

ASARCO El Paso
Construction Report
for
Category I Landfills 1,2, 3 and
Category II Capping



June 3, 2009



Volume 1 of 2

ASARCO El Paso Construction Report for Category I Landfills 1, 2, 3, and Category II Capping

June 3, 2009

Randy Huffsmith – Program Manager HuffsmithRL@CDM.com
Sarah Guemez – Project Manager GuemezSA@CDM.com
Robert Vince – Project Manager Vincerj@CDM.com
Michael Ancell – Project Engineer AncellME@CDM.com

CDM – El Paso (Local Office)
4110 Rio Bravo Dr. Ste 201
El Paso, TX 79902
(915) 544-2340

CDM – Helena
50 West 14th Street Suite 200
Helena, MT 59601
(406) 441-1400

Contents

VOLUME 1 of 2

Section 1 Introduction

1.1	Background	1-1
1.1.1	1996 Agreed Order and Remedial Investigations	1-1
1.1.2	Asphalt Capping Design.....	1-1
1.1.3	Landfill Design.....	1-2
1.2	Work Description.....	1-3
1.2.1	Category II Asphalt Capping.....	1-3
1.2.2	Category I Excavation and Landfills.....	1-4
1.2.2.1	Category I Excavation.....	1-4
1.2.2.2	Cell 1 Construction.....	1-4
1.2.2.3	Cell 2 Construction.....	1-4
1.2.2.4	Cell 3 Construction.....	1-4

Section 2 Category II Capping Project Description

2.1	Project Team	2-1
2.2	Construction Schedule	2-1
2.3	Construction Quality Assurance	2-1
2.4	Documentation Appendices.....	2-8
2.4.1	Project Drawings and Specifications	2-8
2.4.2	Field Test Data and Material Certifications	2-8
2.4.3	Construction Progress Reports.....	2-8
2.4.4	Project Photographs	2-8
2.4.5	As-Built Drawings.....	2-9

Section 3 Excavation and Landfill Project Description

3.1	Project Team	3-1
3.2	Construction Schedule	3-1
3.3	Landfill Remedial Design.....	3-1
3.4	Construction Quality Assurance	3-2
3.5	Documentation Appendices.....	3-5
3.5.1	Project Drawings and Specifications	3-5
3.5.2	Field Test Data and Material Certifications.....	3-5
3.5.3	Construction Progress Reports.....	3-5
3.5.4	Project Photographs	3-5
3.5.5	As-Built Drawings.....	3-5

Section 4 References

Figures

Figure 2-1	Category II Pavement	2-2
Figure 3-1	Category I Excavation.....	3-3

Tables

Table 2-1	Category II Remediation per Investigation Area (IA).....	2-3
Table 2-2	Category II Asphalt Paving Void Space & Density Test Results.....	2-4
Table 3-1	Volume of Category I Material per Investigation Area (IA)	3-4
Table 3-2	Volume of Fill per Landfill Cell.....	3-5

Appendices

Appendix A Correspondence

- A.1 Correspondence Regarding Agreed Order Docket No. 96-0212-MLM-E
- A.2 Correspondence Regarding IBWC American Canal Reconstruction

Appendix B Project Drawings and Specifications – Category II Capping

- B.1 Low Permeability Mix Design Memorandums
- B.2 2006 Paving Drawings and Specifications
- B.3 2007 Paving Drawings and Specifications

Appendix C Field Test Data and Material Certifications – Category II Capping

- C.1 2006 Strength Tests and In-Situ Density Tests
- C.2 2006 Sieve Analyses and Laboratory Density Tests
- C.3 2007 Moisture-Density Tests and In-Situ Density Tests
- C.4 2007 Sieve Analyses and Laboratory Density Tests

Appendix D Construction Progress Reports – Category II Capping

- D.1 Raba Kistner 2006 Daily Construction Reports
- D.2 JL-D 2007 Weekly Progress Reports
- D.3 CDM 2007 Daily Construction Reports
- D.4 Raba Kistner 2007 Daily Construction Reports

Appendix E Project Photographs – Category II Capping

Appendix F As-Built Drawings – Category II Capping

Appendix G Project Drawings and Specifications – Category I Excavation and Landfills

- G.1 Cell 1 and 2 Drawings and Specifications
- G.2 Cell 3 Drawings

VOLUME 2 of 2

Appendix H Field Test Data and Material Certifications – Category I Excavation and Landfills

- H.1 Category I Pre and Post-Excavation Sampling Results
- H.2 40 mil Liner Factory Certifications, Landfill Cells 1 and 2
- H.3 60 mil Liner Factory Certifications, Landfill Cells 1 and 2
- H.4 40 and 60 mil Liner Testing and Factory Certifications, Landfill Cell 3
- H.5 Geosynthetic Clay Liner Factory Certifications, Landfill Cells 1 and 2
- H.6 Geosynthetic Clay Liner Testing and Factory Certifications, Landfill Cell 3
- H.7 Geocomposite Factory Certifications, Landfill Cells 1 and 2
- H.8 Geocomposite Testing and Factory Certifications, Landfill Cell 3
- H.9 Liner Delivery Inspections, Landfill Cell 3
- H.10 Bottom Liner Installation Field Quality Control, Landfill Cell 1
- H.11 Bottom Liner Installation Field Quality Control, Landfill Cell 2
- H.12 Bottom Liner Installation Field Quality Control, Landfill Cell 3
- H.13 Top Liner Installation Field Quality Control, Landfill Cell 1
- H.14 Top Liner Installation Field Quality Control, Landfill Cell 2
- H.15 Top Liner Installation Field Quality Control, Landfill Cell 3
- H.16 Raba Kistner 2008 Compaction Testing Reports, Landfill Cell 3

Appendix J Construction Progress Reports – Category I Excavation and Landfills

- J.1 ENTACT 2006 Weekly Project Summaries
- J.2 ENTACT 2007 Weekly Project Summaries
- J.3 CDM 2007 Daily Construction Reports
- J.4 ENTACT 2008 Weekly Project Summaries

Appendix K Project Photographs – Category I Excavation and Landfills

Appendix L As-Built Drawings – Category I Excavation and Landfills

Section 1

Introduction

1.1 Background

During the period of July 2004 through December 2008, ASARCO LLC (ASARCO) completed a series of remedial construction activities at the El Paso Copper Smelter Facility including excavation of Category I material, construction of three Category I landfill cells and capping of Category II areas with asphalt pavement. These actions were in response to the 1996 Texas Commission on Environmental Quality (TCEQ) (formerly Texas Natural Resource Conservation Commission) Agreed Order Docket No. 96-0212-MLM-E and subsequent letters providing additional detailed requirements (TCEQ to ASARCO letters dated August 27, 2002, April 9, 2003 and May 20, 2005). This report summarizes the remedial activities that took place through December 2008 and contains construction documentation information.

1.1.1 1996 Agreed Order and Remedial Investigations

The TCEQ Agreed Order Docket No. 96-0212-MLM-E was issued on August 29, 1996. The Agreed Order stated that ASARCO was found in violation of the Solid Waste Disposal Act and the Texas Water Code. Administrative Penalties and Corrective Actions were required by ASARCO including implementation of a Remedial Investigation according to a Remedial Investigation Plan and production of a Remedial Investigation Report with a proposal for corrective action.

The Remedial Investigation was conducted in four phases between 1997 and 2003 and reports were prepared for ASARCO by Hydrometrics, Inc. The Phase I and Phase II investigations focused on on-plant areas, while the Phase III investigation focused on on-plant and off-plant areas. The Phase III Remedial Investigation Report was submitted to the TCEQ on November 19, 2001, together with the Remedial Design Report. The Phase III Remedial Investigation Report includes a proposal for corrective actions, while the Remedial Design Report presents design criteria for implementation of these corrective actions. The Phase IV Remedial Investigation Report was completed in 2003 and briefly summarized the previous three Remedial Investigation Reports and addressed some additional off-site issues.

Appendix A contains the Agreed Order and correspondence between ASARCO and the TCEQ about the remediation of the facility as a result of the Agreed Order. The Appendix also contains correspondence regarding the International Boundary and Water Commission's reconstruction of the American Canal as it relates to the ASARCO remediation.

1.1.2 Asphalt Capping Design

The asphalt final design was disseminated as two separate construction projects plus two pilot projects with separate sets of construction drawings and specifications. It was divided by year, with the projects commonly referred to as the 2004 and 2005 pilot projects and the 2006 and 2007 Category II capping or paving projects. Work on

the 2006 capping project took place in 2006 and early 2007, and work on the 2007 capping project took place in 2007 and early 2008.

The 2004 pilot project took place in an effort to recycle Produced Ore Materials (POM), commonly referred to as slag, as an aggregate in the production of asphalt paving materials. The pilot work was successful and, as of January 2005, it was determined that the Produced Ore Materials - Asphalt (POM-A) and Produced Ore Materials - Base (POM-B) mixes could be used as asphalt and base mixes instead of purchasing off-site aggregate. A one-acre site was paved in July of 2004 in IA-9. This area received an additional surface course of Hot Mix Asphalt Concrete (HMAC) during the 2006 paving project as a portion of what was then called Site 1.

In the 2005 pilot project, a site was paved in IA-14. This area received an additional surface course of HMAC during the 2006 capping project as a portion of what was then called Site 2.

The main features of the asphalt design following the pilot work were the pavement cross-section; the low permeability cold mix/cold laid asphaltic concrete mix design; and the liquid asphalt impermeable membrane. These design tasks were completed in early 2006 by Raba Kistner via a series of design memorandums. The first design memorandum, dated February 3, 2006, defines the traffic conditions assumed at the locations to be paved and proposes pavement cross-sections based on strength that include layers of subgrade, asphalt membrane, low permeability cold mix/cold laid asphaltic concrete, POM-B, POM-A and HMAC. All pavement cross-sections proposed assume traffic conditions in which the plant is not to be reopened for smelting operations. The second design memorandum, dated March 15, 2006, defines the composition and material properties of the low permeability cold mix/cold laid asphalt concrete mix, and of the liquid asphalt impermeable membrane.

The set of plans and specifications for the 2006 capping project is called *ASARCO On-Plant Remediation 2006 Six Sites - El Paso Plant*, and is dated May 19, 2006, and was prepared by Raba-Kistner. It includes brief specifications on Low Permeable Mixture Design and Resulting Properties, POM-A Mixture Design and Resulting Properties, and POM-B Grading and Strength Properties. The drawings show boundaries of paving and/or grading for Sites 1 through 6. Sites 1 through 4 include the installation of low permeability paving and a PG64-22 impermeable membrane layer. Sites 5 and 6 were not Category II areas and were bid as project additive alternates that were not awarded or completed. A bid tab shows quantity estimates for all items.

The set of plans and specifications for the 2007 capping project is called *ASARCO On-Plant Remediation 2007 Five Sites - El Paso Plant*, is dated August 3, 2007, and was prepared by Raba-Kistner. It includes brief specifications on Low Permeable Mixture Design and Resulting Properties, POM-A Mixture Design and Resulting Properties, and POM-B Grading and Strength Properties. The drawings show boundaries of either "Category II" or "HMAC Only 2-inch Thick" paving for Areas A through E. A bid tab shows quantity estimates for all items. On August 7, 2007, prior to bid, the

design was modified by addendum to change the gradation and density requirements for POM-A, to remove the specification for POM-B, and to provide a pavement cross-section. The pavement cross-section was similar to the light traffic cross section developed in the February 3, 2006 design memorandum.

1.1.3 Landfill Design

The landfill design drawings and specifications for landfill Cells 1 and 2 were first drafted by Raba-Kistner in the 2004 Remedial Design Report Update. The final design drawings and specifications were prepared by Arcadis and completed on January 6, 2006. The title of the project was Remedial Waste Repository Design ASARCO Incorporated El Paso, Texas. The specifications include sections on earthwork, grading, backfilling, geosynthetic clay liner, geocomposite drainage layer, protective soil cover, HDPE and LLPDE geomembrane, and a general section. The drawings include plans and details for construction of landfills in Ponds 1 and 5 and excavation of Category I materials in other Category I areas. The Category I areas to be excavated per the design were Areas IA-4, IA-5, IA-9 (which includes Ponds 1, 5 and 6), IA-11, IA-12S and IA-13. Appendices include a soil and liner quality control plan, a final cover quality control plan, and a site health and safety plan.

The January 6, 2006 specifications for the Cells 1 and 2 construction were also used for the Cell 3 construction. The design drawings for Cell 3 were first prepared by Raba Kistner and titled ASARCO Remedial Waste Repository Design for Pond 6, El Paso, Texas, October 19, 2007. A second set of drawings was issued by ENTACT Environmental Services (ENTACT) for the construction of Cell 3 on December 19, 2007. Following ASARCO's review, the ENTACT drawings were revised again on January 11, January 27, and March 10, 2008. Final geomembrane specifications were designed by Raba-Kistner to ensure slope stability for the cap.

1.2 Work Description

Although on-going groundwater treatment alternatives were being evaluated and tested during this time period, this report only includes the remedial construction activities associated with the Category I excavation and landfill efforts, and the Category II capping scope.

1.2.1 Category II Asphalt Capping

As of December 2008, an estimated total area of 21.8 acres of Category II areas were capped with low permeability asphalt. The original estimate in the Remedial Investigation Report of the total Category II area was 58.7 acres (or 46.5 acres not including IA-4, IA-5 and remaining portions of IA-14).

The 2004 pilot project involved the paving of a one-acre site in IA-9. This area was surfaced during the 2006 paving project as a portion of what was then called Site 1. In the 2005 pilot project, a site was paved in IA-14. This area was surfaced during the 2006 paving project as a portion of what was then called Site 2.

The 2006 capping project included 10.2 acres of paving with low permeability mix in areas designated as Sites 1, 2, 3 and 4. Sites 5 and 6 were included in the bid package as additive alternates. The Site 5 work was minor grading at the slag fines stockpile to promote drainage and fines consolidation and dust control with emulsified asphalt, and the Site 6 work was minor grading and paving (not low permeability) on Cemetery Road and lining a curb with boulders. Sites 5 and 6 are not Category II areas, and these additive alternates were not awarded or completed.

The 2007 capping project was completed with 11.5 acres of low permeability asphalt located in what was designated on the plans as Areas A, B, C and D. The area between B and C (Area B-C) was also included for paving by change order. Areas B-1 and E were excluded from the work.

1.2.2 Category I Excavation and Landfills

1.2.2.1 Category I Excavation

As of December 2008, an estimated total volume of 178,889 CY of Category I material was excavated and placed in on-site landfills. The excavation to that date has been in eight excavation sites, designated Areas IA-5, IA-9 (which includes Ponds 1, 5 and 6), IA-11 and IA-12S, IA-13 and IA-14. The remaining volume of materials to be excavated is yet unknown, but is estimated as 40,000 CY in Area IA-11. The original design estimate of the amount of Category I material to be excavated was 155,700 CY.

1.2.2.2 Cell 1 Construction

Cell 1 construction and filling were completed on November 20, 2006 in Pond 1. The total volume of Category I material placed in Cell 1 was 104,397 CY. The liner material for Cells 1 and 2 for the cell floor consists of 2-foot protective cover (Category 1 materials, less than 3/8-inch particle size only), over a 60 mil HDPE geomembrane liner, a geosynthetic clay liner (GCL) and a 6-inch thickness of prepared subgrade. The HDPE geomembrane liner is smooth on the flat bottom and textured on the sloped portions of the cell bottom. The GCL is unreinforced on the flat bottom and reinforced on the sloped portions of the cell bottom. The top layer for Cells 1 and 2 consists of 2 feet of intermediate cover (Category 1 materials, less than 3/8-inch particle size only), covered by an unreinforced geosynthetic clay liner, a 40 mil smooth very flexible polyethylene layer, and a geocomposite drainage layer (single sided). A 17-inch soil erosion layer tops the geocomposite drainage layer.

1.2.2.3 Cell 2 Construction

Cell 2 construction and filling were completed on December 5, 2007 in Pond 5. Since Cell 2 was built in what was formerly known as Pond 5, it was called Cell 5 or Pond 5 during most of the design and construction process, as can be seen in many of the documents in the appendices to this report. In this report, the site location will be referred to as Pond 5, while the landfill cell will be referred to as Cell 2, since it was the second cell built. The total volume of Category I material placed in Cell 2 was 26,653 CY. The liner and cap cross-sections for Cell 2 were described in Section 1.2.2.2.

1.2.2.4 Cell 3 Construction

Cell 3, located in Pond 6, was filled in July 2008. Since Cell 3 was built in what was formerly known as Pond 6, it was called Cell 6 or Pond 6 during most of the design and construction process, as can be seen in many of the documents in the appendices to this report. In this report, the site location will be referred to as Pond 6, while the landfill cell will be referred to as Cell 3, since it was the third cell built. The total volume of Category I material placed in Cell 3 was 47,839 CY. The liner material for Cell 3 for the cell floor consists of 2-foot protective cover (Category 1 materials, less than 3/8-inch particle size only), over a 60 mil textured HDPE geomembrane liner, a reinforced geosynthetic clay liner (GCL) and a 6-inch thickness of prepared subgrade. The design for the cover for Cell 3 consists of 2 feet of intermediate cover (Category 1 materials, less than 3/8-inch particle size only), topped by a reinforced geosynthetic clay liner; a 40 mil textured flexible polyethylene layer; and a geocomposite drainage layer (double sided). The geocomposite drainage layer is topped by a 1.5-foot fine grain soil layer followed by a temporary spray emulsifier. The permanent erosion protection layer is yet to be designed and put into place.

Section 2

Category II Capping Project Description

2.1 Project Team

The design engineer for the two pilot projects and two Category II capping projects, in 2004, 2005, 2006 and 2007, was Raba-Kistner. The general contractor for the 2004 and 2005 work was TSR. The general contractor in 2006 was Remedial Construction Services, L.P. (Recon) with Raba-Kistner providing oversight. The general contractor in 2007 was JL-D Management Company Inc. (JL-D) with Raba-Kistner and Camp Dresser and McKee Inc. (CDM) providing oversight.

2.2 Construction Schedule

The 2004 pilot project took place in July of 2004, followed by the 2005 pilot project. The 2006 Category II capping project began in October 2006 and finished in January 2007. The 2007 Category II capping project began in November 2007 and finished in March 2008.

2.3 Construction Quality Assurance

Construction quality assurance took place in the form of inspection and field testing. Daily and weekly construction logs are included in Appendix D. These logs include:

- Contractor weekly progress reports, 10-22-07 through 3-17-08
- Raba-Kistner daily Resident Project Representative (RPR) reports, 11-6-07 through 2-8-08
- CDM daily RPR reports, 11-19-07 through 2-8-08

Field testing includes the following. Full test reports are included in Appendix C.

- Nuclear density tests and moisture-density tests of asphaltic concrete, 11-28-07 through 3-3-08
- Asphalt concrete tests, 11/20/07 through 2/29/08
- Asphalt concrete tests, 10/30/06 through 1/13/07
- Sieve analyses, 8/9/06 through 1/13/07

Figure 2-1 shows all Category II areas and the areas capped to date overlain on an aerial photograph. Table 2.1 summarizes work as of December 2008 in each of the investigation areas. Table 2.2 contains void space and unit weight measurements taken during the 2006 and 2007 asphalt capping projects.

K:\2008_Civil3D_Projects\63700 (Asarco El Paso)\Report_Figures\Landfill-pavement_Areas.dwg SAVED:8/7/08 PRINTED:8/7/08 BY:NYEBA

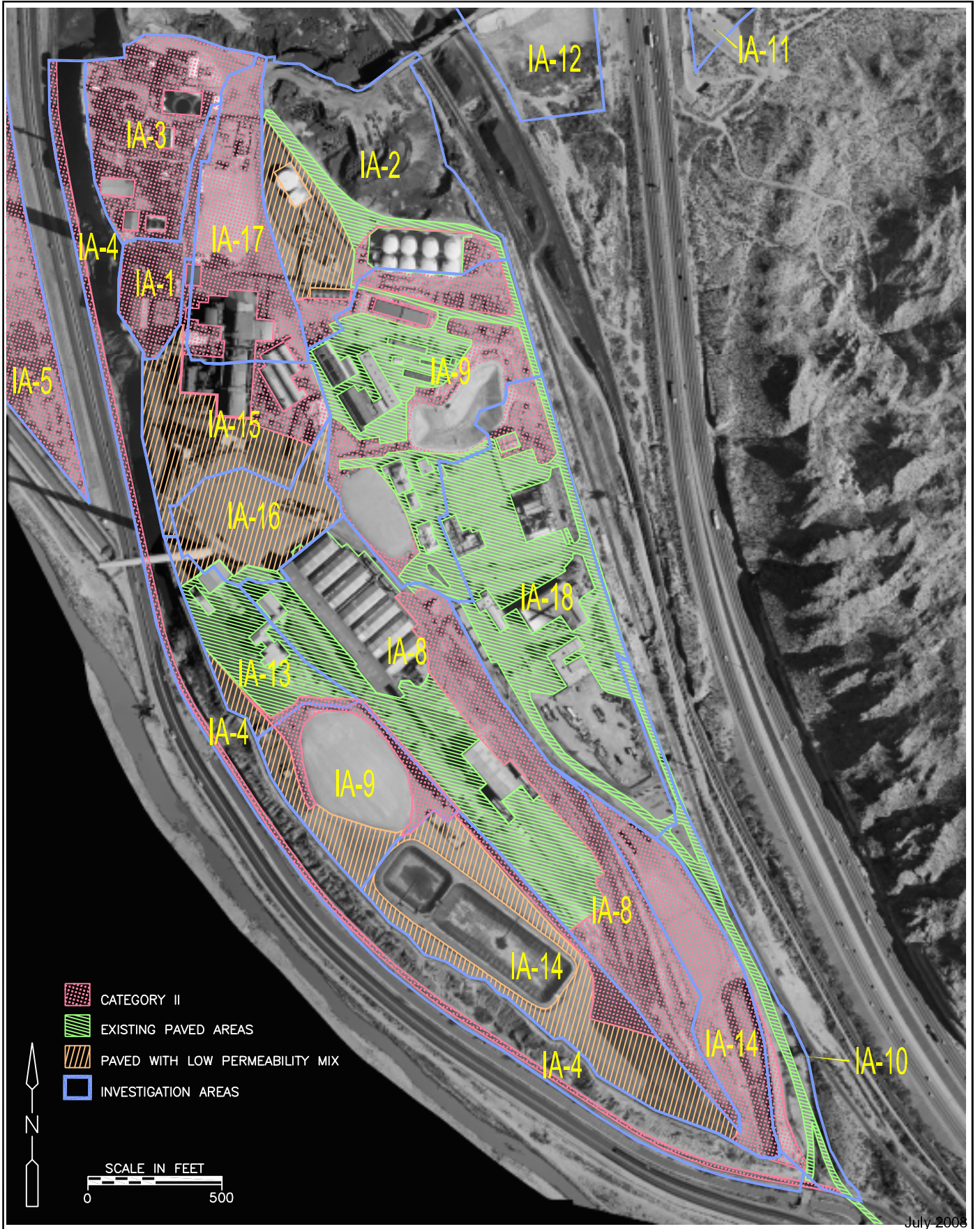


FIGURE 2-1
Category II Areas Paved to Date
ASARCO El Paso, TX

Table 2.1
Category II Remediation per Investigation Area (IA)

IA	Category II surface area per 2001 Remedial Design Report (ft ²)	Proposed action per 2001 Remedial Design Report	Area with Category II low permeability pavement as of 7/08 (ft ²) per design drawings	Comments
IA-1	56,100	asphalt pavement	-	-
IA-2	175,000	asphalt pavement	124,110 (Area A)	-
IA-3	254,600	asphalt pavement	-	-
IA-4	75,300	cap with low permeability liner	-	75,300 ft ² narrow railway corridor makes paving infeasible
IA-5	405,000	stabilize by deep tilling	-	405,000 ft ² to evaluate stabilization technologies
IA-6	-	-	-	-
IA-7	-	-	-	-
IA-8	275,000	asphalt pavement	-	-
IA-9	306,000	asphalt pavement or cap with low permeability liner	approx 98,942 (Area 1 and portion of C)	-
IA-10	-	-	-	-
IA-11	-	-	-	-
IA-12	-	-	-	-
IA-13	27,600	cap with low permeability liner	27,600 (Area B-C and portion of C)	-
IA-14	320,000	asphalt pavement or cap with low permeability liner on soil replacement area	268,839 (Areas 2, 3 and D)	51,161 ft ² removed as Category II; already paved or lined
IA-15	249,000	cap with low permeability liner	233,038 (portion of Area B)	-
IA-16	197,000	cap with low permeability liner	197,000 (Area 4 and portion of B)	-
IA-17	215,000	cap with low permeability liner	-	-
IA-18	-	-	-	-
Total	2,555,600 (2,150,600 to be paved or capped)		949,529 paved (Areas 1, 2, 3, 4, A, B, C, B-C, and D)	531,461 ft ² (Areas IA-4, IA-5 and IA-14)

Table 2.2
Category II Asphalt Paving Void Space and Density Test Results

Date	Location	Material	Void Space (%) ASTM D3203	Density (pcf) ASTM D2726	Density (pcf) ASTM D2950
10/30/06	Areas 1 and 3, plant sample	CMAC	-	150.2	-
11/02/06	Area 4, on site plant	CMAC	-	167.5	-
11/03/06	Area 4, on site plant	CMAC	-	168.2	-
11/04/06	Areas 3 and 4, on site plant	CMAC	-	166.6	-
11/06/06	Area 3, on site plant	CMAC	-	167.4	-
12/01/06	Area 1	POM-A	-	-	178.6-179.1
12/01/06	Area 3	POM-A	-	-	176.6-182.3
01/04/07	Area 3, south parking lot	HMAC	-	-	145.2-153.8
01/04/07	Area 3, batch plant sample	HMAC	4.35	152.4	-
01/05/07	Area 3, south parking lot	HMAC	-	-	148.0
01/05/07	Area 3, south roadway	HMAC	-	-	149.1-150.4
01/06/07	Area 1	HMAC	-	-	144.4-150.0
01/06/07	Area 4, McKelligon Canyon plant	HMAC	4.6	152.9	-
01/08/07	Area 4, McKelligon Canyon plant	HMAC	4.0	155.0	-
01/09/07	Area 1	HMAC	-	-	145.1-152.4
01/10/07	Area 2 and 3, McKelligon Canyon plant	HMAC	3.3	154.3	-
01/10/07	Area 3	HMAC	-	-	146.5-150.7
01/10/07	Area 2	HMAC	-	-	146.6-153.4
01/11/07	Area 2	HMAC	-	-	142.6-149.7
01/12/07	Area 4	HMAC	-	-	138.9-146.6
01/12/07	Area 4, McKelligon Canyon plant	HMAC	4.8	152.2	-
01/12/07	Area 4, 60' to 70'north and 40' to 140' west of north east corner of Area 4	HMAC	3.2	148.8	-
01/13/07	Area 4, Jobe plant	HMAC	4.0	146.7	-
01/13/07	Area 4	HMAC	-	-	139.3-146.7
11/20/07	Area "A", plant sample	CMAC	11.8 5.0	128.10	-
11/28/07	Area "A", 60' to 70' west and 0' to 25'north from southwest corner of storm water tank #1	CMAC	9.0 4.5	130.0	-
11/28/07	Area "A"	CMAC	-	-	122.9-126.7
11/29/07	Area "A", 0' to 12' north and 0' to 20'west from northeast corner of storm water tank #1	CMAC	8.7 4.4	129.4	-
12/04/07	Area "B"	CMAC	-	-	124.4-126.5

Table 2.2
Category II Asphalt Paving Void Space and Density Test Results

Date	Location	Material	Void Space (%) ASTM D3203	Density (pcf) ASTM D2726	Density (pcf) ASTM D2950
12/04/07	Area "B", 60' to 72' north and 100' to 120' west from southeast corner of section "B"	CMAC	4.0	129.1	-
12/05/07	Area "B", 20' to 30' south and 40' to 60' east from south corner of storm pump station #3	CMAC	3.0	127.1	-
12/06/07	Area "B"	CMAC	-	-	125.6-127.9
12/06/07	Area "B", 30' to 40' west and 60' to 70' north from northwest corner of pump station #7	CMAC	10.4 5.2	126.8	-
12/07/07	Area "C", 120' west and 30' south from pump station #6	CMAC	9.2 4.6	128.6	-
12/11/07	Area "C"	CMAC	-	-	120.7-121.9
12/13/07	Area "B", 200' to 220' north 0' to 12' west from pump station #6	CMAC	8.6 4.3	129.1	-
12/14/07	Area "B/C"	CMAC	-	-	123.8-128.4
12/14/07	Area "C"	CMAC	-	-	124.8-126.5
12/14/07	Area "C, 220' north and 20' east from pump station #7	CMAC	9.5 4.8	131.0	-
12/17/07	Area "A", 20' to 25' east 40' to 50' south from pump station #3	POM-A	8.5 4.3	131.5	-
12/17/07	Area "C"	CMAC	-	-	125.0-126.1
12/18/07	Area "A", 10' to 15' south 30' to 40' west from pump station #1	POM-A	8.7 4.4	131.0	-
12/19/07	Area "A", 15' to 20' north 5' to 10' east from pump station #1	POM-A	16.4 4.6	127.6	-
12/20/07	Area "A", 30' to 40' north 0' to 10' west from storm water tank #2	POM-A	16.1 4.6	127.9	-
01/02/08	Area "B", 160' to 175' north from pump station #3	POM-A	9.8 4.6	137.2	-
01/03/08	Area "B", 100' to 110' and 75' to 85' south from pump station #3	POM-A	6.5 3.3	143.2	-
01/04/08	Area "B", 40' to 60' east from pump station #3	POM-A	6.4 3.2	146.0	-
01/04/08	Area "A", AC	POM-A	-	-	123.5-125.7

Table 2.2
Category II Asphalt Paving Void Space and Density Test Results

Date	Location	Material	Void Space (%) ASTM D3203	Density (pcf) ASTM D2726	Density (pcf) ASTM D2950
01/07/08	Area "B-C", 300' south and 10' west from pump station #3	POM-A	5.0	146.5	-
01/08/08	Area "C", 250' south and 25' west from pump station #6	POM-A	2.9 3.0	149.6	-
01/09/08	Area "C", 100' north and 30' east from pump station #7	POM-A	5.5 5.0	146.0	-
01/10/08	Area "C", 20' south and 10' west from pump station #6	POM-A	4.8	146.8	-
01/11/08	Area "C", 35' west and 10' north from pump station #7	POM-A	4.1	146.0	-
01/16/08	Area "A", 30' to 40' south and 0' to 10' west from pump station #1	HMAC	4.5	140.6	-
01/16/08	Area "B"	POM-A	-	-	122.6-137.7
01/16/08	Area "B-C"	POM-A	-	-	136.2-136.9
01/16/08	Area "C"	POM-A	-	-	130.4-132.5
01/21/08	Area "A", 10' north and 5' west from pump station #1	HMAC	5.0	140.1	-
01/22/08	Area "A", 30' west and 40' south from pump station #3	HMAC	4.5	141.7	-
01/25/08	Area "A", 20' south and 60' west from pump station #3	HMAC	4.1	142.6	-
01/26/08	Area "D", 275' to 300' north and 0' to 10' east from southwest corner of Area "D" pad	CMAC	3.6	145.5	-
01/29/08	Area "D", 0' to 15' south and 12' to 25' west from northeast corner of Area "D"	CMAC	12.9	136.1	-
01/30/08	Area "D", 30' to 40' north and 20' to 30' east from southwest corner of Area "D"	CMAC	10.8	136.0	-
01/30/08	Area "B", 250' to 275' east and 50' to 60' south from pump station #1	HMAC	4.9	142.6	-
01/30/08	Area "D"	CMAC	-	-	138.5-139.7

Table 2.2
Category II Asphalt Paving Void Space and Density Test Results

Date	Location	Material	Void Space (%) ASTM D3203	Density (pcf) ASTM D2726	Density (pcf) ASTM D2950
01/30/08	Area "D1"	CMAC	-	-	138.3-139.1
02/01/08	Area "B" , 200' east and 40' south from pump station #3	HMAC	5.0	142.7	-
02/04/08	Area "B-C" , 120' north and 10' east from pump station "C"	HMAC	4.9	142.9	-
02/05/08	Area "C" , 25' west and 50' north from pump station #7	HMAC	10.4	145.0	-
02/06/08	Area "D" , 40' west and 120' south from northeast corner of pad "D"	HMAC	10.2	138.5	-
02/07/08	Area "D" , 20' east and 200' north from southwest corner of pad "D"	HMAC	13.1	134.8	-
02/08/08	Area "A" , 60' south and 20' west from pump station #3	HMAC	3.8	143.2	-
02/11/08	Area "B" , 120' west and 10' south from pump station #3	HMAC	4.7	144.3	-
02/12/08	Area "B" , 120' west and 80' south from pump station #3	HMAC	3.5	143.3	-
02/13/08	Area "C" , 80' west and 10' north from pump station "C"	HMAC	4.3	142.0	-
02/14/08	Area "C" , 60' west and 20' north from pump station "C"	HMAC	4.0	142.6	-
02/18/08	Area "C" , 60' west and 80' south from pump station "C"	HMAC	5.0	139.9	-
02/19/08	Area "C" , 80' north and 5' west from pump station "C"	HMAC	4.9	140.6	-
02/20/08	Area "C" , 80' north and 30' west from pump station #7	HMAC	4.6	140.4	-
02/21/08	Area "D" , Northeast corner of Area "D", 0' to 10' south and 0' to 10' west from northwest corner	HMAC	4.8	150.1	-
02/23/08	Area "D" , 25' north and 10' east from southwest corner of pad	HMAC	4.6	145.6	-
02/26/08	Area "C" , 80' north and 5' west from pump station #7	HMAC	4.4	145.3	-
02/27/08	Area "C" , 30' west and 30' north from pump station "C"	HMAC	4.6	146.1	-
02/28/08	Area "B" , 80' south and 20' east from	HMAC	3.3	142.7	-

Table 2.2
Category II Asphalt Paving Void Space and Density Test Results

Date	Location	Material	Void Space (%) ASTM D3203	Density (pcf) ASTM D2726	Density (pcf) ASTM D2950
	pump station #3				
02/29/08	Area "B-C" , 200' north and 40' west from pump station "C" behind retaining wall	HMAC	4.4	140.3	-
03/03/08	Area "A"	HMAC	-	-	138.6-139.9
03/03/08	Area "B"	HMAC	-	-	138.5-141.4
03/03/08	Area "C"	HMAC	-	-	140.0-141.0
03/03/08	Area "D"	HMAC	-	-	134.8-136.3

CMAC – Low permeability cold mix asphalt concrete

POM-A – Produced ore materials cold mix asphalt concrete - may include commercially supplied aggregate

HMAC – Hot mix asphalt concrete

2.4 Documentation Appendices

The appendices of this report contain records of construction and quality assurance activities. These records for the Category II capping work primarily consist of design drawings and specifications, construction daily and weekly reports, and field test data on asphaltic concrete for paving.

