

**New Soccer Fields  
Cleanup Action Report  
Brewster School District, Brewster WA**

**Prepared by  
Brewster School District**

**With Technical, Engineering, & Sampling Support from:  
The Washington State Department of Ecology**

**August 10, 2004**

## **Introduction**

The cleanup action at this site was conducted in accordance with MTCA Cleanup Regulation as an independent cleanup action and this report is being provided to the Department of Ecology for their review under the Voluntary Cleanup Program. This Cleanup Action Report is being written to support a No Further Action determination by the Washington State Department of Ecology.

## **Background**

The Brewster School District is aware of the current public concern and the recommendations of the Area-Wide Soil Contamination Task Force, a 17-person panel chartered by the Washington State Departments of Agriculture, Ecology, Health, and Community, Trade and Economic Development (the Agencies) to offer advice about a statewide strategy to respond to low- to moderate-level arsenic and lead soil contamination in Washington State. The completed report, **Area-Wide Soil Contamination Task Force Report**, Ross & Associates Environmental Consulting, Ltd., Landau Associates, Inc., Hubbard Gray Consulting, Inc, June 30, 2003, can be found on the world-wide web at [http://www.ecy.wa.gov/programs/tcp/area\\_wide/Final-Report/PDF/TF-Report-final.pdf](http://www.ecy.wa.gov/programs/tcp/area_wide/Final-Report/PDF/TF-Report-final.pdf)

Task Force deliberations focused on understanding the nature and extent of area-wide soil contamination, making recommendations about effective, practical, and affordable steps individuals and organizations can take to reduce their potential for exposure to area-wide soil contamination, and on creating an alternate, more streamlined approach under MTCA for properties affected by area-wide soil contamination.

Specifically, the Task Force recommended a strategy for schools affected by area-wide soil contamination to include the following actions:

- that property owners implement individual protection measures
- maintain good soil cover in areas where children play
- conduct qualitative evaluations to increase their understanding of where exposure could occur
- test soils where qualitative evaluations indicate the potential for exposure to contaminated soil, and
- implement additional protection measures such as installing a geotextile fabric barrier between contaminated soils and surfacing materials in play areas if contamination is found.

## **Site Description**

The Brewster School District is located in Okanogan County in north-central Washington within the town of Brewster (Figure 1). Based on soil sampling results, the new soccer fields under development have residual lead/arsenic concentrations greater than Model Toxics Control Act cleanup levels [Table 1]. This approximately 3 acre field is generally flat and abuts the existing football and track facilities. The football and track facilities

were previously sampled by the Okanogan Health District and determined not to have lead/arsenic contaminated soil present.

### Contaminants of Concern

The main contaminants of concern at this Site are the toxic metals, lead and arsenic. Long-term exposure to elevated levels of arsenic may cause cancer, whereas, long-term exposure to lead may affect and impair the human nervous system and proper brain function. More information on the short and long-term affects of lead and arsenic can be found at <http://www.doh.wa.gov/topics/childhood%20lead%20poisoning.htm>

### Site Assessment

At the newly developed soccer fields, sample results indicated an older orchard property with moderate levels of lead/arsenic contamination present. The site soils appear relatively homogenous throughout and are likely the original soils contaminated with lead/arsenate pesticides from past orchard practices.

**TABLE 1: Residual Pb/As Contaminant Concentrations Present**

Undeveloped Soccer Field: The site contained relatively homogenous soils and was recently tilled.								
The site was previously old orchard.								
The samples were taken to determine if the site contained lead/arsenic contaminated soil.								
All samples were taken from the surface of the newly tilled field.								
Date	Reading	LiveTime	Mode		As	As +/-	Pb	Pb +/-
4-May-04	51	50.13	Std	PASS				
4-May-04	52	18.4	Soil		49.39	12.42	483.12	18.64
4-May-04	53	19.28	Soil		79.31	14.57	630.3	21.82
4-May-04	54	19.86	Soil		61.49	16.15	801.12	25.13
4-May-04	55	19.86	Soil		106.42	17.25	879.37	26.32
4-May-04	56	19.05	Soil		112.62	17.8	1051.68	27.67
4-May-04	57	18.8	Soil		52.75	10.57	302.89	15.23
AVERAGES					76.99667		691.4133	

### Terrestrial Ecological Evaluation

An exclusion from a Terrestrial Ecological Evaluation (TEE) in accordance with WAC 13-340-7491.c.1 is applicable. A restrictive covenant has been placed on the property and is provided as Attachment 1.

