PALOS VERDES LANDFILL
REMEDIAL INVESTIGATION REPORT

APPENDIX E.11

SOUTH COAST BOTANIC GARDEN LAKE
LINER SPECIFICATIONS

Arboretum – Lake Liner

TRANSMITTAL

Date: July 15, 1969

To: Mr. Stanley Davidson
County Sanitation District

Attention:

From: Department of County Engineer
Architectural Division
108 W. 2nd Street
Los Angeles, California 90012

SUBJECT: GENERAL DEVELOPMENT
LAKE LINER - PHASE II
SOUTH COAST BOTANIC GARDENS

Spec. No. 2761

We are sending you:

A copy of the Technical Specifications and one Ozalid Transparency of Sheet No. 1 of the drawings per your request.

ITEMS ARE:

1. For your information
2. As per your request
3. Approved as noted
4. Correct and return
5. Review and return
6. Checked for design only

REMARKS:

VHH-dj 2
Distribution:

John A. Lambie
COUNTY ENGINEER

By Verne H. Heitman
Verne H. Heitman
Principal Architect

SECTION 2A

LAKE LINER

1. Scope of work:

   a. Refer to "Divisions of the Specifications" in the General Conditions.

   b. Reinforced asphalt lake liner.

   c. Trenching at perimeter.

2. General:

   Commencement of the work signifies acceptance of the work performed by the County, i.e., finish grade, staking of water elevations, weed sterilants, backfill at perimeter, trench and water, notify the County Engineer if any unsatisfactory conditions are encountered.

3. Material:

   a. Reinforcement. Bituminous impregnated jute matting with a uniform open weave of unbleached single jute yarn averaging 130 pounds per spindle of 14,400 yards. The yarn shall have a loosely twisted construction with an average twist of not less than 1.6 turns per inch, and shall not vary in thickness by more than one-half its normal diameter. Size: rolls, approximately 125 lbs. each; length: approximately 75 yards; width: 48" plus or minus 1", 78 warp ends per width, 41 weft ends per yard; weight: average 1.22 lbs. per linear yard, plus or minus 5%.

   b. Prime coat. Rapid curing liquid asphalt:

      Kinematic viscosity @ 140° F., CS 70-140
      Distillation (% total distillate to 680° F.)

to 374° F.	10 min
to 437° F.	50 min
to 500° F.	70 min
to 600° F.	85 min

Residue from distillation to 680° F.	
Volume % by difference	55 min
Test on residue from distillation	
Penetration 77° F., 100 g. 5 sec.	40-50
Ductility, 77° F., CMS	100 min
Solubility in Carbon Tetrachloride %	99.5 min
Water %	0.2 max

c. Coating materials prior to mixing.

(1) Asphaltic emulsion 50-60 penetration.
Asphalt SS-1h mixing type:

Saybolt Furol Viscosity @ 77° F., sec.	20-100
Residue by distillation %	57- 62
Settlement, 5 days %	3 max
Sieve test (Ret. on #20) %	0.10 max
Test on residue	
Penetration @ 77° F., 100 g. 5 sec.	50-60
Soluble in Carbon Tetrachloride %	97.5 min
Ductility @ 77° F. CM	40.0 min

(2) Aggregate, rock dust and plaster sand.
Percent of aggregate by weight:

Sieve Size	Percent Passing
# 4	100
# 8	95-100
# 16	60- 90
# 30	40- 65
#200	8- 15

(3) Proportioning:

Aggregate (dry weight)	1,550#
Asphaltic emulsion (SS-1h)	46 gallons
Water (including moisture in aggregate	10 gallons

(4) Mixing. Mix aggregate, asphalt emulsion and water in a continuous pugmill mixer or rotating drum truck mixer.

d. Seal coat. Resilient, air-refined asphalt:

	Min.	Typical	Max.
Softening point, °F.	190	-	200
Penetration @ 32° F. d.m.m.	30	-	-
Penetration @ 77° F. d.m.m.	50	-	60
Penetration @ 115° F. d.m.m.	-	-	120
Ductility @ 77° F. CM	3.5	-	-
Solubility CCl_4,%	-	-	1.0
Loss on heating, %	-	-	1.0
Penetration after loss, % of original	60.0	-	-
Specific gravity	1.02	-	1.03
Pounds per gallon	-	8.5	-
Flash (C.O.C.), °F.	425	-	-

4. Application:

a. Trench perimeter as shown.

b. - Apply, over the entire lake area, a wrinkle-free layer of mesh. Lap joints 4", shingle fashion in downstream direction. Anchor laps to the soil at 18" o.c. at seams and along the lengths of the mesh panels with 11 gauge wire staples 6" long, minimum.

c. Prime the entire lake area with prime coat at the rate of three-fourths gallons per square yard.

d. Apply coating material at the rate of one gallon of coating per six square feet.

e. Cure and keep dry for seventy-two (72) hours minimum, then apply a seal coat at 450° F., at the rate of one pound of compound per two and one-half square feet.

f. The finished membrane shall be continuous without any breaks in its surface area.