2.4.1 Project Drawings and Specifications

Appendix B contains pavement design memorandums, and paving drawings and specifications for the year 2006 and 2007 paving projects.

2.4.2 Field Test Data and Material Certifications

Appendix C contains the results of sieve analysis and laboratory density tests from Raba-Kistner on low permeable asphaltic concrete, POM-A mix asphaltic concrete, hot mix asphaltic concrete, cold mix asphaltic concrete, and stabilized subgrade. The tests measured molded density, in situ density, compressive strength, stability and material flow properties.

2.4.3 Construction Progress Reports

Appendix D consists of daily construction reports from Raba-Kistner during 2006, and CDM and Raba-Kistner during 2007. It also consists of weekly reports from JL-D during 2007.

2.4.4 Project Photographs

A photo log of the project is in Appendix E of this report. A set of digital construction photos for ASARCO for paving is included in this appendix.

2.4.5 As-Built Drawings

As-built drawings are in Appendix F of this report. Modifications to the design construction drawings were made in red pen to reflect as-built conditions.

Section 3

Excavation and Landfill Project Description

3.1 Project Team

The design engineer for the landfill drawings for Cells 1 and 2 was Raba-Kistner. The design for the landfill Cell 3 was done by ENTACT, based on an earlier Raba-Kistner design. The design engineer for the landfill specifications for Cells 1, 2 and 3 was ARCADIS. The general contractor in 2006 was ENTACT with Raba-Kistner providing oversight. The general contractor in 2007 was ENTACT with Raba-Kistner and Camp Dresser and McKee Inc. (CDM) providing oversight. The general contractor in 2008 was ENTACT with Raba-Kistner providing oversight.

3.2 Construction Schedule

Landfill Cells 1 and 2 were constructed and Cell 1 was filled and capped during March through November of 2006. Landfill Cell 2 was filled and capped and Cell 3 was constructed during July 2007 through February of 2008. Filling of Cell 3 began in February 2008 and was completed in September 2008. Capping of Cell 3 was completed in October 2008, pending design of the final erosion protection layer.

An additional cell will need to be designed and constructed to hold additional Category I materials from IA-11 that was identified through the course of the excavation work.

3.3 Landfill Remedial Design

The Remedial Design Report Update describes design considerations for the former landfill site in the vicinity of IA-12. In the final design, the single landfill site at the Ephemeral pond in IA-12 was changed to three separate landfill sites in IA-9, at the locations of ponds 1, 5 and 6, because of a conflict with the Oglebay-Norton slag pile.

The leachate collection and removal system described in the Remedial Design Report and in the Remedial Design Report Update for a single cell in IA-12 was not incorporated into the final design for Cells 1, 2 and 3. Calculations in these reports predicted extremely low leachate quantities. The November 2001 Remedial Design Report includes an analysis of leachate generation using the Hydrologic Evaluation of Landfill Performance Modeling (HELP 3) model. The model results indicated that the maximum daily head on the leachate collection system would be too small to measure, and much smaller than the 30 centimeter recommended criteria. The model predicted that less than one gallon per year of leachate would be collected.

Since previously unanticipated Category I materials were identified during the course of the work, a fourth cell or an expansion of an existing cell will be required to contain the additional materials. As of December 2008, it was estimated that Category I excavation was roughly 80 percent complete.

3.4 Construction Quality Assurance

Construction quality assurance took place in the form of inspection, factory testing, and field testing. Daily and weekly construction logs are included in Appendix J. These logs include:

- Contractor (ENTACT) weekly progress reports, 3-20-06 through 11-19-06
- Contractor (ENTACT) weekly progress reports, 7-16-07 through 12-9-07
- Contractor (ENTACT) weekly progress reports, 12-31-07 through 10-26-08
- CDM daily reports, 11-27-07 through 2-8-08

Factory and field testing includes the following. Full test reports are included in Appendix H.

- Category I Pre and Post-Excavation Soil Sampling Results
- Liner Factory Certifications
- Geosynthetic Clay Liner Factory Certifications
- Geocomposite Factory Certifications

Liner Installation Field Quality Control

Figure 3-1 shows the locations of the Category I source areas and the three landfill cells overlain on an aerial photo

K:\2008\Civil3D\Projects\63700 (Asarco El Paso)\Report Figures\Landfill-pavement Areas.dwg SAVED: 8/7/08 PRINTED: 12/18/08 BY: NYEBA

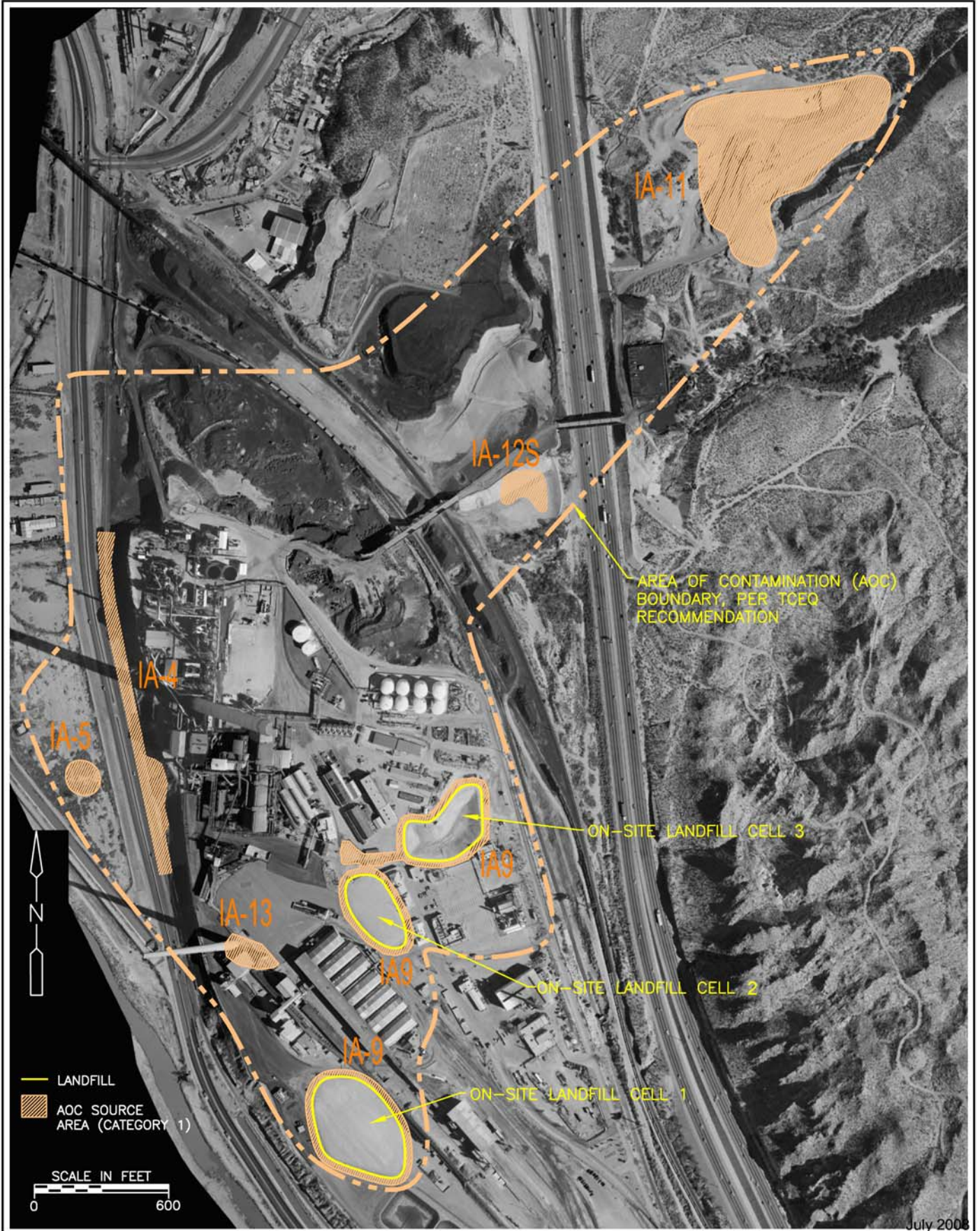


FIGURE 3-1
Landfill Locations and
Category I Source Areas
ASARCO El Paso, TX

Table 3-1 shows Category I material sources and disposal location by Investigation Area.

Table 3.1 Volume of Category I Material Per Investigation Area (IA)

IA Designation	Estimated Category I Volume per Remedial Investigation Report, 2001 (CY)	Estimated Category I Volume per Cells 1 and 2 Design Drawings, 2005 (CY)	Category I Volume Removed as of 12/08 (CY)	Disposal Location of Category I Material / Comments
IA-2	700	0	0	Eliminated as Category I based on April 2003 TCLP analysis
IA-4	4,000	4,000	0	Impracticable to remove
IA-5	300	300	252	Cell 3
IA-9 Pond 1	10,400	8,678	11,808	Cell 1
IA-9 Pond 5	5,200	5,398	3,807	Cell 1
IA-9 Pond 6	11,500	12,324	12,039	Cell 1
IA-11	122,000	122,000	142,697	Cell 1 – 75,343 Cell 2 – 20,077 Cell 3 – 47,277
IA12S	2,300	2,000	6,716	Cell 1 – 1,400 Cell 2– 5,316
IA-13	1,000	1,000	1,260	Cell 2
IA-14	0	0	310	Cell 3
Total	157,400	155,700	178,889	

The anticipated design capacity of each of the cells and the volume of waste placed in each cell is shown in Table 3.2.

Table 3.2 Volume of Fill per Landfill Cell

Cell	Anticipated Capacity (CY)	Actual Volume (CY)
Cell 1	66,465	104,397
Cell 2	15,080	26,653
Cell 3	58,651	47,839
Total	140,196	178,889

3.5 Documentation Appendices

The appendices of this report contain records of design, construction and quality assurance activities. These records for the landfill work primarily consist of design drawings and specifications, construction daily and weekly reports, and factory certifications and field test data for liner materials and installation.

3.5.1 Project Drawings and Specifications

Appendix G consists of drawings and specification for the construction of Cells 1, 2 and 3.

3.5.2 Field Test Data and Material Certifications

Appendix H contains information on soils testing, top and bottom liner installation field quality control, liner factory certifications for 40 and 60 mils and also certifications for geosynthetic clay liner and geocomposite.

3.5.3 Construction Progress Reports

Appendix J consists of daily construction reports from CDM for the year 2007 and weekly reports from Entact for the years 2006, 2007, and 2008.

3.5.4 Project Photographs

A photo log of the project is in Appendix K of this report. A set of digital construction photos for ASARCO for excavation and landfills is listed in this appendix.

3.5.5 As-Built Drawings

As-Built drawings are in located in Appendix L of this report.

Section 4

References

Entact Services LLC. (2007). Health and Safety Plan, Grapevine, Texas.

Hydrometrics, Inc. (2001). ASARCO El Paso Copper Smelter Remedial Design Report, El Paso, Texas.

Hydrometrics, Inc. (2001). ASARCO El Paso Copper Smelter Phase III Remedial Investigation Report, Volume 1(4), El Paso, Texas.

JL-D Management Company Inc. (2007). Site-Specific Health and Safety Plan, Manor, Texas.

Raba-Kistner Consultants, Inc. (2004). Proposed Work Plan for a Pilot Project to Recycle Produced Ore Materials as an Aggregate in the Production of Asphalt Paving Materials, San Antonio, Texas.

Raba-Kistner Consultants, Inc. (2004). Remedial Design Report Update, El Paso, Texas.

Raba-Kistner Consultants (SW), Inc. (2005). Report on the Pilot Project to Recycle Produced Ore Materials as an Aggregate in the Production of Asphalt Paving Materials, El Paso, Texas.

Texas Commission on Environmental Quality, Industrial Solid Waste Management. (2004). "Industrial Solid Waste Landfill Site Selection", Technical Guideline No. 2, pg: 1-29.

Texas Commission on Environmental Quality, Texas Risk Reduction Program. (2005). "Protective Concentration Levels (PCLs) Tables".

Texas Natural Resource Conservation Commission, Industrial Solid Waste Management. (2004). "Landfills", Technical Guideline No. 3, pg: 1-14.

Appendix A Correspondence

A.1 Correspondence Regarding Agreed Order Docket No. 96-0212-MLM-E

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

August 29, 1996

CERTIFIED MAIL

Tom Martin, Environmental Manager
ASARCO, Inc.
2301 Paisano
El Paso, TX 79901

RE: ASARCO, INCORPORATED
Docket No. 96-0212-MLM-E; SWR No. 31235; Permit No. WQ 02321
Agreed Order assessing administrative penalties and requiring certain actions

Enclosed is a certified copy of an enforcement order issued by the Commission.

Questions regarding the order should be directed to the Enforcement Coordinator or the Staff Attorney. If there are questions pertaining to the mailing of the order, then please contact Deanna Avalos in the Office of the Chief Clerk at (512) 239-3327.

Sincerely,

A handwritten signature in cursive script that reads "Gloria A. Vasquez".

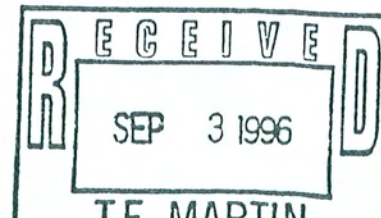
Gloria A. Vasquez
Chief Clerk

GAV:da

Enclosure

cc w/ enclosure:

TNRCC Region 6
Vic McWherter, TNRCC Staff Attorney
John Sadlier, TNRCC Enforcement Coordinator
Keith Hopson; Brown McCarroll & Oaks Hartline; 1400 Franklin Plaza; 111 Congress
Avenue; Austin, TX 78701-4043



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

THE STATE OF TEXAS
COUNTY OF TRAVIS
I hereby certify that this is a true and correct
copy of a Texas Natural Resource Conservation
Commission document, which is filed in the
permanent records of the Commission.
Given under my hand and the seal of office on
Gloria A. Vasquez
Gloria A. Vasquez, Chief Clerk
Texas Natural Resources
Conservation Commission AUG 29 1996



IN THE MATTER OF § BEFORE THE
ASARCO INCORPORATED § TEXAS NATURAL RESOURCE
SWR NO. 31235, WQ 02321 § CONSERVATION COMMISSION

AGREED ORDER
DOCKET NO. 96-0212-MLM-E

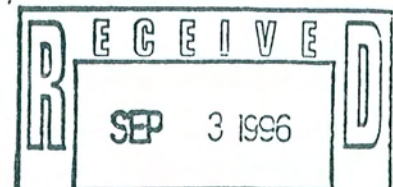
Assessing Administrative Penalties and
Requiring Corrective Actions of ASARCO Incorporated under the Authority
of the Solid Waste Disposal Act, TEX. HEALTH AND SAFETY
CODE ANN. Chapter 361 (Vernon 1992 and Supp. 1994) and the Texas Water Code, Chapter
5 and 26 (Vernon 1988 and Supp. 1994).

At its AUG 28 1996 agenda, the Texas Natural Resource Conservation
Commission (the "Commission" or "TNRCC") considered the oral report to the Commission
alleging violations of the Solid Waste Disposal Act, TEX. HEALTH AND SAFETY ANN.
Chapter 361 (Vernon 1992 and Supp. 1994) (the "Act"), the Texas Water Code, Chapter 5 and
26 (Vernon 1988 and Supp. 1994) (the "Code") and the rules of the Texas Natural Resource
Conservation Commission pertaining to solid waste management and requesting appropriate relief,
including the imposition of administrative penalties. The facility made the subject of this Agreed
Order is ASARCO Incorporated (ASARCO), located at 2301 West Paisano Drive, City of El
Paso, El Paso County, Texas.

After proper notice, the parties appeared and announced before the Commission that they
had reached a settlement and requested the Commission to enter this Agreed Order.

ASARCO understands that it has certain procedural rights, including but not limited to,
the right to formal notice of violations, notice of an evidentiary hearing, the right to an evidentiary
hearing, and a right to appeal. By entering into this Agreed Order, ASARCO agrees to waive all
notice and procedural rights.

It is further understood and agreed that this Agreed Order represents the complete and
fully-integrated agreement of the parties. The provisions of this Agreed Order are deemed



severable and, if a court of competent jurisdiction or other appropriate authority deems any provision of this Agreed Order unenforceable, the remaining provisions shall be valid and enforceable. The duties and responsibilities imposed by this Agreed Order are binding upon ASARCO and upon its successors and assigns.

The Commission makes the following Findings of Fact and Conclusions of Law:

FINDINGS OF FACT

- (1) ASARCO owns and operates a copper smelter (facility operations previously included lead and zinc smelting) located at 2301 West Paisano Drive, City of El Paso, El Paso County, Texas (the "Facility").
- (2) Activities conducted at the Facility include the storage and management of industrial and hazardous wastes generated at the site.
- (3) During a Compliance Evaluation Inspection conducted on May 31 through June 13, 1994 (the 1994 inspection), and a follow-up sampling event conducted on January 12-13, 1995, TNRCC Region 6 field investigators documented the following unauthorized discharges of industrial solid waste, wastewater and storm water:
 - (a) Investigators noted that water from Pond Nos. 1 and 6 was being utilized for dust suppression. Sediment and surface water samples were obtained from Pond Nos. 1 and 6 during the 1994 inspection and the January 1995 sampling event. Analytical results confirmed the presence of elevated levels of metals evidencing the presence of industrial solid waste in the ponds;
 - (b) During the 1994 inspection, investigators noted that an asphalt-lined surface impoundment located west of the Converter Building Ventilation Baghouse was being used as a spill containment area. Water samples were collected and analytical results confirmed the presence of elevated levels of metals evidencing the presence of industrial solid waste in the impoundment. Investigators also noted cracks in the impoundment's asphalt surface and noted evidence of leakage through the expansion joints in the impoundment's concrete containment wall. Analytical results of soil samples taken from an area located adjacent to the containment wall confirmed the presence of elevated levels of metals in the soil. During the January 1995 sampling event, investigators noted the presence of approximately eight inches of sludge and sediment in part of the impoundment;

AGREED ORDER
ASARCO INCORPORATED
PAGE 3

- (c) During the 1994 inspection, effluent samples were collected from the 90,000 gallon tank which serves the Unloading Building's wastewater treatment plant. Analytical results confirmed the presence of elevated levels of metals evidencing the presence of contaminants in the tank. Investigators documented that effluent from the 90,000 gallon tank was being used for wash down in the bedding building and, unloading building, and for dust suppression on miscellaneous piles of material stored around the Facility;
- (d) During the 1994 inspection and the January 1995 sampling event, investigators noted that spent scrubber saddles, discarded brick, wood, plastic, flues and flue residue had been deposited in the area referred to as the boneyard on top of the slag pile (the "boneyard"). Soil samples were obtained from the boneyard during the 1994 inspection. Analytical results confirmed the presence of elevated levels of metals in the soil;
- (e) During the 1994 inspection, ASARCO representatives informed investigators of a sulfuric acid spill at Acid Plant No. 2. During the January 1995 sampling event, investigators observed an additional discharge of sulfuric acid on the ground at Acid Plant No. 2;
- (f) During the 1995 sampling event, soil samples were obtained from the base of a slope located outside ASARCO's perimeter fence just west of Acid Plant No. 2. Analytical results confirmed the presence of elevated levels of metals in the soil;
- (g) During the 1994 inspection, soil samples were obtained from an area of stained soil adjacent to a roll-off container located just west of Acid Plant No. 2. Analytical results confirmed the presence of elevated levels of metals in the soil;
- (h) During the 1994 inspection, investigators observed soil displacement and erosion of a berm located west of the Lead Plant and south of the closed Copper Roaster indicating that the berm had been breached. Soil samples were collected adjacent to the breach point by ASARCO. Analytical results confirmed the presence of elevated levels of metals in the soil;
- (i) During the 1994 inspection, investigators observed soil displacement and erosion of the berm located south of the lined storm water pond indicating that the berm had been breached. Soil samples were collected adjacent to the breach point by ASARCO. Analytical results confirmed the presence of elevated levels of metals in the soil; and

AGREED ORDER
ASARCO INCORPORATED
PAGE 4

- (j) During the 1994 inspection, investigators noted that storm water was bypassing a sump located adjacent to the Facility's entry gate and discharging off-site. Samples of the discharge were obtained and analytical results confirmed the presence of elevated levels of metals in the storm water run-off. Investigators also noted that ASARCO had failed to monitor the unauthorized discharge for pH, Chemical Oxygen Demand (COD), oil and grease and metals as required by ASARCO's water quality permit.
- (4) During the 1994 inspection, investigators documented that ASARCO failed to perform a waste determination and failed to amend its Notice of Registration concerning the generation of the following solid wastes:
- (a) Air conditioning filters in a dumpster south of Acid Plant No. 2;
 - (b) Spent catalyst in a poly-bag found west of Acid Plant No. 2;
 - (c) Lathe cleaning solvent found in the machine shop;
 - (d) Anti-freeze and freon recycling machine filters in the auto shop;
 - (e) Waste oils from the auto shop;
 - (f) Scrubber saddles in the boneyard;
 - (g) Brick material in the boneyard;
 - (h) Residues in flues located in the bone yard;
 - (i) Waste oil, grease, and other liquids and solids in drums stored in the Zig Zag building;
 - (j) Bags from the Spray Dryer Baghouse; and
 - (k) Drums containing spent solvents and waste oil located, (1) adjacent to the compressor station north of the unloading building, (2) north of the bedding plant, and (3) west of Acid Plant No. 2.
- (5) During the 1994 inspection, investigators documented that ASARCO failed to amend its Notice of Registration concerning the following waste management units:
- (a) The 90,000 gallon wastewater treatment plant which consists of a drum filter, a thickener and the 90,000 gallon tank used for storing the wastewater (this tank was subsequently replaced with a 60,000 gallon tank);
 - (b) The 1,000 gallon laboratory wastewater holding tank which is used to hold wastewater and chemicals used in the laboratory;
 - (c) The RCC pre-treatment wastewater treatment plant; and
 - (d) The RCC wastewater treatment plant.

AGREED ORDER
ASARCO INCORPORATED
PAGE 5

- (6) During the 1994 inspection, investigators documented that ASARCO failed to properly label the following hazardous waste containers with correct accumulation start dates or the words "Hazardous Waste":
 - (a) The bulk hauler trailer located at the RCC wastewater treatment plant; and
 - (b) A roll-off container located west of Acid Plant No. 2.

- (7) During the 1994 inspection, investigators documented that the following hazardous waste containers were uncovered when waste was not being added or removed:
 - (a) The bulk hauler trailer located at the RCC wastewater treatment plant; and
 - (b) Drums containing grease, waste oil or spent solvent located, (1) adjacent to the compressor station north of the unloading building, (2) north of the bedding plant, and (3) west of Acid Plant No. 2.

- (8) On-site and off-site groundwater monitoring wells were sampled during a sampling event undertaken during May 1995. Analytical results confirm the presence of elevated levels of arsenic and other metals in some on-site and off-site groundwater monitoring wells.

- (9) During a Compliance Evaluation Inspection conducted on April 28 through May 8, 1995 (the 1995 inspection), investigators documented the following unauthorized discharges of industrial solid waste:
 - (a) A dark colored sludge was observed flowing from a storage bin located at the Acid Plant wastewater treatment plant;
 - (b) A pile of sediment containing broken pieces of spent scrubber saddles was observed adjacent to a containment wall west of the Converter Building Ventilation Baghouse;
 - (c) Broken pieces of spent scrubber saddles were observed on the ground adjacent to roll-off containers located in the southwest yard;
 - (d) Waste materials, similar in nature to those observed during the 1994 inspection, were observed in the boneyard; and
 - (e) A leaking 35 gallon drum containing lubricating oil was observed adjacent to the Zig Zag building.

- (10) During the 1995 inspection, investigators documented that ASARCO failed to amend its Notice of Registration concerning the generation of the following solid wastes:
 - (a) Air conditioning filters in a dumpster south of Acid Plant No. 2;

AGREED ORDER
ASARCO INCORPORATED
PAGE 6

- (b) Anti-freeze and freon recycling machine filters in the auto shop;
 - (c) Scrubber saddles in the boneyard;
 - (d) Brick material in the boneyard;
 - (e) Residues in flues located in the boneyard; and
 - (f) Bags from the Spray Dryer Baghouse.
- (11) During the 1995 inspection, investigators documented that ASARCO failed to amend its Notice of Registration concerning the following waste management units:
- (a) The 90,000 gallon wastewater treatment plant which consists of a drum filter, a thickener and the 90,000 gallon tank used for storing the wastewater (this tank was subsequently replaced with a 60,000 gallon tank);
 - (b) The 1,000 gallon laboratory wastewater holding tank which is used to hold wastewater and chemicals used in the laboratory;
 - (c) The Zig Zag building; and
 - (d) The RCC wastewater treatment plant.
- (12) During the 1995 inspection, investigators documented that ASARCO had failed to perform a waste determination on the following wastes:
- (a) A 55 gallon drum containing contaminated grease; and
 - (b) A 55 gallon drum containing an unidentified grey sludge. Both drums were located in the Zig Zag building.

CONCLUSIONS OF LAW

- (1) ASARCO has managed industrial and hazardous solid waste at its copper smelting facility located in El Paso County, Texas and is therefore subject to the jurisdiction of the Texas Natural Resource Conservation Commission pursuant to the Solid Waste Disposal Act (the "Act"), TEX. HEALTH AND SAFETY ANN. Chapter 361 (Vernon 1994), the Texas Water Code (the "Code"), Chapter 5 and 26 (Vernon 1988 and Supp. 1994) and the rules of the Texas Natural Resource Conservation Commission pertaining to solid waste management.
- (2) As evidenced by Finding of Fact Nos. 3(a)-(j), 8 and 9, ASARCO has caused, suffered, allowed, or permitted the disposal of industrial solid waste in such a manner so as to cause the discharge or imminent threat of discharge of such waste into or adjacent to waters in the state without obtaining specific authorization for such a discharge in violation of 30 TAC §335.4 and the Texas Water Code §26.121.

AGREED ORDER
ASARCO INCORPORATED
PAGE 7

- (3) As evidenced by Finding of Fact Nos. 4, 5, 10 and 11, ASARCO has violated 30 TAC §335.6(c) by failing to notify the Commission of all generated wastes and associated waste management units.
- (4) As evidenced by Finding of Fact No. 6, ASARCO has violated 30 TAC §335.69(a)(2) and 40 CFR §262.34(a)(2) by failing to label containers of hazardous waste with a correct accumulation start date.
- (5) As evidenced by Finding of Fact No. 6, ASARCO has violated 30 TAC §335.69(a)(3) and 40 CFR §262.34(a)(3) by failing to label containers of hazardous waste with the words "Hazardous Waste".
- (6) As evidenced by Finding of Fact No. 7, ASARCO has violated 30 TAC §335.112(a)(8) and 40 CFR §265.173 by storing hazardous waste in open containers when waste was not being added or removed.
- (7) As evidenced by Finding of Fact Nos. 4 and 12, ASARCO has violated 30 TAC §335.62 and 40 CFR §262.11 by failing to make a waste determination on all wastes generated at the Facility.
- (8) The Commission has the authority to assess administrative penalties for violations of the Act and the Code pursuant to §361.252 of the Act and §26.136 of the Code.
- (9) The Commission has the authority to issue enforcement orders directing compliance with the Act, the Code, and Commission rules pursuant to §26.019 of the Code, §361.302 of the Act and 30 TAC §70.5.
- (10) An administrative penalty of One Hundred Sixty-Eight Thousand Four Hundred Dollars (\$168,400.00) is justified by the facts recited herein, considered in light of the factors set forth in §361.252 of the Act and §26.136 of the Code.

ORDERING PROVISIONS

NOW, THEREFORE, THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION ORDERS that ASARCO shall be assessed an administrative penalty of One Hundred Sixty-Eight Thousand Four Hundred Dollars (\$168,400.00) for violations of the Solid Waste Disposal Act, the Texas Water Code, and the rules of the Texas Natural Resource Conservation Commission. ASARCO has paid Eighty-Four Thousand Two Hundred Dollars

**AGREED ORDER
ASARCO INCORPORATED
PAGE 8**

(\$84,200.00) of the assessed penalty. The remaining Eighty-Four Thousand Two Hundred Dollars (\$84,200.00) of the assessed administrative penalty shall be remitted with the condition that the Company shall implement the Supplemental Environmental Project (SEP) defined in Attachment A, in accordance with §361.252(o) of the Act and §26.136(n) of the Code. ASARCO is hereby ordered to comply with all provisions in Attachment A which is attached hereto and incorporated herein by reference. If ASARCO complies with all provisions of the SEP set out in Attachment A, ASARCO's obligation to pay the conditionally remitted portion of the administrative penalty assessed shall be discharged. If ASARCO fails to comply with all provisions of the SEP agreement, including the deadlines associated with it, the Executive Director may require ASARCO to immediately pay all or part of the conditionally remitted portion of the administrative penalty. The imposition of this administrative penalty resolves only those alleged violations of the Act, the Code and the rules of the TNRCC pertaining to solid waste management arising from the TNRCC inspections of May 31 through June 13, 1994 and January 12-13, 1995 and sampling events conducted in May and December 1995 and January 1996. The Commission shall not be constrained in any manner from considering administrative penalties for violations of the Act, the Code or the regulations occurring after this Agreed Order is signed or which are not raised in this Agreed Order.

IT IS FURTHER ORDERED BY THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION that:

- (1) Within 30 days of the effective date of this Order, ASARCO shall certify that ASARCO is then in compliance with the requirements of 30 TAC §335.6(c). Certification shall be provided in writing.
- (2) Within 30 days of the effective date of this Order, ASARCO shall certify that ASARCO is then in compliance with the requirements of 30 TAC §335.69 and 40 CFR §262.34. Certification shall be provided in writing.
- (3) Within 30 days of the effective date of this Order, ASARCO shall certify that ASARCO is then in compliance with the requirements of 30 TAC §335.112(a)(8) and 40 CFR §265.171. Certification shall be provided in writing.
- (4) Within 60 days of the effective date of this Order, ASARCO shall certify that ASARCO is then in compliance with the requirements of 30 TAC §335.62 and 40 CFR §262.11. Certification shall be provided in writing.
- (5) Within 75 days of the effective date of this Order, ASARCO shall submit to the TNRCC a plan for the remedial investigation to determine the vertical and horizontal extent of the

AGREED ORDER
ASARCO INCORPORATED
PAGE 9

contamination identified as a result of the 1994 and 1995 inspections and the January 1995 sampling event (the "Remedial Investigation"). The Remedial Investigation must also include an assessment of contamination identified during the May and December 1995 and January 1996 sampling events where off-site groundwater contamination was documented and/or confirmed. The objectives of the Remedial Investigation are to determine the source(s) and to characterize the nature, extent, direction, rate of movement, volume, composition, and concentration of contaminants in environmental media in Texas in accordance with 30 TAC Chapter 335 Subchapter S Risk Reduction Standards, or later-adopted Texas Risk Reduction Rules, whichever are in effect at the time the plan for the Remedial Investigation is due. The Remedial Investigation shall include, but is not limited to the following elements:

- (a) A detailed site history including previous site owners, previous known site activities, previous known waste management, and current waste management practices.
- (b) A site characterization of the local soil, geology, groundwater, and surface water conditions based upon a literature review.
- (c) A sufficient number of samples of environmental media to define background conditions, hydraulic gradient(s), source(s) of contamination, and the vertical and horizontal extent of contamination. ASARCO shall pursue contamination across property boundaries in the State of Texas as necessary to determine the extent of contamination. If ASARCO is unable to obtain off-site access, they shall document their efforts and notify the TNRCC Enforcement Division's Multi-Media Section within 5 days of a determination by ASARCO that their efforts to obtain access have failed.
- (d) Samples of environmental media shall be analyzed using appropriate EPA-approved analytical methods to detect site contaminants as delineated in Appendix A.

Use of non compound-specific analysis (e.g., total petroleum hydrocarbons, total organic carbon, etc.) may, where appropriate for the site contaminants, be used to aid in the determination of the horizontal and vertical extent of contamination, but must be appropriately supported by compound-specific analysis to assess the risk to human health and the environment, and to demonstrate the attainment of cleanup levels in accordance with 30 TAC §335.553 (d) (Required Information), or subsequently applicable regulations. Contaminants related to two ongoing diesel remediations need not be addressed under this Order. Any action under this Order

AGREED ORDER
ASARCO INCORPORATED
PAGE 10

which impacts those remediation efforts will be coordinated with the Petroleum Storage Tank Division of the TNRCC.

Sampling quality assurance/quality control (QA/QC) procedures shall include the use of field duplicates, equipment blanks, and trip blanks to measure any problems which may result from incomplete decontamination, atmospheric conditions, variability in samples, incomplete homogenization, or lab error.

- (e) Assessment of Texas sensitive receptors within an area one-half mile hydraulically downgradient of the property owned by ASARCO between Interstate Highway 10 and West Paisano Drive in El Paso, Texas. The term "sensitive receptor" includes, but is not limited to, water wells, basements, subsurface utilities, manholes, or any other known below ground structures located hydraulically downgradient of the operating plant site. In addition to any surveys of registered water wells, ASARCO shall also interview any potentially affected property owners or occupants to determine if any groundwater user in the receptor zone utilizes unregistered water wells.

Information on all water wells, both registered and unregistered, to the extent available, shall include: current owner; date of construction, well completion logs; current water depth; screened interval; producing geologic unit(s); total well depth; water quality data; and current and historical uses(s). All wells potentially impacted by the facility shall be sampled and the analytical results included in the Remedial Investigation Report required by Ordering Provision No. 6.

Assessment of subsurface utilities shall include a determination of the location and integrity of all on-site wastewater and storm water drains, sumps and ancillary piping in order to determine if they are sources of releases to soil or groundwater.

- (f) Determination of the hydraulic parameters porosity, transmissivity, hydraulic conductivity and storativity of saturated zones found to contain free-phase or dissolved-phase contamination.
- (g) All generated wastes shall be managed as an industrial solid waste in accordance with 30 TAC Chapter §335, Subchapter A - Industrial Solid Waste and Municipal Hazardous Waste Management in General; Subchapter C - Standards Applicable to Generators of Hazardous Waste; and Subchapter R - Waste Classification.
- (h) A schedule to implement the Remedial Investigation upon TNRCC approval.

