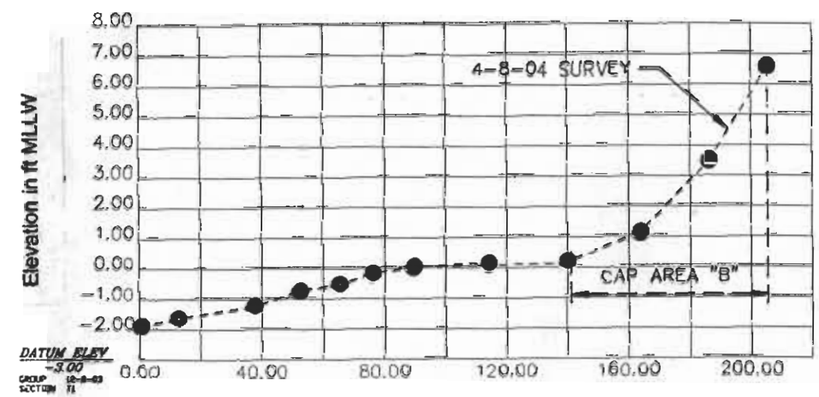
CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

OLYMPIC VIEW
RESOURCE AREA
YEAR 2 MONITORING REPORT

AK80F6



TRANSECT T1



TRANSECT T0

LEGEND:

- ■ MONITORING POINT (8-03)
- – – – – – MONITORING LINE (8-03)
- ——— AS-BUILT LINE
- ● MONITORING POINT (4-04)
- - - - - - - MONITORING LINE (4-04)

GENERAL NOTES FOR SHEETS 2 & 3

1. SEE SHEET 1 FOR PLAN VIEW OF TRANSECT LOCATIONS
2. ELEVATIONS ALONG THE MONITORING TRANSECT LINES ARE INTERPOLATED BETWEEN THE DISCRETE MONITORING POINTS WHICH ARE INDICATED BY BOXES ALONG THE LINES.

0 50'
HORIZONTAL 1"=50'

0 5'
VERTICAL 1"=5'

Tacoma	DATE 10-19-04	SCALE 1"=50'	CITY OF TACOMA DEPARTMENT OF PUBLIC WORKS
	DESIGNED JO	CHECKED JO	**OLYMPIC VIEW** **RESOURCE AREA** **YEAR 1 MONITORING REPORT**
	DRAWN REG	PROJECT NAME AK80F6	AK80F6
	DRAWING NAME 10-19-04-BASE		SHEET 2 OF 2

OLYMPIC VIEW RESOURCE AREA

YEAR 2
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2004

APPENDIX B

QUALITATIVE SAMPLE CHARACTERISTICS FORMS

CITY OF TACOMA
November 30, 2004

Qualitative Sample Characteristics

Date (mm/dd/yy)	Location	Station
0191101014	1C1-10191	

Coordinates		Water Depth			Elevation	Time	Weather
North °	East °	Depth	Unit	+/-	Elev.		
						1815141	SIGIN

Coordinates	
North DDDHHMM.MMM	West DDDHHMM.MMM

Rep	Gear	Sample Type	Penetration		Recovery		Photograph		Grain Vol	Initials	Sulfid	VOA
			Depth	Unit	Length	Unit	Roll#	Exp.				
1	SPUGN1	C101MP	1C16	CIM								

Surficial sediment characteristics: (circle most descriptive)

Texture Smooth Fine Coarse / Clay Silt Sand / Gravel Cobble

Color Light Dark / Gray Brown Black Other _____

Odor Normal Sewage Petroleum Chemical H2S None Other _____

Presence of:

	Yes/No	Percent	Describe Type
Biological structures	Y	<5	clam worm
Debris	N		
Oily sheen	N		

Vertical profile characteristics: Describe

Changes in sediment characteristics	N/A
Presence and depth of redox potential disconinuity layer (rpd)	N/A

Sample quality comments: Describe

Leakage	
Winnowing	
Disturbance	

Comment tide ~ 15"

Qualitative Sample Characteristics

Field Dup is C-11

Date (mm/dd/yy)	Location	Station
0191101014	IC1-1/101	

Coordinates		Water Depth			Elevation	Time	Weather
North °	East °	Depth	Unit	+/-	Elev.		
						0191015	