Ring-Free
WEATHERGARD PRODUCTS
newsletter

published in the interest of improved petro-chemical products.

"WEATHERGARD FIBERSEAL LINER"
(FIBER REINFORCED SEALER)

"WEATHERGARD FIBERSEAL LINER" is a moisture impervious lining for the containment of water in reservoirs, canals, irrigation ditches, storm drains, etc. It is composed of combining specifically designed mineral filled "WEATHERGARD ASPHALT" and a selected fiber mesh. This fabricated sealer will form a reinforced continuous membrane over the prepared soil surfaces or previously lined areas. "WEATHERGARD FIBERSEAL LINER" is a positive monolithic construction. Having the mesh in the center of the fabricated liner will permit it to flex with equal ease in any direction without establishing undue stresses. The mesh is the most favorable position for maxium sheer strength. It is in a protected position with respect to weathering or damage. The mineral filled asphalt is introduced as a filler to lend bulk or depth to the coating and serve as an abrasion deterrent. It also gives stability to the membrane and assists in preventing sag on steep slopes.

The asphalt used in "WEATHERGARD FIBERSEAL LINER" is of a high melting point base to insure a minimum of sag at elevated temperatures and also maintain resilience in low temperatures to resist cracking and will permit it to follow the subgrade if any settling or shifting that may occur. See SPECIFICATIONS FOR MATERIAL. The mesh is of a large weave as noted in the specifications and permits the desired amount of mineral filled asphalt to be placed within the mesh openings without excessive build-up.

When used on embankments for erosion control, the "WEATHERGARD FIBERSEAL LINER"

will eliminate much of the damage caused by foot traffic to which these areas are often subjected. Economics, durability and ease of application are the main factors which make "WEATHERGARD FIBERSEAL LINER" the practical way to solve sealing problems.

SCOPE OF WORK

The contractor shall furnish all labor, materials and equipment required to complete the following:

A. Fill and compact eroded areas, cracks and depressions.

B. Remove all weeds and other debris from the surface to be coated.

C. Shape surface area and establish a fine finished grade.

D. Apply suitable sterilants to surface prior to application of "WEATHERGARD FIBERSEAL LINER".

E. Fabricate a "WEATHERGARD FIBERSEAL LINER" as per the recommendations herein set forth.

MATERIALS

"WEATHERGARD FIBERSEAL LINER" is a fiber reinforced asphalt liner, fabricated on the job site.

"WEATHERGARD FIBERSEAL LINER" herein referred to is manufactured by MACMILLAN RING-FREE OIL CO., INC., 615 So. Flower Street, Los Angeles, Calif. MA 2-2241.

"WEATHERGARD FIBERSEAL LINER" shall consist of the following products:

A. "WEATHERGARD FIBERSEAL MESH" is a natural or synthetic heavy mesh of a uniform open weave of undyed and unbleached single yarn averaging 130 pounds per spindle of 14,400 yards. The yarn shall be of a loosely twisted construction having an average twist of not less than 1.6 turns per inch, and shall not very in thickness by more than one-half its normal diameter. It shall have: 78 warp ends per width of cloth approximately 1/4 inch in

diameter. The mesh is impregnated with a bituminous base waterproofing treatment.

B. "WEATHERGARD FIBERSEAL PRIME COAT" is Rapid-Curing Liquid Asphalt and shall adhere to the following specifications:

Kinematic Visicosity @ 140°F, CS'	70-140
Distilation (% total distillate to 680°F)	
To 374°F	10 Min.
To 437°F	50 Min.
To 500°F	70 Min.
To 600°F	85 Min.
Residue from distillation to 680°F., Volume % by difference	55 Min.
Tests on residue from distillation	
Penetration 77°F, 100g. 5 sec.	40-50
Ductillity, 77°F, CMS	100 Min.
Solubility in Carbon Tetrachloride %	99.5 Min.
Water %	0.2 Max.