AGREED ORDER
ASARCO INCORPORATED
PAGE 11

- (6) Within 120 days of the completion of the Remedial Investigation, ASARCO shall submit a Remedial Investigation Report which summarizes the findings of the investigation for written approval, or approval with modifications, from the Executive Director. The report shall contain at a minimum:
- (a) A site map(s) drawn to a scale capable of showing the locations for all current and known historical facility structures, operations, and storage areas; all areas of visible and suspected contamination; sampling locations, including locations of soil borings and monitor wells; adjacent properties; all significant topographic features in the vicinity of the site; and locations of both on-site and adjacent utilities, structures, roads, surface drainage, and surface waters located in the State of Texas. All components and symbols (i.e., legend, scale, and north arrow) for each map shall be legible and clearly identified.
 - (b) Copies of field logs and lithologic logs, construction details, and description of drilling and construction procedures for all wells used during the assessment. Top of casing, screened interval, and groundwater elevations for all wells shall be shown on the logs.
 - (c) Geologic cross sections of the area covered by this investigation showing each hydrogeologic unit and screened intervals of all monitoring wells and sampling depths within all soil borings.
 - (d) The results of the Sensitive Receptor Survey and map(s) drawn to scale showing any Texas water-sensitive receptors and all Texas water wells within an area one-half mile hydraulically downgradient of the property owned by ASARCO between Interstate Highway 10 and West Paisano Drive.
 - (e) Descriptions of sampling and analysis protocols, including: sampling equipment and techniques; procedures for taking measurements of water level elevations in the monitor wells; procedures for detecting any phase-separated liquids and their thickness, if present; well evacuation procedures including purged water or water quality prior to sampling and handling; sampling and analysis protocol for field measurements; procedures for decontaminating sampling equipment between sampling events; disposal of field-generated waste; sample handling and preservation techniques, including chain of custody documentation; and sampling quality assurance/quality control (QA/QC) procedures.

AGREED ORDER
ASARCO INCORPORATED
PAGE 12

- (f) Tabulations of all analytical results including a separate tabulation of results which exceed background conditions. Soil sample results shall be reported in units of mg/kg, and groundwater sample results shall be reported in units of mg/l or $\mu\text{g/l}$.
 - (g) Copies of the original laboratory data and results of data evaluation regarding: analytical methods, quantitation limits, qualifiers and codes, blanks, and tentatively identified compounds.
 - (h) Contaminant isopleth maps and cross sections for each Appendix A contaminant discovered showing the lateral and vertical extent of constituents in the soil and all saturated zone(s) in which groundwater samples were taken.
 - (i) Potentiometric surface maps showing hydraulic gradient, static water elevations, groundwater flow paths, and the thickness of any phase-separated liquids determined during the investigation.
 - (j) Saturated zone characteristics, i.e., hydraulic conductivity, porosity, storativity, transmissivity, etc. of all zone(s) found to contain free-phase or dissolved-phase contamination.
 - (k) Identification of areas identified as sources of releases to soil or groundwater.
 - (l) A general proposal for corrective action stating the Risk Reduction Standard to be achieved and a detailed schedule for remediation of any contaminated media identified during the assessment necessary to meet the selected Risk Reduction Standard. The purpose of this proposal and schedule is to assure appropriate remediation in compliance with 30 TAC Chapter 335, Subchapter S, Risk Reduction Standards, or later-adopted Texas Risk Reduction Rules, whichever are in effect at the time the Remedial Investigation Report is due.
- (7) Within 90 days after receiving written approval, or approval with modifications from the Executive Director of the Remedial Investigation Report (including the corrective action proposal), ASARCO shall begin implementation of the approved proposal for corrective actions required by Ordering Provision No. 6(l) in accordance with the approved schedule.
- (8) Within 90 days of the effective date of this Agreed Order, ASARCO shall submit for approval or approval with modifications a Closed Plant Evaluation Plan. The plan shall include a proposal to evaluate the closed plant areas in order to determine if the closed areas are responsible for any releases of contaminants to the environment.

AGREED ORDER
ASARCO INCORPORATED
PAGE 13

- (9) Within 30 days of receiving written approval, or approval with modification from the Executive Director of the Closed Plant Evaluation Plan. ASARCO shall implement the plan in accordance with the approved schedule.
- (10) All plans, reports, submittals, specifications, and other documents which relate to this enforcement action shall be submitted in duplicate to:

Executive Director
c/o John L. Sadlier
Enforcement Division
Texas Natural Resource Conservation Commission
P.O. Box 13087
MC 128
Austin, Texas 78711-3087

and a copy of the materials shall be submitted to:

Region 6 Manager
Texas Natural Resource Conservation Commission
7500 Viscount Blvd., Suite 147
El Paso, TX 79925

- (11) If ASARCO fails to comply with any of the technical ordering provisions in this Agreed Order within the prescribed schedules, and that failure is caused by an act of God, war, riot, or other catastrophe beyond the control of ASARCO, that failure shall not be construed as a violation of this Agreed Order. ASARCO has the burden of establishing to the Executive Director's satisfaction that such an event has occurred. ASARCO shall notify the Executive Director within seven (7) days after ASARCO becomes aware of a delaying event and shall take all reasonable measures to mitigate and minimize the delay.
- (12) The Executive Director may grant an extension of any deadline in this Agreed Order or in any plan, report or other document submitted pursuant to this Agreed Order, upon written and substantial showing of good cause. All requests for extensions by ASARCO shall not extend any deadlines contained in this Agreed Order until it has received written approval for extension from the Executive Director. The determination of what constitutes good cause rests solely with the Executive Director.
- (13) The Executive Director may refer this matter to the Office of the Attorney General for further enforcement proceedings without notice to ASARCO if the Executive Director

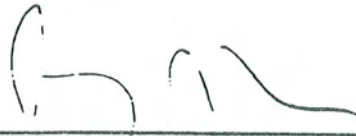
AGREED ORDER
ASARCO INCORPORATED
PAGE 14

determines that ASARCO is noncompliant with the requirements set forth in this Agreed Order.

- (14) This Agreed Order shall terminate 5 years from its effective date or upon compliance with all terms and conditions set forth in the order, whichever is later.

The Chief Clerk shall provide a copy of this Order to each of the parties. By law, the effective date of this Order is the mailing date, as provided by 30 TAC §70.10(b).

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION



Barry R. McBee, Chairman

ATTEST:



Gloria A. Vasquez, Chief Clerk

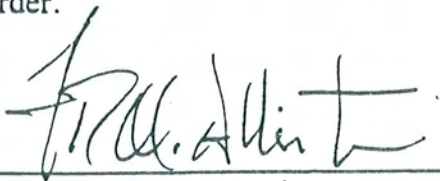
AGREED ORDER
ASARCO INCORPORATED
PAGE 15

I, the undersigned, have read and understand the attached Agreed Order in the matter of ASARCO Incorporated.

I am authorized to agree to the attached Agreed Order on behalf of ASARCO Incorporated, and do agree to the specified terms and conditions.

I understand that by entering into this Agreed Order, ASARCO Incorporated waives certain procedural rights, including but not limited to, the right to formal notice of violations addressed by this Agreed Order, notice of an evidentiary hearing, the right to an evidentiary hearing, and the right to appeal.

I agree to the terms of this Agreed Order in lieu of an evidentiary hearing. This Agreed Order constitutes full and final adjudication by the Commission of the violations set forth in this Agreed Order.

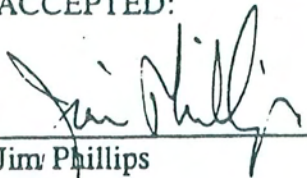


Authorized Representative
ASARCO Incorporated

Date: August 9, 1996

*Robb Kristan
Austin
Consultant*

ACCEPTED:



Jim Phillips
Deputy Director
Office of Legal Services
Texas Natural Resource Conservation Commission

Date: 8/12/96

Attachment A
SUPPLEMENTAL ENVIRONMENTAL PROJECT

The Texas Natural Resource Conservation Commission ("TNRCC") agrees to remit a portion of the administrative penalty assessed in this Agreed Order with the condition that ASARCO, Incorporated ("the Company") shall perform and comply with the following Supplemental Environmental Project ("SEP") provisions. The total amount of the conditional remittance for this SEP, upon completion according to the terms and schedule listed below, shall be Eighty-Four Thousand Two Hundred Dollars (\$84,200.00) of the assessed penalty of One Hundred Sixty-Eight Thousand Four Hundred Dollars (\$168,400.00).

1. Project Description

The Company agrees to demolish the following facilities located at the El Paso Plant site:

- A. Copper Wedge Roaster Building and the brick flue that served the reverberatory furnace.
- B. Blast furnaces, dross reverberatory furnace, flues and baghouse.
- C. Zinc plant area which includes that cooling tubes, flues, rotary kilns and baghouse.

The above facilities will be demolished down to the concrete foundations with all demolition rubble being properly managed. The Company shall comply with all applicable state and federal laws and regulations when implementing this SEP.

The Company has estimated that it will incur capital costs of One Million One Hundred Thirty-Six Thousand Dollars (\$1,136,000.00) to complete the demolition as described above. The Company agrees that it will incur capital costs of at least One Million One Hundred Thirty-Six Thousand Dollars (\$1,136,000.00) to implement this SEP.

2. Performance Schedule

The Company shall begin implementation of the project described in Section 1 within 30 days of the effective date of this Agreed Order.

The Company shall submit to the TNRCC SEP Coordinator quarterly reports. The first quarterly report shall be submitted within 90 days of effective date of this Agreed Order. Subsequent quarterly reports shall be submitted within 90 days of the submittal date of the previous report.

The Company shall complete this SEP within 50 months of the effective date of this Agreed Order.

ASARCO
AGREED ORDER
ATTACHMENT A
PAGE 2

The Company shall submit to the TNRCC SEP Coordinator a final report summarizing the project within 30 days of completion of the SEP.

3. Records and Reporting

The Company shall document all capital costs incurred under the terms of this SEP.

The quarterly reports and the final report shall include documentation of capital costs incurred, including copies of receipts and invoices for expenditures. The final report shall delineate all costs of each project, describe each project, and summarize the environmental benefits expected.

Reports shall be submitted to the following address:

SEP Coordinator
Litigation Support Division
Texas Natural Resource Conservation Commission
MC-175
P.O. Box 13087
Austin, Texas 78711-3087

4. Failure to Fully Perform

In the event that the Company does not satisfy its obligations under this SEP, the Executive Director may require the Company to immediately pay all or part of the Eighty-Four Thousand Two Hundred Dollar (\$84,200.00) conditional remittance to the TNRCC for deposit in the General Revenue Fund of the State of Texas.

The check for any amount due shall be made out to the "State of Texas - General Revenue Fund" and mailed to:

Texas Natural Resource Conservation Commission
Financial Administration Division, Revenues
Attention: Cashier, MC 214
Austin, Texas 78711-3088

ASARCO
AGREED ORDER
ATTACHMENT A
PAGE 3

A copy of the check shall be mailed to the TNRCC SEP Coordinator at the address in Section 3 above.

5. Publicity

Any public statements concerning this SEP made by or on behalf of the Company must include a clear statement that the project was performed as part of the settlement of an enforcement action brought by the TNRCC. Such statements include, but are not limited to, advertising, public relations, and press releases.

6. Clean Texas 2000 Program

The Company shall not include this SEP in any application made to TNRCC under the "Clean Texas 2000" (or any successor) program(s). Similarly, the Company may not seek recognition for this contribution in any other state or federal regulatory program.

7. Other SEPs by TNRCC or Other Agencies

The SEP identified in this Agreed Order has not been, and shall not be, included as an SEP for the Company under any other Agreed Order, negotiated with the TNRCC or any other agency of the state or federal government.

APPENDIX A

arsenic
cadmium
chromium
copper
iron
selenium
zinc
lead
pH
specific conductivity
TDS

Encycle Consent Decree
Civil Action No. H-99-1136
United States District Court
Southern District of Texas

EI Pass
"Off-Site" Paving

- A. Agreed compliance order, EPA RCRA docket no. VI-017-99 (filed April 15, 1999; allowed Encycle to operate while consent decree being approved; terminated upon entry of consent decree, *see* ¶ X)
- B. Complaint (filed April 15, 1999)
- C. Consent Decree and attachments (submitted with complaint April 15, 1999; signed by judge on October 6, 1999; stamped "entered" by the clerk of the court on October 7, 1999)

Exhibits

- 1. Sylvia Lowrance sham recycling memo (April 26, 1989)
- 2. Encycle operating procedures – chapter outline
- 3. Encycle material management areas and processing units
- 4. Material tracking system
- 5. Decontamination procedures for operational units
- 6. Interim waste analysis plan (10/26/98)
- 7. Inventory disposition table
- 8. Asarco operations (group 1 and group 2)
- 9. Asarco environmental compliance audit program
- 10. Corrective action reference list (EPA documents)
- 11. Conservation easement (Corpus Christi wetlands)
- 12. Coy Mine SEP

establishment and maintenance of the property, including, public comment on the proposed management plan and scheduling of public meetings as necessary to address community concerns relating to the management plan.

c. Settlers shall implement and fund said plan in accordance with the approved schedule upon approval of said plan by TNRCC and EPA. Settlers, their heirs and assigns, shall maintain this Easement, attached hereto as Exhibit 11, in accordance with its terms and will confine the use of the property to such activities as are consistent with the purposes of the Easement, including, without limitation, habitat enhancement and conservation, public use, environmental research and monitoring, and education into perpetuity.

d. If Settlers completely fail to establish the conservation area as provided above, Settlers shall pay a stipulated penalty to TNRCC and EPA of \$1.0 million.

80. EL PASO PARTICULATE MATTER REDUCTION PROJECT

a. ASARCO shall spend a minimum of \$1,850,000 over a five year period to pave roads, alleyways, parking lots and/or medians in the El Paso, Texas area.

b. The purpose of this Supplemental Environmental Project (SEP) is to protect human health and the environment by reducing the amount of particulate matter in the air in the El Paso, Texas air shed area.

c. Beginning in the year 2000, ASARCO shall spend a minimum of \$370,000 each year (plus or minus 10% per year, as long as the total after five years is \$1,850,000) for five consecutive years to complete its obligations under this SEP. Each paving project shall meet applicable paving specifications of the Texas Department of Transportation, City of El Paso, El Paso County or the University of Texas at El Paso.

d. For each year, not later than the end of January, ASARCO shall meet with representatives of the TNRCC, EPA, the El Paso City-County Health and Environmental District, the Public Works Department of the City of El Paso, and the University of Texas at El Paso (the "Representatives") to identify eligible projects with an aggregate estimated paving cost of at least \$500,000 that will be eligible for paving during the calendar year ("eligible projects ") based on the purposes specified in subparagraph 80b. above. The date and location of each meeting shall be set by agreement of the Representatives. In the event of a disagreement among the Representatives regarding eligibility of a project for paving the EPA's decision as to eligibility shall prevail.

e. Each year ASARCO shall select projects totaling at least \$370,000 (plus or minus 10%, as long as the total after five years is \$1,850,000) from those projects determined by the Representatives or EPA to be eligible for that year, and shall complete the selected projects by contracting with a public or

private entity to conduct the paving.

f. By January 31 of 2001 and of each of the following four years, ASARCO shall document that it contracted for the completion of paving projects selected from eligible projects and expended a minimum of \$370,000.00 per year (plus or minus 10% per year, as long as the total after five years is \$1,850,000) on the projects by submitting to EPA and TNRCC a detailed accounting of its contracting and payments for the paving.

g. This SEP shall be deemed complete when ASARCO has documented that it has expended \$370,000 per year for five years on paving projects (plus or minus 10% per year, as long as the total after five years is \$1,850,000) from the eligible projects identified for each year and that these projects have been completed and EPA has verified that ASARCO has completed at least \$1,850,000 of eligible projects. EPA makes no warranty or representation as to the quality or maintenance of the paving.

h. For each failure to meet the deadlines associated with this SEP, ASARCO shall pay the following stipulated penalties:

(1) failure to complete and document paving project contracting and expenditures aggregating \$370,000 (plus or minus 10%) to EPA for any year of the project by January 31st of the

following year: \$2,000 per day until contracting and expenditures have been completed and documented.

(2) failure to complete paving projects worth at least a total of \$1,850,000 by the end of the five year project period: \$3000 per day until the projects are completed.

81. TENNESSEE MINES WETLANDS PROJECT - COY MINE

a. In addition to work already performed by ASARCO to address the CWA violations at ASARCO's Tennessee Mines alleged in the Complaint, ASARCO shall perform the following Supplemental Environmental Project ("Coy Mine SEP") designed to restore diverse native riparian and wetland vegetation communities in a four-acre floodplain portion of the Coy Mine site along Mossy Creek.

Project objectives that support this goal include:

b. Grade the area to form natural wetland topography that promotes wetland function, creates wetland habitat for vegetative communities, expands and enhances wildlife habitat, and integrates the area into the landscape;

c. Construct the wetland area with appropriate substrate materials to enhance the establishment of vegetation and wildlife habitat;

d. Grade and vegetate non-wetland perimeter sites in the project area to diversify the ecosystem, creating riparian and upland vegetation and wildlife habitat adjacent to the wetland area;

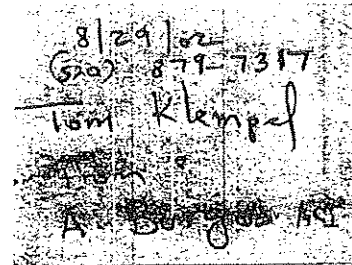
Robert J. Huston, *Chairman*
 R. D. "Ralph" Marquez, *Commissioner*
 Kathleen Hartznett White, *Commissioner*
 Jeffrey A. Saitas, *Executive Director*



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

August 27, 2002



Mr. Larry Johnson
 Environmental Manager
 ASARCO Incorporated - El Paso
 P. O. Box 1111
 El Paso, TX 79999

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

RE: Comments to *ASARCO El Paso Copper Smelter Remedial Design Report* - Dated November 19, 2001
 Agreed Order Docket No. 96-0212-MUM-E
 TNRCC Industrial Solid Waste Registration No. 31235
 EPA ID No. TXD990757668

Dear Mr. Johnson:

The Texas Natural Resource Conservation Commission (TNRCC) hereby partially approves sections of the Remedial Design Report dated November 19, 2001 ("Report"). The TNRCC approves the paving and landfill design concepts. The paving project is approved with the TNRCC's specifications for the asphalt provided in this letter. The TNRCC cannot fully approve the landfill construction at this time because ASARCO must first submit additional information. The TNRCC's comments and specifications for the Report are provided in the list below. ASARCO must submit to the TNRCC a written response to each comment, referencing the assigned TNRCC comment number, unless otherwise specifically requested.

1. On Table 1-2 on page 1-9, ASARCO incorrectly identified a solid waste registration number as an operating permit number. Please correct the table.
2. ASARCO proposes to pave with asphalt over the areas which contain "Category II" material, which may leach to groundwater. ASARCO has not provided physical specifications for the asphalt that will be used for the proposed paving project. The TNRCC agrees with the paving proposal provided the following TNRCC specifications are met. The asphalt for the paving must meet or exceed the following minimum specifications:

Mr. Lairy Johnson
Page 2
August 27, 2002

Property	Units	Test Method	Specification
Vertical Permeability	(cm/sec)	ASTM D-5084	< 1.0e-7
Void Space	(%)	ASTM D3203	< 2.5
Density	(lbs/ft ³)	ASTM D-2726	> 148
Shear Strength	(kilo Pascals)	AASHTO TP-7	> 3.75
ASTM American Society for Testing and Materials AASHTO American Association of State Highway and Transportation Officials			

ASARCO will begin the paving project no later than October 15, 2002 and complete the paving project no later than December 15, 2003.

3. The TNRCC agrees to the design and concept of the proposed landfill. However, final approval will be contingent upon submission of an O&M plan and a groundwater monitoring and maintenance plan.

ASARCO must submit to the TNRCC the written operation and maintenance (O&M) plan. The plan must include yearly cost estimates associated with the O&M of the landfill, and financial assurance from ASARCO demonstrating that there will be adequate funding for O&M of the landfill. ASARCO must submit to the TNRCC the written groundwater monitoring and maintenance plan. The plan must also include yearly cost estimates associated with groundwater monitoring and maintenance and include financial assurance from ASARCO demonstrating that there will be adequate funding for the groundwater monitoring and maintenance thereof.

4. The Remedial Design Report failed to include a proposed groundwater remedy. Please include a groundwater remedy in your response which will include any and all actions ASARCO will take to ensure groundwater protection standards and any remedial closure approvals by offsite owners.
5. ASARCO must amend the Report to show that ASARCO has considered any short term effectiveness of their proposed remedy according to 30 TEX. ADMIN. CODE § 335.562(c). The TNRCC is concerned that the International Boundary Water Commission (IBWC) proposes to rehabilitate the American Canal through a major construction project. The TNRCC believes construction workers will be exposed to metals concentrations for which ASARCO is responsible, and that ASARCO has not considered these effects.

ASARCO must submit an amendment to the Report to consider this matter. ASARCO's remedial action must accommodate the IBWC project and its timelines. The amended Report must deal appropriately with the contaminated media on IBWC property. Please


Mr. Lairy Johnson
Page 3
August 27, 2002

note that IBWC has indicated that they do not want any deed restrictions on their property. This means that under the Risk Reduction Rules that all media must meet background conditions (which have yet to be approved) or Practical Quantitation Limits (PQL). Finally, the attached letter shows IBWC's requested financial relief from ASARCO for the proper environmental treatment and disposal of contaminated media during IBWC's construction project. The amended Report must show that ASARCO has responded appropriately to this request.

ASARCO must submit all of the information requested above to the TNRCC no later than sixty (60) days after the date of this letter. The information (including an original and one copy) must be submitted to the TNRCC Corrective Action Section and an additional copy should be submitted to the TNRCC Region 6 Office in El Paso, Texas. The TNRCC Solid Waste Registration Number should be referenced in all submittals.

ASARCO is under a continuing obligation to ensure that industrial solid wastes and/or municipal hazardous wastes are managed in such a way that it does not cause a discharge of wastes or an imminent threat of discharge, nor a nuisance or an endangerment to either human health or the environment as required by 30 TEX. ADMIN. CODE § 335.4. ASARCO must take the necessary and authorized actions to correct such conditions whenever they exist.

Sincerely,



Brad Wilkinson, Project Manager
Team I, Corrective Action Section
Remediation Division
Texas Natural Resource Conservation Commission

BW/bw

Enclosure

cc: Mr. Don Robbins, Director of Environmental Services, ASARCO Incorporated
Keith Hopson, Counsel for ASARCO, Brown McCarroll L.L.P., Austin, Texas
Ms. Terry Sykes, Senior Counsel, EPA Region 6, Legal RCRA Enforcement Branch-
Dallas
Waste Program Manager, TNRCC Region 6 Office-El Paso

ASARCO

El Paso Plant
L. W. Castor, Unit Manager

October 15, 2002

Mr. Brad Wilkinson, Project Manager
Remediation Division
Texas Commission on Environmental Quality
P. O. Box 13087
Austin, Texas 78711

RE: Remedial Design Asphalt Specifications for Category II Areas, ASARCO El Paso Smelter, Agreed Order Docket No. 96-0212-MLM-E, TNRCC Industrial Solid Waste Registration No. 31235, EPA ID, No. TXD990757668

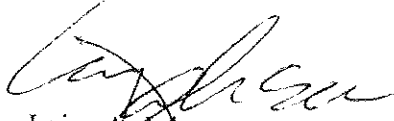
Dear Mr. Wilkinson:

Our engineering team has been developing asphalt design criteria for the Category II pavement areas following our meeting with you in El Paso on September 9th. In respect to the paving issues identified in your August 27th letter, and as discussed in the meeting, we want to be sure that the asphalt specifications you provided are applicable for our site. We requested that you confirm with your engineers those aspects that are pertinent for this project, although we understand that your preliminary response was that pavement durability was the major concern.

Based on our preliminary information from Texas Department of Transportation (TxDOT), American Association of State Highway and Transportation Officials (AASHTO) and asphalt contractors, we have learned that the specifications you provided are unusual requirements for structural pavement sections and not typical within the industry. We share your concern for durability and want to investigate asphalt design alternatives that are best suited for our industrial site application. Will you provide us with the information from your technical staff on example applications and/or projects on use of the asphalt specifications listed in your August 27th Remedial Design comments? In addition, it would also assist our engineers with their evaluation if you could furnish the design requirements for the asphalt base and sub-base material and the overall performance objectives for the example projects. The construction specification section of the Remedial Design Report incorporates the TxDOT *Standard Specifications for Construction of Highways, Streets and Bridges* as the construction standards for the Remedial Action implementation. We selected this approach because our experience has shown that conforming to industry standards for construction and design whenever possible promotes the opportunity to utilize qualified contractors and proven technology.

Your August 27th letter requested that we provide asphalt specifications for the Category II areas by October 26th. Our design process will require additional time and we are requesting an extension to complete the pavement design element. We anticipate that we will complete the asphalt pavement design by December 31, 2002 in conjunction with the major components of the Remedial Design. If it is more convenient to contact our design team for clarification of our request, please let me know.

Sincerely,



Lairy A. Johnson
Environmental Manager

Cc: Keith Hopson, Brown McCarroll – Austin
Arturo Burgos, Asarco Consulting, El Paso
Tom Klempel, Asarco Consulting, El Paso

October 27, 2002

Mr. Brad Wilkinson, Project Manager
Remediation Division
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

RE: Response to TCEQ August 27, 2002 Comments of *ASARCO, El Paso Copper Smelter Remedial Design Report* dated November 19, 2001 (TCEQ Industrial Solid Waste Registration No. 31235)

Dear Mr. Wilkinson:

As requested in your letter, we have provided a written response to each of your referenced comments. In addition we've incorporated responses to include the clarifications discussed in the September 9th meeting at the El Paso facility with representatives from the Texas Commission on Environmental Quality (TCEQ), the U.S.E.P.A. and ASARCO.

For ease of review, the comments included in the TCEQ letter are restated in bold type followed by ASARCO's response in italics.

We value your input into the Remedial Design process and we are attempting to include your requests into the design process as appropriate. Your comments address some of the basic elements of the landfill and capping concept so it is important that we expeditiously reach an agreement with you on these topics. In order to expedite the resolution of these outstanding issues pertaining to the landfill and asphalt pavement, we would like to schedule a meeting with you and your team, in the very near future. We would like to have our design team participate, and would anticipate that you would want your technical staff available as well. The goal of the meeting would focus on the concurrence regarding the AOC approach and the Category II capping scheduling. Before we can move forward on the final design of the landfill, we need clarification on the AOC approach. Once the AOC issue is resolved, the landfill design parameters can be defined; and the Category II sequence and schedule can be finalized.

We believe the remedial project has progressed to the phase where more dialogue is necessary to ensure a quality design with defined expectations for the TCEQ and ASARCO.

Should you have any questions, please contact me at (915) 541-1819.

Sincerely,

Lairy A. Johnson
Environmental Manager

Enclosure:

C:	Archie Clouse, TCEQ Region 6 – El Paso	w/ encl.
	Terry Sykes, EPA Region 6 – Dallas	w/ encl.
	Keith Hopson, Brown McCarroll L.L.P.– Austin	w/ encl.
	Arturo Burgos, ASARCO Consulting Inc. – El Paso	w/ encl.
	Scott Thomas, ASARCO – Phoenix	w/ encl.

ASARCO Responses to TCEQ Aug 27, 2002 Remedial Design Comments

1. **On Table 1-2 on page 1-9, ASARCO incorrectly identified a solid waste registration number as an operating number. Please correct the table.**

Table 1-2 will be corrected and included in an RD amendment.

2. **ASARCO proposes to pave with asphalt over the areas which contain “Category II” material, which may leach to groundwater. ASARCO has not provided physical specifications for the asphalt that will be used for the proposed paving project. The TNRCC agrees with the paving proposal provided the following TNRCC specifications are met. The asphalt for the paving must meet or exceed the following minimum specifications:**

Property	Units	Test Method	Specifications
Vertical Permeability	(cm/sec)	ASTM D-5084	< 1.0e-7
Void Space	(%)	ASTM D3203	< 2.5
Density	(lbs/ft ³)	ASTM D-2726	> 148
Shear Strength	(Kilo Pascals)	AASHTO TP-7	> 3.75
ASTM American Society for Testing Materials			
AASHTO American Association of State Highway and Transportation Officials			

ASARCO will begin the paving project no later than October 15, 2002 and complete the paving project no later than December 15, 2003.

Consistent with the Remedial Design Corrective Action approach, the asphalt pavement for Category II material allows the smelter to remain operational while accomplishing the remedial objectives for the facility. The asphalt pavement provides a low permeable cap to minimize surface water infiltration and a protective barrier to prevent surface soil contact by personnel on site.

As requested in our September 15th letter to you, we need additional time to complete our evaluation and design for the asphalt pavement. We estimate that we will be able to complete our recommendation, including appropriate specifications, by December 31, 2002. Thank you for the information on the MatCon™ product evaluated by the EPA through their SITE Program. We are including the MatCon™ product in our review process; however, the initial evaluation indicates that the MatCon™ product is not likely acceptable for our application because of the heavy industrial vehicle loads. There are other acceptable asphalt mix designs applicable to our site that meet some of the specifications you provided. We will attempt to incorporate as many of these parameters into our specification requirements as possible without jeopardizing the durability component of the pavement. We plan to incorporate the appropriate asphalt requirements you recommended into the Texas Department of Transportation (TxDOT) 1993 Standard Specifications for Construction of Highways, Streets and Bridges as the standards for materials and construction procedures. As we discussed in our September 9th meeting, we are preparing a revised paving schedule that includes pavement placement during 2003 in portions of the Category II areas. The area adjacent to the railroad tracks on the southern part of the plant is the area we propose to begin paving. Scheduling the paving for the other Category II areas

requires resolution of the AOC issues for the landfill. However, it is possible that pavement capping could also proceed in additional locations if the sequence and schedule are compatible with the landfill construction and the IBWC channel project.

- 3. The TNRCC agrees to the design and concept of the proposed Landfill. However, final approval will be contingent upon submission of an O&M plan and a groundwater monitoring and maintenance plan.**

ASARCO must submit to the TNRCC the written operation and maintenance (O&M) plan. The plan must include yearly cost estimates associated with the O&M of the landfill, and financial assurance from ASARCO demonstrating that there will be adequate funding for O&M of the landfill. ASARCO must submit to the TNRCC the written groundwater monitoring and maintenance plan. The plan must also include yearly cost estimates associated with groundwater monitoring and maintenance and include financial assurance from ASARCO demonstrating that there will be adequate funding for the groundwater monitoring and maintenance thereof.

Following TCEQ approval of the ASARCO AOC proposal submitted on September 23, 2002 the design for the landfill can proceed. An operations and maintenance plan (O&M) will be included with the landfill design submittal. The comprehensive, site-wide remedial groundwater monitoring plan will include a section for the landfill component. Estimated costs for the operation, maintenance and financial assurance

of the landfill and groundwater monitoring system will be prepared following completion of the final designs.

4. **The Remedial Design Report failed to include a proposed groundwater remedy. Please include a groundwater remedy in your response, which will include any and all actions ASARCO will take to ensure groundwater protection standards and any remedial closure approvals by offsite owners.**

Since 1998 ASARCO has focused on protection of the groundwater through the identification and isolation of source material. Our experience at other sites has proven that source control is key to an effective protection plan. We have already observed improving conditions at the El Paso site since decommissioning of on-plant process water ponds and completion of the storm water collection and reuse project. We expect this trend to continue, but we are also implementing the Phase IV Remedial Investigation (RI) which will focus on further investigation of the groundwater in the area between Paisano Dr. and the Rio Grande. As further conclusions become available from the Phase IV investigation, we will integrate that information into the evaluation of appropriate remedial alternatives.

The construction dewatering proposed by the IBWC for the rehabilitation of the American Canal has the potential to dramatically influence groundwater dynamics. We have been meeting with IBWC representatives to coordinate their construction activities with our investigation efforts.

5. **ASARCO must amend the Report to show that ASARCO has considered any short-term effectiveness of their proposed remedy according to 30 TEX. ADMIN. CODE § 335.562(e). The TNRCC is concerned that the International Boundary and Water Commission (IBWC) proposes to rehabilitate the American Canal through a major construction project. The TNRCC believes construction workers will be exposed to metals concentrations for which ASARCO is responsible, and that ASARCO has not considered these effects.**

ASARCO must submit an amendment to the Report to consider this matter. ASARCO's remedial action must accommodate the IBWC project and its timelines. The amended Report must deal appropriately with the contaminated media on IBWC property. Please note that IBWC has indicated that they do not want any deed restrictions on their property. This means that under the Risk Reduction Rules, that all media must meet background conditions (which have yet to be approved) or Practical Quantitation Limits (PQL). Finally, the attached letter shows IBWC's requested financial relief from ASARCO for the proper environmental treatment and disposal of contaminated media during IBWC's construction project. The amended Report must show that ASARCO has responded appropriately to this request.

We reviewed the IBWC's Conceptual Design Report and the Environmental Issues and Concerns Report completed by Montgomery Watson Harza (MWH). We

submitted a written response to IBWC on the environmental report but not the conceptual design document. As you're aware we did not agree with the conclusions on worker exposure; however, we met with the IBWC staff on September 8th and we were encouraged with our discussions on a comprehensive action plan for construction worker protection. ASARCO has considered the potential exposure of metals to construction workers associated with on-plant and off-plant projects and our remedial design includes reliable protective measures for both long term and short-term effectiveness as prescribed in 30 TEX. ADMIN. CODE § 335.562(c) and (e). We are developing a memorandum of understanding (MOU) with the IBWC that calls for preparation of an appropriate worker monitoring and protection plan and sets out the financial obligations of each party.

With respect to the IBWC conceptual design report, we met with IBWC and their consultant to discuss our observations relative to the conceptual design and ASARCO's potential involvement. We are committed to work with the IBWC on the American Canal rehabilitation project and intend to be involved with the planning before the project moves into the final design and construction phases. The IBWC project will certainly influence the implementation of our Phase IV and Remedial Design and we would like to explore the opportunity to coordinate our efforts for a mutual benefit. Our discussions with the IBWC have resolved IBWC and ASARCO's respective financial obligations for soil and groundwater issues.

The IBWC canal reconstruction project may impact our remedial design and implementation schedule, but we will attempt to incorporate these issues into our design prior to final submittal to TCEQ.

Robert J. Huston, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Kathleen Hartnett White, *Commissioner*
Margaret Hoffman, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 9, 2003

Mr. Thomas Aldrich
ASARCO, Vice President Environmental Affairs
2575 East Camelback Road
Suite 500
Phoenix, Arizona 86016-4240

CERTIFIED MAIL# 1759
RETURN RECEIPT REQUESTED

RE: ASARCO El Paso
Agreed Order Docket No. 96-0212-MLM-E
TCEQ Industrial Solid Waste Registration No. 31235
EPA ID No. TXD990757668

Dear Mr. Aldrich:

I am writing you concerning the environmental obligations of ASARCO to the state of Texas, notwithstanding ASARCO's recent settlement with the Department of Justice. ASARCO and the United States Department of Justice entered into a Consent Decree in *United States of America v. ASARCO, Inc. and Southern Peru Holdings Corporation*, case No. CV-02-2079-PHX-RCB in the United States District Court for the District of Arizona. The Court entered the Consent Decree on February 03, 2003. The Consent Decree specifies that the United States will not require ASARCO to incur environmental response costs in excess of certain specified amounts for the years 2003 through 2005. The Consent Decree also creates an Environmental Trust that ASARCO will fund for eight years, and from which an independent trustee will pay environmental response costs. The Consent Decree is between the United States and ASARCO. Paragraph No. 53 states that the Consent Decree does not alter or nullify a non-federal governmental entity's police and regulatory authority. Paragraph No. 43 states that the Consent decree does not modify any existing consent decree or administrative order. Paragraph No. 24 states that the annual budgets under the Environmental Trust shall not be in conflict with ASARCO's existing work obligations.