Coordinates	
North DDDHHMM.MMM	West DDDHHMM.MMM

Rep	Gear	Sample Type	Penetration		Recovery		Photograph		Grain Vol	Initials	Sulfid	VOA
			Depth	Unit	Length	Unit	Roll#	Exp.				
1	SP 10 dm	C10 1mlp	1/10	C1m								

Surficial sediment characteristics: (circle most descriptive)

Texture Smooth Fine Coarse / Clay Silt (Sand) (Gravel) Cobble

Color (Light) Dark (Gray) Brown Black Other _____

Odor Normal Sewage Petroleum Chemical H2S (None) Other _____

Presence of:

	Yes/No	Percent	Describe Type
Biological structures	Y	<5	Shell bits, clam, seaweed, worms
Debris	N		
Oily sheen	N		

Vertical profile characteristics: Describe

Changes in sediment characteristics	N/A
Presence and depth of redox potential disconinuity layer (rpd)	

Sample quality comments: Describe

Leakage	N/A
Winnowing	
Disturbance	

Comment tide ~12"

OLYMPIC VIEW RESOURCE AREA

YEAR 2
ANNUAL MONITORING REPORT
2004

APPENDIX C

VISUAL INSPECTIONS: FIELD NOTES AND PHOTOS

CITY OF TACOMA
November 30, 2004

Olympic View Resource Area Restoration
Monitoring Report Form

Date April 8th, 2004 Year 0A 0B 1A 1B 2A 2B 3 4 5 Visual Inspection per LMRP

Staff Present: Desiree Pooley — Survey (Al, Dan) also here.
Weather Conditions: sunny, no rain for days.
Overall health and vigor of plants: Excellent Fair Poor

Qualitative Observations:

	Riparian Area (A/B)	Salt Marsh Area	Comments
Erosion	—	—	no extreme erosion —
Sedimentation	—	—	same ↑
Wildlife	see below		
Vegetation			
Invasive	A	→	blkberry, butt. bush
Volunteer	n/a	seaweed	
Survival (%)	90%	n/a	
Animal Damage	A & B	n/a	herbivory on plants event.
Disease	—	—	
Trash	minor	minor	
Vandalism	n/a	n/a	
Large Organic Debris	RipA	yes.	

contours look very similar to last mon.

Wildlife Oberserved:
nesting goose, lots of geese activity in waves, seagulls, crows

Soil/Sediment Quality -
Odor: n/a
Sheen: n/a
Color: brown w/ much brown algae some green.
Texture: small rocks w/ fine mud, see pics for others.

General Comments:
GW seeps? — no
Sea weed growing — see pics.
Plants survived herbivory well → almost all have new spring buds — Many Doug. Fir died.
Pepperweed needs to be removed.

Photo Points: Disk Count 1 2 3

1A	1B	2A	2B	2C	3A
1	2	12	13	14	3

3B	4A	4B	4C	5A	5B
4	15	16	17	8	9

5C	5D	6A	6B	7A	7B
10	11	7 5	6	18	19

7C	8A	8B	8C		
20	31	not taken			

Quantitative Measurements: Year 1 2 5

Sediment Stake #	Current Measurement (cm)	Starting Measurement (cm)
1		
2		
3		
4		
5		
6		

Olympic View Resource Area Restoration
Monitoring Report Form

& LMRP

Date Aug 30, 2004 Year 0A 0B (1A) 1B 2A 2B 3 4 5

Staff Present: D Pooley Time: 11:52

Weather Conditions: Sunny, ≈ 75°C TIDE: -1.1 @ 11:43

Overall health and vigor of plants: Excellent (Fair) Poor

Qualitative Observations:

	Riparian Area (A/B)	Salt Marsh Area	Comments
Erosion			none noticed.
Sedimentation	X	X	beach constantly changing
Wildlife			birds in water
Vegetation	O	n/a	doing ok w/o water
Invasive	Yes		pearly ever & orache.
Volunteer			wild native blkberry, gumweed.
Survival (%)			~~80+~~ 85+%
Animal Damage			rabbits - although better since GED install
Disease			n/a
Trash	X		assoc w/ high tide
Vandalism			n/a
Large Organic Debris	X		@ high tide, / good recruitment

Wildlife Oberserved: caspian terns, geese, ducks, crows, pigeons,

Soil/Sediment Quality -

Odor: n/a

Sheen: n/a

Color: brown.