### Final Cleanup Action

Brewster School District conducted a final cleanup action at the site during Summer 2004 with technical and engineering support from Norman Hepner, P.E., Washington State Department of Ecology, Central Region Office. Based on the technical assistance provided, the Brewster School District determined that a 6" clean soil cap with a 4.8 ounce geotextile fabric separating the contaminated existing soil from the clean soil

would be adequate to prevent public exposures. A turf and irrigation system was installed to prevent cover erosion.

The final cap construction included installing the irrigation system, preparing the subgrade, laying the geotextile fabric, placing clean soil and sod. The photo journal, Attachment 1, shows the construction process and the completed work. A restrictive covenant, Attachment 1, has been placed on the property to restrict activities that have the potential to jeopardize the protectiveness of the cover system.

### **Operation and Maintenance Plan**

An operations and maintenance protocol for the clean cover will be incorporated into the Brewster School District facility and grounds maintenance plan. The protocol reads as follows:

***The following areas are contaminated with lead/arsenic below the geotextile fabric:***

*New Soccer Field*

*Soccer Field Gravel Parking Area*

*New Elementary Playfields adjacent to modular classrooms*

***The following areas are contaminated with lead/arsenic soil at the surface:***

*Softball Field*

*Any irrigation work or aeration of the lawn shall be conducted in such a manner to prevent exposure to the lead/arsenic contaminated soil. For example, irrigation system maintenance occurring below the black geotextile fabric requires segregation of the clean soil (above the fabric) from contaminated soil (below the fabric). The contaminated soil will be placed on a tarp and returned to below the geotextile black fabric or disposed of at the landfill. Lawn aeration of fields with underlying geotextile fabric is limited to a 6" tine depth.*

*Lawn aeration of contaminated soil (softball field) shall be conducted using the Aerway aerator which prevents soil plugs from being pulled to the surface of the field. Lawn aeration of the softball field is not depth limited and good grass cover is essential to minimizing lead/arsenic exposure. NOTE: the dirt infield is not contaminated at the surface and should be maintained using 'clean' sands.*

### **Compliance Monitoring**

Confirmational monitoring of the installed cap consisted of taking depth measurements of the constructed cover and ensuring cover soil meets MTCA cleanup levels. The sample sites were selected using a predetermined grid sampling pattern based on sprinkler head spacing. Depth of soil to the geotextile barrier were taken on August 5, 2004 at each sprinkler head and averaged 7" with a minimum of 3" at the 80 sites sampled as shown in Attachment 2. The 3" depth measurements near the sprinkler heads are likely the result

of raising the sprinkler heads and the fabric pulled up to access them. It is not likely indicative of a large area of low soil depth cover.

The clean cover soil was imported from a native, undisturbed soil source located at the Godbey Redi-Mix Pit Site, Route 97, outside Pateros, WA. For quality control, three samples from the soil source were taken on August 5, 2004 to ensure that the soil met MTCA cleanup standards. The samples results are shown below in Table 2.

**TABLE 2: Pb/As Concentrations in Clean, Imported Soil**

Date	Reading	LiveTime	Mode	Pass Fail Standard	As	As +/-	Pb	Pb +/-
6-Aug-04	8	49.35	Standardization	PASS				
6-Aug-04	16	83	Soil		<LOD	8.21	15.48	4.18
6-Aug-04	17	80.22	Soil		<LOD	8.07	16.79	4.06
6-Aug-04	18	82.24	Soil		<LOD	8.01	15.76	4.18