ASARCO is subject to all provisions of the TCEQ Agreed Order Docket No. 96-0212-MLM-E, despite statements made by Lairy Johnson, ASARCO's Environmental Plant Manager in El Paso, in his February 24, 2003 letter to Brad Wilkinson, TCEQ Corrective Action Section. Mr. Johnson stated that ASARCO's work required under the TCEQ's 1996 enforcement order is contingent upon

Mr. Thomas Aldrich
April 9, 2003
Page 2

funds being made available from the Environmental Trust created by the Consent Decree. This is contrary to the TCEQ's 1996 enforcement order and the October 1999 consent decree entered in *United States of America, and State of Texas v. Encycle/Texas, Inc. and ASARCO Incorporated*, case No. H-99-1136 in the United States District Court Southern District of Texas.

The TCEQ will work closely with ASARCO in meeting its environmental obligations in Texas. The TCEQ is aware of the procedures under the Consent Decree by which the Environmental Trust will fund specific corrective action work. For example, in February 2003 we provided information to Environmental Protection Agency, Region Six, to assist the United States as it quantified corrective action needs in Texas.

I would note that Mr. Johnson's letter contained welcome news, that ASARCO proposed to the Department of Justice full funding for the required corrective action measures in El Paso in 2003. Please let me know if there is any way the TCEQ can assist in this process.

Corrective Action Work at the ASARCO El Paso Facility

The remainder of this letter concerns the current status of ASARCO's corrective action work that is required by the August 1996 TCEQ order. Mr. Wilkinson, TCEQ Corrective Action Section, issued a letter dated February 21, 2003 to Mr. Johnson. Mr. Wilkinson's letter concerned the TCEQ's response to ASARCO's proposed work plan of January 30, 2003. Mr. Johnson then sent his letter dated February 24, 2002 that is discussed above. Based on this information, the TCEQ's directions are as follows:

1. ASARCO proposes to collect and analyze twelve samples to complete the Phase I characterization. The characterization plan is hereby approved. ASARCO is directed to submit to the executive director the results of the sampling, analysis, and characterization no later than April 22, 2003 (this is the same deadline as specified in Mr. Wilkinson's letter dated February 21, 2003). ASARCO shall also submit a map illustrating the results of the characterization by this deadline.
2. Asphalt/concrete paving project. The TCEQ has already approved and directed ASARCO to begin this work by October 15, 2002 and ASARCO has failed to comply with this direction. ASARCO shall begin this work no later than June 1, 2003. ASARCO shall submit a plan no later than April 28, 2003 specifying the dates for the beginning and end of the project. I would note that ASARCO discussed a new issue at the ASARCO meeting with TCEQ staff on December 17, 2002, that ASARCO proposes to recycle the minus 50 slag pile by its use in the asphalt mix. The TCEQ has not approved the use of the minus 50 slag pile in this manner. If ASARCO wishes to pursue this then ASARCO must submit a written plan that the TCEQ will review. In any case, the construction work must begin no later than June

Mr. Thomas Aldrich
April 9, 2003
Page 3

1, 2003 in accordance with plans that have been approved by TCEQ. If ASARCO wishes to start the project by June 1, 2003 using the minus 50 slag pile then ASARCO must immediately submit to TCEQ a plan.

3. Remedial Plan.

- a. The TCEQ has approved the concept of the proposed construction of an on-site landfill. The TCEQ believes that the final landfill design, operations and maintenance can and should be developed and submitted to the TCEQ before June 1, 2003. The TCEQ will also require a proposed schedule including beginning of construction, construction of cap, final closure, and post-closure monitoring period.
- b. ASARCO is directed to submit a proposed plan for groundwater remediation no later than 90 days from the date of this letter. If ASARCO continues to propose natural attenuation and to monitor dissolved metals on and off site, ASARCO must show the proposed remedy is consistent with TCEQ rules and policies. Specifically, ASARCO must submit documentation by the deadline that the impacted adjacent landowners agree to the remedy. The TCEQ notes that one adjacent landowner, the International Boundary Water Commission, has specifically stated to the TCEQ that it will not agree to deed recordation showing contamination on its property.

Finally, TCEQ has received ASARCO's Phase III report, and the TCEQ is currently reviewing that report.

ASARCO should send an original and one copy of each required submittal to the following address:

Brad Wilkinson, P. G.
Corrective Action Section, MC 127
Texas Commission on Environmental Quality
P. O. Box 13087
Austin, Texas 78711-3087

ASARCO should also send a copy to:

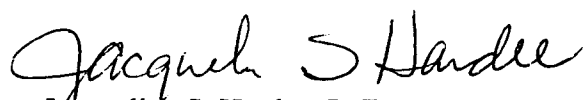
Waste Section Manager
Texas Commission on Environmental Quality
401 East Franklin Avenue, Suite 560
El Paso, Texas 79901-1206

All submittals should reference Solid Waste Registration No. 31235.

Mr. Thomas Aldrich
April 9, 2003
Page 4

It is the continuing obligation of persons associated with a site or facility to ensure that industrial solid wastes and/or municipal hazardous wastes are managed in such a way that it does not cause a discharge of wastes or an imminent threat of discharge, nor a nuisance or an endangerment to either human health or the environment as required by 30 TAC §335.4. Be advised that the burden remains upon the owner/operator to take necessary and authorized action to correct such conditions whenever they exist.

Sincerely,



Jacqueline S. Hardee, P. E.
Director, Remediation Section
Texas Commission on Environmental Quality

cc: Lairy Johnson
Environmental Manager
ASARCO Incorporated - El Paso
P. O. Box 1111
El Paso, TX 79999

Alfonso Benavidas
General Manager
Encycle/Texas, Inc.
P. O. Box 4767
Corpus Christi, Texas 78469

Keith Hopson
Brown, McCarroll & Oaks Hartline
111 Congress Avenue, Suite 1400
Austin, Texas 78701-4043

Brad Wilkinson, TCEQ, MC 127
Richard O'Connell, TCEQ, MC 175
Susan White, TCEQ, MC 175
Archie Clouse, TCEQ, MC R-6
Buddy Stanley, TCEQ, MC R-14

Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 1, 2005

Mr. Thomas Aldrich
ASARCO, Vice President Environmental Affairs
2575 East Camelback Road
Suite 500
Phoenix, Arizona 86016-4240

CERTIFIED MAIL # 8282
RETURN RECEIPT REQUESTED

Re: ASARCO Corrective Action Proposal - Conditional Approval
TCEQ SWR No. 31235
TCEQ Agreed Order Docket No. 96-0212-MLM-E
EPA ID No. TXD990757668

Dear Mr. Aldrich,

The Texas Commission on Environmental Quality (TCEQ) has worked closely with ASARCO to initiate on-site remediation at the El Paso Smelter. In a letter dated December 22, 2000, the TCEQ had concurred that ASARCO would develop a site-wide remediation plan utilizing the Area of Contamination (AOC) concept. Since then ASARCO has been providing details of the on-site remediation plan, based on the AOC concept, in documents dated May 2000, August 2000, June 21, 2002, August 2002, September 24, 2002, January 2003, April 25, 2003, August 20, 2003, and January 29, 2004. To accelerate the pace of remediation at the El Paso site, the TCEQ hereby conditionally approves ASARCO's remediation plan as detailed in the above referenced documents. This conditional approval is in accordance with Provision 7 of the TCEQ Agreed Order, Docket No. 96-0212-MLM-E, dated August 29, 1996.

Conditions of Approval

- Boundaries of the AOC are outlined in ASARCO April 25, 2003 letter to the TCEQ.
- Construction of the on-site landfill and cap shall be based on ASARCO Construction Technical Specifications On-Site Landfill, dated January 29, 2004.
- ASARCO shall provide the TCEQ with financial assurance for the closure and post-closure care of the on-site landfill. ASARCO shall determine the form and the amount of the required financial assurance in accordance with the provisions of 40 CFR 264, Subpart H, Financial Requirements. For the purposes of this condition, the on-site landfill is considered a "new facility".

- Capacity of the landfill shall be designed to accept all "Category I" material identified in ASARCO's Phase III Remedial Investigation Report, dated November 19, 2001. This material includes remediation waste that will be excavated from areas that failed TCLP in the April 2003 sampling event, other on-site wastes which are determined not to be Beville exempted, and any other waste approved by the TCEQ.
- ASARCO shall not terminate the remedial excavations until soil analytical sampling results demonstrate that concentrations protective of human health and the environment have been reached, pursuant to the Risk Reduction Rules or other Risk Reduction Rules adopted by the TCEQ. Excavated areas shall be backfilled to grade with clean soil.
- ASARCO shall comply with all substantive requirements of the Resource, Conservation and Recovery Act (RCRA) within the AOC, including, but not limited to, the requirements of 40 CFR 264, Subpart I (Use and Management of Containers) and Subpart J (Tank Systems). Excavated hazardous materials or wastes within the AOC shall not be staged or stored in containers or bins longer than one year. The accumulation start dates shall be posted on each bin or container. Excavation, consolidation, and management of AOC wastes within the AOC will not trigger the Land Disposal Restrictions provisions of RCRA.
- Category II areas displayed on Figure 2-2 in ASARCO El Paso Copper Smelter Remedial Design Report, dated November 2001, will be graded and covered with asphalt. Asphalt will meet the technical requirements outlined in the TCEQ letter, dated August 27, 2002.
- ASARCO shall have a minimum of five down-gradient and one up-gradient groundwater monitor wells surrounding the constructed on-site landfill. Wells will be sampled for RCRA metals and will be used for detection monitoring. Determination of a release will trigger an assessment and, if necessary, corrective action response.
- ASARCO shall install a groundwater remediation system which prevents metals above regulated Maximum Contaminant Levels (MCL) from migrating beyond ASARCO's property boundary since ASARCO does not have the authority to discharge contaminated groundwater onto the adjacent property.
- ASARCO shall ensure adequate dust suppression at all times during excavation activities.

Schedule of Implementation

1. Within 90 days from the date of this letter, ASARCO shall start the construction of the on-site landfill in accordance with the approved conditions. ASARCO shall complete construction of the on-site landfill within 275 days of the date of this letter.
2. The excavation and transfer of waste into the landfill will begin within 30 days after the deadline listed above for the completion of the construction of the on-site landfill. The excavation and transfer of wastes shall be completed no later than May 30, 2009.


Mr. Aldrich
Page 3
April 1, 2005

3. Construction of an approved cap/cover for the landfill shall begin within 90 days of any of the following two conditions occurs: 1) completion of excavation and disposal of waste into the landfill; or 2) the landfill has reached its maximum capacity. Cap/cover construction shall be completed within 180 days from the start of construction of the cap/cover.
4. The asphalt capping project shall be completed by March 30, 2010.
5. Authorization for the AOC will terminate on March 30, 2010, thereafter any excavation, transfer, treatment, storage, and disposal of wastes shall comply with existing rules and regulations.
6. Within 90 days from the date of this letter, ASARCO shall install a groundwater remediation system to prevent contaminated groundwater from migrating beyond ASARCO's boundary.

This authorization directs ASARCO to begin the implementation of the conditionally approved remediation plan within 90 days of the date of this letter, per Ordering Provision 7 of TCEQ's Agreed Order. A failure to comply with conditions of this letter or the Provisions of the Agreed Order will result in referral of this case to the State of Texas Attorney General's Office. Additionally, a noncompliance may result in revocation of the AOC option in favor of more conservative options under the Industrial and Hazardous Waste Program.

The facility name, location, and identification number(s) in the TCEQ reference line above should be included in all reports submitted to the TCEQ. Please call Brad Wilkinson at (512) 239-2350 if you need additional information. Thank you for your cooperation in this matter.

Sincerely,



Ata-Ur-Rahman, Ph.D.
Section Manager, Corrective Action Section
Remediation Division
Texas Commission on Environmental Quality

BW/bw

cc: Mr. Lairy Johnson, Environmental Manager, ASARCO Incorporated-El Paso
Ms. Terry Sykes, Senior Counsel, EPA Region 6, Legal RCRA Enforcement Branch-Dallas
Mr. Albert Bronson, Assistant Attorney General, State of Texas Attorney Generals Office
Waste Program Manager, TCEQ Region 6 Office, El Paso



April 22, 2005

Ata-Ur Rahman, Ph.D.
Section Manager, Corrective Action Section
Remediation Division
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

RE: Asarco El Paso -- Corrective Action Proposal
TCEQ SWR No. 31235
TCEQ Agreed Order Docket No. 96-0212-MLM-E
EPA ID No. TXD990757668

Dear Dr. Rahman:

In response to your April 1, 2005 letter, and incorporating the conclusions of our discussions at the April 11th meeting in Austin, I've provided a list of comments to your 10 bullet items of the *Conditions of Approval* and the *Schedule of Implementation*:

Conditions of Approval

- 1.) As discussed during the April 11th meeting, it appears there were several minor modifications to the Area of Contamination (AOC) map subsequent to the April 25, 2003 letter. We've enclosed the AOC figure (revised May 1, 2003) that we believe was the final version acceptable to both the TCEQ and Asarco. Please review for your concurrence.
- 2.) Asarco will proceed with the final design of the on-site landfill in accordance with the design parameters outlined in the *ASARCO Construction Technical Specifications: On-Site Landfill*, dated January 29, 2004. Based upon the siting conflict resulting from the Oglebay/Norton slag "fines" stockpile, it now appears we will be selecting a new location for the on-site cell(s). However, the design capacity and criteria will not change. Following TCEQ approval of the final landfill design, we will begin the contractor procurement process.
- 3.) ASARCO is aware of the requirements of contained in 40 CFR 264, Subpart H.
- 4.) The capacity of the landfill will be designed to accept all "Category I" material identified in ASARCO's Phase III Remedial Investigation Report (dated November 19, 2001) and delineated in the April 2003 TCLP sampling event.

- 5.) Extent of excavation of the Category I areas has been determined and are illustrated within the Phase III Remedial Design Report. The dimensions described are best available dependent on the data collected from the area. It is noted that upon completion of excavation the area will be filled in and in some instances capped. Those areas in which there may be interferences with the excavation will be addressed as if they were a Category II area.
- 6.) ASARCO will comply with the substantive requirements of RCRA within the AOC. If the excavation and placement process for the AOC requires longer than a one-year storage period as a result of construction logistics, ASARCO will request an extension from TCEQ.
- 7.) "Category II" material capped with asphalt will meet the technical requirements outlined in the TCEQ letter dated August 27, 2002. It is possible that some areas of the plant, and possibly the Smelertown area, could be capped with a soil protective barrier where placement of asphalt is not practical.
- 8.) ASARCO is committed to providing an up-gradient and down-gradient groundwater monitoring well system to evaluate the effectiveness of the landfill containment cells. ASARCO may request utilizing some of the existing monitoring well system, if the locations and construction are appropriate.
- 9.) ASARCO will continue the evaluation of groundwater remediation technologies and, once approved by TCEQ, implement the technology that is best suited for the situation. Several technologies were evaluated during the 2004 bench-scale testing. A pilot test is scheduled to begin during 2005.
- 10.) Dust suppression is an active part of the Plant operations and will continue to be required for future construction activities.

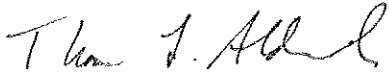
Schedule of Implementation

The implementation schedule has been revised and submitted with this letter to indicate what we believe are realistic time frames to complete the final design components, allow for the TCEQ review/approval process, procure a remedial contractor, and proceed with construction. This schedule follows closely with our discussions at the meeting in Austin. Although Asarco has proposed interim changes to the schedule, as stated at the meeting in Austin, Asarco will comply with the end date for completion (March 30, 2010) as directed by TCEQ.

We are pleased that the TCEQ has approved the ASARCO remedial approach for the El Paso facility and look forward to proceeding with this season's activities. I believe our

responses and comments accurately reflect the conclusions from our April 11th meeting but please contact me if you have any questions.

Respectfully,



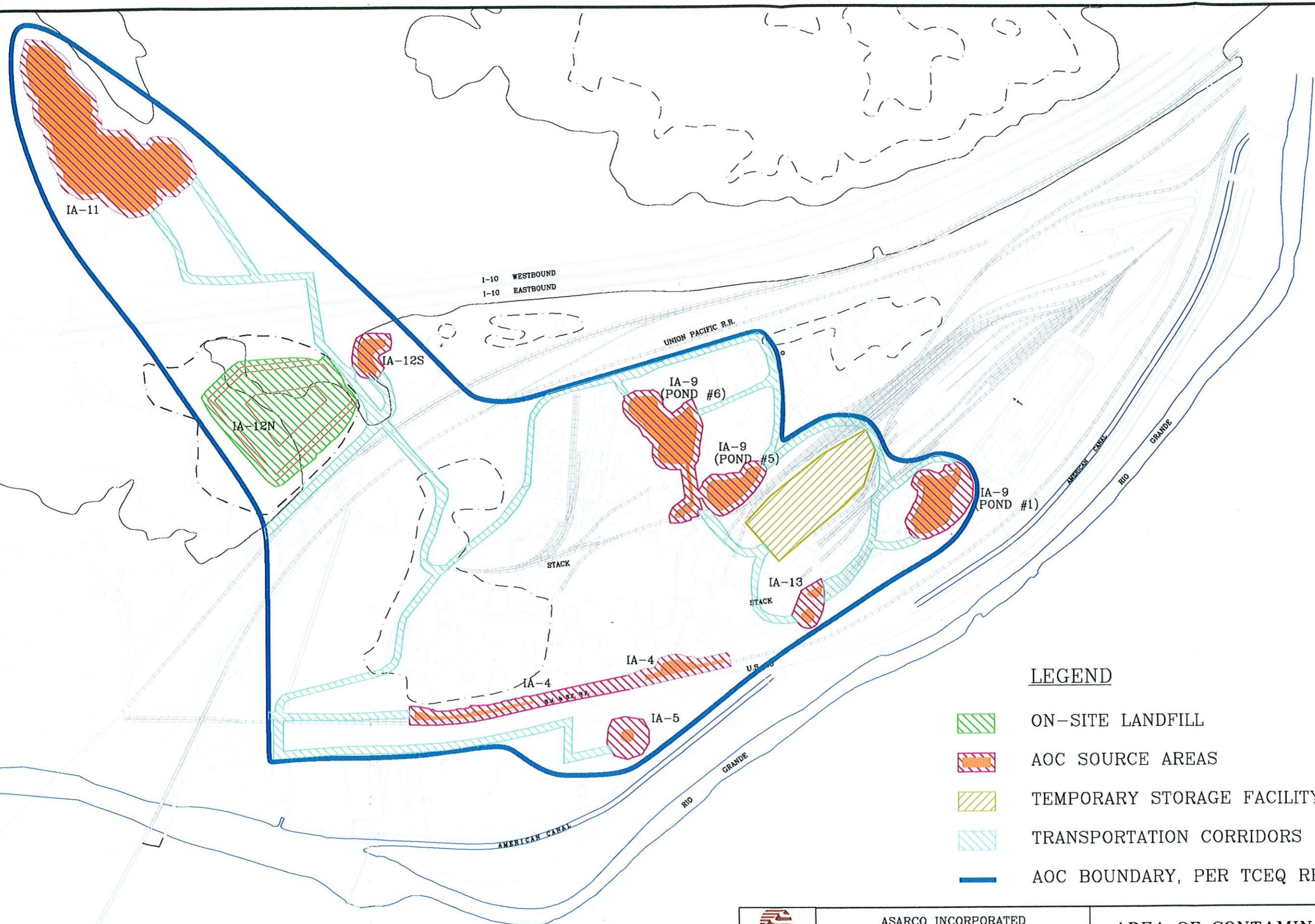
Thomas L. Aldrich
Vice President of Environmental Affairs

Encl.






Cc: Brad Wilkinson – TCEQ
Lairy Johnson – Asarco
Tom Klempel – Asarco
Thad Slaughter - ENTACT

Drawing Name: I:\1242\1242V201U017.DWG Last Modified: Apr 20, 2005 - 7:33am Plotted on: Apr 25, 2005 - 11:30am by MEDDY

UPDATE TIME: 12:00
000\1242\065\0180\TUC\042303\1242 1242V201U017



LEGEND

-  ON-SITE LANDFILL
-  AOC SOURCE AREAS
-  TEMPORARY STORAGE FACILITY
-  TRANSPORTATION CORRIDORS
-  AOC BOUNDARY, PER TCEQ RECOMMENDATION



ASARCO INCORPORATED
EL PASO COPPER SMELTER
EL PASO, TEXAS

AREA OF CONTAMINATION (AOC)
LOCATIONS AND BOUNDARY

FIGURE
1

ID	Task Name	Duration	Start	Finish	2006			2007				2008				2009				2010					
					Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2				
1	Remedial plan aproach	21 days	Fri 4/1/05	Fri 4/29/05																					
2	Finalize 2005 Budget	23 days	Mon 5/2/05	Wed 6/1/05																					
3	Complete Design for Landfill	134 days	Wed 6/1/05	Mon 12/5/05																					
4	TCEQ approval process	67 days	Wed 6/1/05	Thu 9/1/05																					
5	Bid Process	44 days	Fri 9/2/05	Wed 11/2/05																					
6	Award Bid	23 days	Thu 11/3/05	Mon 12/5/05																					
7	GW Pilot/treatment Test	523 days	Wed 6/1/05	Fri 6/1/07																					
8	Excavation of Category I materials	783 days	Mon 4/3/06	Wed 4/1/09																					
9	Construct Landfill Cells	1111 days	Mon 1/2/06	Mon 4/5/10																					
10	build cell 1	195 days	Mon 1/2/06	Fri 9/29/06																					
11	fill cell 1	371 days	Mon 10/2/06	Mon 3/3/08																					
12	build cell 2	197 days	Mon 10/1/07	Tue 7/1/08																					
13	cap cell 1	158 days	Tue 3/4/08	Thu 10/9/08																					
14	fill cell 2	306 days	Wed 7/2/08	Wed 9/2/09																					
15	cap cell 2	153 days	Thu 9/3/09	Mon 4/5/10																					
16	Implement category II capping	1131 days	Thu 9/1/05	Thu 12/31/09																					
17	pave cat II area - 1 acre	87 days	Thu 9/1/05	Fri 12/30/05																					
18	pave remaining category II areas	936 days	Thu 6/1/06	Thu 12/31/09																					

Project: remedial design schedule 20C
Date: Mon 4/25/05

Task		Progress		Summary		Rolled Up Split		Rolled Up Progress		Project Summary	
Split		Milestone		Rolled Up Task		Rolled Up Milestone		External Tasks			

Kathleen Hartnett White, *Chairman*
R. E. Ralph, *Maricopa Commissioner*
Larry R. Soward, *Commissioner*
Gavin Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

RECEIVED

JUN 1 2005

May 20, 2005

ASARCO INC.
3125 EAST PLANT
ENVIRONMENTAL

Mr. Thomas Aldrich
ASARCO, Vice President Environmental Affairs
2575 East Camelback Road
Suite 500
Phoenix, Arizona 86016-4240

CERTIFIED MAIL # 8855
RETURN RECEIPT REQUESTED

Re: ASARCO Corrective Action Proposal - Conditional Approval
TCEQ SWR No. 31235
TCEQ Agreed Order Docket No. 96-0212-MLM-E
EPA ID No. TXD990757668

Dear Mr. Aldrich,

The Texas Commission on Environmental Quality (TCEQ) is reissuing the April 1, 2005 remediation directives with modifications after meeting with ASARCO and reviewing ASARCO's response dated April 22, 2005. The modifications appear in bold in the following original TCEQ remedial directives.

Conditions of Approval

- Modified **boundaries of the AOC** are designated in the attached map (Attachment I).
- Construction of the on-site Landfill and cap shall be based on ASARCO Construction Technical Specifications On-Site Landfill, dated January 29, 2004. ASARCO will finalize the on-site landfill location and design and submit their proposal to the TCEQ for review by December 15, 2005. The final design of the landfill shall include cost estimates for operation, management, and monitoring of the Landfill.
- ASARCO shall provide the TCEQ with financial assurance for the closure and post-closure care of the on-site landfill. ASARCO shall determine the form and the amount of the required financial assurance in accordance with the provisions of 40 CFR 264, Subpart H, Financial

Requirements. For the purposes of this condition, the on-site landfill is considered a "new facility". ASARCO shall provide the financial assurance before placement of waste in the Landfill, but not later than September 15, 2006.

- Capacity of the landfill shall be designed to accept all "Category I" material identified in ASARCO's Phase III Remedial Investigation Report, dated November 19, 2001 and delineated in the April 2003 TCLP sampling event. This material includes remediation waste that will be excavated from areas that failed TCLP in the April 2003 sampling event, other on-site wastes which are determined not to be Bevill exempted, and any other waste approved by the TCEQ.
- ASARCO shall not terminate the remedial excavations until soil analytical sampling results demonstrate that concentrations protective of human health and the environment have been reached, pursuant to the Risk Reduction Rules or other Risk Reduction Rules adopted by the TCEQ. For areas in which there may be interferences with the remedial excavation, ASARCO will need to propose an alternative remedy and have the remedy approved by the TCEQ. Excavated areas shall be backfilled to grade with clean soil. Some of these areas may have to be capped to protect human health and the environment.
- ASARCO shall comply with all substantive requirements of the Resource, Conservation and Recovery Act (RCRA) within the AOC, including, but not limited to, the requirements of 40 CFR 264, Subpart I (Use and Management of Containers) and Subpart J (Tank Systems). Excavated hazardous materials or wastes within the AOC shall not be staged or stored in containers or bins longer than one year. If the waste placement process for the AOC requires storage longer than a one-year period as a result of construction logistics, ASARCO will provide justifiable reason(s) and request an extension from the TCEQ. The accumulation start dates shall be posted on each bin or container. Excavation, consolidation, and management of AOC wastes within the AOC will not trigger the Land Disposal Restrictions provisions of RCRA.
- Category II areas displayed on Figure 2-2 in ASARCO El Paso Copper Smelter Remedial Design Report, dated November 2001, will be graded and covered with asphalt. Asphalt will meet the technical requirements outlined in the TCEQ letter, dated August 27, 2002. Figure 2-2 is provided in this letter as Attachment 2.
- ASARCO shall have a minimum of five down-gradient and one up-gradient groundwater monitor wells surrounding the constructed on-site landfill. Wells will be sampled for RCRA metals and will be used for detection monitoring. Determination of a release will trigger an assessment and, if necessary, corrective action response. ASARCO may propose utilizing

some of the existing monitor wells for detection monitoring provided that the well(s) location and construction details are technically approved.

- ASARCO shall install a groundwater remediation system which prevents metals above regulated Maximum Contaminant Levels (MCL) from migrating beyond ASARCO's property boundary since ASARCO does not have the authority to discharge contaminated groundwater onto any adjacent property.
- ASARCO shall ensure adequate dust suppression at all times during excavation activities.

Schedule of Implementation

1. ASARCO shall submit to the TCEQ the final design of ASARCO's on-site Landfill by December 15, 2005. Construction of the on-site Landfill Cell 1 in accordance with the approval or approval with conditions shall begin by March 15, 2006. ASARCO shall complete construction of the on-site Landfill Cell 1 by September 15, 2006. ASARCO shall complete construction of any remaining Landfill cells by June 30, 2009.
2. The excavation and transfer of waste into Landfill Cell 1 will begin within 30 days after completion of the construction of the on-site Landfill Cell 1. The excavation and transfer of all wastes shall be completed no later than June 30, 2009.
3. Construction of an approved cap/cover for the landfill shall begin within 90 days of any of the following two conditions occurs: 1) completion of excavation and disposal of waste into Landfill; or 2) the individual Landfill cell(s) has reached its maximum capacity. Cap/cover construction shall be completed within 180 days from the start of construction of the cap/cover.
4. The asphalt capping project shall be completed by March 30, 2010.
5. Authorization for the AOC will terminate on March 30, 2010, thereafter any excavation, transfer, treatment, storage, and disposal of wastes shall comply with existing rules and regulations.
6. ASARCO shall start an initial groundwater remediation system to prevent contaminated groundwater from migrating beyond ASARCO's boundary by July 30, 2005. ASARCO shall evaluate the groundwater remediation system every 6 months toward the ultimate goal of preventing all metals above MCLs from migrating beyond ASARCO's property boundary. ASARCO shall submit evaluation of the groundwater remediation system to the TCEQ for approval or comments/additions to the groundwater remediation

Mr. Aldrich
Page 4
May 20, 2005

system. ASARCO may expand their groundwater remediation system without TCEQ's formal approval. Reducing the remediation system or changing the groundwater remedy needs TCEQ approval.

This authorization directs ASARCO to begin the implementation of the conditionally approved remediation plan by **June 30, 2005**, per Ordering Provision 7 of TCEQ's Agreed Order. A failure to comply with any condition of this letter or the Provisions of the Agreed Order will result in referral of this case to the State of Texas Attorney General's Office. Additionally, a noncompliance may result in revocation of the AOC option in favor of more conservative options under the Industrial and Hazardous Waste Program.

The facility name, location, and identification number(s) in the TCEQ reference line above should be included in all reports submitted to the TCEQ. Please call Brad Wilkinson at (512) 239-2350 if you need additional information. Thank you for your cooperation in this matter.

Sincerely,



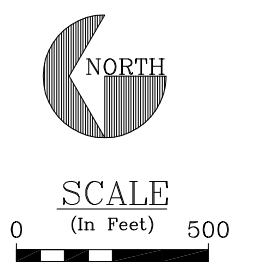
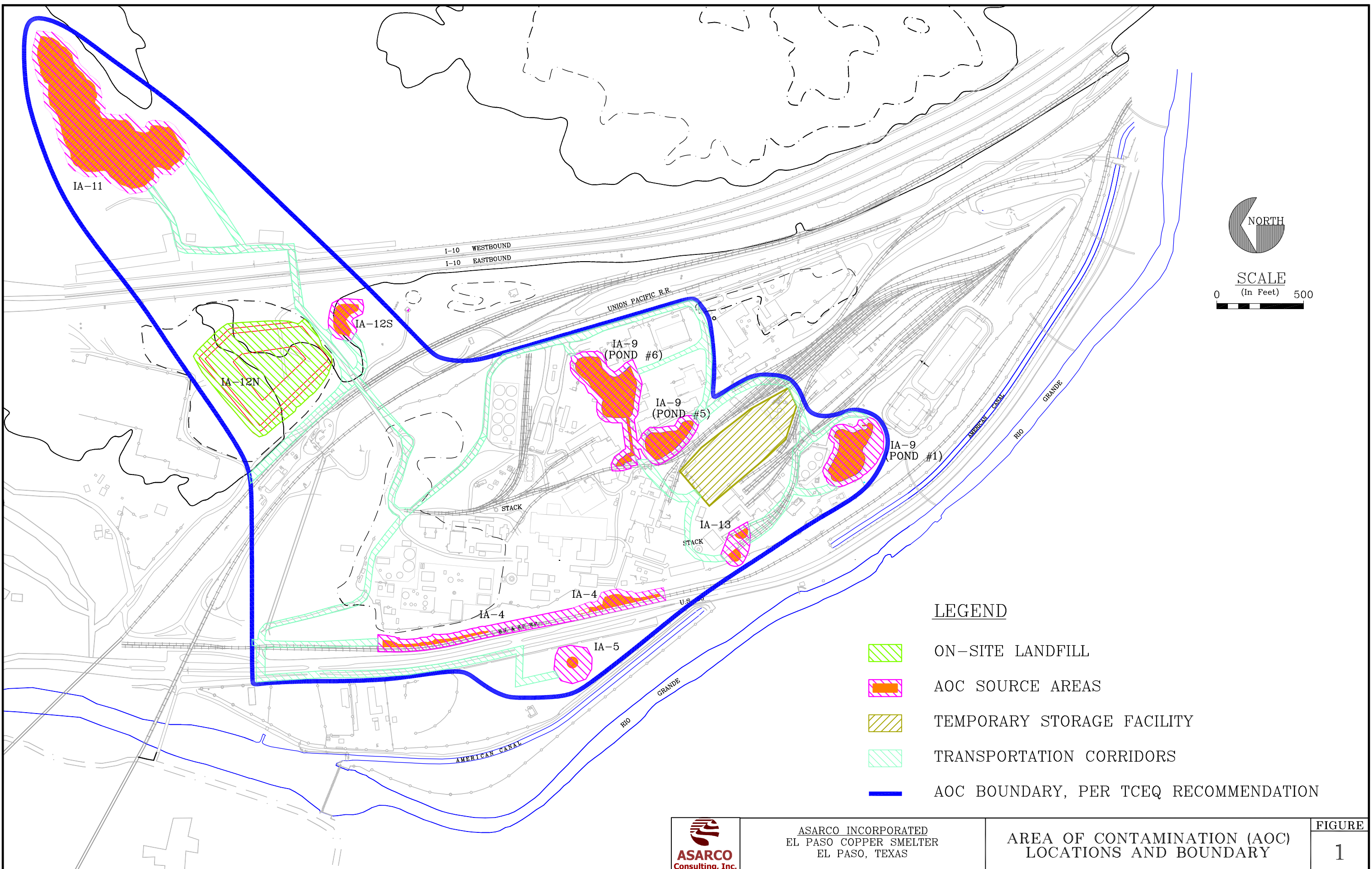
Ata-Ur-Rahman, Ph.D.
Section Manager, Corrective Action Section
Remediation Division
Texas Commission on Environmental Quality

BW/bw






Attachments

cc: Mr. Lairy Johnson, Environmental Manager, ASARCO Incorporated-El Paso
Ms. Terry Sykes, Senior Counsel, EPA Region 6, Legal RCRA Enforcement Branch-Dallas
Albert Bronson, Assistant Attorney General, State of Texas Attorney Generals Office
Waste Program Manager, TCEQ Region 6 Office, El Paso

Drawing Name: I:\1242\1242V201U017.DWG Last Modified: May 01, 2003 - 4:28pm Plotted on: Jul 21, 2003 - 11:28am by MEDDY



LEGEND

-  ON-SITE LANDFILL
-  AOC SOURCE AREAS
-  TEMPORARY STORAGE FACILITY
-  TRANSPORTATION CORRIDORS
-  AOC BOUNDARY, PER TCEQ RECOMMENDATION



ASARCO INCORPORATED
 EL PASO COPPER SMELTER
 EL PASO, TEXAS

AREA OF CONTAMINATION (AOC)
 LOCATIONS AND BOUNDARY

FIGURE
 1

June 26, 2006

Mr. Brad Wilkinson
TCEQ - Remediation Division
12100 Park 35 Circle – Bldg D
Austin, TX 78753

RE: Asarco El Paso – Landfill Financial Assurance

Dear Brad:

Please find enclosed for your review and approval the financial assurance cost calculation spreadsheet (dated 6/26/06) for the AOC landfill post-closure care activities. We expanded the TCEQ template to incorporate the groundwater monitoring requirements and specific annual inspection and maintenance tasks associated with the proposed asphalt cap. Based upon the actual construction quantities to-date, it appears that Cell #1 (Pond 1) will be capable of containing the entire volume of Category I material. If necessary, we have the ability to utilize Cell #2 (Pond 5) for Category I encapsulation also. The post-closure care costs include the effort associated with Cell #1 and #2 activities.

