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October 10, 2013

Ms. Eleanor Wehner, P.G.
Texas Commission on Environmental Quality
Remediation Division
VCP-CA Section, Mail Code MC-127
Post Office Box 13087
Austin, Texas 78753

Re: Texas Custodial Trust
Former ASARCO Smelter Site, El Paso, Texas

Subject: Proposed Cell 3 Cover System

Dear Ms. Wehner:

This letter describes the Texas Custodial Trust's (TCT) proposed Cell 3 cover system that will be constructed after existing Cell 3 Category I material has been relocated to Cell 4. The Texas Commission on Environmental Quality (TCEQ) previously allowed ASARCO to place the material in Cell 3 as a temporary measure on the condition it would be removed once Cell 4 was opened. The following activities will be completed:

1. Remove the existing cover on Cell 3.
2. Relocate mounded Category I materials placed there by ASARCO in 2009 and place the material in Cell 4.
3. Install a cover system over Cell 3 employing the same components as previously installed.

Sheets 1 through 3 (see attached) show Cell 3 and the proposed requirements to achieve activities 1 through 3 above. The remainder of this letter describes each of these activities in further detail. As discussed with TCEQ at the site during a field visit on August 29, 2013, activities 1 and 2 have been initiated. Via this letter, we request written approval by TCEQ to proceed with the proposed Cell 3 cover system.

Remove the Existing Cell 3 Cover System

The existing cover system on Cell 3 was installed by ASARCO. Entact Inc. was the specialty contractor used by ASARCO to perform the work. Cell 3 is located where former Pond 6 was located. The pond was drained and impacted sediments were removed until clean subgrade was established. The area was then shaped and lined with a geosynthetic clay liner (GCL)/60-mil high density polyethylene (HDPE) geomembrane and a protective soil layer. Cell 3 was then filled with Category I material. The existing

cover was installed after Cell 3 was filled, consisting of the following layers from the bottom up:

- 24-inch thick compacted soil foundation layer
- GCL
- 40-mil textured linear low density polyethylene (LLDPE) geomembrane
- Double-sided geocomposite drainage layer
- 18-inch thick outer soil cover

Removal of the existing cover system was initiated by installing Best Management Practices (BMPs) around Cell 3 to control surface water in the event we experience inclement weather. The existing outer cover soil layer will then be removed and stockpiled for later use. Care will be taken to preserve the existing anchor trench at the perimeter to avoid damaging the existing liner system located below the cover system. This will be accomplished by locating a cover system tie-in in-board of the anchor trench as shown in Sheets 1 through 3. The existing cover system GCL and LLDPE layers will then be removed, cut into sizes that can be reasonably handled and disposed either in Cell 4 or at an offsite disposal facility. The existing 24-inch foundation layer will then be removed and stockpiled (separately from the outer soil cover material) for later reuse.

Relocate Mounded Category I Materials to Cell 4

Once the existing cover materials have been removed, mounded Category I materials can be excavated, loaded into off-road haul trucks and disposed in Cell 4. We have estimated about 15,000 cubic yards of material will be relocated. As with all excavation work onsite, care will be taken to control dust during excavation, loading and hauling operations by spraying water from a water truck. BMPs will be adjusted to control surface water as needed during this operation in the event we experience inclement weather. Category I materials will be relocated until an elevation of 3,788.87 feet mean sea level (msl) is reached (see Sheet 1). A 1 percent grade will then be established to create a crowned top as shown in the attached drawings.