MAPQUEST

97 0 200m 600ft

Hospital Way

St. State Rd

McKinley Ave

7th Ave NW

2nd St NW

5th Ave NW

Paradise Hill Rd

Grain Elevator Rd

Burlington Northern Railroad

W Main Ave

1st Ave NW

3rd St NW

4th St NW

1st Ave SW

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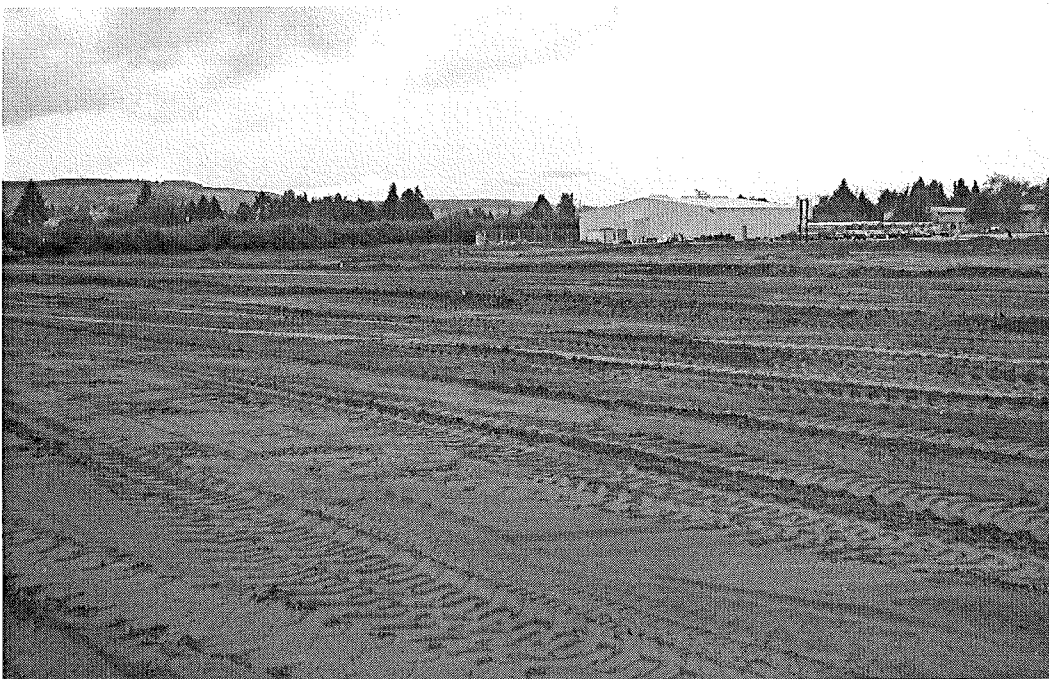
View of Geotextile fabric placed over contaminated soil in New Soccer Field



Another View of Geotextile fabric placed over the contaminated soil in New Soccer Field



Clean soil being spread over the geotextile fabric in the New Soccer field

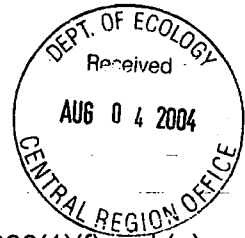


Clean soil cap placed above the geotextile fabric





View of the clean soil cap and sod in the New Soccer Field  
(Photo has been edited to provide panoramic view of field.)



**RESTRICTIVE COVENANT**  
**Brewster School District**

This Declaration of Restrictive Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC 173-340-440 by the Brewster School District, its successors and assigns, and the State of Washington Department of Ecology, its successors and assigns (hereafter "Ecology").

An independent remedial action (hereafter "Remedial Action") occurred at the property that is the subject of this Restrictive Covenant. The Remedial Action conducted at the property is described in the following document: Soccer Field, Cleanup Action Report, Brewster School District, August 1, 2004. This document is on file at Ecology's CRO.

This Restrictive Covenant is required because the Remedial Action resulted in residual concentrations of lead and arsenic which exceed the Model Toxics Control Act Method (Method A) Residential Cleanup Levels for soil established under WAC 173-340-700.

The undersigned, Brewster School District, is the fee owner of real property (hereafter "Property") in the County of Okanogan, State of Washington, that is subject to this Restrictive Covenant. **The Property is legally described AS FOLLOWS: The East half of the Southwest quarter of the Northeast quarter of the Southwest half, Section 14, Township 30 North, Range 24 East, W.M, less road**

The Brewster School District makes the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property (hereafter "Owner").

Section 1. The Property contains lead and arsenic contaminated soil located beneath a 6" clean soil cover and black geotextile fabric. The Owner shall not alter, modify, or remove the existing clean cap in any manner that may result in the release or exposure to the environment of that contaminated soil or create a new exposure pathway without prior approval from Ecology.

Section 2. Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

Section 3. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5. The Owner must restrict leases to uses and activities consistent with the Restrictive Covenant and notify all lessees of the restrictions on the use of the Property.