As required by the TCEQ May 20, 2005 letter, our post-closure detection monitoring plan includes a minimum of one (1) up-gradient well and five (5) down-gradient wells. These wells are already constructed and are part of the on-going Remedial Investigation (RI) ground water monitoring program. As mandated by 40 CFR 264 Subpart H, and other applicable referenced subparts, we've calculated the annual cost in current dollars utilizing third-party contractors.

Currently, ASARCO LLC has provided financial assurance to the State of Texas for the copper refinery in Amarillo, TX in the form of a trust. In speaking with Rob Norris of the TCEQ, it may be possible to modify and expand this existing trust to accommodate the additional \$109,600 financial obligation for the El Paso facility as well. In any case, ASARCO LLC is prepared to immediately provide the acceptable assurance mechanism as soon as we receive your approval. The on-plant 2006 remedial activities are moving forward but we have a very aggressive schedule to comply with the TCEQ May 20th milestones.

Thank you for your assistance and if you have any questions or need additional information, please don't hesitate to contact me at (520) 798-7796.

Sincerely,

Thomas Klempel

Encl.

C: Lairy Johnson w/encl.

El Paso On-Site Landfill Financial Assurance Calculation (6/26/06)

Ground Water Monitoring

Annual Sampling and Analysis Cost

Background wells

Number of wells (Cell #1 - EP 107; Cell #5 - EP 69)	2	
Sample analysis cost per well	150	\$/well
Number of sampling events per year	2	/yr
Sampling cost	600	\$

Detection wells

Number of wells (Cell #1 - EP 12, 13 and 14; Cell #5 - EP 56 and 77)	5	
Sample analysis cost per well	125	\$/well
Number of sampling events per year	2	/yr
Sampling cost	1250	\$

Sampling labor Cost

Hours of sampling per well	3	hrs/well
Number of sampling technicians per well	2	
Charge per hour	105	\$/hr
Total number of wells to be sampled annually	0	wells
Total number of wells sampled semi-annually	6	wells
Total number of wells sampled quarterly	0	wells
Total number of wells sampled monthly	0	wells
Sampling Labor Cost	3780	\$

Annual Ground-Water Monitoring Cost

\$5,630.00

Landfill Cap O&M

Annual Inspections - Cap Cell Systems (visual)

Number of cell caps	2	
Number of sampling events per year	1	/yr
Cost per cell	350	\$
Sampling cost	700	\$

Annual maintenance - Asphalt Crack Repair

Estimated linear feet per year	250	lf
Cost per linear foot	4	\$
Repair costs	1000	\$

Annual Landfill Cap O&M Cost

\$1,700.00

Administration

Documentation and reporting	1500	\$
-----------------------------	------	----

Annual Administration Cost

\$1,500.00

Financial Assurance Summary

Annual Ground-Water Monitoring Cost	\$5,630.00
Annual Inspection and Maintenance Cost for the Landfill Cap System	\$1,700.00
Annual Administration and Project Management	\$1,500.00
ANNUAL SUBTOTAL	\$8,830.00

Total Years Used for Calculating Financial Assurance	30	yrs
Present Value(PV) @ $i=7%$ and $n=30$ yrs	\$109,571.83	



November 16, 2007

Mr. Mark Stuebner
Financial Assurance Section MC-184
Texas Commission on Environmental Quality
Box 13087
12100 Park 35 Circle
Austin, TX 78711-3087

RE: ASARCO LLC/JP Morgan Chase – Trust Agreement
Account No. 380681

Dear Mr. Stuebner:

ASARCO LLC has increased the Trust Agreement funding to include additional financial assurance to the Texas Commission on Environmental Quality (TCEQ) for the on-site landfill (Cell #1) closure activities at the Asarco Smelter located in El Paso, TX.

The additional financial assurance trust amount is \$109,572 as determined in the attached *Financial Assurance Calculation* spreadsheet dated June 26, 2006. Also, attached are the updated Schedule A and Schedule B.

Please feel free to contact me at 602-977-6513 if you have any questions.

Sincerely,

Donald A. Robbins
Director of Environmental Services

Cc: Larry Castor
Pat Donovan
Tom Klempel

Schedule A

ASARCO LLC
(Revised 11/16/07)

Trust Agreement dated 10/10/01 by and between ASARCO LLC (Grantor) and JPMorgan Chase Bank (Trustee), Account No. 380681.

Permit No: WDW 129

Permit Name: ASARCO LLC

Physical and Mailing Address: (physical)

Highway 136
9 miles NE of Amarillo
Amarillo, TX 79107

(mailing)

Box 30200
Amarillo, TX 79120-0200

Current Cost Estimate (Closure): \$ 190,122

Permit No: WDW 273

Permit Name: ASARCO LLC

Physical and Mailing Address: same as above

Current Cost Estimate (Closure): \$ 190,122

Permit No: WDW 324

Permit Name: ASARCO LLC

Physical and Mailing Address: same as above

Current Cost Estimate (Closure): \$ 188,529

Permit No: SWR 31235

Agreed Order Docket No: 96-0212-MLM-E

EPA ID No: TXD990757668

Permit Name: ASARCO LLC

Physical and Mailing Address: (physical)

2301 W. Paisano Drive
El Paso, TX 79913

(mailing)

P.O. Box 1111
El Paso, TX 79999

Current Cost Estimate (Closure): \$ 109,572

Total Cost Estimate: \$ 678,345

Trust Balance as of 11/16/07 \$ 701,218

ASARCO LLC (Grantor)

JPMorgan Chase Bank (Trustee)

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

Schedule B

ASARCO LLC
(Revised 11/16/07)

Trust Agreement dated 10/10/1 by and between ASARCO LLC (Grantor) and JPMorgan Chase Bank (Trustee), Account No. 380681.

Cost of Closure Balance and breakout as follows:

UIC Permits

(WDW No. 129)	\$ 190,122
(WDW No. 273)	\$ 190,122
(WDW No. 324)	\$ 188,529

TCEQ Agreed Order

Landfill Cell #1	\$ 109,572
------------------	------------

Total Trust Funds Required	\$ 678,345
-----------------------------------	-------------------

Trust Balance as of 11/16/07	\$ 701,218
-------------------------------------	-------------------

ASARCO LLC (Grantor)

JPMorgan Chase Bank (Trustee)

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____



MEMORANDUM

Date: February 7, 2008
To: Brad Wilkinson
From: Tom Klempel
C: Arturo Burgos
Subject: El Paso – 2008 Remedial Action Status

Attached are two figures (Exhibit 1 and 2) showing the progress for the Source Area excavation (Category I) and the Asphalt Pavement capping (Category II).

We have excavated 197,522 cubic yards (cy) of Category I material and placed in the on-site landfill cells in accordance with the conditions of the AOC. We estimate that the remaining 66,370 cy will be excavated and placed in the cells by July of this year. The original estimated volume for Category I material was 157,400 cy.

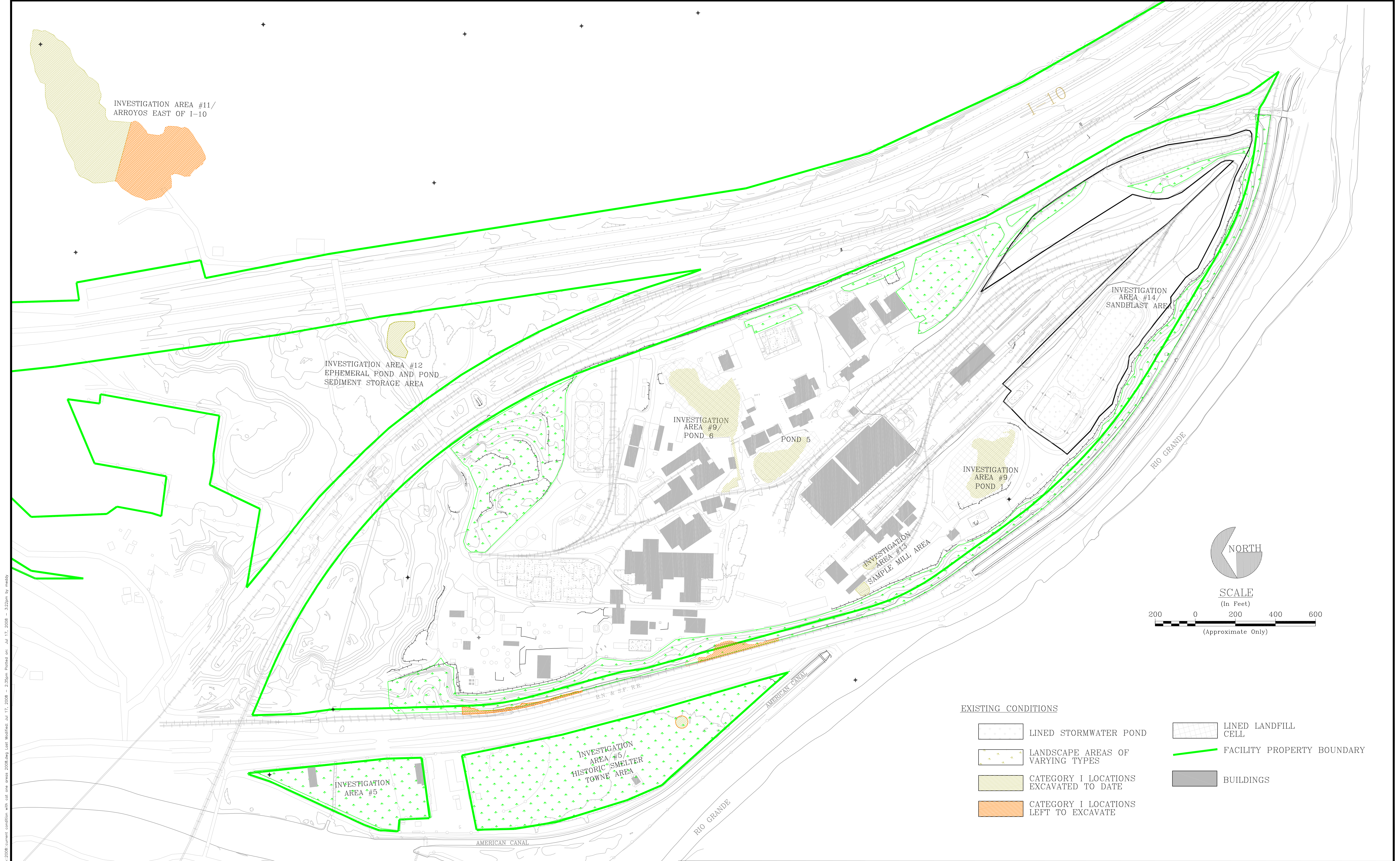
We have also completed 22 acres of low-permeable asphalt capping of Category II areas in accordance with TCEQ asphalt design requirements. The estimated remaining 16 acres of Category II capping consists of railroad track areas, isolated areas and small, access-restricted areas beneath and around structures. We anticipate completing the paving in 2009, but not later than March of 2010.

In addition to the Category I and Category II remedial construction activities completed since 2005, our technical consultants are scheduled to complete the design and begin construction of active groundwater treatment systems this year. We're scheduled to install the pump and treat pilot test well this spring and then continue with the full-scale well field and water treatment plant late in 2008 and into 2009. We're also hoping to

proceed with the construction of the flood plain slurry wall late this year also. However, we recognize this is a very aggressive goal considering the necessity to coordinate this activity with the IBWC.

Our consultants are assisting us with the preparation of addition submittals per your request and we hope to have this completed soon.

Please feel free to contact me if you have any questions or need additional information.



INVESTIGATION AREA #11/
ARROYOS EAST OF I-10

INVESTIGATION AREA #12
EPHEMERAL POND AND POND
SEDIMENT STORAGE AREA

INVESTIGATION AREA #9/
POND 6

POND 5

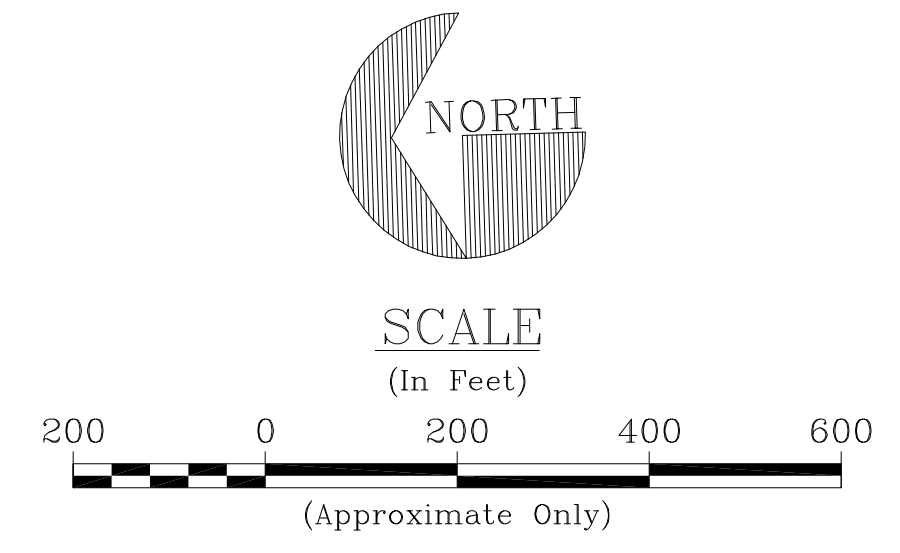
INVESTIGATION AREA #9/
POND 1

INVESTIGATION AREA #14
SANDBLAST AREA

INVESTIGATION AREA #13
SAMPLE MILL AREA

INVESTIGATION AREA #5

INVESTIGATION AREA #5/
HISTORIC SMELTER
TOWNE AREA



EXISTING CONDITIONS

- LINED STORMWATER POND
- LINED LANDFILL CELL
- LANDSCAPE AREAS OF VARYING TYPES
- FACILITY PROPERTY BOUNDARY
- CATEGORY I LOCATIONS EXCAVATED TO DATE
- BUILDINGS
- CATEGORY I LOCATIONS LEFT TO EXCAVATE

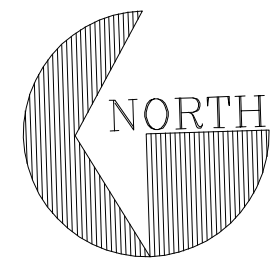
Drawing Name: R:\Detail\paso\2008\current\condition with cat one.dwg
 Update Time: 14:00
 0001\epaso\GTE\WORKING\TUC01\18\01\draft\elpaso\2008



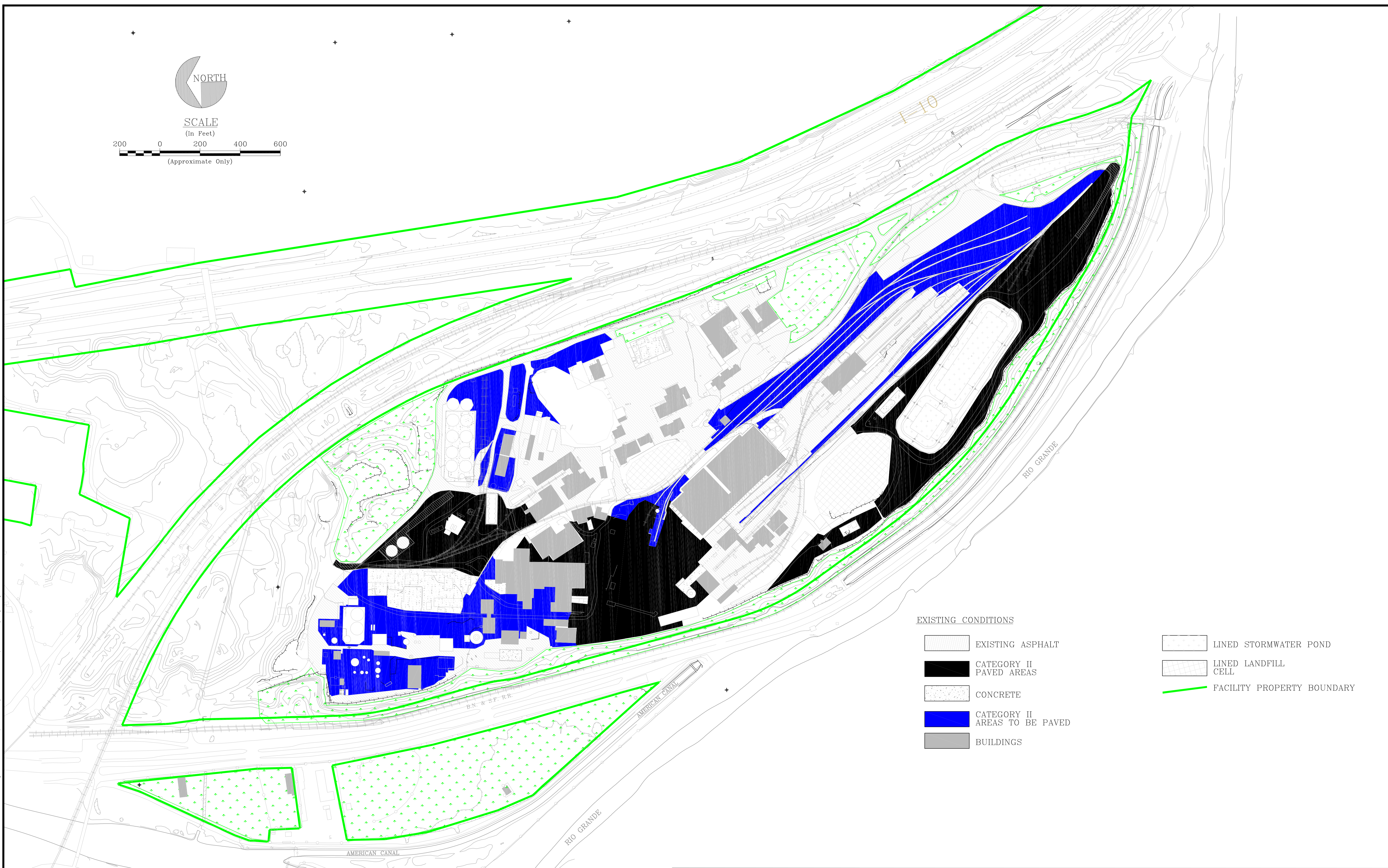
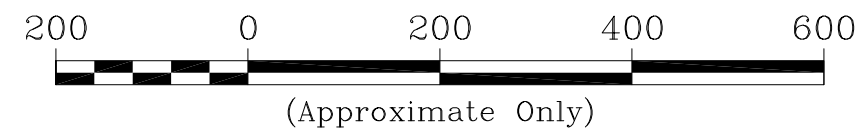
Tucson, Arizona 85705
180 N. 7th Ave.
(520) 788-7500

EL PASO FACILITY
CATEGORY I LOCATIONS

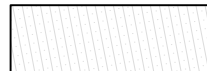

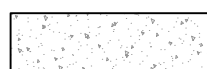


DRAWING FILE NUMBER
TUC 1
AUTOCAD REL. 14 DRAWING (DWG)
EXHIBIT
1






SCALE
(In Feet)



EXISTING CONDITIONS

-  EXISTING ASPHALT
-  CATEGORY II PAVED AREAS
-  CONCRETE
-  CATEGORY II AREAS TO BE PAVED
-  BUILDINGS

-  LINED STORMWATER POND
-  LINED LANDFILL CELL
-  FACILITY PROPERTY BOUNDARY

Drawing Name: R:\Detail\el paso\2007\current condition with cat ii areas.dwg Last Modified: Feb 07, 2008 1:24pm Plotted on: Feb 07, 2008 1:54pm by meddy
UPDATE TIME: 14:00
0000\epasa\GTE\WME\TJM\01/18/07\eruff\elpako\2006



Tucson, Arizona 85705
160 N. 7th Ave.
(520) 788-7500

EL PASO FACILITY
CATEGORY II LOCATIONS

DRAWING FILE NUMBER
TUC 2
AUTOCAD REL. 14 DRAWING (DWG)
EXHIBIT

Appendix A Correspondence

A.2 Correspondence Regarding IBWC American Canal Reconstruction

MEMORANDUM

DATE: January 8, 2002

TO: Arturo Burgos

FROM: Steve Ackerlund

SUBJECT: Worker Exposure to Lead and Arsenic During American Canal Reconstruction

This memorandum clarifies worker exposure issues addressed in “Conceptual Design Study of Replacement Canal Lining American Canal, American Dam to International Dam” prepared by Montgomery Watson Harza, October 15, 2001. As I understand the report, intentions are to remove three to five feet of soil from both sides of the canal to protect workers from excessive exposure to lead and arsenic during construction. The soils may be backfilled if successfully treated to stabilize metals. However, these requirements are unnecessary for the following reasons:

- The industrial screening levels referenced in Section 4.1.1 are not applicable to construction work. The risk-based industrial screening levels assume longer-term, lifetime type exposure, and accordingly chronic toxicity considerations. (Incidentally, the more commonly used industrial standard for arsenic in the State of Texas is 200 mg/kg established by the TNRCC.)
- Construction work will need to be conducted in accordance with OSHA guidelines as identified in Section 5.0. The primary concerns for construction workers are short-term exposure and acute toxicity from relatively higher concentrations. In Hydrometrics experience, construction activities may take place in soils containing lead up to 20,000 mg/kg without compromising worker safety or exceeding OSHA requirements. Cadmium often presents more stringent worker health and safety requirements to comply with OSHA regulations. A site health and safety program is necessary, which will likely include dust control, ambient air monitoring, use of appropriate personal protective equipment, and other controls.
- The purpose of stabilization of metals in soils identified in Section 6.0 is unclear. Stabilization does not address the potential for exposure to wind generated dust. Stabilization methods are appropriate to prevent metals leaching from soils by rainwater under certain environmental conditions; however, the arid climate of the site generally precludes the need for stabilization. Insufficient information is available to understand why stabilization is requested and what benefit stabilization would provide.

January 28, 2002

Ms. Sylvia A. Waggoner
Division Engineer, Environmental Management Division
International Boundary and Water Commission
The Commons, Building C, Suite 310
4171 Mesa Street
El Paso Texas 79902

**Re: Technical Memorandum: Environmental Issues and Concerns Report
 Prepared by Montgomery Watson Harza (MWH) for the International
 Boundary and Water Commission (IBWC).**

Dear Ms. Waggoner:

We are in receipt of your letter dated December 7, 2001 and the ***“Technical Memorandum: Environmental Issues and Concerns”*** Report prepared by Montgomery Watson Harza (MWH) for the International Boundary and Water Commission (IBWC). After a careful review of the information provided in the Report, Hydrometrics, Inc, has determined that the arsenic and lead soil concentrations observed during the investigation will not pose any threat to construction workers working to excavate and remove soils along the proposed American Canal Right of Way (ROW).

The industrial screening levels referenced in Section 4.1.1 of the Report are not applicable to construction work. The risk-based industrial screening levels assume longer-term, lifetime type exposure. Accordingly, acute toxicity standards are those appropriate for construction type of exposure. Construction work will need to be conducted in accordance with OSHA guidelines as identified in Section 5.0 of the Report.

Please find attached a summary of select statements and conclusions presented in the Report by MWH. These provisions are followed by observations made by Hydrometrics, Inc.

Please feel free to contact me regarding any of the information included in this letter. My telephone number is (915) 541-1819.

Sincerely,

Lairy Johnson
Environmental Manager

Attachment: see attached

Cc: Scott Thomas, Senior Attorney, Asarco
Larry Castor, El Paso Plant Manager, Asarco
Duane Yantorno, Director of Environmental Services, Asarco Copper Operations.
Don Robbins, Director of Environmental Services, Asarco Closed Plants
Rodolfo Rubio, Vice-President of Technical Services, Asarco
Keith Hopson-Brown McCarroll L.L.P.
Tom Klempel, Hydrometrics, Tucson.
Arturo Burgos Hydrometrics, El Paso

Summary of Statements and Conclusions presented in the Report by MWH

1. The purpose of the study was to quickly summarize analytical results for soil and groundwater and to evaluate whether special considerations for environmental issues would be required during construction activities associated with the American Canal project.
2. Sampling results were used to evaluate potential worker exposure during construction and to evaluate the need for specialized permits and disposal requirements for potential contaminated soil and groundwater.
3. During field activities, eighteen environmental/geotechnical borings, seven of which were converted to monitor wells, were installed along the American Canal Right Of Way (ROW).
4. Soil samples were obtained and analyzed for VOCs, SVOCs, and RCRA metals. Water samples were analyzed for TPH, BTEX, PAHs and RCRA metals.
5. Forty-four soil and seven groundwater samples were obtained for laboratory analysis. Laboratory reports indicated a maximum soil arsenic and lead concentrations of 597 mg/kg and 3,500 mg/kg, respectively. Water samples indicated a maximum arsenic and lead concentrations of 1.84 mg/L and 0.51 mg/L, respectively.
6. Concentrations observed were compared to EPA Region 6 Human Health Risk-Based (HHRB) screening levels for residential and industrial land uses.
7. The EPA HHRB screening values for residential and industrial land uses are 0.39 mg/kg and 2 mg/kg for arsenic, 400 mg/kg and 2,000 mg/kg for lead, and 39 mg/kg and 630 mg/kg for cadmium, respectively.
8. Forty-four samples exceeded the industrial screening level for arsenic. Eight samples exceeded the residential screening level for lead and five samples exceeded the industrial screening level. Four samples exceeded the residential level for cadmium.
9. Six water samples exceeded the MCL for arsenic, three samples exceeded the MCL for lead and one sample exceeded the MCL for cadmium.
10. The highest arsenic concentrations were observed in samples obtained from boring B7/MW-4 located between the pump house and the entrance of the Plant (327 mg/kg and 597 mg/kg).
11. The presence of arsenic and lead at concentration substantially greater than industrial screening levels present a concern for construction workers working to excavate and remove soils along the proposed American Canal ROW.
12. The estimated volume of contaminated soil that could be impacted along the American Canal is 21,083 cubic yards.
13. Excavated soil should be transported to the Asarco facility for staging and onsite treatment at Asarco's expense. Upon soil treatment, the soil should be used for backfilling.
14. The lined evaporation pond should be used for the storage of metal contaminated groundwater.

Summary of Hydrometrics Staff Comments and Observations Regarding the Report

1. Data obtained from the investigation should have been evaluated against TNRCC Human Health Risk Based guidelines instead of the EPA HHRB screening levels. Currently, the TNRCC has a program to evaluate hazardous conditions from human based risk point of view, the Texas Risk Reduction Program (30 TAC Chapter 350).
2. The EPA HHRB screening values are based in very conservative default values. The EPA HHRB screening values for residential and industrial are 0.39 mg/kg and 2.0 mg/kg for arsenic, 400 mg/kg and 2000 mg/kg for lead, and 39 mg/kg and 630 mg/kg for cadmium.
3. The comparison of preliminary investigation data against the EPA HHRB screening levels should have been used only to evaluate the relative environmental concern for a site.
4. In page 8 of the EPA Human Health-Medium Specific Screening Levels document, the EPA indicates that as with any risk-based tool, the potential exists for misapplication. It says that in most cases the root cause will be the lack of understanding of the intended use of the screening levels. It further indicates that in order to prevent misuse of the screening levels, the following should be avoided:
 - *Applying screening levels to a site without adequately developing a conceptual site model that identifies relevant exposure pathways and exposure scenarios. No conceptual site model was developed by MWH in their evaluation.*
 - *Not considering background concentration when choosing screening levels. TNRCC has determined that the typical background concentration for arsenic in soil ranges from 6 to 80 mg/kg.*
 - *Use of screening levels as cleanup levels without verifying numbers with a toxicologist/risk assessor. Data gathered from the evaluation was not assessed from a risk point of view. It is unknown if a toxicologist or risk assessor evaluated the data prior to MWH conclusions and recommendations.*
 - *Use of screening level tables that have been superseded by more recent publications. In April of 1999, the TNRCC updated the Medium Specific Concentrations (consistency document) for different land uses.*
5. The laboratory detection limit used to evaluate arsenic (3.0 mg/kg) is higher than the EPA HHRB screening levels for both residential and industrial land use scenarios (0.39 mg/kg and 2.0 mg/kg, respectively).
6. Although the EPA HHRB screening levels are derived using EPA equations and commonly used default values, they are not regulatory and should not be used to determine if a site needs to be remediated. **They are just screening levels.**
7. No distinction was made between soil and slag. Are the elevated numbers related to slag?
8. Based on soil analytical data, it appears that the contaminant concentrations observed during the MWH investigation will not pose any threat to construction workers during the American Canal

construction activities. The average arsenic and lead concentrations of all soil samples, based on the 95% Upper Confident Limit (UCL) of the mean are 76 mg/kg and 561 mg/kg, respectively. The TNRCC Medium Specific Concentrations for industrial land use are 200 mg/kg and 1000 mg/kg, respectively.

9. MWH recommends to remove three to five feet of soil from both sides of the canal to protect workers from excessive exposure to lead and arsenic during construction. The soils may be backfilled if successfully treated to stabilize metals. However, these requirements are unnecessary for the following reasons:

- *The industrial screening levels referenced in Section 4.1.1 are not applicable to construction work. The risk-based industrial screening levels assume longer-term, lifetime type exposure, and accordingly chronic toxicity considerations. (Incidentally, the more commonly used industrial standard for arsenic in the State of Texas is 200 mg/kg established by the TNRCC.)*
- *Construction work will need to be conducted in accordance with OSHA guidelines as identified in Section 5.0 of the Report. The primary concerns for construction workers are short-term exposure and acute toxicity from relatively higher concentrations. In Hydrometrics experience, construction activities may take place in soils containing lead up to 20,000 mg/kg without compromising worker safety or exceeding OSHA requirements. Cadmium often presents more stringent worker health and safety requirements to comply with OSHA regulations. A site health and safety program is necessary, which will likely include dust control, ambient air monitoring, use of appropriate personal protective equipment, and other controls.*
- *The purpose of stabilization of metals in soils identified in Section 6.0 is unclear. Stabilization does not address the potential for exposure to wind generated dust. Stabilization methods are appropriate to prevent metals leaching from soils by rainwater under certain environmental conditions; however, the arid climate of the site generally precludes the need for stabilization. Insufficient information is available to understand why stabilization is requested and what benefit stabilization would provide.*

MEMORANDUM OF UNDERSTANDING
UNITED STATES SECTION
INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

AND

ASARCO, INCORPORATED

This memorandum of Understanding “MOU” is made by and between the United States Section, International Boundary and Water Commission, United States and Mexico, hereafter referred to as “USIBWC,” of El Paso, Texas, and ASARCO Incorporated, a New Jersey corporation, hereafter referred to as “ASARCO.”

WITNESSETH:

WHEREAS, the USIBWC is authorized by an Act of Congress approved 8/29/35 and a second Act approved 6/4/36 to facilitate compliance with the convention between the United States and Mexico, concluded on 5/21/06, to provide for the equitable division of waters of the Rio Grande. The Acts also authorized the USIBWC to properly regulate and control to the fullest extent possible the water supply for use in the two countries and, to construct, operate, and maintain, the Rio Grande Canalization Project.

WHEREAS, the USIBWC has determined a need to repair the portion of the Rio Grande Canalization project known as the American Canal. The American Canal was originally constructed in 1938 and is located in the City of El Paso, Texas, adjacent to the Rio Grande, downstream of American Dam. In general terms the American Canal is adjacent to the ASARCO El Paso smelter. The repair will require removing the existing deteriorated concrete lining and installing new lining from its head works at American Dam to the Rio Grande American Canal Extension (RGACE) Project, a length of repair of approximately 2 miles.

WHEREAS, for the purposes of discussion, the canal right-of-way is subdivided into three open canal segments or reaches, the Upper, Middle and Lower channel. The Upper channel was constructed adjacent to the former site of Smelter Town, the Middle reach parallels the Burlington Northern and Santa Fe Railroad and the Lower reach diverges from the Highway in the area of Old Fort Bliss/Hacienda Café.

WHEREAS, the USIBWC has retained a reputable engineering firm, Montgomery Watson Harza, Inc. to produce a Technical Memorandum of Environmental Issues concerning the rehabilitation of the canal.

WHEREAS, the USIBWC has discovered the presence of arsenic and lead in the soils within the canal right-of-way at concentrations greater than Texas Commission on

Environmental Quality (TCEQ) industrial screening levels. Given the necessary demolition and construction, these soils may have to be removed and replaced.

WHEREAS, the USIBWC has discovered the presence of lead, arsenic, and cadmium at concentrations above drinking water standards in the ground water within the right-of-way of the American Canal. The de-watering of the soils will be required to reconstruct the lining of the canal. These elevated levels of contaminants will require treatment to acceptable levels if the water is to be deposited into a receiving river, in accordance with Texas Pollutant Discharge Elimination System (TPDES) guidelines.

WHEREAS, by entering into this MOU and any subsequent related agreement, ASARCO does not admit that it is responsible, either solely or in part, for the presence of contaminants identified in soils and groundwater at the subject site.

NOW THEREFORE, the parties hereto agree to the following parameters for development of a contract:

Article I: USIBWC RESPONSIBILITIES

The USIBWC agrees to the following.

1. To provide engineering expertise in the way of plans, designs, and specifications of the area along American Canal for the installation of new concrete lining for the American Dam head works to the beginning of the RGACE project, an approximate distance of two (2) miles.
2. To provide for the construction and installation of the new concrete lining in accordance with the plans, designs, and specifications developed under item 1, including construction dewatering and the removal of soils necessary for the installation of the lining and the replacement, as necessary, with suitable engineered fill.
3. To develop a site specific Health and Safety Plan (HASP) inclusive of soil and groundwater conditions in the Upper and Middle channel sections. The HASP shall meet the minimum requirements for worker monitoring and protection as required by OSHA 29 CFR sections 1920.120 (Hazardous Waste Operations), 1926.1118 (Arsenic), 1926.1127 (Cadmium) and 1926.26 (Lead).
4. To require soil removal and construction dewatering in the Upper and Middle channel sections only to the extent required for the installation of the new lining.
5. To prepare a contract between USIBWC and ASARCO that specifies ASARCO's responsibilities.
6. Following ASARCO review and approval, to advertise and award a design contract that will address proper design and execution of items listed above under a separate bid item(s).

7. Following ASARCO review and approval, to advertise and award a construction contract that will address the proper construction and execution of items listed above under a separate bid item(s).
8. To administer the design and construction contracts for tasks identified in 1 through 4.
9. To secure a proper discharge permit to allow discharge of groundwater derived by dewater activities into the USIBWC canal, Rio Grande River, or other suitable means.
10. IBWC should be responsible for determining other contaminant sources.