Fiberseal Coating materials prior to mixing shall conform to the following requirements:

A. Asphaltic emulsion shall be 50-60 penetration asphalt SS-1h mixing type conforming to the following provisions:

Saybolt Furol Viscosity @ 77°F., sec.	20-100
Residue by Distillation %	57-62
Settlement, 5 days, %	3 Max.
Sieve Test (Ret. on #20) %	0.10 Max.
Tests on Residue	
Penetration @ 77°F., 100g. 5 sec.	50-60

Soluble in Carbon Tetrachloride %	97.5 Min.
Ductility @ 77°F. CM	40.0 Min.

b. Aggregate shall consist of rock dust and plaster sand. The percentage composition by weight of the aggregate shall conform to the following grading:

Seive Size	Percent passing
No. 4	100
No. 8	95-100
No. 16	60-90
No. 30	40-65
No. 200	8-15

Proportioning - The aggregate asphaltic emulsions and water shall be proportioned approximately as follows:

Aggregates (dry weight)	1,550 pounds
Asphaltic emulsion (SS-1h)	46 gallons
Water, including moisture in aggregates	10 gallons

The aggregates, asphaltic emulsion and water shall be mixed in continuous pugmill mixer or rotating drum truck mixers.

"WEATHERGARD FIBERSEAL SEAL COAT" is a highly resilient, specially air-refined asphalt. This product has extremely good recovery properties and maintains these characteristics over long exposure times. When used as an adhesive, this product will provide excellent temperature susceptibility, along with a relatively high softening point.

Specifications:	Minimum	Typical	Maximum
Softening point, °F.	190		200
Penetration @ 32°F., d.m.m.	30		
" @ 77°F., d.m.m.	50		60
" @ 115°F., d.m.m.			120
Ductility @ 77°F., C.M.	3.5		
Solubility CCl_4, %			1.0

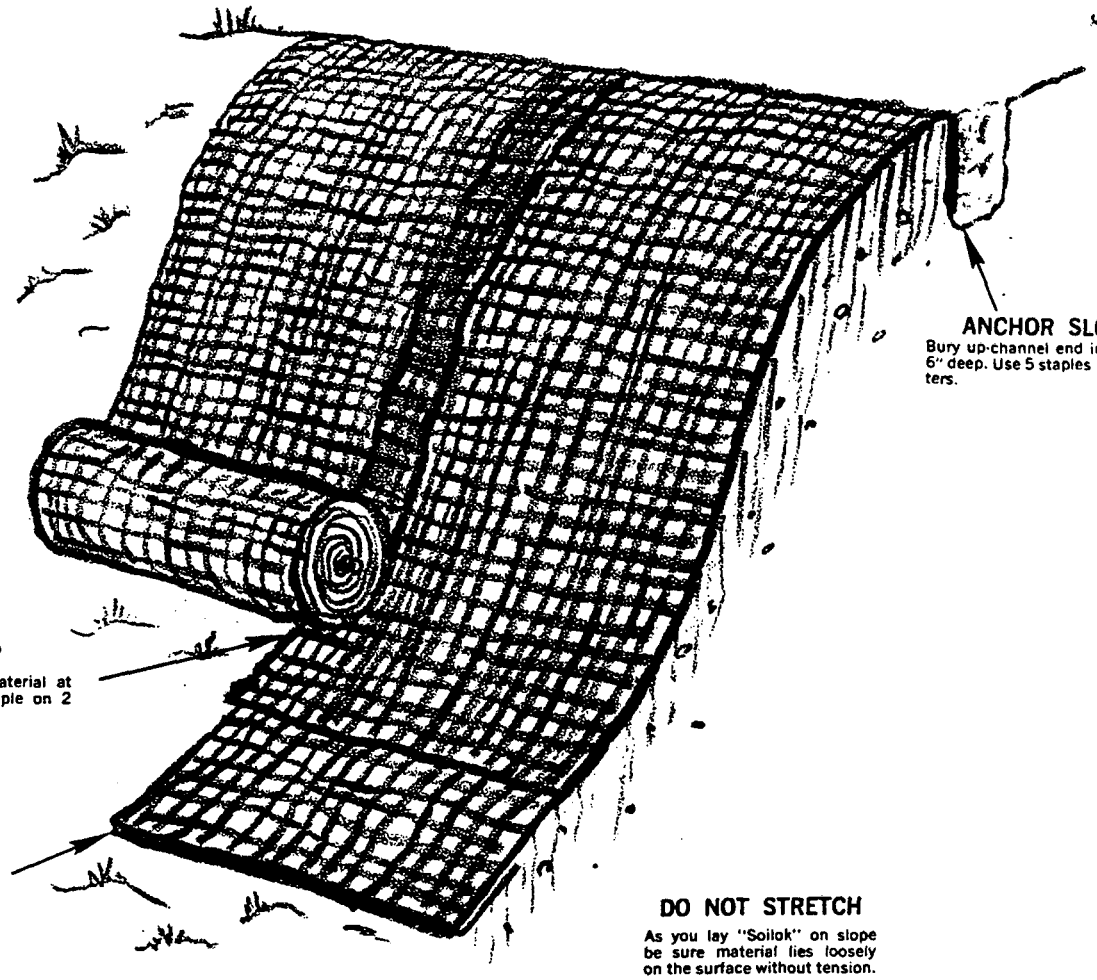
Loss on heating, %			1.0
Penetration after loss, % of original	60.0		
Specific gravity	1.02		1.03
Pounds per gallon		8.5	
Flash (C.O.C.), °F.	425		