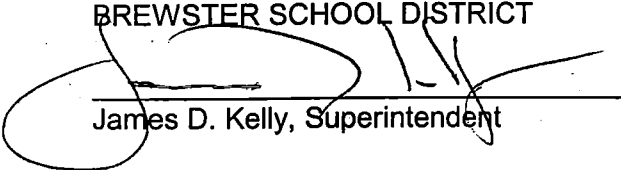
RESTRICTIVE COVENANT  
Page 2

Section 6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Restrictive Covenant. Ecology may approve any inconsistent use only after public notice and comment.

Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, and to inspect records that are related to the Remedial Action.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Restrictive Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

\_\_\_\_\_  
BREWSTER SCHOOL DISTRICT

  
James D. Kelly, Superintendent

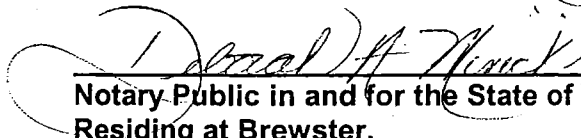
  
DATE SIGNED

STATE OF WASHINGTON )  
COUNTY OF OKANOGAN )



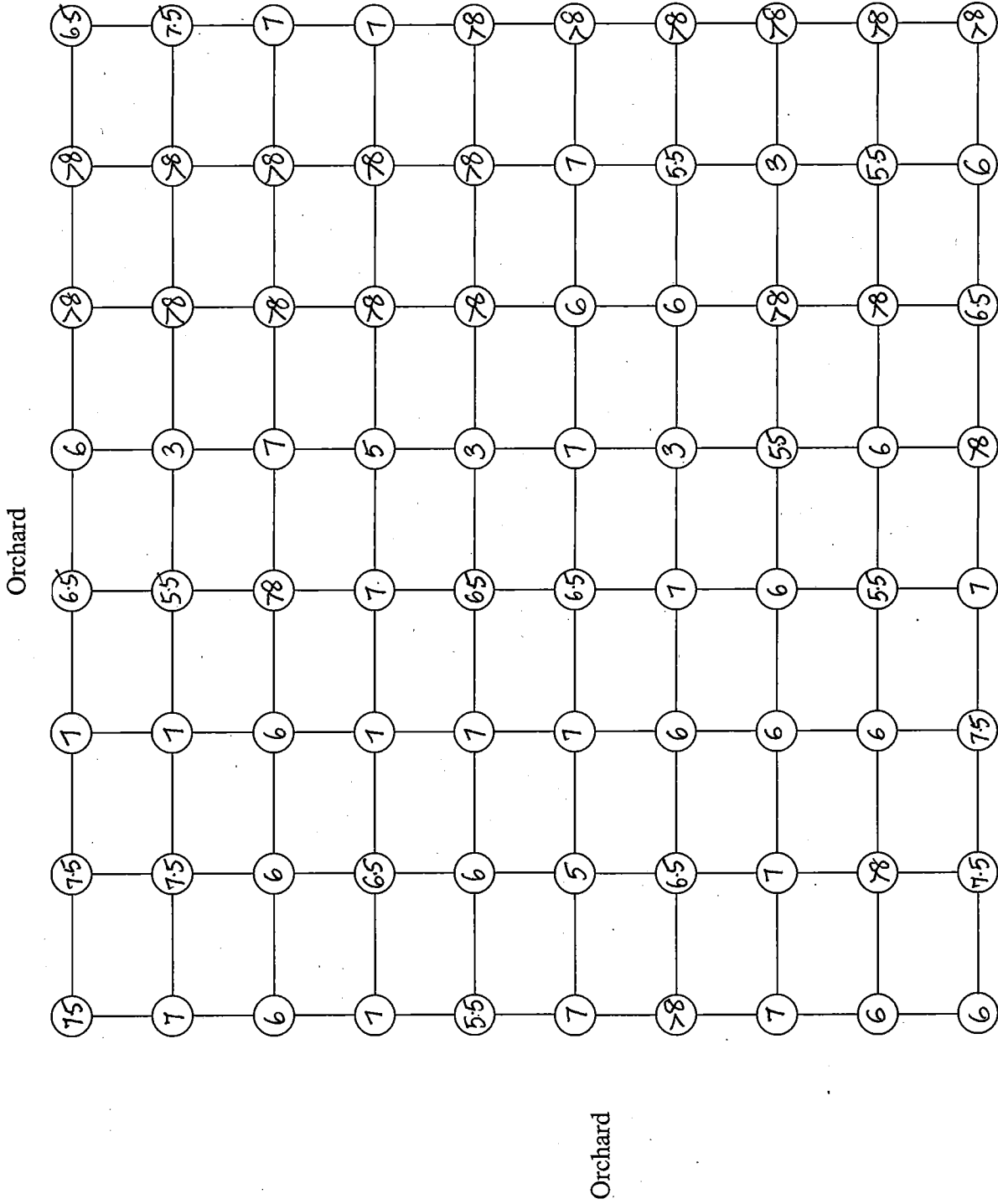
On this day personally appeared before me James D. Kelly to me known to be the individual described in and who executed the within and foregoing instrument, and on oath stated that he was authorized to execute the instrument and acknowledged it as a **RESTRICTIVE COVENANT** on Brewster School District Property and to be the free and voluntary act of such party for the uses and purposes therein stated.