Article II: ASARCO'S RESPONSIBILITIES

ASARCO agrees to the following:

1. To provide engineering and expertise on testing, treatment, and disposal of contaminated soils in conjunction with construction activities on the Upper and Middle reaches of the canal. Contaminated soils identified over the limits established by the Texas Risk Reduction Program ("TRRP Standards") for commercial/industrial sites will be removed from the construction site and properly handled.
2. To provide engineering and expertise for the disposition of groundwater generated during construction dewatering in the upper and middle reaches of the canal that exceeds commercial/industrial TRRP Standards for heavy metals or diesel; including storage, transport, treatment and lawful discharge into the USIBWC canal or the Rio Grande River, or disposition by other suitable means.
3. ASARCO shall be responsible only for those worker health and safety costs (Article I, item 3) that are attributable to the presence of the contaminants identified. ASARCO's responsibility for the cost of disposal and replacement of soil (Article I, item 4) is limited to soils required to be disposed of solely on the basis of the presence of contaminants above TRRP Standards for commercial/industrial sites, as opposed to the soils' physical suitability for required construction or to allow for emplacement of the liner. ASARCO shall be responsible only for the construction dewatering treatment costs (Article I, item 4) in the upper and middle reaches of the canal associated with metals and/or diesel constituent removal that is legally required by the commercial/industrial TRRP Standards before the ultimate disposition of the water.

Article III: PAYMENT

Payment terms and conditions will be developed in the Agreement subsequent to this MOU.

Article IV: INSURANCE AND INDEMNIFICATION

The USIBWC agrees that its construction specifications for the work will require insurance, including liability and vehicular, from its contractor (s) in amounts acceptable to ASARCO and that ASARCO will be named as an additional insured.

The USIBWC's contractor (s) will indemnify and hold ASARCO harmless from all injury, loss, damage, claim, expense and liability of any kind attributed to construction of the above-mentioned works (including reasonable attorneys' fees, court costs and other expenses related thereto) which ASARCO may sustain, incur or become liable for, including, but not limited to loss of or damage to property, injury or death of persons, and fines or penalties imposed upon or assessed against ASARCO.

Article V: DURATION

This MOU is in effect from the date of execution until the USIBWC and ASARCO execute a comprehensive contract superceding the guidelines of the MOU.

Article VI: AMENDMENTS

This MOU may be modified at any time by written agreement of both parties.

ARTICLE VII: INTERAGENCY COMMUNICATIONS

To provide for consistent and effective communication between both parties, each party shall immediately designate representatives to serve as the points of contact on all matters relating to this MOU. Each party will advise the other party in writing of the names and telephone numbers of the representatives designated.

ARTICLE VIII: RELATIONSHIP OF PARTIES

The parties to this agreement will act in independent capacities in the performance of the respective obligations herein; neither party is to be considered an officer, agent, or employee of the other.

Specifically, the USIBWC will have the sole contractual relationship with the construction contractor (s) hired by USIBWC to design and construct the relining of the American Canal. ASARCO will have no opportunity to exercise any authority over said contractor (s) and is not expected to be responsible for the actual execution of said contractors' work.

IN WITNESS WHEREOF, the parties hereto execute this instrument to be effective when signed by both parties.

FOR THE USIBWC

Date: _____

(Signature)

USIBWC CONTRACTING OFFICER

Date: _____

(Signature)

USIBWC CHIEF FINANCIAL OFFICER

United States Section
International Boundary and Water Commission
United States and Mexico

ASARCO

Date: _____

(Signature)

(Signature)

Appendix B Project Drawing and Specification – Category II Capping

B.1 Low Permeability Mix Design Memorandums



Raba Kistner Consultants, Inc.

12821 W. Golden Lane

P.O. Box 690287, San Antonio, TX 78269-0287

(210) 698-9090 • FAX (210) 699-6426

www.rkci.com

Project No. ASF05-245-02
February 3, 2006

Mr. Lairy Johnson, P.G.
ASARCO, Inc.
P.O. Box 1111
El Paso, TX 79999

RE: **Pavement Guidelines**
ASARCO Copper Smelter Plant
El Paso, Texas

Dear Mr. Johnson:

The guidelines recommended in this document are intended for our Client, ASARCO, and may not be used or duplicated for others parties or for other uses without the written authorization of Raba-Kistner Consultants, Inc. (R-K).

R-K has been requested to provide pavement guidelines for paving areas at the ASARCO Cooper Smelter Plant in El Paso, Texas. Since neither ASARCO nor R-K has a definite knowledge as to the future plans or use of the ASARCO site, the actual traffic volume and wheel loads traveling on the pavements cannot be defined. The volume and type of traffic are two important criteria for establishing a structural number (SN) for a pavement section. Since these values are not known and can only be assumed, R-K has established three SN values for differing wheel loads and volume demands which could be anticipated on these pavements and they are listed below:

Category	Volume and Wheel Loading	18-Kip ESAL	Selected Structural Number (SN)	Reliability Level
Heavy Traffic	Heavy with Heavy Construction Equipment	3,000,000+	5.76	R-95
Moderate Traffic	Medium with Occasional Heavy Construction Equipment. Mostly Light Construction equipment and P/U trucks.	1,000,000+	4.20	R-70
Light Traffic	Light to Medium/Light Equipment, Cars & P/U Trucks. Minimal Heavy Equipment.	100,000+	3.20	R-70

These SN values should provide about twenty (20) years service life and are based on the "American Association of State Highway and Transportation Officials (AASHTO) Guide for Design of Pavement Structures, 1993."

P:\CMT\Transfer File\Active Projects\El Paso\ASF05-245-01 (ASARCO)\Letters\02-01-06.doc

LIMITATIONS

It should be understood that these pavement recommendations are based on limited information provided to R-K and ASARCO should be aware that development of pavement guidelines without accurate traffic volumes, traffic type (ESAL) and existing subgrade physical characteristics is considered to be risky and may result in over-designed or under-designed pavement sections.

In addition to the above mentioned unknowns, R-K had to rely on minimal modulus test data previously performed on material similar to POM-A. Resilient modulus test data has not been performed on any other recycled paving materials considered for use on the ASARCO pavement. The resilient modulus is a key test in establishing a material's structural co-efficient value which is used in computing the SN of a pavement section. R-K has assumed structural co-efficient values (where none exist) equal to similar materials commonly used in layered pavement cross-sections.

R-K has developed these recommended pavement guidelines assuming the pavement site will not later be opened for smelting operations or any other high traffic volume and heavy wheel loading operations.

PAVEMENT SECTIONS

The following is a list of the recommended pavement course thicknesses for each of the three traffic condition categories. The objective of these recommendations is to achieve a weighted structural number (WSN) equal to or above the selected SN. The thicknesses can be adjusted and the layered pavement courses can be substituted or changed as long as the selected SN is achieved. However, 2-inches of low permeable cold mix/cold laid product with an applied asphalt membrane must be used to satisfy the permeability criteria established by the Texas Commission on Environmental Quality (TCEQ).

The recommended pavement sections for the three pavement categories are presented as Figure Nos. 1 thru 3.

CONCLUSIONS

Based on the limited information provided to R-K, three different pavement cross-sections have been recommended for ASARCO's paving and capping operations. Some assumptions have been made by R-K which may or may not be accurate; therefore, contingencies should be provided for to upgrade the pavement sections should project site conditions change or additional traffic requirements warrant.

It is R-K's opinion that all pavement sections be constructed using a reasonable quality control plan encompassing evaluation of materials, laydown operations, compaction, inspections and testing conforming to established environmental requirements.

Project No. ASF05-245-02
February 3, 2006

3

We appreciate the opportunity to be of service to you on this project. If we may be of additional assistance, please do not hesitate to call.

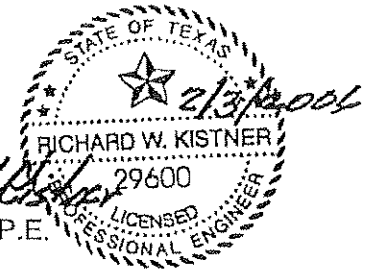
Very truly yours,

RABA-KISTNER CONSULTANTS, INC.


David P. Darnell
Senior Materials Consultant

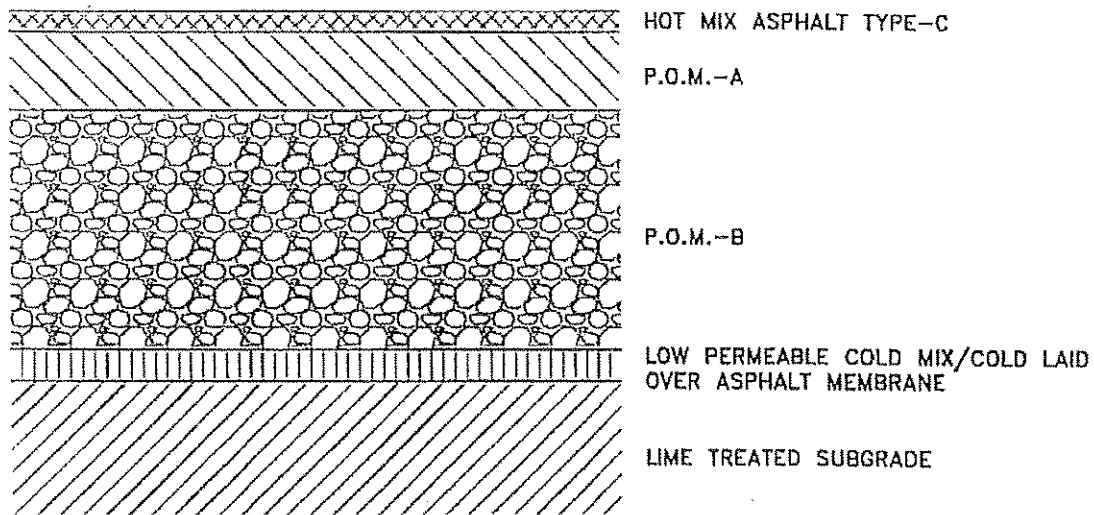
DPD/RWK/dgp

Attachments: Figures 1 thru 3


Richard W. Kistner
Richard W. Kistner, P.E.
Vice Chairman

	LAYERED THICKNESS (INCHES)	S_{ef}	SN
HOT MIX ASPHALTIC CONCRETE TYPE-C	1.5	0.44	0.66
P.O.M.-A COLD MIX/COLD LAID	4.0	(ASSUMED) 0.30	1.20
P.O.M.-B (VERSABIND TREATED BASE)	10.0	(ASSUMED) 0.24	2.40
LOW PERMEABLE COLD MIX/COLD LAID OVER ASPHALT MEMBRANE	2.0	(ASSUMED) 0.28	0.56
LIME TREATED SUBGRADE (VERSABIND)	7.0	(ASSUMED) 0.14	0.98

WSN = 5.80



NOTE: GEOGRID TENSAR CAPITOL BX-1200 MAY BE USED IN PLACE OF LIME TREATED SUBGRADE.



Engineering • Testing • Environmental
Facilities • Infrastructure

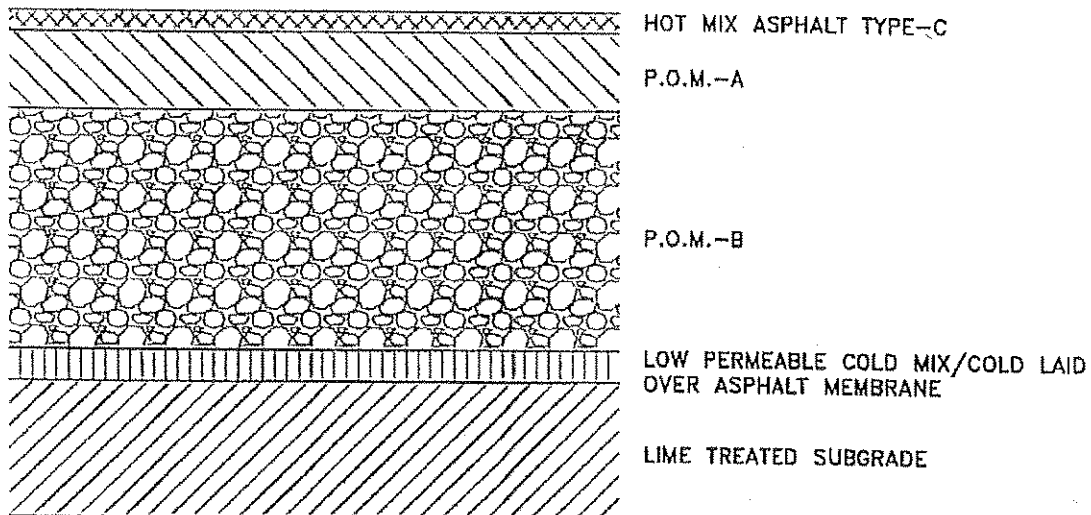
HEAVY TRAFFIC RECOMMENDED PAVEMENT
CROSS-SECTION

PROJECT No.:
ASF05-245-01

FIGURE 1

	LAYERED THICKNESS (INCHES)	S_{cf}	SN
HOT MIX ASPHALTIC CONCRETE TYPE-C	1.5	0.44	0.66
P.O.M.-A COLD MIX/COLD LAID	4.0	(ASSUMED) 3.0	1.20
P.O.M.-B (VERSABIND TREATED BASE)	4.0	(ASSUMED) 0.24	0.96
LOW PERMEABLE COLD MIX/COLD LAID OVER ASPHALT MEMBRANE	2.0	(ASSUMED) 0.28	0.56
LIME TREATED (VERSABIND)	6.0	(ASSUMED) 0.14	0.84

WSN = 4.22



NOTE: GEOGRID TENSAR CAPITOL BX-1100 CAN BE USED IN PLACE OF LIME TREATED SUBGRADE.



Engineering • Testing • Environmental
Facilities • Infrastructure

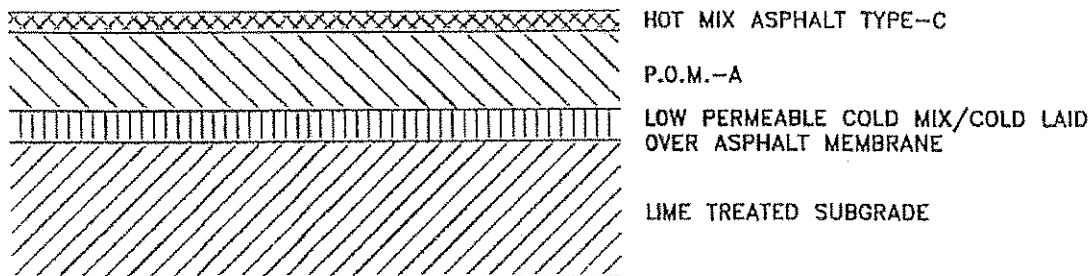
MODERATE TRAFFIC RECOMMENDED PAVEMENT
CROSS-SECTION

PROJECT No.:
ASF05-245-01

FIGURE 2

	LAYERED THICKNESS (INCHES)	S_{of}	SN
HOT MIX ASPHALTIC CONCRETE TYPE-C	1.5	0.44	0.66
P.O.M.-A COLD MIX/COLD LAID	4.0	(ASSUMED) 0.30	1.20
LOW PERMEABLE COLD MIX/COLD LAID OVER ASPHALT MEMBRANE	2.0	(ASSUMED) 0.28	0.56
LIME TREATED SUBGRADE (VERSABIND)	6.0	(ASSUMED) 0.14	0.84

WSN = 3.26



NOTE: GEOGRID TENSAR CAPITOL BX-1100 MAY BE USED IN PLACE OF LIME TREATED SUBGRADE.



Engineering • Testing • Environmental
Facilities • Infrastructure

LIGHT TRAFFIC RECOMMENDED PAVEMENT
CROSS-SECTION

PROJECT No.:
ASF05-245-01

FIGURE 3



Raba Kistner Consultants, Inc.
12821 W. Golden Lane
P.O. Box 690287, San Antonio, TX 78269-0287
(210) 699-9090 • FAX (210) 699-6426
www.rkci.com

Project No. ASF05-245-01
Assignment No. S05-000000
March 15, 2006

Mr. Lairy Johnson, P.G.
ASARCO, Inc.
P.O. Box 1111
El Paso, Texas 79999

**RE: Low Permeable Cold Mix/Cold Laid
Asphaltic Concrete Mix Design
ASARCO Copper Smelter
El Paso, Texas**

Dear Mr. Johnson:

Raba-Kistner Consultants, Inc. (R-K) has completed the above referenced mix design. The development of this mix design was authorized by ASARCO representative, Mr. Tom Klempel in December 2005. This mixture utilizes local ASARCO Processed Ore Materials (P.O.M.) by-product, naturally occurring on-site clay materials, a pozzolon produced from cement manufacturing (Versabind) and a cationic slow set with hardener (CSS-IH) emulsified asphalt. This mixture is to be batched using a cold mix batch plant with a pug mill on-site and placed on-site as a cold laid product within one to three days after mixing production.

PURPOSE

The purpose of developing this mixture was to produce a product with good physical engineering properties, low permeability and conforming to the environmental requirements set forth in the Texas Committee for Environmental Quality (TCEQ) standards. It has always been ASARCO's intention to use or recycle as much P.O.M. material on-site as possible in the plant clean up operations. This recycle/reuse vision was incorporated in the development of this mixture design. Due to the inert (non-plastic) nature of the P.O.M. fines, it was necessary to add plastic clay fines to promote cohesion and fill voids. The Versabind pozzolon (also a recycled product) was added to stiffen the mixture, increase unconfined compressive strength and fixate lead. The asphalt emulsion encapsulates the P.O.M. and clay fines help to cement the particles together and improves workability, lay-down and compaction properties.

TEST PROTOCOL

The test procedures used in the development of this mix design consisted of combinations of current ASTM and TxDOT standard test procedures. Due to the special nature and engineering physical property requirements of this product, some of the test procedures were slightly modified to accommodate the inconsistencies of a cold mix /cold laid material. The test procedures used in the design and evaluation of this product development program are listed below:

P:\CMT\Transfer File\Active Projects\El Paso\ASF05-245-01 (ASARCO)\Letters\S05-000000.doc

- ASTM C-136 Test Method for Sieve Analysis of Fine and Coarse Aggregates
- ASTM C-127 Test Method for Density, Relative Density (Specific Gravity) and Absorption of Coarse Aggregate
- ASTM C-128 Test Method for Density, Relative Density (Specific Gravity) and Absorption of Fine Aggregate
- ASTM D-5444 Test Method for Mechanical Size Analysis of Extracted Aggregate
- ASTM C-6926 (Modified) Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus
- ASTM C-6927 (Modified) Standard Test Method for Marshall Stability and Flow of Bituminous Mixtures
- ASTM D-5084 Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using Flexible Wall Permeameter
- TEX 208-F Test for Stabilometer Value of Bituminous Mixtures.
- TEX 236-F Determining Asphalt Content from Asphalt Paving Mixtures by the Ignition Method
- ASTM D-584 Test Method for Specific Gravity of Soils
- TEX 205-F Laboratory Method of Mixing Bituminous Mixtures
- TEX 206-F Compacting Test Specimens of Bituminous Mixtures
- TEX 207-F Determining Density of Bituminous Mixtures

The environmental (analytical) testing was subcontracted to an accredited analytical chemistry laboratory in San Antonio, Texas. This chemical testing firm has performed analytical testing on various types of material for R-K in the past and is on our approved sub-contractor list.

FINDINGS

The supporting test data for the various phases leading to the development of the final recommended mixture design are presented in Figures 1 through 5. The environmental test results are attached as the Appendix. The final recommended low permeable cold mix/cold laid asphaltic concrete mix design is presented in Figure 6.

The test results demonstrate that the recommended design when batched, mixed and placed using good construction practice will conform to the project requirements with good physical engineering and environmental properties.

Due to the cementing properties of the Versabind and asphalt emulsion, R-K recommends sampling the blended P.O.M. and clay material and testing for gradation prior to addition of the Versabind and emulsified asphalt. Since the gradation of the blended P.O.M. and clay materials play a crucial role in achieving the desired results of this mixture design, R-K recommends frequent testing of these materials to verify correct gradation. The gradation testing of the blended P.O.M. and clay materials should be performed at a frequency of one test per 500 tons. The target gradation for the blended P.O.M. and clay material is shown below:

Sieve Size:	% Passing	Recommended Tolerances
3/8-inch	100	---
No. 4	55	+ 8
No. 10	42	+ 6
No. 40	29	+ 5
No. 80	22	+ 5
No. 200	13	+ 4

The permeability specification of 10^{-7} cm/sec is achieved by the recommended mixture design and the incorporation of an impermeable asphalt membrane consisting of hot PG-64 asphalt cement at a rate of 0.32 gallons/sq.yd. Considering the sparse rainfall in the El Paso region and the low permeability properties and thicknesses of the additional pavement courses which will be placed on top of the low permeable mixture design, it is our opinion that any moisture deposited on the surface of the pavement will either run off or evaporate before percolating to the depth of the impervious layer. It is also our opinion that if the asphalt cement membrane is required, its application should be limited to the most environmentally sensitive areas.

Due to the extreme hardness of the P.O.M. materials, coring to obtain test specimens for permeability verification of the in-place compacted mixture will be impossible without destroying the specimen. Therefore, to verify the strength, stability and permeability values of a mixture, R-K recommends that the mixture be sampled at the point of production (before lay-down and compaction) and these samples be molded in the laboratory and tested for strength, stability, permeability and environmental requirements. In-place density should be verified by the nuclear gauge method.

Recommended test frequencies for product compliance are as follows:

- In-place Density: 1 test/5000 sq.ft.
- Asphalt Content: 1 test/1000 tons
- Marshall Strength & Flow: 1 test/1000 tons
- Hveem Stability: 1 test/1000 tons
- Permeability (Lab): 1 test/5000 tons
- Environmental: 1 test/5000 tons
- Thickness Check (during lay-down): 1 test/1000 sq.ft.

CONCLUSIONS

The low permeable cold mix/cold laid asphaltic concrete mix design is a complex product designed to produce a mixture with good physical engineering properties (strength and stability), low permeability (10^{-7} cm/sec.) and encapsulation of heavy metals using on-site recycled materials (P.O.M. and clay) in a cold mix/cold laid application. The combination of these requirements calls for strict controls on material uniformity and proportioning. The gradation of blended materials is critical, and uniformly graded stockpiles of the blended P.O.M. materials should be constructed and tested for grading prior to production of the mix. In addition, this mix design has a relatively short stockpile life (maximum 3 days); therefore, every attempt should be made to schedule production to coincide with immediate or same day lay-down and compaction operations.

Application of the liquid asphalt impermeable membrane, if required, should be performed utilizing an asphalt distributor truck capable of maintaining the asphalt cement at the recommended temperature with all the spray nozzles functioning and capable of applying a uniformly full coverage over the prescribed application areas. The asphalt membrane should then be allowed to cool and stiffen for at least 8-hours. The areas where the membrane has been applied should be kept free of traffic until the subsequent lift of Processed Ore Material with Emulsified Asphalt (P.O.M.-A) material has been laid on top of the membrane. To preclude damage to the membrane by wheel traffic, the P.O.M.-A material should be deposited at the front edge of the applied membrane and spread over the membrane using a small dozer so that the membrane is covered by at least 4-inches of P.O.M.-A material before any traffic is allowed on the membrane.

Adjustments to the low permeable cold mix/cold laid asphaltic concrete mix design can be made as conditions or availability of materials warrant; however, changes to this design should only be made after correct laboratory evaluations and their impact on project requirements can be determined. Minor adjustments or changes in production, lay-down and compaction should be discussed and evaluated by all parties involved in the construction of this project.

Project No. ASF05-245-01
Assignment No. S05-000000
March 15, 2006

5

We appreciate the opportunity to be of service to you on this project. If we may be of additional assistance, please do not hesitate to call.

Very truly yours,

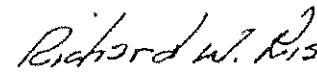
RABA-KISTNER CONSULTANTS, INC.



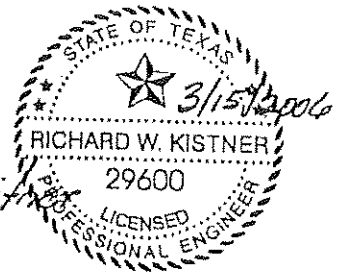
David P. Darnell
Senior Materials Consultant

DPD/RWK/dgp

Attachments: Figures 1 through 6
Appendix



Richard W. Kistner, P.E.
Vice Chairman



Individual Grading of Low Permeable Mixture Constituents
 ASARCO Copper Smelter
 El Paso, Texas

Sieve Analysis (ASTM C 136):					
Constituent Sieve Size	-3/8-inch + No. 4	-No. 4 + No. 40	-No. 40	Versabind	On-Site Clay
3/8-inch	100	100	100	100	100
No. 4	1.0	99.6	100	100	100
No. 10	0.0	62.5	100	100	99.9
No. 40	0.0	3.5	99.9	100	99.3
No. 80	0.0	1.1	69.6	100	90.6
No. 200	0.0	0.6	22.8	99.7	78.1

Project No. ASF05-245-01
 Assignment No. S05-000000
 March 15, 2006

Figure 1

Combined Grading and Specific Gravity
Low Permeable Mixture
ASARCO Copper Smelter
El Paso, Texas

Mix Percent	-3/8-inch + No. 4 (46.6)	-No. 4 + No. 40 (21.8)	-No. 40 (15.2)	Versabind (5.0)	On-Site Clay (11.4)	Combined Grading (100.0)
3/8-inch	46.6	21.8	15.2	5.0	11.4	100
No. 4	0.5	21.7	15.2	5.0	11.4	53.9
No. 10	0.0	13.6	15.2	5.0	11.4	45.2
No. 40	0.0	0.8	15.2	5.0	11.3	32.3
No. 80	0.0	0.2	10.6	5.0	10.3	26.1
No. 200	0.0	0.1	3.5	5.0	8.9	17.6
Specific Gravity & Absorption (ASTM C 127 & ASTM C 128):						
Dry Bulk:	3.451	3.458	3.436	2.890	2.728	3.189
Absorption (%):	0.4	0.6	0.5	N/A	0.4	N/A

Project No. ASF05-245-01
 Assignment No. S05-000000
 March 15, 2006

Figure 2

**Asphalt Content and Mixture Gradation
from Ignition Method at Varying
Percentages of CSS-IH**

CSS-IH Added, %	7	9	11	13
Water Added, %	4	3	2	2
CSS-IH Content (Burn Off), %	5.2	5.9	8.3	9.2
Difference, %	1.8	3.1	-2.7	-3.8

Gradation from Burn Off (ASTM D 5444):							
Sieve Size	% Passing				Average	Designed Combined Grading	* Difference
3/8-inch	100	100	100	100	100	100	---
No. 4	58.4	57.6	63.6	61.5	60.2	59.9	+6.3
No. 10	35.1	34.3	43.5	37.6	37.6	45.2	-7.6
No. 40	6.8	14.5	13.2	11.6	11.5	32.3	-28.8
No. 80	3.3	5.6	5.4	5.4	4.9	26.1	-21.2
No. 200	1.6	1.9	2.1	2.3	2.0	17.6	-15.6

* The differences between the average burn off gradation and the designed gradation is due to the cementing of separate particles (especially in the binder size materials) from hydration of the Versabind pozzolon constituent which could not be subsequently broken apart.

Project No. ASF05-245-01
Assignment No. S05-000000
March 15, 2006

Figure 3

Marshall and Hveem
at Varying CSS-IH Contents
ASARCO Copper Smelter
El Paso, Texas

CSS-IH Content (%)	Average Marshall Strength/Stability (75 Blows) (lbs.) (ASTM D 6926)	Average Flow (0.1-inch) (ASTM D 6927)	Average HVEEM Stability (%) (TEX-208-E)
7	3235	10	61
9	3310	11	41
11	3963	12	34
13	1698	23	15

Project No. ASF05-245-01
Assignment No. S05-000000
March 15, 2006

Figure 4

Permeability Rates of Low Permeable Mixture
 "With" and "Without" Asphalt
 ASARCO Copper Smelter
 El Paso, Texas

CSS-IH Content (%)	Laboratory Molded Density (pcf)	Low Permeable Mixture "Without" Asphalt Membrane (cm/sec)	Low Permeable Mixture "With" Asphalt Membrane (cm/sec)
7	165.1	5.7×10^{-5}	3.4×10^{-9}
9	164.6	7.4×10^{-7}	2.9×10^{-9}
11	160.3	1.2×10^{-6}	9.0×10^{-9}
13	153.0	1.9×10^{-5}	2.9×10^{-8}

Project No. ASF05-245-01
 Assignment No. S05-000000
 March 15, 2006

Figure 5

Recommended Low Permeable
Mixture Design and Resulting Properties
ASARCO Copper Smelter
El Paso, Texas

Size Designation:	Percent of Mixture	
-3/8-inch + No. 4 Slag:	41.0	
-No. 4 + Nos. 40 Slag	19.0	
-No. 4 Slag Fines:	13.0	
On-Site Red Clay:	10.0	
Versabind:	5.0	
Water:	3.0	
CSS-IH Emulsified Asphalt:	9.0	
		Project Specifications
Laboratory Molded Density:	164.6 (lbs/cu.ft.)	Minimum 148
Marshall Strength:	3310 (lbs./sq.ft.)	Minimum 1800
Marshall Flow:	11 (.01-inch)	8-16
HVEEM Stability:	41%	Minimum 35/Maximum 55
Hydraulic Conductivity "Without" Asphalt Membrane:	7×10^{-7} (cm/sec)	10^{-7}
Hydraulic Conductivity "With" Asphalt Membrane:	2.4×10^{-9} (cm/sec)	10^{-7}



Project No. ASF05-245-01
Assignment No. S05-000000
March 15, 2006

Figure 6

APPENDIX



ALAMO ANALYTICAL LABORATORIES, LTD.

(DBA CHEMIRON)

10526 Guifdale • San Antonio, Texas 78216-3601 • (210) 340-8121

CLIENT: Raba-Kistner Consultants, Inc.

Lab Order: 0601052

Project: ASF05-245-02

Date: 18-Jan-06

Matrix: WATER

METALS, TCLP

SW1311/6010B

Analyst: JOL

Lab ID	Chemron ID	Client ID	Collection Date	Analyses	Result	Rpt Limit	Units	DF	Date Analyzed
0601052-01A	60105201	1	16-Jan-06	Arsenic	< 0.05	0.05	mg/L	1	17-Jan-06
0601052-01A	60105201	1	16-Jan-06	Lead	0.04	0.03	mg/L	1	17-Jan-06
0601052-02A	60105202	2	16-Jan-06	Arsenic	< 0.05	0.05	mg/L	1	17-Jan-06
0601052-02A	60105202	2	16-Jan-06	Lead	0.2	0.03	mg/L	1	17-Jan-06
0601052-03A	60105203	3	16-Jan-06	Arsenic	< 0.05	0.05	mg/L	1	17-Jan-06
0601052-03A	60105203	3	16-Jan-06	Lead	0.62	0.03	mg/L	1	17-Jan-06
0601052-04A	60105204	4	16-Jan-06	Arsenic	< 0.05	0.05	mg/L	1	17-Jan-06
0601052-04A	60105204	4	16-Jan-06	Lead	0.52	0.03	mg/L	1	17-Jan-06
0601052-05A	60105205	5	16-Jan-06	Arsenic	< 0.05	0.05	mg/L	1	17-Jan-06
0601052-05A	60105205	5	16-Jan-06	Lead	0.88	0.03	mg/L	1	17-Jan-06

Approved by:



ALAMO ANALYTICAL LABORATORIES, LTD.

(DBA CHEMIRON)

10526 Guifdale • San Antonio, Texas 78216-3601 • (210) 340-8121

Date: /8-Jan-06

CLIENT: Raba-Kistner Consultants, Inc.

Work Order: 0601052

Project: ASF05-245-02

QC SUMMARY REPORT

Batch ID: 1311_M-1/17/2006 Test Code: SW1311/6010B Units: mg/L Analysis Date: 01/17/2006 3:00:00 PM Prep Date: 01/17/2006

TestName: METALS, TCLP

Analyte	BLK	SPK value	%REC LCS	%REC		RPD %	RPD Limit	Low - High Limit
				MS	MSD			
Arsenic	<0.05	2	102.0%	113.0%	109.0%	4.0	15.0	60 - 120
Lead	<0.03	2	101.0%	99.0%	103.0%	3.0	15.0	60 - 120

Chain of Custody Record and Analysis Request

NOTE: PROJECT APPROVAL AND PROJECT SETUP MUST BE COMPLETE PRIOR TO INITIATION OF ANALYSIS. No 10956

RABA-KISTNER CONSULTANTS, INC.

12821 W. Golden Lane • San Antonio, Texas 78249
 FAX: (210) 699-6426
 Phone: (210) 699-9090

R-KCI #	SAMPLE ID	SAMPLING		AMOUNT SAMPLED	MATRIX							PRESERV. METHOD	OTHER	ANALYSIS REQUESTED	CUSTODY RECORD	
		DATE	TIME		WATER	AIR	SOIL	SLUDGE	OTHER	ACID	ICE					NONE
1	LEACHATE @ 9%	1/16	8:30	3 oz	✓									LAB ID#	Received by: <i>Watts Gal</i>	Date: 1/16/06 Time: 8:35
2	P.O.M IMPERMEABLE @ 7% CSS-1h	1/16	8:30	3 oz	✓										Received by: <i>Watts Gal</i>	Date: 1/16/06 Time: 10:55
3	P.O.M IMPERMEABLE @ 9% CSS-1h	1/16	8:30	3 oz	✓										Received by: <i>Watts Gal</i>	Date: 1/16/06 Time: 10:55
4	P.O.M IMPERMEABLE @ 11% CSS-1h	1/16	8:30	3 oz	✓										Received by: <i>Watts Gal</i>	Date: 1/16/06 Time: 10:55
5	P.O.M IMPERMEABLE @ 13% CSS-1h	1/16	8:30	3 oz	✓										Received by: <i>Watts Gal</i>	Date: 1/16/06 Time: 10:55

Report Results to: DAVID P. DARNELL

Task Number: 78216
 Project Number: ASFO5 - 245 - 02

Company Name: DR. RADDY
 Address: 10526 GULFDALC
 SAN ANTONIO TEXAS 78216

Site Location: EL PASO, TEXAS
 ASARCO COPPER SMELTER

Turnaround Time Requested: _____
 Rush 1 day: _____
 Rush 2 day: _____
 Rush 3 day: _____
 Normal: 4-5 days

Special detection limits: _____
 Special reporting requirements: PO # 5-10503

Comments: USE BUFFER NO. 1 AS DISCUSSED

Comments: USE BUFFER NO. 1 AS DISCUSSED

TURNAROUND TIME REQUESTED
 RUSH 1 day
 RUSH 2 day
 RUSH 3 day
 Normal: 4-5 days

SPECIFY
 Special detection limits:
 Special reporting requirements: PO # 5-10503

COMMENTS: USE BUFFER NO. 1 AS DISCUSSED

PROVIDE RESULTS BY: 1-20-06

SAMPLE RECEIPT REPORT
 Samples OK: Y
 Temp 4 C Min: Y
 Custody Seals, Intact: Y
 Head Space in VOA's: Y
 pH adjusted, Described: Y

Requisitioned by: *Watts Gal*
 Date: 1-16-06
 Time: 8:35

Requisitioned by: *Watts Gal*
 Date: 1-16-06
 Time: 10:55

Requisitioned by: *Watts Gal*
 Date: 1/16/06
 Time: 10:55

Appendix B Project Drawing and Specification – Category II Capping

B.2 2006 Paving Drawings & Specifications

ASARCO ON-PLANT REMEDIATION 2006
EL PASO PLANT

SIX SITES – EL PASO PLANT

BID DOCUMENTS

MAY 19, 2006

OWNER:
MR. LAIRY JOHNSON, P.G.
P.O. BOX 1111
EL PASO, TEXAS 79999

ENGINEER:
RABA-KISTNER CONSULTANTS, INC.
7002 COMMERCE
EL PASO, TEXAS 79915

ASARCO ON-PLANT REMEDIATION 2006 EL PASO PLANT

TABLE OF CONTENTS

Part A - Bid Information

Part B - ASARCO Contract

Part C - Bid Form

Part D - Quality Control/Quality Assurance Program

ASARCO – EL PASO SMELTER ASARCO ON-PLANT REMEDIATION 2006

INVITATION TO BID

Sealed bids from the contractors listed below will be received by the Engineer, Raba-Kistner Consultants, Inc., 7002 Commerce, El Paso, Texas 79915, or hand-delivered to said address, until 2:00 PM, June 5, 2006. No bid opening ceremony will be conducted, unless otherwise noted. The contract will be awarded on a best-value basis. The best-value criteria (evaluation factors) are presented on Page 8.