Install Cell 3 Cover System

After the mounded Category I materials have been removed a new cover system will be installed. The new layers to be installed will be the same as existing and will tie-in to the existing layers as shown in Sheet 3. Care will be taken to create the tie-in area such that a 2-foot overlap for each layer is provided. The new 40-mil LLDPE layer will be welded to the existing material as shown. The layers to be installed from the bottom up are:

- 18-inch thick compacted soil foundation layer [(1)]
- Reinforced GCL [(2)]
- 40-mil textured LLDPE geomembrane [(2)]
- 6-ounce double-sided geocomposite drainage layer [(2)]

- 18-inch thick outer soil cover[3]

(1) Use 1-inch minus silty-sand soil placed and compacted in 2 lifts to 90% of ASTM D1557 within 2% of optimum moisture content

(2) Procure and install new GCL, LLDPE and Geocomposite material as specified in Attachment A

(3) Use moisture conditioned 1-inch minus soil placed in 1 12-inch thick lift and 1 6-inch thick lift and track walk with a D-5 dozer

It should be noted that the plant site final soil cover system will extend over Cell 3. It is anticipated that additional soil and an erosion protection layer will be included. The area will also be deed restricted such that buildings cannot be constructed over Cell 3. The Cell 3 cover system will be monitored for erosion and maintained until the final plant site cover is installed.

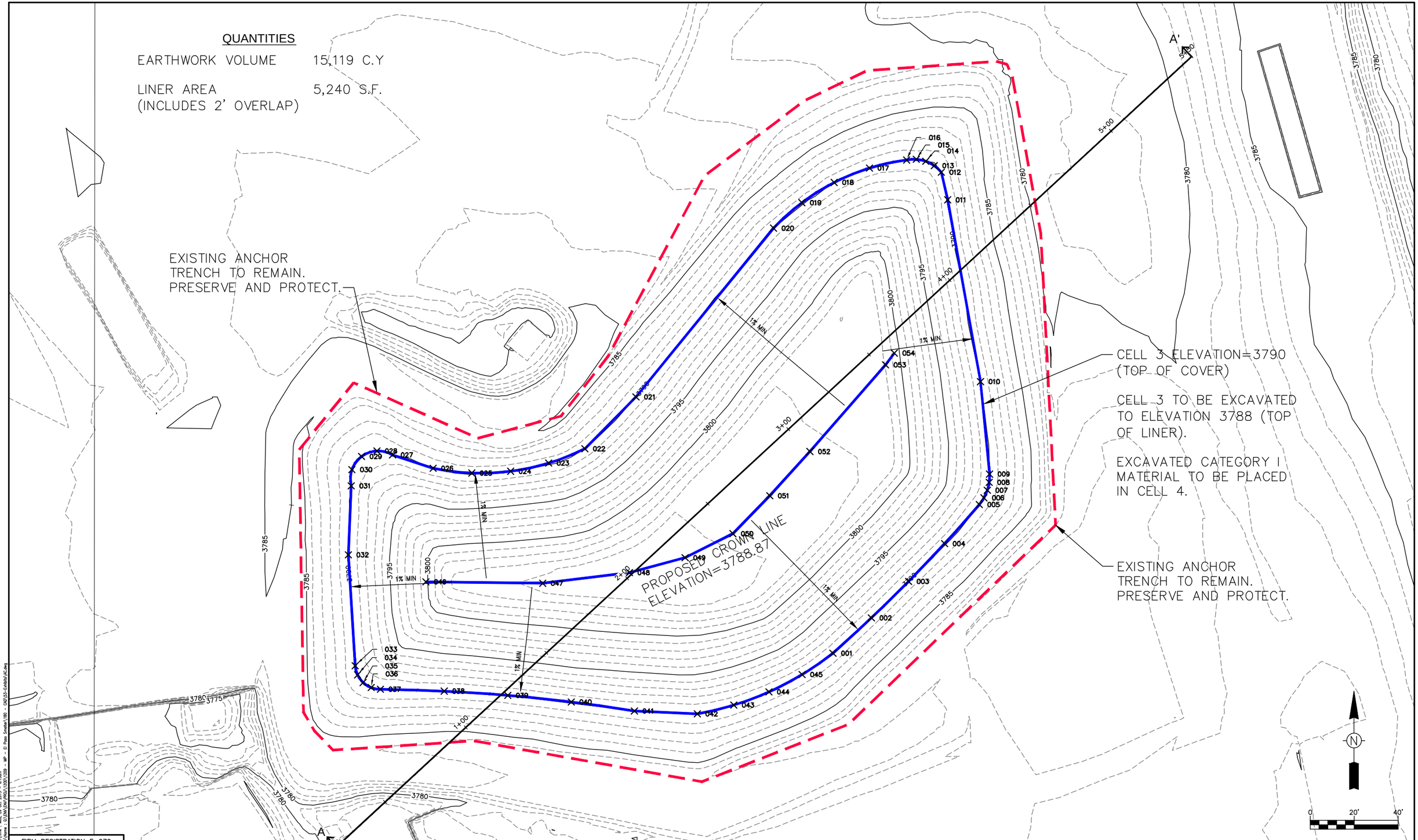
If you have any questions regarding this submittal please call me at 602-438-0883.