GIVEN under my hand and official seal this 2ND day of AUGUST, 2004.

  
Notary Public in and for the State of Washington  
Residing at Brewster.

My Appointment expires: 11/06/04

Brewster School District New Soccer Field Soil Cap Depth Measurement  
 Aug 5, 2004 by WA State Dept. of Ecology



## SOCCER FIELD DEVELOPMENT COSTS

<u>Vendor</u>	<u>Invoice No./Date</u>	<u>Warrant No./Date</u>	<u>Amount</u>
All Seasons Rental	177775-04/01/04	2219-05/28/04	\$ 330.75
Boesel Construction, Inc.	2983-07/19/04	August Payables	\$ 2,152.00
Brewster Pro Hardware	8151-04/13/04	2225-05/28/04	\$ 130.39
	8201-03/31/04	2225-05/28/04	\$ 279.64
	8341-04/07/04	22525-05/28/04	\$ 245.05
	8174-3/29/04	1939-04/30/04	\$ 16.06
	9443-03/16/04	1939-04/30/04	\$ 184.46
Cascade Analytical, Inc.	65230-03/31/04	1944-04/30/04	\$ 214.00
Easter Electric	34-06/28/04	2842-07/30/04	\$ 233.97
Freels, David	6398-07/01/04	2845-07/30/04	\$1,936.80
Godbey Red-E-Mix Concrete, Inc.	14057-07/01/04	2846-07/30/04	\$ 31,152.92
Top Soil	14064-07/12/04		\$ 1,584.17
Top Soil	13884-07/14/04		\$ 410.01
Green Thumb Spray Service	16269-05/19/2004	2553-06/30/04	\$ 998.46
Pipkin Construction	81804-08/18/2004		\$ 3,875.00
Twin First Turf, Inc	18568-07/14/04	2890-07/30/04	\$ 35,552.44
United Pipe and Supply	6169994-04/07/04	2292-05/28/04	\$ 2,015.97
	6170994-04/07/04	2292-05/28/04	\$ 20.91
	6171815-04/07/04	2292-05/28/04	\$ 750.60
	6173218-04/07/04	2292-05/28/04	\$ 82.61
	6183822-04/14/04	2292-05/28/04	\$ 804.38
	6183821-04/14/04	2292-05/28/04	\$ 198.50
	6182996-04/14/04	2292-05/28/04	\$ 942.55
	6194558-04/22/04	2292-05/28/04	\$ 74.09
	6199739-04/28/04	2292-05/28/04	\$ 233.28
	6207955-04/29/04	2292-05/28/04	\$ 918.09
	6216065-05/10/04	2891-7/30/2004	\$ 230.04
	6230814-05/14/04	2891-7/30/2004	(890.78)
	6231809-05/17/04	2891-7/30/2004	\$ 113.93
	6276837-06/21/04	2891-7/30/2004	\$ 121.93
	6295544-06/30/04	2891-7/30/2004	\$ 595.51
	6295551-06/30/04	2891-7/30/2004	\$ 396.15
	6282313-06/22/04	28917/30/2004	\$ 240.67
Final Cost Analysis 08/30/04			\$ 86,144.55