List of Prequalified Contractors (in alphabetical order)

- ENTACT Environmental Services
- ENVIROCON, Inc.
- Remedial Construction Services, L.P.

ASARCO (Owner) reserves the right to accept or reject any or all bids and to waive formalities.

The project consists of the items of work listed in the scope of work and bid tabulation Form.

BID SECURITY. Each bid must be accompanied by a letter of commitment to have the ability to acquire a bid bond. The letter must be duly executed by the Bidder as principal. Said letter shall name the surety company. The letter shall indicate that the Contractor will be able to secure a bid bond in the amount of 5 percent of the Total Bid price (including base bid and alternates(s)).

INSURANCE. The contractor shall be required to meet the requirements set forth in the contract documents (EXHIBIT A).

HEALTH AND SAFETY PLAN. Each bid must be accompanied by a copy of the Contractor's most current Health And Safety Plan.

Owner funds are anticipated to be used in this project.

QUESTIONS. Question or clarifications shall be addressed to the Engineer Not Later Than May 29, 2006.

Engineer's Information

Bernardino Olague, P.E.
Raba-Kistner Consultants, Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 Phone
(915) 779-8301 Fax
Internet: bolague@rkci.com

ASARCO – EL PASO SMELTER ASARCO ON-PLANT REMEDIATION 2006

SCOPE OF WORK

Project Description

The Contractor shall construct pavement sections in five specific areas (including one additive alternate area) and apply a dust abatement compound in one area, as shown in the project drawings (EXHIBIT B).

Base Bid

The Contractor shall construct pavement sections in four specific areas, identified as Sites 1, 2, 3 and 4, on Sheets 3, 4, 5 and 6, respectively. The components of the new pavement capping sections are presented on Pages 5, 6 and 7.

Additive Alternate No. 1 – Area 6 (Cemetery Road)

The Contractor shall conduct minor grading operations to promote drainage as shown on the project drawings. The Contractor shall also grade and compact sub-base, apply tack-coat, and produce, transport and apply a 3-inch lift of POM-A (refer to Page 6). Further, the Contractor shall place boulders to line the existing curbs. Refer to Sheet 7.

Additive Alternate No. 2 – Area 5 (Slag Fines Stockpile)

The Contractor shall conduct minor grading operations to promote drainage as noted on Sheet 7. Contractor shall line the eastern curb with boulders, spaced at 4-foot intervals.

Health and Safety Plan

The Contractor shall maintain an internal HASP that is in consonance with Owner's HASP.

Pre-bid Conference and Site Visit

A pre-bid conference was held and site visit was conducted on May 10, 2006. The list of attendance is presented in the following page. The purpose of the pre-bid conference was to inform the bidders about the project requirements with respect to fabrication of the paving materials and their application. The purpose of the site visit was to show the bidders the areas that will be improved and to give them an opportunity to familiarize themselves with the site conditions.

The Owner encourages the bidders to visit the site prior to bid opening date to acquaint themselves even further with the project site conditions and verify quantities. Visits are at the bidder's expense.

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2006**

PRE BID CONFERENCE
MAY 10, 2006
Sign-in Sheet
9:00 a.m.

NAME	COMPANY
Harry Foreman	Envirocon
John Walters	Recon
Dave Darnell	Raba-Kistner
Lairy Johnson	ASARCO
Greg Dambold	Entact
Tom Klempel	ASARCO
Walter Boyle	ASARCO
Bernardino Olague	Raba-Kistner
John Cordova	Raba-Kistner
John Wedyworth	Entact
Zeke Littlefield	Entact

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2006**

PROJECT SCHEDULE

1. Non-mandatory Pre-Bid Conference: May 10, 2006
2. Bid Packages Mailed out to Contractors: May 19, 2006
3. Bid Packages Received by Contractors: May 21, 2006
4. Bids Due Back to Raba-Kistner office: June 5, 2006 (by 2:00 pm MST)
5. Bid Tabulation by Raba-Kistner due: June 9, 2006
6. Estimated time of award for contract: June 19, 2006
7. Project Completion: October 30, 2006

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2006**

TECHNICAL SPECIFICATION

Low Permeable
Mixture Design and Resulting Properties
ASARCO Copper Smelter
El Paso, Texas
For Bid Purposes

Size Designation:	Percent of Mixture	
-3/8-inch + No. 4 Slag:	41.0	
-No. 4 + Nos. 40 Slag	19.0	
-No. 40 Slag Fines:	13.0	
On-Site Red Clay:	10.0	
Versabind:	5.0	
Water:	3.0	
CSS-IH Emulsified Asphalt:	9.0	
		Project Specifications
Laboratory Molded Density:	164.6 (lbs/cu.ft.)	Minimum 148
Marshall Strength:	3310 (lbs./sq.ft.)	Minimum 1800
Marshall Flow:	11 (.01-inch)	8-16
HVEEM Stability:	41%	Minimum 35/Maximum 55
Hydraulic Conductivity "Without" Asphalt Membrane:	7×10^{-7} (cm/sec)	10^{-7}
Hydraulic Conductivity "With" Asphalt Membrane:	2.4×10^{-9} (cm/sec)	10^{-7}

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2006**

TECHNICAL SPECIFICATION

**POM-A
Mixture Design and Resulting Properties
ASARCO Copper Smelter
El Paso, Texas
For Bid Purposes**

Sieve Size:	Target Grading Tolerances	
1.5 -in:	100	
1.0-in:	90-100	
3/8 :	45-100	
No.4:	30-60	
No.40:	10-30	
Water:	3.0	
CSS-IH Emulsified Asphalt:	5.0+/-1.0	
Density and Compressive Strength (Tex 126-E):		
Avg. Density (lbs/cu.ft.):	160-180	
Avg. Compressive Strength (psi)	75	Minimum 50 required
HVEEM Stability (Tex 206-F&208-F):	Avg. stability 50	Minimum 35 required
Marshall Stability (ASTM D6926)	Avg. stability (lbs) 2200	Minimum 1800
Marshall Stability (ASTM D6926)	Avg. Flow (.01-in): 14	8-16

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2006**

TECHNICAL SPECIFICATION

**POM-B
Grading and Strength Properties
ASARCO Copper Smelter
El Paso, Texas
For Bid Purposes**

Sieve Size:	Target Grading (% Retained)	
1.5 -in:	0	
1.0-in:	0-10	
No. 4:	30-75	
No.40:	50-85	
Versabind (%):	4+/-1	
Density and Compressive Strength (Tex 113-E):		
Minimum Density	95% (Tex 113-E)	
Compressive Strength (psi @ 7-days)	150 minimum	

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2006**

BEST VALUE METHODOLOGY

This contract will be awarded on the basis of best-value. Hence, bids will be evaluated based on a “best value methodology” as determined below. In order to identify and select the best value the following criteria and associated point system criteria will be implemented.

	Criteria	Maximum Points
1	Cost (Base Bid and Additive Alternate(s))	35
2	Project Approach (ability to meet project specifications). The contractor must provide a narrative describing its project understanding as well as its approach to achieve the desired pavement sections.	30
3	<p>Project Manager and Key Personnel Experience. Minimum requirements for project manager and superintendent:</p> <p>Project Manager – Must have managed the successful completion of at least three projects of similar characteristics in the last five years.</p> <p>Project Superintendent - Must have managed the successful completion of at least two projects of similar characteristics in the last four years.</p>	15
4	Firm Experience with Similar Projects. The contractor must have at least successfully completed at least four projects similar in scope to this Project in the last five years.	10
5	References on Past Performance. The contractor must provide at least three references for whom the contractor has completed projects in the last five years.	5
6	Health and Safety Plan. The contractor must submit in its bid a copy of its most current HASP.	5
	Total	100

**ASARCO ON-PLANT REMEDIATION 2006
EL PASO PLANT**

SIX SITES – EL PASO PLANT

BID DOCUMENTS

MAY 19, 2006

**OWNER:
MR. LAIRY JOHNSON, P.G.
P.O. BOX 1111
EL PASO, TEXAS 79999**

**ENGINEER:
RABA-KISTNER CONSULTANTS, INC.
7002 COMMERCE
EL PASO, TEXAS 79915**

"FIXED PRICE" CONSTRUCTION OR REPAIRS CONTRACT

CONTRACT FOR

ASARCO ON-SITE PLANT REMEDIATION 2006

THIS AGREEMENT is made this _____ day of _____, 2006, by and between: _____, whose address is: _____, (hereinafter called the "Contractor") and _____, whose address is: _____, (hereinafter called the "Owner").

Whenever used in this Agreement, the terms "Owner" and "Contractor" shall include their respective directors, officers, employees, servants, affiliates, subsidiaries, agents, successors and assigns. The term "Contractor" shall also include any and all subcontractors and their officers, employees, servants, affiliates, subsidiaries and/or agents, suppliers and any other parties in privity with the Contractor or under the Contractor's direction or control in connection with the Work.

WITNESSETH:

The Contractor and the Owner, for and in consideration of the mutual covenants set forth herein, agree as follows:

Article 1. Scope of the Work

The Contractor shall furnish all such plans, shop drawings, field engineering, labor, materials, transportation, tools, equipment and other facilities in strict accordance with the requirements and provisions set forth herein and in strict accordance with the specifications, drawings and other requirements listed below and those drawings and specifications which may be supplied by the Owner or prepared by the Contractor at the Owner's direction subsequent to the execution of this Agreement and approved by the Owner. This Agreement, the Appendices hereto and all documents listed below are incorporated herein by reference and made a part hereof and are hereinafter referred to collectively as the "Contract" or the "Contract Documents." All work required to be performed under the Contract and the Contract Documents shall be referenced herein as the "Work" or the "Project."

Specifications and Drawings have been submitted as part of the Front End Documents.

Article 2. Time of Completion

The Work to be performed under this Contract shall begin on _____ and shall be substantially completed as defined in Article 5 by October 15, 2006 and fully and finally completed by October 30, 2006, plus any applicable extensions of time granted by the Owner.

Article 3. The Contract Price

The Owner shall pay the Contractor for the performance of this Contract, subject to any additions and deductions herein provided, the sum of _____ dollars (\$ _____), in lawful currency of the United States of America under the conditions hereinafter provided.

Article 4. Schedule of Values and Progress Payments

Notwithstanding any payment provisions elsewhere in this Agreement, including any exhibits, amendments, or attachments thereto, the Contractor acknowledges that the work to be performed may be subject to payment procedures and processes established for the Environmental Trust (Trust) which has been created pursuant to the provisions of Section VII of the Consent Decree between the U.S. Department of Justice and Environmental Protection Agency and Owner (CV 02-2079-PHX-RCB *United States of America v. Asarco, Inc. and Southern Peru Holdings Corporation*), and the Asarco Trust Agreement. To be eligible for consideration for payment from the Trust, work must occur on or after February 1, 2003. The Consent Decree allows for certain work to be paid directly to the Contractor from the Trust. The Trustee is authorized to directly reimburse the Contractor for work authorized under the approved annual budget upon submittal of unpaid Contractor invoices, accompanied by Owner's statement that the Contractor has not yet been paid and is to be paid directly by the Trustee. The Owner, U.S. Department of Justice and Environmental Protection Agency, and Trustee have established procedures for invoice submittal, review, and approval in order that work be paid directly from the Trust as permitted in the above-referenced Consent Decree and Asarco Trust Agreement. Contractor agrees that if any or all of the work under this Agreement is subject to direct payment by the Trust, it will comply with the procedures established for direct payment from the Trust. In addition, Contractor agrees that it will not submit any claim to the Owner for direct payment, unless i) Owner has first expressly authorized the work and the payment outside the Trust prior to any work being performed under this Agreement, or ii) the claim has been submitted to the Trustee and denied pursuant to the terms and conditions of the Asarco Trust Agreement.

Article 5. Substantial Completion

"Substantial Completion" is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with all Contract Documents so the Owner can occupy or utilize the Work for its intended use. When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Owner a comprehensive list of items which remain to be completed or corrected relating to that portion of the completed Work. This list shall be identified by the Contractor as the "Contractor's Draft Punch List." Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract. Upon receipt of the Contractor's Draft Punch List, the Owner will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Owner's inspection discloses any item, whether or not included on the Contractor's Draft Punch List, which in the Owner's opinion prevents the Work from being substantially complete, the Contractor shall complete or correct such item upon receipt of notification by the Owner. The Contractor shall then submit a written request for another inspection from the Owner to determine Substantial Completion. When the Owner determines that the Work or designated portion thereof is substantially complete, the Owner will prepare and provide to the Contractor a Certificate of Substantial Completion which shall establish the date of Substantial Completion, and shall fix the time (if a change is required in the date originally established for final completion) within which the Contractor shall finish any remaining items of Work itemized by the Owner. This listing of remaining items of Work shall be identified as the "Owner's Final Punch List" and shall be provided to the Contractor along with the Certificate of Substantial Completion.

Article 6. Acceptance and Final Payment

- (a) Upon receipt of written notice from the Contractor that the Owner's Final Punch List is complete and the Work is ready for final inspection and acceptance, the Owner shall promptly make such inspection. If and when the Owner finds the Work fully performed and acceptable under the Contract, the Owner shall promptly issue a Certificate of Final Completion. After all appropriate adjustments have been made to the Contract price, the entire remaining balance shall be paid to the Contractor by the Owner within thirty (30) days after the date of issuance of said Certificate of Final Completion.
- (b) Before issuance of the Certificate of Final Completion, the Contractor shall submit evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the Work have been paid, and that the Work is free of all liens and encumbrances. The Contractor shall provide the Owner with releases of claims and liens for all of its subcontractors. In the case of disputed indebtedness or liens, the Contractor must submit a surety bond satisfactory to

the Owner guaranteeing payment of all such disputed amounts when adjudicated.

Article 7. Liquidated Damages

The Owner and the Contractor recognize that time is of the essence for this Contract and that the Owner will suffer financial loss if the Project is not completed within the times originally specified, plus any time extensions permitted under the terms of this Contract. The Owner and the Contractor also recognize the delays, expense and difficulties involved in proving the actual loss suffered by the Owner if the Project is not completed on time. Accordingly, instead of requiring any such proof, the Owner and the Contractor agree that as liquidated damages for delay (but not as a penalty), the Contractor shall pay the Owner \$500.00 for each day that expires after the date of Substantial Completion originally specified in Article 2 (plus any proper time extension granted) until such time as the Work is substantially complete and all Contract requirements for Substantial Completion as described in Article 5 above have been satisfied by the Contractor. This liquidated damages clause covers delay damages (as described below) only and the Owner reserves the right to recover from the Contractor all other damages the Owner may incur as a result of any breach of this Contract, including but not limited to direct damages, consequential damages, attorneys' fees and costs. The delay damages covered by this liquidated damages clause include only the Owner's loss of revenues or income associated with the delay in Project completion or facility use.

Article 8. Insurance Certificate

The Contractor shall deliver to the Owner, along with the signed Contract and prior to any equipment or personnel being brought onto the Owner's premises a Certificate of Insurance evidencing the insurance coverage's described in Article 37 of this Contract.

Article 9. Compliance with Laws and Ordinances

This Contract shall be performed and all equipment, goods, services or work furnished hereunder shall be produced, sold or delivered in strict compliance with all federal, state and local laws, rules, regulations, standards and other governmental requirements in effect as of the date hereof including, but not limited to, the Occupational Safety and Health Act of 1970, 29 U.S.C. §§ 651 et seq. (the "Occupational Safety and Health Act"), the Mine Safety and Health Act of 1977, 30 U.S.C. §§ 801 et seq. (the "Mine Safety and Health Act"), the statutes enforced by the United States Environmental Protection Agency ("U.S. EPA") and all applicable regulations and standards. The Contractor will furnish to the Owner certificates of such compliance in a form acceptable to the Owner. If the Contractor performs any Work or delivers any services or goods contrary to any laws, ordinances, rules or regulations, the Contractor shall bear all costs and expenses of any kind arising therefrom. The inclusion in this Contract of any specific requirements or agreements to comply with specific laws, regulations or ordinances does not and is not intended to relieve the Contractor of its obligation to comply with all laws, rules, statutes, regulations and

ordinances.

Article 10. Employment and Related Laws

To the extent the goods and services to be provided hereunder are being utilized by the Owner to fulfill obligations pursuant to a contract with the federal government or any agency thereof or to the extent otherwise applicable as a matter of law to the contracting and/or subcontracting of services or Work hereunder, the following provisions are incorporated by reference and the Contractor represents that it will comply with them: The Equal Employment Opportunity Act, E.O. 11246 and 41 CFR §§ 60-1.4 and 60-1.7; the Employment of Veterans Act, 41 CFR § 60-250; and the Employment of Handicapped Act, 41 CFR §. 741-4, Drug Free Workplace Act of 1988 (Pub.L. 100-690); Walsh-Healey Public Contracts Act, 41 U.S.C. § 35-45; Service Contract Act of 1965, as amended, 41 U.S.C. 351, et seq.; Americans with Disabilities Act of 1990, 42 U.S.C. § 12101, et seq., such other laws or regulations as the federal government may require the Owner to flow down to its contractors; and all rules and regulations issued pursuant to the foregoing.

Article 11. Intent of Contract Documents

The intention of this Contract is to include all labor and materials, equipment, supplies, services and transportation necessary for the proper execution and completion of the Work. All services, materials, equipment, activities or Work that are not specifically identified in Article 1, shown on the drawings, stated in the specifications or other Contract Documents, or listed herein, but that are reasonably necessary for the proper completion of all Work on the Project in accordance with the highest industry standards, shall be provided by the Contractor the same as if specifically identified in Article 1, shown on the drawings, stated in the specifications or other Contract Documents, or listed herein. Contract terms, which have a well-known technical or trade meaning, shall be interpreted accordingly. In the event of any inconsistency, conflict or ambiguity between or among the Contract Documents, such conflict shall be resolved by referring to the Contract Documents in the following order of precedence: (1) the most recent change orders and written amendments to this Contract signed by the Owner and Contractor; (2) the terms and conditions of this Contract.

Article 12. Drawings and Specifications

The Owner agrees to furnish, without charge to the Contractor, one (1) set of reproducible specifications and prints of all drawings listed in the specifications. Where revised or additional drawings and specifications are prepared as hereinafter provided, the Owner will furnish one (1) set of such revised or additional drawings and specifications to the Contractor.

The Owner agrees to furnish supplemental drawings as may be required to clarify the Contract drawings. Supplemental drawings shall neither enlarge nor decrease the scope of the Work. Where alterations in the Contract drawings and specifications

affect the extent of the Work, the changes shall be governed as provided in Article 27 of this Agreement.

The Contractor agrees to furnish to the Owner for approval three (3) sets of prints of the following drawings before proceeding with the Work covered therein:

- A. All of the Contractor's drawings which are required or produced for this Project.
- B. Any shop drawings, detail sheets or erection diagrams required for any phase of the Work.
- C. Certified dimension sheets, wiring diagrams and performance curves covering any equipment purchased by the Contractor for the Project.

The Contractor shall make any corrections required by the Owner in drawings submitted for the Owner's approval. The Owner's approval as to the design of such drawings shall not relieve the Contractor of responsibility for errors or discrepancies of any sort.

The Contractor also agrees to furnish to the Owner five (5) sets of operation and installation instructions and parts lists for all equipment furnished by the Contractor, not later than the date the equipment is shipped, including two (2) certified copies of dimension sheets, wiring diagrams and performance curves of same.

As soon as the drawings referred to in subparagraphs A and B above are completed, checked and approved by the Owner, the Contractor shall furnish three (3) complete final sets of prints to the Owner.

Upon completion of the Project and as a condition for final payment, the Contractor shall provide the Owner with three (3) sets of record drawings showing all as-built conditions on the Project.

Article 13. Order of Completion and Schedules

The Contractor shall complete any portion or portions of the Work in such order of precedence as the Owner shall require, and the time for completion of the various stages or divisions of the Work will be determined by the schedules issued by the Contractor to the Owner and mutually agreed upon by the Owner and the Contractor. Within ten (10) days after the effective date of this Contract, the Contractor shall submit to the Owner a preliminary progress and schedule indicating start and completion dates for the various stages or divisions of the Work. The Contractor shall be responsible for maintaining and providing the Owner with written schedule updates on at least a monthly basis or as otherwise requested by the Owner. The schedules and updates shall be prepared by the Contractor in a form acceptable to the Owner.

Article 14. Contractor's Understanding

To the extent reasonably practicable or consistent with trade or industry practice,

the Contractor shall satisfy itself as to the nature, physical condition and location of the Work, including but not limited to all subsurface conditions, the character of equipment and facilities needed prior to and during the execution or performance of the Work, the general and local conditions, and all other matters which can in any way affect the Work under this Contract. The Owner's subsurface investigations (if provided) are made for design purposes only. The Owner does not warrant that the conditions indicated by these investigations are representative of those throughout the Work area, or in any part of it. Where reasonably practicable or consistent with trade or industry practice, the Contractor is responsible to make its own subsurface investigation to determine the impact of the subsurface conditions on its Work. Information supplied by the Owner regarding subsurface conditions is provided to supplement the Contractor's own subsurface investigation and such information is not to be relied upon by the Contractor. The Contractor's right to recovery or relief for any condition, whether or not anticipated, obvious or latent, shall be governed by Article 44 of this Contract and shall be limited solely to an extension of the Contract performance period.

Article 15. Utilities and Temporary Facilities

The Owner will not supply electricity, water, light, power, steam, compressed air or other utilities required for construction purposes unless specifically so provided in the Contract. Where such items are not supplied by the Owner, they shall be furnished by the Contractor, and the Contractor shall, in either case, be required to make the necessary connections, provide approved shut-off and safety devices and furnish and install all temporary lines required to bring them to the point of use. The Contractor shall construct and maintain all necessary temporary facilities for the completion of the Work. The Contractor shall provide and maintain adequate sanitary facilities at the Project site. Upon completion of the Work, all such facilities shall, unless the Owner shall otherwise direct be removed from the premises and the site cleared.

Article 16. Status and Responsibility of the Contractor and its Personnel

It is understood and agreed that the status of the Contractor and its subcontractors hereunder is that of an independent contractor, that their personnel performing services or Work hereunder shall under no circumstances be deemed to be employees of the Owner, and that any Worker's Compensation Insurance coverage and Occupational Safety and Health Administration ("OSHA") or Mine Safety and Health Administration ("MSHA") training required for such personnel will be the sole responsibility of the Contractor. Notwithstanding the aforesaid understanding, the general instructions of the Owner in connection with accomplishing the Work to be done hereunder shall be followed by the personnel of the Contractor.

The Contractor shall at all times enforce strict discipline and good order among its employees, and shall seek to avoid employing on the Work any unfit person or anyone not skilled in the Work assigned to him.

During the term of the Contract, it shall be the Owner's prerogative to require

changes in the personnel of the Contractor's employees assigned to the Work when in the opinion of the Owner their work is not conducive to the required scope of Work.

If for any reason the Contractor's employees or any of its subcontractor's employees or agents acquire a status imposing liability on the Owner for employers' contributions or taxes under the Federal Insurance Contribution Act, the Federal Unemployment Tax Act, any State Unemployment Tax or Wage Protection Act, any savings, profit sharing, pension, equity participation, or other benefit plans or for the violation of any federal, state or local act, statute or regulation, then the Contractor shall be solely and exclusively liable for, and shall indemnify, defend and hold harmless the Owner against the same so as to relieve the Owner from any and all liability, loss or damage therefor and from the responsibility for making reports or keeping records with respect thereto.

Article 17. Environmental Safety and Health Policy & Training

By accepting this Contract and beginning performance hereunder, the Contractor acknowledges that providing a safe and healthy workplace and protecting the environment is the Owner's first priority. The Contractor further agrees that any of its officers, agents, employees or subcontractors that enter the Owner's premises will be trained by the Contractor in the following areas: (a) applicable safety and health protection procedures, laws and regulations of federal, state and local governmental agencies, including but not limited to, OSHA and MSHA and/or their state or local equivalents; (b) applicable environmental protection laws, procedures and regulations enforced by federal, state and local governmental agencies including, but not limited to, the U.S. EPA and/or their state or local equivalents; and (c) the Owner's site policies, rules and procedures.

Article 18. General Safety and Health Provisions

- (a) The Contractor agrees to fully comply with all Owner control procedures relating to facility access, including but not limited to, employee identification and information requirements, sign in/out and Work initiation/termination notification procedures. The Contractor agrees to comply with all Owner requirements applicable to the Contractor employee presence on site, including but not limited to, the use of respirators and personal protection equipment (e.g., hard hats, seat belts, gloves, safety glasses and coveralls) and the general safety and health provisions set forth below. The Contractor and its subcontractors and employees will complete and provide to the Owner the forms contained within Owner's Contractor Policy, and any other requested forms relating to safety, health and environmental protection.
- (b) The Contractor shall designate a job site representative to be its safety supervisor and that person shall be responsible for promoting safety, health, and accident prevention, interest in compliance with applicable laws, rules and regulations among its employees, and coordinating such activities with the Owner and any

subcontractors and suppliers of the Contractor. In particular, that person shall insure that Contractor performs, through an independent laboratory, biological monitoring as specified in OWNER's safety policy

- (c) The Contractor shall convey in writing and orally to its employees that they must notify the Contractor and the Owner immediately of any safety or health concerns, regardless of whether such concerns or problems relate to any job site policy, law, rule, regulation or any physical condition or process involving the Project premises or any circumstances, or any actions or inactions of the Owner or the Contractor. Upon receipt of such notice from an employee, or as follow-up to any oral or written notice issued by the Owner to the Contractor's site personnel, the Contractor must notify the Owner in writing within twenty-four (24) hours, of the stated concern, hazard or problem and what corrective and/or protective action has been taken and/or remains to be taken to evaluate the problem, mitigate the problem, prevent its recurrence, and effectively communicate with affected employees.
- (d) The Contractor acknowledges and agrees that it has been provided with and reviewed the Owner's Contractor Policy, safety and health rules and training materials and agrees to institute and follow such rules and apply them to the Work performed under this Contract.
- (e) The Contractor shall take all reasonable precautions to ensure the safety and health of all persons working at the Project and all persons who may in any way be affected by the Work, including but not limited to:
 1. The Contractor agrees to limit its travel on the Owner's premises and facilities solely to that necessary for performing the contracted Work or services, and to be accompanied by the Owner's personnel, unless authorized in writing to be unaccompanied following initial Work site arrival.
 2. The Contractor agrees to comply with the Owner's substance abuse policies.
 3. The Contractor agrees to become familiar with and train its employees in the physical characteristics of the worksite, including, but not limited to, any hazards, restricted areas, protective measures and applicable emergency and evacuation procedures.
 4. The Contractor agrees to provide safe, functional equipment and materials and any training, testing or certifications that are necessary, appropriate or required to utilize such materials and equipment, including all equipment and tools needed to perform the job, and to provide approved personal protective equipment and clothing and respirators appropriate for the type of Work and Work location. The Contractor also agrees to maintain such equipment,

materials and tools in good working condition.

5. The Contractor agrees to be subject, at any time, to the Owner's Contract compliance monitoring, including inspections, testing, and the Owner's acceptance or rejection of Contractor-provided equipment, materials and tools employed or used to complete the Work.
 6. The Contractor agrees to obtain the Owner's written approval of its subcontractors and their employees before utilization on the Owner's premises. The Contractor must ensure that subcontractors meet the same safety and health requirements and provide the same information to the Contractor, as the Owner requires of the Contractor. The Contractor in turn must provide copies of all such information to the Owner.
- (f) The Contractor shall take all reasonable precautions to assure that it discovers, is made aware of and corrects any unsafe or unhealthy conditions, circumstances, actions or inactions that arise at the Project and that directly or indirectly affect any of the Contractor's personnel or the personnel of any other contractor or the Owner at the site.
 - (g) The Contractor shall promptly advise the Owner of any investigation or inspection of the Project site or the Contractor's workplace by any federal, state or local governmental agency and shall permit the Owner to participate fully in such inspections, and shall provide copies of inspection reports and notices of violations, and advise the Owner in writing of the progress and outcome of any such inspection or investigation or related litigation.
 - (h) The Contractor shall immediately notify the Owner (and if requested provide a detailed written report) of every accident involving injury to personnel or occupational illnesses or damages to the Owner's property occurring in connection with the Work or on the Owner's facility, and agrees to assist the Owner with any accident investigation in which the Contractor has any involvement by providing access to and preserving the Work area and by producing any and all related documents and records and any employees who have knowledge of, were involved in, or may have witnessed the accident for interviews. The Contractor also agrees to record and report all required information to all appropriate federal, state and local regulatory agencies and to provide copies of such reports and information to the Owner. The Contractor shall also report to the Owner employee days and hours worked while on company premises.
 - (i) The Contractor acknowledges and agrees that any safety or health advice or training, inspections, safety or health equipment, health or biological monitoring or other safety or health services that may be provided or performed by the Owner for itself or the Contractor, its subcontractors or their employees is strictly voluntary and is provided solely to enhance safety and health in the workplace.

Any such actions by the Owner shall not be alleged to change or diminish or relieve the Contractor or its subcontractors of contractual, legal or governmental responsibilities in these areas and shall not constitute, nor be alleged in any inspection, investigation or legal proceeding to constitute control, supervision or direction by the Owner of the Contractor's or its subcontractor's employees.

- (j) The Contractor agrees to provide the Owner with its written safety program and certify that all required training has been completed in a timely manner pursuant to the applicable federal and state laws and regulations, and provide such completed forms as requested by the Owner to demonstrate compliance with this provision.
- (k) The Contractor agrees to use and employ a safety and health program at least as comprehensive as that included in Owner's Contractor Policy and to conform to all requirements and information requests set forth in said policy. If additional precautionary requirements are agreed to, they are set forth in Appendix A hereto and the Contractor agrees to comply with them.

Article 19. General Environmental Provisions

- (a) The Contractor is responsible for proper management, storage, removal and disposal of all supplies and materials utilized in the Work and waste materials generated in the course of performance of the Contract pursuant to the Owner's rules, and all applicable laws, ordinances, rules, regulations, standards and/or other governmental requirements related thereto, including but not limited to, those of OSHA, MSHA, the U.S. EPA, the Department of Transportation and all federal, state, municipal and local governmental agencies, and the applicable fire codes, including but not limited to, appropriate containers, labels, warnings and placards, and secondary containment for materials containing hazardous substances or petroleum.
- (b) The Contractor may store supplies, materials and wastes only in areas designated by the Owner. The Contractor may not store any wastes on the Owner's property in excess of ninety (90) days. If the Contractor utilizes any materials designated by federal, state or local law as a hazardous substance or hazardous waste, such materials must be stored in appropriate containers and spill control equipment must be available in the storage areas.
- (c) In the event of a fire or a spill or release of hazardous materials or wastes on the Owner's property, the Contractor will take actions necessary to prevent harm to the environment and human health, and immediately notify the Owner in accordance with the notice provision contained in Article 52, as well as the appropriate governmental authorities.
- (d) The Contractor is responsible for all costs associated with removal and off-site disposal of all hazardous and non-hazardous wastes. The Contractor must inform

the Owner in accordance with the notice provision contained in Article 52 at least ten (10) days before any waste material is transported off-site for recycling or disposal.

- (e) In the event that the Contractor leaves any materials, supplies or wastes on the Owner's property (except those placed in a designated on-site land disposal unit with the Owner's written permission) after completion of the Work, said materials, supplies or wastes will be disposed of by the Owner at the Contractor's expense.
- (f) Prior to commencement of the Work, the Contractor will provide the Owner with a Material Safety Data Sheet for all materials and supplies to be utilized on the Owner's property in the course of performance of the Contract. At the Owner's discretion, the Owner may require that the Contractor utilize a substitute product that is less hazardous.
- (g) The Contractor is responsible for making all such Material Safety Data Sheets available to its own employees and those of its subcontractors pursuant to the Occupational Safety and Health Act.
- (h) Unless the Owner provides prior written approval to the Contractor, the Contractor may not bring any materials onto the Owner's property nor utilize any products that contain the following substances: asbestos, chlorofluorocarbons (CFCs), chlorinated solvents, or polychlorinated biphenyls (PCBs).

Article 20. Assessment For Contractor Violations And Audit Of Contractor Compliance

The Contractor recognizes and acknowledges that violations by the Contractor of health, safety, environmental and other statutory and regulatory authority may result in civil and/or criminal fines and penalties or in other damages and losses to both the Owner and the Contractor. The Contractor agrees that the Owner shall have the right to assess or backcharge the Contractor in an amount equal to that which OSHA, MSHA or U.S. EPA is authorized to assess for health and safety or environmental violations where the Owner reasonably determines that the Contractor, its agents, subcontractors or employees have committed such a violation. The Owner also shall have the right to inspect or audit the Contractor's records, conduct or actions during the performance of this Contract for the purpose of monitoring the Contractor's compliance with and enforcement of the terms of Articles 17 through 20. The Owner's remedies against the Contractor for violation of the terms of this Article shall not be limited to those set forth herein.

Article 21. Patents and Other Intellectual Property Rights

The Contractor shall indemnify, defend and hold harmless the Owner against and from any and all claims, losses, costs, damages, expenses, actions or other proceedings growing out of or resulting from the alleged infringement or infringement of

any patent or other intellectual property rights by the Contractor in the performance of this Contract. This provision shall not apply to patented articles or processes specified in drawings or specifications furnished by the Owner provided any such claim is not attributable to the Contractor's negligence in the use of such patented articles or processes.