Very truly yours,

MALCOLM PIRNIE, INC.

Scott M. Brown, P.E.
Project Manager

Attachments



FIRM REGISTRATION F-979

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REVISIONS			
NO.	BY	DATE	REMARKS

DES RJK
DWN RJK
CKD CMZ

FORMER SMELTER SITE
EL PASO, TEXAS

CELL 3 COVER SYSTEM SITE PLAN

SCALE: AS NOTED

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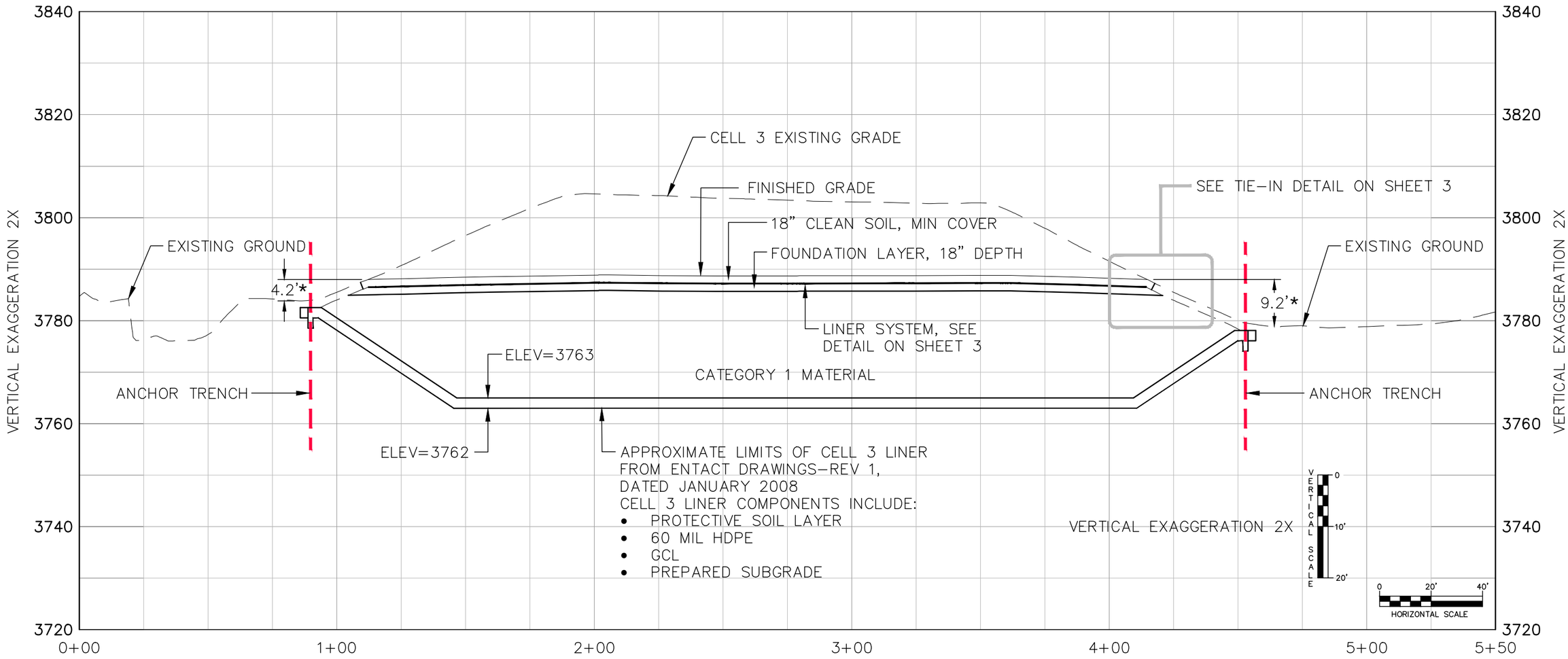
DATE SEPTEMBER 2013