Texture: sandy, coarse gravel to cobbles.

General Comments:

Pics. 23,
24 / Overview from W side
25
26 - T23
27 - T3 ≈ D area!
28 - CAP (w/birds)
29 -
30 - from 28 looking towards beach

D2-1 - beach slope
2 - rock w/ hair

Photo Points: Disk Count: 1 2 3

1A	1B	2A	2B	2C	3A
D1, 1	D1, 2	D1, 3	D1, 4	D1, 5	D1, 10

3B	4A	4B	4C	5A	5B
D1, 11	D1, 14	D1, 15	D1, 16	D1, 6	D1, 7

5C	5D	6A	6B	7A	7B
D1, 8	D1, 9	D1, 12	D1, 13	D1, 17	D1, 18

7C	8A	8B	8C		
D1, 19	20	21	22		

12:25
-0.2
8/31/04

Quantitative Measurements: Year 1 2 5

Sediment Stake #	Current Measurement (cm)	Starting Measurement (cm)
1	—	91.5
2	80 cm	79.9
3	66.5 cm	105.5
4	93 cm	89.9
5	74 cm	93.2
6	84 cm	91.5

(2) 6 ft from ~~a~~ end of concrete/log portion along walkway.

(3) In line w/ fence corner approx 10 feet west

(6) A-2

(4) At corner of walkway

NOTES:
beach changing
this Spring had GED placed/repositioned around Areas A & B plantings - look good. Mulch also added.

CITY OF TACOMA
PUBLIC WORKS DEPARTMENT

BOOK
PAGE
SHEET OF

PROJECT Olympic View Res Tree SUBJECT 8/30/04
COMPUTATION D. Pooley - sunny
COMPUTED BY DATE CHECKED BY DATE

9 ft radius

RA1

T4-2 (5) 74 cm sand, coarse sand/gravel

T4-3 (6) 84 cm fines, seaweed, mud, shell debris,
* rebar encrusted w/ barnacles
sm. crab seen
coarse sand.

T3-2 (4) 93 cm large gravel
some coarse sand

T2-2 (3) 66.5 cm barnacles, muscles.
barnacles on rebar
sm. gravel, fines/mud, coarse sand

12:05 pm

T1-2 (1) - missing - no longer in ground.

T1-3 (2) - under water 3" - encrusted w/ barnacles and seaweed.
Coarse sand/fines/seaweed.
Shell btts.

80 cm

Notes on Photo Point Monitoring

Photos were taken from locations noted in attached Figure 1 from the Maintenance, Monitoring and Adaptive Management Plan (MAMP). Title indicates in which direction the photo is looking.

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P1A to the West

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P1B to the Northwest

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P2A to the West

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P2B to the Northwest

Date: 07/14/2003

Date: 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P2C to the Northeast

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P3A to the Southwest

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P3B to the Northwest

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P4A to the North

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P4B to the Northeast

Date 07/14/2003

Date 4/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Points P4C to the East

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P5A to the East

Date 07/14/2003

Date 04/08/2004

Date 08/30/200

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P5B to the Southeast

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P5C to the Southwest

Date 07/14/2003

Date 4/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P5D to the West

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P6A to the South

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P6B to the Southeast

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P7A to the West

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P7B to the Northwest

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point P7C to the North

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point 8A to the Northeast

Date 07/14/2003

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point 8B to the East

Date 07/14/2003

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Photo Point 8C to the Southeast

Date 07/14/2003

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Erosion Protection Material A

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Erosion Protection Material B

Date 04/08/2004

Date 08/30/2004

Appendix C: Year 2 Olympic View Monitoring Photos

Capped Area Close-ups

Date 04/08/2004

Date 04/08/2004

Date 08/30/2004

Date 08/30/2004