APPLYING "WEATHERGARD FIBERSEAL LINER"

1. After the area to be lined with "WEATHERGARD FIBERSEAL LINER" has been brought to a final grade as per specified requirements, suitable weed sterilants should be introduced into the surface soil.
2. Immediately following this application "WEATHERGARD FIBERSEAL MESH" shall be spread over the entire area in an even, wrinkle-free layer. Four (4) inch overlaps are specified at the joints of the mesh. The mesh shall be lain so that its joints are overlapped in a downstream construction method. Wire anchors shall be placed at 18 inch intervals along the overlaps to secure the joints and intermittently along the length of the mesh panel where necessary to secure it to a cloped surface. If "WEATHERGARD FIBERSEAL LINER" is being applied over concrete or asphaltic concrete sufaces, hog rings should be used in lieu of anchors to secure the "WEATHERGARD FIBERSEAL MESH" at the overlap joints.
3. When the "WEATHERGARD FIBERSEAL MESH" has been placed and secured over the entire surface to be lined, the first coat of "WEATHERGARD FIBERSEAL PRIMER" shall be applied at materials rate of 3/4 gallon per square yard. the "WEATHERGARD FIBERSEAL COATING" shall be squeegeed on the surface in a uniform continous membrane at a recommended rate of six square feet per gallon of coating.
4. After the "WEATHERGARD FIBERSEAL COATING" has cured for at least 72 hours, an application of "WEATHERGARD FIBERSEAL SEAL COAT" shall be sprayed or mopped over the "WEATHERGARD FIBERSEAL COATING" in such an application that the

membrane shall be continuous and without any breaks in its surface area. The "WEATHERGARD FIBERSEAL SEAL COAT" material shall be heated and applied at a temperature of approximately 450°F. The rate of application will average 2 1/2 square feet of surface area per 1 pound of sealing material.

WEATHERGARD "SOILOK"*



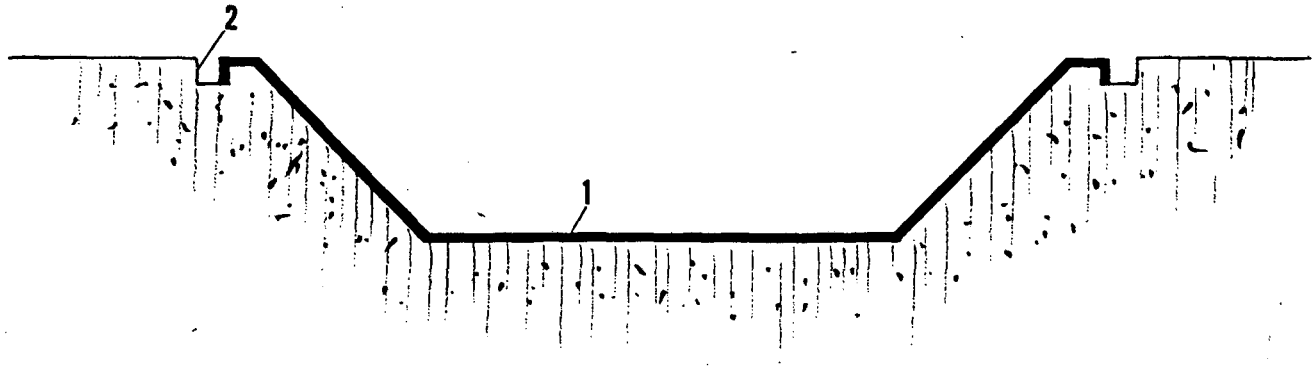
ANCHOR SLOT
Bury up-channel end in trench 6" deep. Use 5 staples 12" centers.

OVERLAP
Overlap edges of material at least 4 in. . . . Staple on 2 ft. centers.

TERMINAL FOLD
Bring "Soilok" down to level area before terminating. Turn end under 6 in. . . . Use 5 staples across fold on 12 in. centers.

DO NOT STRETCH
As you lay "Soilok" on slope be sure material lies loosely on the surface without tension.

"WEATHERGARD FIBERSEAL LINER"*



Legend:

1. "WEATHERGARD FIBERSEAL LINER"
2. 12" by 12" EXCAVATION AROUND PERIMETER OF RESERVOIR TO BE BACKFILLED UPON COMPLETION OF "WEATHERGARD-FIBERSEAL" LINER APPLICATION.