AC SHEET 1 OF 3

CAD REF. NO. AC.dwg



SECTION A-A'

*VARIES AROUND CIRCUMFERENCE OF SHELL

FIRM REGISTRATION F-979

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NO.	BY	DATE	REMARKS

DES RJK
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FORMER SMELTER SITE
EL PASO, TEXAS

CELL 3 COVER SYSTEM TYPICAL SECTION

SCALE: AS NOTED

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DATE SEPTEMBER 2013

AC SHEET 2 OF 3

CAD REF. NO. AC.dwg

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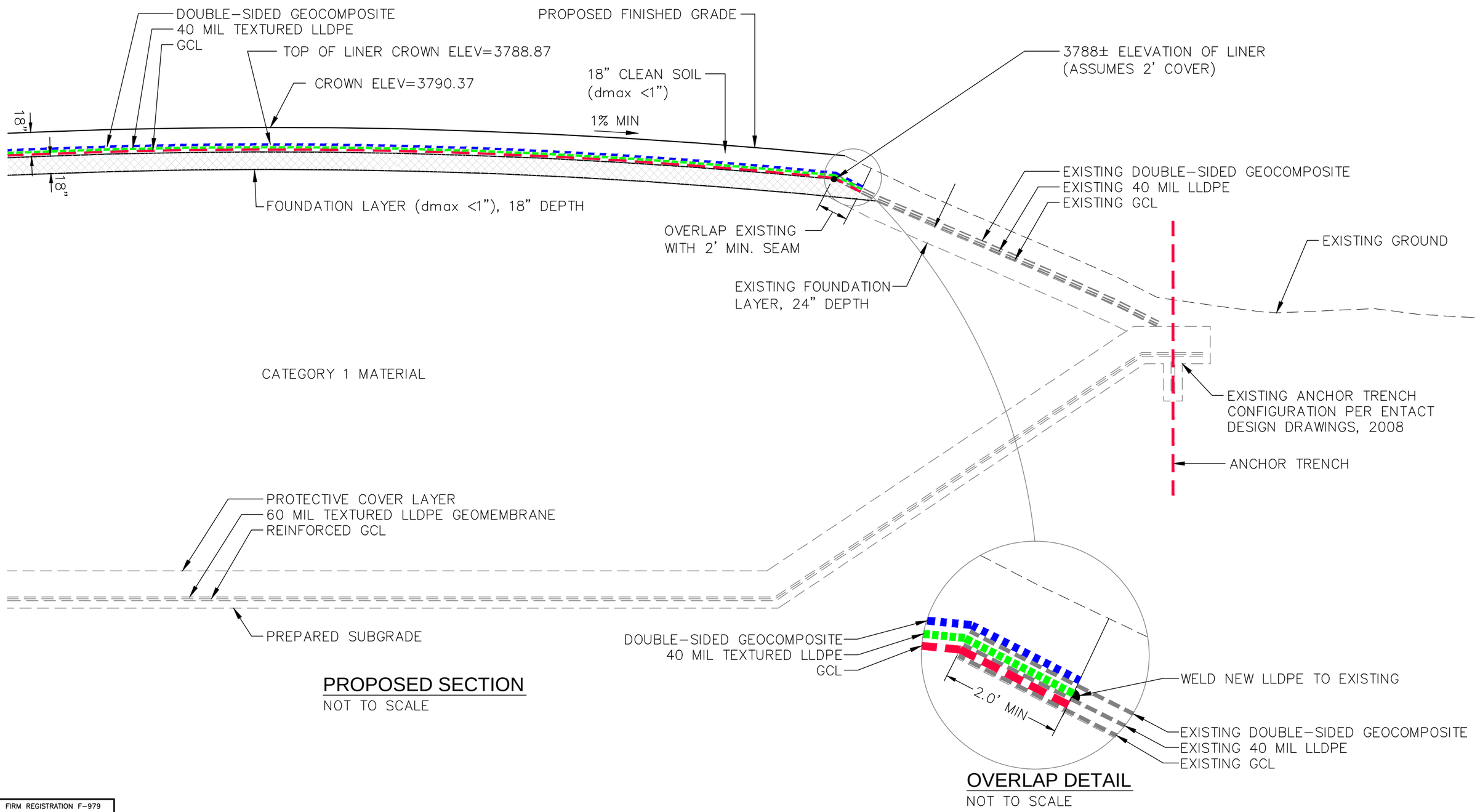

PROPOSED SECTION
NOT TO SCALE

OVERLAP DETAIL
NOT TO SCALE

FIRM REGISTRATION F-979

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REVISIONS			
NO.	BY	DATE	REMARKS

DES RJK
DWN RJK
CKD CMZ

FORMER SMELTER SITE
EL PASO, TEXAS

CELL 3 COVER SYSTEM DETAILS
TYPICAL SECTION
SCALE: AS NOTED

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DATE SEPTEMBER 2013
AC SHEET 3 OF 3
CAD REF. NO. AC.dwg

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Attachment A

Geosynthetic Materials (or equivalent) for Cell 3 Cover

MALCOLM PIRNIE

Linear Low Density Polyethylene MicroSpike® Liner

Product Data

Property	Test Method	Values			
Thickness, nominal, (mm)		40 (1.0)	60 (1.5)	80 (2.0)	100 (2.5)
Thickness (min. ave.), mil (mm)	ASTM D5994*	38 (.95)	57 (1.43)	76 (1.90)	95 (2.38)
Thickness (lowest indiv. for 8 of 10 spec.), mil (mm)	ASTM D5994*	36 (.90)	54 (1.35)	72 (1.80)	90 (2.25)
Thickness (lowest indiv. for 1 of 10 spec.), mil (mm)	ASTM D5994*	34 (.85)	51 (1.28)	68 (1.70)	85 (2.13)
*The thickness values may be changed due to project specifications (i.e., absolute minimum thickness)					
Asperity Height (min. ave.), mil (mm)	ASTM D7466	16 (.41)	16 (.41)	16 (.41)	16 (.41)
Density, g/cc, maximum	ASTM D792, Method B	0.939	0.939	0.939	0.939
Tensile Properties (ave. both directions)	ASTM D6693, Type IV				
Strength @ Break (min. ave.), lb/in width (N/mm)	2 in/minute	112 (19.6)	168 (29.4)	224 (39.2)	280 (49.0)
Elongation @ Break (min. ave.), % (GL=2.0in)	5 specimens in each direction	400	400	400	400
Tear Resistance (min. ave.), lbs. (N)	ASTM D1004	25 (111)	36 (160)	50 (222)	60 (267)
Puncture Resistance (min. ave.), lbs. (N)	ASTM D4833	50 (222)	70 (310)	90 (400)	115 (512)
Carbon Black Content (range in %)	ASTM D4218	2 - 3	2 - 3	2 - 3	2 - 3
Carbon Black Dispersion (Category)	ASTM D5596	Only near spherical agglomerates			
		for 10 views: 9 views in Cat. 1 or 2, and 1 view in Cat. 3			
Oxidative Induction Time, minutes	ASTM D3895, 200°C, 1 atm O_2	≥140	≥140	≥140	≥140
Melt Flow Index, g/10 minutes	ASTM D1238, 190°C, 2.16kg	≤1.0	≤1.0	≤1.0	≤1.0
Oven Aging	ASTM D5721	60	60	60	60
with HP OIT, (% retained after 90 days)	ASTM D5885, 150°C, 500psi O_2				
UV Resistance	ASTM D7238	20hr. Cycle @ 75°C/4 hr. dark condensation @ 60°C			
with HP OIT, (% retained after 1600 hours)	ASTM D5885, 150°C, 500psi O_2	35	35	35	35
2% Secant Modulus (max.), lb/in. (N/mm)	ASTM D5323	2400 (420)	3600 (630)	4800 (840)	6000 (1050)
Axi-Symmetric Break Resistance Strain, % (min.)	ASTM D5617	30	30	30	30

Agru America's geomembranes are certified to pass Low Temp. Brittleness via ASTM D746 (-80°C), and Dimensional Stability via ASTM D1204 (±2% @ 100°C).

These product specifications meet or exceed GRI's GM17

Supply Information (Standard Roll Dimensions)

Thickness		Width		Length		Area (approx.)		Weight (average)*	
mil	mm	ft	m	ft	m	ft^2	m^2	lbs	kg
40	1.0	23	7	710	283.47	16,330	1,514.87	3,900	1,770
60	1.5	23	7	505	216.41	11,615	1,078	3,900	1,770
80	2.0	23	7	385	117.35	8,855	821	3,900	1,770
100	2.5	23	7	310	94.49	7,130	661	3,900	1,770

Notes:

All rolls are supplied with two slings. All rolls are wound on a 6 inch core. Special lengths are available on request. All roll lengths and widths have a tolerance of ±1%

**The weight values may change due to project specifications (i.e. absolute minimum thickness or special roll lengths) or shipping requirements (i.e. international containerized shipments).*

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TECHNICAL REFERENCE 401-BMCLT

BENTOMAT® CLT
CERTIFIED PROPERTIES

MATERIAL PROPERTY	TEST METHOD	TEST FREQUENCY	REQUIRED VALUES
Bentonite Swell Index[1]	ASTM D 5890	1 per 50 tonnes	24 mL/2g min.
Bentonite Fluid Loss[1]	ASTM D 5891	1 per 50 tonnes	18 mL max.
Bentonite Mass/Area[2]	ASTM D 5993	40,000 ft^2 (4,000 m^2)	0.75 lb/ft^2 (3.6 kg/m^2) min.
GCL Tensile Strength[3]	ASTM D 6768	200,000 ft^2 (20,000 m^2)	45 lbs/in (70 N/cm) MARV
GCL Peel Strength[3]	ASTM D 6496	40,000 ft^2 (4,000 m^2)	3.5 lbs/in (6.1 N/cm) min.
GCL Index Flux[4]	ASTM D 5887	Periodic	1 X 10^{-9} m^3/m^2/sec max.
GCL Hydraulic Conductivity[4]	ASTM D 5887	Periodic	5 X 10^{-10} cm/sec max.
GCL Hydrated Internal Shear Strength[5]	ASTM D 5321 ASTM D 6243	Periodic	500 psf (24 kPa) typical

Bentomat CLT is a reinforced GCL consisting of a layer of sodium bentonite between two geotextiles, which are needlepunched together and laminated to a 20-mil (0.5mm) textured HDPE geomembrane.

Notes

1 Bentonite property tests performed at a bentonite processing facility before shipment to CETCO's GCL production facilities.

2 Bentonite mass/area reported at 0 percent moisture content.

3 All tensile strength testing is performed in the machine direction using ASTM D 6768. All peel strength testing is performed using ASTM D 6496. Upon request, tensile and peel results can be reported per modified ASTM D 4632 using 4 inch grips.

4 ASTM D5887 Index flux and hydraulic conductivity testing with deaired distilled/deionized water at 80 psi (551 kPa) cell pressure, 77 psi (531 kPa) headwater pressure and 75 psi (517 kPa) tailwater pressure. Reported value is equivalent to 92 gal/acre/day. This flux value is equivalent to a permeability of 5x10^{-10} cm/sec for typical GCL thickness. ASTM D 5887 testing is performed only on a periodic basis because the membrane is essentially impermeable.

5 Peak value measured at 200 psf (10 kPa) normal stress for a specimen hydrated for 48 hours. Site-specific materials, GCL products, and test conditions must be used to verify internal and interface strength of the proposed design.

LAST UPDATED MAY 2007

IMPORTANT: The information contained herein supersedes all previous printed versions, and is believed to be accurate and reliable. For the most up-to-date information, please visit www.CETCO.com. CETCO accepts no responsibility for the results obtained throught application of this product. CETCO reserves the right to update information without notice.

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200mil Geocomposite

Geonet Component (1)

Property	Test Method	Minimum Average Roll Value
Minimum Thickness, mil (mm)	ASTM D5199	200 (5.1)
*The thickness values may be modified due to project specifications (i.e., absolute minimum thickness)		
Peak Tensile Strength MD, lbs./in. (N/mm)	ASTM D5035	45 (7.9)
Melt Flow Index, g/10 minutes (max.)(2)	ASTM D1238, 190°C, 2.16kg	≤1.0
Density, g/cm^3	ASTM D792, Method B	0.94
Carbon Black Content (%)	ASTM D4218	2 - 3
Transmissivity(3), m^2/sec. (gal/min/ft)	ASTM D4761	2 x 10^{-3} (9.6)

Geotextile Component(1)

Property	Test Method	Minimum	Average Roll	Value
Mass per Unit Area, oz./sq. yd. (g/m^2)	ASTM D5261	6.0 (203)	8.0 (271)	10.0 (339)
Grab Tensile Strength, lbs.(N)	ASTM D4632	170 (757)	220 (979)	270 (1200)
Grab Elongation, %	ASTM D4632	50	50	50
Trapezoidal Tear, lbs. (N)	ASTM D4533	65 (289)	95 (423)	105 (467)
CBR Puncture , lbs (N)	ASTM D6241	435 (1935)	600 (2670)	725 (3230)
Puncture, lbs. (N)	ASTM D4833	95 (423)	120 (530)	165 (730)
Permittivity(4), sec.$^{-1}$	ASTM D4491	1.5	1.3	1.1
Water Flow, (4) gpm./ft^2 (l/min/m^2)	ASTM D4491	110 (4479)	95 (3895)	80 (3280)
Apparent Opening Size, U.S. Stnd Sieve max (mm))(4)(5)	ASTM D4751	70 (0.212)	80 (0.180)	100 (0.150)
UV Resistance after 500 hours, % Strength Retained	ASTM D4355	70	70	70

Geocomposite

Property	Test Method	Minimum	Average Roll	Value
Laminated Strength (Ply Adhesion), lbs./in. (g/cm)	ASTM D7005	1 (178)	1 (178)	1 (178)
Transmissivity (3), m^2/sec. (gal/min/ft) Doubled Sided	ASTM D4716	1 x 10^{-4} (0.5)	1 x 10^{-4} (0.5)	9 x 10^{-5} (0.4)
Singled Sided	ASTM D4716	1 x 10^{-3} (4.8)	1 x 10^{-3} (4.8)	9 x 10^{-4} (4.3)

Supply Information

Standard Roll Length(7)	at Fabric Weight	6-oz	8-oz	10-oz
Double Sided		230	200	190
Single Sided		250	250	240

Notes:
(1) Component properties are prior to Lamination
(2) Melt Flow Index is a maximum value
(3) Geonet & Geocomposite. Transmissivity at a temp. of 21°C, gradient of 0.1 and a load of 10,000psf: seating time 15 min. between steel plates.
(4) At time of manufacture. Handling may change these properties.
(5) AOS is MARV.
(7) All roll widths are 14.5 feet. All roll lengths and widths have a tolerance of ±1%

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