Article 22. Surveys, Permits and Regulations

If involved in the subject matter of this Contract, the base lines and mean datum will be established by the Owner; the control lines and levels and all general layout Work will be the responsibility of the Contractor. All controls established by the Contractor shall be preserved and maintained throughout the life of the Contract.

Unless otherwise specified, the Owner shall furnish all land surveys required. Permits and licenses of a temporary nature necessary for the prosecution of the Work shall be secured and paid for by the Contractor. Permits, licenses and easements for any permanent structures or any permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified.

The Contractor shall provide all notices required by law which bear on the conduct of the Work as drawn and specified. If the Contractor observes that drawings and specifications are at variance therewith, the Contractor shall promptly notify the Owner in writing. If the Contractor performs any Work knowing it to be contrary to any such law, rule or regulation, and without such notice to the Owner, the Contractor shall bear all costs arising therefrom.

Article 23. Protection of the Public, the Work and Property

The Contractor shall provide and maintain all necessary watchmen, barricades, red lights and warning signs and take all necessary precautions for the protection and safety of employees on the Project, of all other persons and of adjacent private and public property. The Contractor at all times shall maintain adequate protection of the Work from loss and damage and shall protect the Owner's property and all persons thereon from injury, damage or loss by reason of any act or omission of the Contractor or any subcontractor.

In an emergency affecting safety, life or the Work or of adjoining property, the Contractor is, without special instructions or authorization from the Owner, hereby authorized to act at the Contractor's discretion to prevent such threatened loss or injury. The Contractor shall also so act if instructed by the Owner.

Any compensation claimed by the Contractor on account of an emergency of this nature shall be determined by mutual agreement and failing which, shall be resolved pursuant to Article 45.

Article 24. Inspection of Work

The Owner and its representatives shall at all times have access to the Work, and the Contractor shall provide safe and proper facilities for such access and for inspection. However, the mere fact that the Contractor's facilities or Work have been inspected is not to be interpreted as a determination by the Owner that the Contractor's Work is acceptable or that Contract requirements have been waived.

If the specifications, the Owner's instructions, laws, ordinances or any public authority require any item of material, equipment or Work to be specially tested or approved, the Contractor shall give the Owner timely notice in writing of its readiness for inspection. If the inspection is by an authority other than the Owner, the Contractor shall give the Owner notice of the date fixed for such inspection. The Owner shall conduct all inspections promptly. Where practicable, such inspections shall occur at the source of supply.

If any Work should be covered up by the Contractor before examination by the Owner without approval or consent of the Owner, it must, if required by the Owner, be uncovered for examination and properly covered again at the Contractor's expense. Even though the Owner has examined a particular item of Work, the Owner may order re-examination of such Work, and if so ordered, the Work must be uncovered by the Contractor. If such Work is found to be in accordance with the Contract, the Owner shall pay the cost of re-examination and replacement. If such Work is not in accordance with the Contract, the Contractor shall pay such cost.

Article 25. Contractor's Covenants/Supervision and Superintendence

The Contractor shall maintain a competent staff at all times to supervise and perform the Work. The Contractor shall maintain on the Project during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Owner. Directions for contract compliance by the Owner may be given to the superintendent and shall be binding on the Contractor. Directions for contract compliance shall be confirmed in writing upon the written request of the Contractor. The Owner maintains the right to direct the Contractor to increase or modify the method or manner of supervision or superintendence on the Project if it deems necessary for contract compliance.

The Contractor shall use its best judgment and skill in dealing with labor matters, and take all reasonable steps to avoid labor disputes. In the event of any strike or threat of strike, slowdown, featherbedding or other like practices, the Contractor shall apprise the Owner of all relevant facts and implications of the particular labor problem involved, and shall consult in good faith with the Owner in an effort to reach a mutually satisfactory solution to such labor problem and, so far as reasonably possible, to protect the Owner against delays affecting the Work or damage or losses to its other operators.

Article 26. Qualification and Performance of the Contractor's Employees

The Contractor shall at all times supply a sufficient number of skilled workmen to diligently pursue the Work. Where required by applicable statutes, codes, rules, regulations and ordinances, all workmen engaged in such Work shall present evidence by certificate or otherwise that they are qualified to do the Work in conformity with such statutes, codes, rules, regulations and ordinances.

Article 27. Changes in the Work

The Owner, without invalidating this Contract, may at any time order extra Work or initiate changes in the Work by altering, adding to or deducting from the Work. If such extra Work or change involves a change in cost or in the time required for completion, the Contract price and Contract performance period shall be increased or decreased in accordance with the terms hereof and the instructions contained in Appendix B to this Contract. The Owner will initiate the change process by issuing to the Contractor the form in Appendix B entitled "Change Order Directive Form" ("CODF"). The Owner shall describe or itemize in the CODF the changes to be made by the Contractor. Upon receipt of the CODF, the Contractor shall complete and submit promptly to the Owner, the "Contractor Change Order Proposal Form" included in Appendix B and include therein an itemized statement of the extension or reduction in the time for completion of this Contract which the Contractor deems reasonable, and the Contractor's calculation of the adjustment in the Contract price resulting from the changes or extra Work. The Contractor's calculation of its proposed adjustment to the Contract price shall be completed in accordance with the form in Appendix B entitled "Instructions For Preparing Change Order Proposal." The Owner and the Contractor both must execute the completed CODF to memorialize a change order. The CODF must be fully executed by the Owner and the Contractor before Work on the changes is begun unless the Owner issues a written order to the Contractor to proceed immediately with the Work identified in the CODF. Where the circumstances require it, the Owner shall have the right to direct the Contractor to use a pricing methodology other than that set forth herein.

In the event the parties cannot agree upon the increase or decrease in the time for completion or in the amount of the Contract price adjustment under this Article 27, then the Contractor shall nevertheless proceed with the Work, including any extra Work or changes, and the dispute shall be settled in accordance with Article 45 hereof. Any dispute as to the amount of a change shall be resolved in accordance with the formula contained in the form attached hereto entitled "Instructions For Preparing Change Order Proposal."

No extra Work shall be performed or change shall be made except by written order of the Owner, and no claim for an increase in the Contract price or an increase in the time for completion shall be valid unless the extra Work or change was ordered in writing.

The Contractor may initiate the change order process under this Article 27 by requesting that the Owner issue a Change Order Directive Form. However, unless the

Owner issues a Change Order Directive Form to the Contractor, this Article 27 shall not apply to and shall not provide the basis for a Contractor-initiated change, constructive change or equitable adjustment request, or claims of any nature, including but not limited to claims for changed conditions, differing site conditions, defective specifications, delay, disruptions, or loss of productivity and efficiency.

Article 28. Warranty and Quality

The Contractor warrants that all goods, materials and services shall: conform to the specifications, drawings, samples or other description agreed to by the Contractor and the Owner; meet the highest industry standards for merchantability and workmanship; be free from all defects; and comply with all applicable laws and regulations. All goods and materials incorporated into the permanent Work shall be new. Such warranties shall survive the Owner's inspections, tests and acceptance for a period of twelve (12) months from the date the Owner issues a Certificate of Final Completion covering the Work. The Contractor's obligations and the Owner's rights hereunder shall remain in full force and effect beyond the twelve (12) month period to cover any defects that are latent or could not have been discovered through reasonable use of the goods or the services provided. If any goods or services performed are defective or otherwise not in conformity with the requirements of this Contract, the Owner, in addition to its other rights including the right to recover direct, consequential or incidental damages, attorney's fees and costs, may reject the same for full credit or require proper correction, replacement or completion thereof at the Contractor's expense. All rejected goods may either be returned to the Contractor at the Contractor's expense, or may be held by the Owner for disposition at the Contractor's risk and expense. The Contractor shall at all reasonable times permit inspection and testing by the Owner of all items, work in process, materials and workmanship covered by this Contract. The Contractor's warranty obligations shall survive termination.

Article 29. Deduction for Uncorrected Work

If the Owner deems it inexpedient to correct Work that has been damaged through the fault or neglect of the Contractor, or that was not done in accordance with the Contract, an amount to compensate the Owner fully for such damage or non-compliance shall be deducted from the Contract price. If the parties cannot agree on the amount of such deduction, it shall be determined in accordance with Article 45 hereof.

Article 30. Correction of Work Before Final Payment

The Contractor shall, within ten (10) days of receipt of written notice, remove from the premises all materials whether incorporated in the Work or not, and take down all portions of the Work, where the Owner has advised the Contractor that such materials or Work fail to meet Contract requirements. The Contractor shall within ten (10) days replace and re-execute the Contractor's own Work in accordance with this Contract and without expense to the Owner and shall bear the expense of making good all Work of

other contractors destroyed or damaged by such removal or replacement.

If the Contractor does not remove such Work and materials within ten (10) days after service of written notice, the Owner may remove them and may store the materials at the expense of the Contractor. If the Contractor does not pay the expense of such removal and storage within ten (10) days thereafter, the Owner may, upon ten (10) days' written notice, sell such materials at auction or at private sale and shall pay to the Contractor the net proceeds thereof, after deducting all the cost and expense that should have been borne by the Contractor. Should such cost and expense exceed the auction or sale price, the Contractor shall pay such difference promptly to the Owner upon the presentation of a substantiating invoice by the Owner. The Contractor waives all rights to claim damages or any other remuneration, except as required by law, for sale of materials at auction or private sale. Any dispute under this Article shall be determined in accordance with Article 45 hereof.

Article 31. Inspection and Correction of Work After Final Payment

Neither inspection by the Owner or its representative, nor the Owner's Certificate of Final Completion or final payment, nor any provision in this Contract shall relieve the Contractor of liability for providing faulty materials or workmanship.

Article 32. Owner's Right to Terminate Contract for Cause

Any of the following reasons shall provide the Owner with a basis for terminating the Contractor's Contract for cause: (1) any proceeding is instituted by or against the Contractor seeking to adjudicate it as bankrupt or insolvent, or seeking liquidation, winding up, reorganization, arrangement, adjustment, protection, relief or composition of its debts under any law relating to bankruptcy, insolvency or reorganization or relief of debtors or seeking the entry of an order of relief or the appointment of a receiver, trustee or other similar official for it or any substantial part of its property; or (2) the Contractor admits its inability or fails to pay its debts generally, or shall make a general assignment for the benefit of its creditors; or (3) the Contractor at any time fails, refuses or neglects to supply enough properly skilled workmen or proper materials; or (4) the Contractor fails to make prompt payments to subcontractors or for material or labor; or (5) the Contractor disregards laws, ordinances or the instructions of the Owner; or (6) the Contractor violates any provision of this Contract; or (7) the Owner reasonably determines that the Contractor has not timely or satisfactorily performed its Contract Work. If the Contractor shall fail to remedy any such default or deficiency to the satisfaction of the Owner within ten (10) days after the Owner's issuance of written notice to the Contractor, then the Owner may, without prejudice to any other right or remedy it may have under this Contract or as a matter of law, terminate the employment of the Contractor for the Contractor's default and take possession of the premises and of all material, tools and appliances thereon and finish the Work by whatever method the Owner deems appropriate and expedient.

If the unpaid balance due on the Contract for Work performed to the date of termination of the Contractor exceeds all loss or damages of the Owner caused in whole or in part by the Contractor's default, including but not limited to, any financial losses or expenses incurred or suffered by the Owner as a result of a delay in completion of the Work and the expense of finishing the Work and compensation to the Owner for the Owner's managerial and administrative services, and attorneys' fees and expenses, then such excess shall be paid to the Contractor within a reasonable time after final completion of the Project. If such loss or damages to the Owner shall exceed such unpaid balance, the Contractor shall not be entitled to payment of the unpaid balance and shall further pay to the Owner all damages incurred by the Owner which were caused in whole or in part by the Contractor. Following termination, the Owner may complete the Contract Work and reprocur the necessary services for completing the Work, and the Contractor shall be liable for any additional damages or costs incurred by the Owner.

Article 33. Owner's Right to Terminate Contract for Convenience (Without Cause)

The Owner may, at any time, terminate the Contractor's services under the Contract for any reason whatsoever or for its convenience by giving the Contractor not less than fifteen (15) days' written notice of termination setting forth the effective date of termination. In the event of such termination, the Owner shall pay to the Contractor the balance due on the Contract price for Work actually performed, accepted and approved by the Owner prior to the effective date of such termination, less payment previously made by the Owner on account thereof and less any damages or loss the Owner may have incurred as a result of the Contractor's performance or conduct. The Owner shall have the right to audit and review all amounts claimed by the Contractor pursuant to this Article. The Contractor shall not be entitled to demand any damages, consequential or otherwise, compensation or indemnity of any kind as a consequence of such termination.

Article 34. Removal of Equipment

In the case of termination of this Contract before completion for any cause whatsoever, the Contractor shall promptly remove any part or all of the Contractor's equipment and supplies from the property of the Owner, failing which the Owner shall have the right to remove such equipment and supplies at the expense and at the risk of the Contractor, without liability of the Owner for any damage to, or loss of the same.

Article 35. Use of Completed Portions

The Owner shall have the right to take possession of and use any completed or partially completed portions of the Work, notwithstanding the time for completing the entire Work or such portions may not have expired; but such taking possession and use shall not be deemed an acceptance or approval of any Work not completed in

accordance with this Contract.

Article 36. Payments Withheld

The Owner may withhold all or part of any progress or final payment to the extent necessary to protect the Owner from loss or damage on account of:

- (a) Damaged or defective Work not remedied;
- (b) Claims filed or reasonable evidence indicating probable filing of claims by other parties against the Contractor or the Owner;
- (c) Failure of the Contractor to make payments properly to subcontractors or for material or labor;
- (d) A reasonable doubt that this Contract can be completed for the balance then unpaid or within the time specified;
- (e) Damage to the Owner's property or the work of another contractor;
- (f) Failure of the Contractor to make satisfactory progress or to meet the established schedule or milestones;
- (g) The Contractor's violation of any applicable laws, ordinances, rules, regulations, instructions and/or other general regiments; and
- (h) Any other penalty, fine, damage or cost incurred or sustained by the Owner or that may be incurred or sustained.

Article 37. Contractor's Insurance

A. Minimum Scope and Limits of Insurance

The CONTRACTOR shall procure, pay for and maintain in full force and effect at all times during the performance of the Services and until final acceptance of the Services, policies of insurance issued by financially responsible carriers with Best's ratings of not less than A:VII, that afford the following coverages:

- | | |
|-----------------------------------|---|
| 1. Workers' Compensation | Statutory |
| 2. Employer's Liability Insurance | Not less than \$1 million each accident |

- | | |
|--|---|
| 3. Business Automobile Liability coverage including owned, non-owned and hired car coverages. | Not less than \$2 million each accident |
| 4. Commercial General Liability Policy (ISO occurrence or claims-made form) including bodily injury, property damage, completed operations and products coverages. (Completed operations shall be provided for a period of two (2) years from final acceptance of the Work by OWNER. If a general liability policy is written on a claims-made basis, the OWNER's interest must continue to be covered for an additional two-(2) year period after policy expiration.) | Not less than \$2 million per occurrence combined single limit for both bodily injury and property damage |
| 5. Environmental Impairment Liability Policy (WHEN APPLICABLE) | Not less than \$2 million each accident |

B. Other Insurance Provisions

The policies are to contain, or be endorsed to contain, the following provisions:

1. With respect to Commercial General Liability, Automobile Liability and Environmental Liability Coverages, these policies shall:
 - (a) name the OWNER, its parents, subsidiaries, agents and affiliated companies, and its directors, officers, agents and employees as *Additional Insureds*;
 - (b) expressly include a *severability of interest* clause; and
 - (c) be *primary insurance* as respects the OWNER, its parents, subsidiaries, agents and affiliated companies, and their directors, officers, agents and employees.

Any *failure to comply* with reporting provisions of these policies shall not affect coverage provided to the OWNER.

2. With respect to all coverages, every policy shall contain a *Waiver of*

Subrogation endorsement in favor of the OWNER, its parents, subsidiaries, agents and affiliated companies, and its directors, officers, agents and employees.

C. Verification of Coverage

Before any equipment or personnel is brought on to OWNER's premises, CONTRACTOR agrees to deliver to OWNER an original *Certificate of Insurance* evidencing the above coverages. All policy deductibles and/or self-insured retentions must be shown on the Certificate(s) and are subject to approval by the OWNER. Certificates shall expressly provide that no less than thirty (30) days prior written notice shall be given OWNER in the event of material alteration to or cancellation of the coverage evidenced by such policies. Upon renewal of each policy, CONTRACTOR shall provide to OWNER a *Certificate of Insurance* evidencing all of the provisions specified in this Article.

CONTRACTOR will maintain the original of all policies and endorsements, and provide OWNER with copies of the same upon request of OWNER.

D. Subcontractors

CONTRACTOR shall include all subcontractors as insureds under its policies or shall furnish separate Certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all of the requirements stated herein.

Article 38. Indemnity by the Contractor

The Contractor agrees to indemnify, defend and hold harmless the Owner from and against all claims, suits or demands of any kind and description, and from and against all alleged or actual damages, loss, fines or penalties which the Owner or the Owner's property may sustain, incur, suffer or receive and which arise or allegedly arise in whole or in part from the Contractor's performance under this Contract or from any other conduct, actions or inactions by the Contractor. The Contractor's indemnity obligations include, but are not limited to payment of all judgments, legal fees and expenses incurred by the Owner. The Owner's rights and the Contractor's indemnity obligations hereunder shall apply with full force and effect even if the Owner or any third party is or may be liable or responsible in part for the claim, suit, demand, damage, loss, fine or penalty sustained, incurred, suffered, or received. However, the Contractor's indemnity obligation shall apply for the amount and to the extent that the Contractor is at fault for or the cause of such loss or damages. The Owner's rights and the Contractor's obligations hereunder shall survive the expiration or termination of this Contract.

The Contractor's duty of indemnity shall apply with full force and effect even if the Owner provides the Contractor with environmental safety, health and training materials, goods or services or otherwise voluntarily assists the Contractor in protecting people and property and meeting its compliance obligations hereunder. The Contractor

acknowledges that any such services provided by the Owner are provided voluntarily and solely for the purposes of assisting the Contractor in protecting the environment and people.

Article 39. Surety Bonds

Although surety bonds will not be required during the bidding process, the Owner reserves the right to require the selected Contractor to post a surety bond at any time after the conclusion of the bidding process, including during the performance of Work. At the signing of this Agreement, the Contractor is required to provide a statement of bonding capability (Exhibit B), indicating the dollar limits and the surety company that would provide such a bond. If the Owner exercises its right to require a bond, it shall do so by written notice to the Contractor specifying the coverage amount. The Owner reserves the right to approve the Contractor's surety company. It shall be the Owner's option to purchase the bond directly from the approved surety company, or to require the Contractor to secure and pay for the bond and to file a Change Order for compensation from the Owner in the amount of the bond premium.

Article 40. Liens

Where permitted by applicable law, the Contractor shall not file a lien or encumbrance on the property in connection with the Project. Where the applicable law prevents the Owner and the Contractor from agreeing that the Contractor will not file a lien or encumbrance, neither the final payment nor any progress payment shall become due until the Contractor, if required, shall deliver to the Owner a complete release of all liens and claims arising on account of labor, materials, machinery or equipment in respect of which such payment is to be made and an affidavit that so far as the Contractor has knowledge or information, the releases include all the labor and materials for which a lien could be filed. The Contractor may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner to indemnify the Owner against any lien. If any lien remains unsatisfied after all payments are made, the Contractor shall pay to the Owner all monies that the Owner may be compelled to pay in discharging such a lien, including all costs and attorneys' fees.

Article 41. Assignment

The Contractor shall not assign or sublet this Contract in whole or in part, nor shall the Contractor assign any monies due or to become due hereunder, without the prior written consent of the Owner.

Article 42. Coordination of Work

The Contractor shall conduct and coordinate all Work on the Project so as to cause no interference when possible, or a minimum of interference when such interference is unavoidable, with the Owner's activities and operations. Where

interference with the Owner's operations becomes absolutely necessary, permission shall be requested by the Contractor not less than seventy-two (72) hours in advance.

When other contractors or the Owner's personnel are working on the Project on the immediate premises, the Contractor agrees to so schedule the Contractor's Work so as not to make it necessary for the Contractor to damage or otherwise alter any Work that has been completed by such other persons. If the Contractor fails to do so, then the Contractor shall replace or repair the damaged Work at the Contractor's own expense and in a manner satisfactory to the Owner.

If any part of the Contractor's Work depends upon the proper execution of the Work of any other person, the Contractor shall inspect and promptly report in writing to the Owner any defects in such Work that render it unsuitable for such proper execution and results. The Contractor's failure to so inspect and report in writing shall constitute an acceptance of such other Work as fit and proper for the reception of the Contractor's Work.

Article 43. Subcontractors and Suppliers

The Contractor will not employ any subcontractor without the prior written approval of the Owner. The Contractor is responsible for compliance with the terms and conditions of this Contract and agrees to be responsible for any breach by the subcontractor or for any failure by the subcontractor to comply with the terms and conditions of this Contract, including but not limited to the timely completion of the work described in Article I (Scope of the Work) of this Contract. Nothing herein shall be deemed to create a contractual relationship between any such subcontractor and the Owner or provide a basis for any claim by a subcontractor against the Owner.

All of the Contractor's subcontractors and suppliers shall be apprised of the terms and conditions of this Contract and shall be held liable, accountable for and subject to these terms and conditions in their own subcontract work and supply contracts to the same extent and degree that the Contractor is or would be liable, accountable for and subject to these terms and conditions in its Contract Work. It shall be the Contractor's duty to ensure that its subcontractors and suppliers accept and comply with the terms and conditions of this Contract and the Contractor shall supply to the Owner evidence of such compliance in a form acceptable to the Owner.

Article 44. Contractor Claims

If the Contractor is delayed, disrupted or interfered with or suffers damage or loss of any kind at any time in the progress of the Work by an act or neglect of the Owner, or a separate contractor employed by the Owner, or by changes or alleged changes ordered in the Work, or by an event giving rise to a claim of any nature (except changes that the Owner initiates under Article 27 above), or by a force majeure event (as defined in Article 51), then the Contractor's sole remedy against the Owner shall be the award of a change order extending the Contract performance period for such reasonable time

as the Owner may determine. All claims for extension of the Contract time shall be made in writing to the Owner no more than twenty-one (21) days after the occurrence of the event giving rise to the claim, otherwise they shall be waived. An extension of the performance period of the Contract, to the extent permitted by the Owner, shall be the Contractor's sole and exclusive remedy from and against the Owner for any and all damages, losses, expenses or costs (consequential or otherwise) sustained by the Contractor in connection with or arising from changes or alleged changes, delays, suspension, acceleration, hindrance, obstruction, unanticipated or differing site conditions, costs, duration-related economic injury, loss of productivity, extended home office overhead or any damages or expenses of whatever type and amount to the Contractor. The Contractor hereby waives its rights to claim and be compensated for

monetary damages, losses, expenses or costs (consequential or otherwise) in connection with, or arising from such events or circumstances. This Article shall not preclude the Owner from recovering from the Contractor all direct, consequential or other damages it may sustain, including but not limited to reprocurement costs that are caused by or arise in any way from the actions of the Contractor, its subcontractors or any of their officers, agents, affiliates or employees.

Article 45. Disputes

Claims, disputes or other matters in question between the parties to this Contract shall first be subject to mediation before arbitration. A demand for mediation shall be made within thirty (30) days after one party has notified the other party in writing that a dispute or claim has arisen. After the expiration of the thirty- (30) day period, the parties may nevertheless agree in writing to submit the claim or dispute to mediation. Any mediation shall be held in accordance with the Construction Industry Mediation Rules of the American Arbitration Association in effect when the dispute arises, unless the parties mutually agree otherwise. The mediation shall take place at a mutually convenient location in the city closest to the Owner's facility originating this Contract. Demand for mediation shall be filed in writing with the other party to this Contract and with the American Arbitration Association. Any dispute or difference arising out of, or in connection with, this Contract which cannot be amicably settled between the parties by mediation shall be finally settled by arbitration under the Rules of Construction Arbitration of the American Arbitration Association. The arbitration shall take place at a mutually convenient location in the city closest to the Owner's facility originating this Contract. The resulting decision of the arbitrators shall be final and binding on the parties. Judgment upon any award rendered by the arbitrators may be entered in any court having jurisdiction thereof. In no event shall the demand for mediation or arbitration be made after the date when institution of legal or equitable proceedings based upon such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

Article 46. Title

Title to all Work completed or in the course of construction shall be in the Owner;

and title to all machinery, equipment and materials to be incorporated in the Work shall be in the Owner as soon as they are delivered on the site of the Project.

Article 47. Technical Information

The term "technical information" as used in this Contract includes, but is not limited to, technical data, reports, models, drawings, specifications, operating manuals, designs, computations, formulas, apparatus, processes, patentable or unpatentable inventions and other engineering data. The Contractor agrees to accept the Owner's decision as to whether any particular information is technical information, which has been made or conceived under this Contract.

It is understood that in the course of the Contractor's performance hereunder, the Contractor may learn or have access to technical information of the Owner. Unless otherwise required by law, the Contractor agrees that it and its personnel will keep in confidence all such technical information of the Owner and will not use or disclose the same without the Owner's written consent, either during the term of this Contract or at any time thereafter.

The Contractor agrees to disclose to the Owner all technical information made or conceived by it or its personnel in performance, or resulting from performance, under this Contract. The Contractor agrees that all such technical information or inventions made or conceived by it or its personnel shall become and remain the free and unrestricted property of the Owner and that the Contractor shall assign or cause the same to be assigned to the Owner. The Contractor agrees that it and its personnel will keep in confidence all such technical information made or conceived by the Contractor or its personnel and that the Contractor and its personnel will not use or disclose the same without the Owner's written consent, either during the term of this Contract or at any time thereafter.

The Contractor agrees, upon the request and at the expense of the Owner, to make or cause its personnel to make applications for patents in such countries as the Owner may designate on those of the aforesaid assigned technical information or inventions which the Owner believes to be patentable and to assign all such applications to the Owner or its order; and to give the Owner, its attorneys and solicitors all reasonable assistance in preparing such applications, and in prosecuting such applications in the patent office or offices involved and in defending and enforcing any patent that may be issued upon any such application; and to execute all papers that may be reasonably required in the prosecution of such applications or to vest in the Owner or its assigns said inventions, applications and patents.

Article 48. Cleaning Up

The Contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by the Contractor or the Work. At the completion of the Work, the Contractor shall remove all of its rubbish, tools, scaffolding and surplus

materials from and about the site and the Contractor shall leave the Work "broom clean" or its equivalent, unless more exactly specified.

Article 49. Adaptability of Plans and Specifications

Except in the case of patented products for which there is no adequate substitute, the Contractor will not, without the prior written approval of the Owner, prepare any drawings or specifications or do any engineering or planning for the prospective use or installation of any tool, piece of equipment, or material in the Work which is of such a character that such drawings, specifications, engineering or planning could not be used with equal facility in connection with the product of all or most manufacturers of such tools, equipment or materials, or any substitute therefor.

Article 50. Engineering Approval

The Contractor agrees to order no material or equipment and to do no actual construction, and to permit no Work to be done by any subcontractor or supplier of materials or equipment until the drawings relating thereto, the lists and specifications of materials, the equipment to be used and the supplier have been approved by the Owner. During construction, the Contractor shall make no substitution of material without the prior written approval of the Owner.

Article 51. Force Majeure

"Force majeure" shall be any cause beyond the control of the parties hereto which they cannot reasonably have foreseen and guarded against. Force majeure includes but is not limited to, acts of God, labor disputes, financial crises, fires, riots, civil commotions or civil unrest, incendiarism, interference by civil or governmental authorities, and acts of war (declared or undeclared). Should any dispute arise between the Owner and the Contractor regarding a force majeure event, such dispute will be resolved pursuant to Article 45 of the Contract.

Article 52. Notice

Written notice shall be deemed to have been duly served if delivered by hand or sent by certified or registered mail, in each case to the address or addresses of each party set forth on the first page of this Contract and to the attention of the facility, plant, or contract manager as appropriate. Also, where written notice is required under the Contract from the Contractor to the Owner, the Contractor shall also send separate notices to the Owner's Plant Manager, Project Manager and Environmental Manager at the plant address set forth on the first page of this Contract. Each party shall advise the other in writing of any applicable address change.

Article 53. Governing Law

This Contract including all Contract Documents as well as performance and all disputes hereunder, shall be governed by and construed in accordance with the laws of the state or commonwealth where the Owner receives the beneficial use of the Work. The Owner shall be deemed to receive the beneficial use of the work at the permanent location where the structure or facility is being or will be constructed.

Article 54. Entirety Clause/Waiver

The terms and conditions of this Contract constitute the sole, exclusive and entire agreement between the Owner and the Contractor. Any modifications must be set forth in writing and signed by the Owner's and the Contractor's duly authorized representatives. If any provision herein is held to be invalid by any competent court, the remaining provisions of this Contract shall survive and remain in full force and effect. Any waiver by the Owner of any term, right or obligation under this Contract shall not be construed as a waiver for all purposes or for all subsequent opportunities for performance under this Contract.

Article 55. Conflicts

In the event of conflict between the provisions of this Agreement and any Attachment(s) or Exhibit(s) attached hereto, the provisions of this Agreement shall govern.

IN WITNESS WHEREOF, the parties by their duly authorized representatives have executed this Contract and entered into this Contract on the dates set forth below. The date provided below by the final signatory to this Contract shall be the effective date of this Contract.

Contractor: _____	Owner: _____
By: _____	By: _____
Print Name: _____	Print Name: _____
Title: _____	Title: _____
Address: _____	Address: _____
<hr/>	
Date: _____	Date: _____

Owner: _____	
By: _____	
Print Name: _____	
Title: _____	
Address: _____	
<hr/>	
Date: _____	

BID FORM
Asarco El Paso On-Plant Remediation
Year 2006

BASE BID

Item	Description	Estimated Quantity	Unit	Unit Price (USD)	Extended Price Total
0	Mobilization and Demobilization				
0.1	Mobilization and Demobilization (NTE 8% of Bid)	1.00	LS		
	Sub-total				
1	2004 Pilot Area - SITE #1				
1.1	Site Preparation & Debris Removal	1.00	LS		
1.2	Site Grading (Fill operations, on-site materials)	420.00	CY		
1.3	Produce and Apply 4" POM-B	8,542.00	SY		
1.4	Furnish and Apply PG64-22 Impermeable Membrane Layer @ .32 gal/sq. yd.	8,542.00	SY		
1.5	Produce and Apply 2" low permeability mix	8,542.00	SY		
1.6	Furnish and Apply 2" of HMAc overlay	8,542.00	SY		
	Sub-total				
2	2005 Pilot Area - SITE #2				
2.1	Site Preparation: Grade and Compact Subbase	560.00	CY		
2.2	Furnish and Apply PG64-22 Impermeable Membrane Layer @ .32 gal/sq. yd.	8,000.00	SY		
2.3	Produce and Apply 2" of low permeability mix	8,000.00	SY		
2.4	Furnish and Apply tack coat @ .20 gals/sq.yd.	8,000.00	SY		
2.5	Furnish and Apply 2" HMAc overlay	8,000.00	SY		
	Sub-total				
3	IA-2 Remediation Area - SITE #3				
3.1	Site Preparation: Grade and Compact Sub-base (Approved on-site materials may be used as fill)	640.00	CY		
3.2	Furnish and Apply 2" low permeability mix.	13,240.00	SY		
3.3	Furnish and Apply PG64-22 Impermeable Membrane Layer @ .32 gal/sq.yd.	13,240.00	SY		
3.4	Produce, transport, and apply 4" lift of POM-A	13,240.00	SY		
3.5	Furnish and Apply Tack Coat @ .20 gal/sq. yd.	13,240.00	SY		
3.6	Furnish and Apply 2" HMAc overlay	13,240.00	SY		
	Sub-total				
4	IA-16 Remediation Area - SITE #4				
4.1	Site Preparation & Debris Removal	1	LS		
4.2	Scarify 8" and blend Pozzolonic Additive @ 3% by weight	19,560.00	SY		
4.3	Grade and compact sub-base	19,560.00	SY		
4.4	Produce and Apply 2" of low permeability mix	19,560.00	SY		
4.5	Furnish and Apply PG64-22 Impermeable Membrane Layer @ .32 gal/sq. yd.	19,560.00	SY		
4.6	Produce, transport, and apply 4" lift of POM-A	19,560.00	SY		
4.7	Furnish and Apply Tack Coat @ .20 gal/sq. yd.	19,560.00	SY		
4.8	Furnish and Apply 2" HMAc Overlay	19,560.00	SY		
4.9	Remove RR Steel Rails	0.00	LF		
4.10	Remove Concrete Elements (foundations)	0.00	CY		
	Sub-total				
	TOTAL BASE BID				

BID FORM
Asarco El Paso On-Plant Remediation
Year 2006

ADDITIVE ALTERNATE #1

5	Cemetery Road Improvements - SITE #5				
5.1	Provide adequate surface drainage (0.5% slope)	1.00		LS	_____
5.2	Grade and compact sub-base (8")	2,590.00		SY	_____
5.3	Furnish and Apply Tack Coat	2,590.00		SY	_____
5.4	Produce, transport, and apply 3" lift of POM-A	2,590.00		SY	_____
5.5	Line curbs with boulders (approx. 4-ft. apart)	1.00		LS	_____
	Sub-total				_____

TOTAL BASE BID + ADDITIVE ALTERNATE #1

ADDITIVE ALTERNATE #2

6	Slag Fines Stockpile Consolidation & Emulsion/Dust Control - SITE #6				
6.1	Consolidate perimeter area	1.00		LS	_____
6.2	Dust control w/emulsified asphalt @0.25 gal/sq yd	37,250.00		SY	_____
	Sub-total				_____

TOTAL BASE BID + ADDITIVE ALTERNATES #1 AND #2

QUALITY CONTROL/QUALITY ASSURANCE
ASARCO COPPER SMELTER PLANT
EL PASO, TEXAS

This Quality Control Plan is designed to guide the contractor and document the quality and placement of on-site produced recycled pavement materials such as POM-A, POM-B and low permeable asphalt mixture for use on this project. These products have been batched and tested in R-K's San Antonio laboratory facility. In addition, the POM-A and POM-B products have been produced and placed on-site during two pilot projects constructed in 2004 and 2005.

These products have been designed to produce paving materials with good engineering properties, such as strength and stability, and conform to the environmental standards required by the Texas Committee for Environmental Quality (TCEQ).

The project owner (ASARCO) will be responsible for retaining a qualified engineering/testing firm to provide the necessary quality control/quality assurance services for this project. ASARCO will provide full time representative(s) on-site for coordination and scheduling of the engineering testing; therefore, close and frequent communication between the contractor and the ASARCO representative will be essential to provide the appropriate level of quality control for this project.

Due to the special nature and engineering property requirements of these materials, some of the test procedures will be modified to accommodate the differences between cold mix/cold laid asphalt mixtures and hot mix/hot laid asphalt mixtures. Due to the cementing properties of the Versabind pozzolan and asphalt emulsion, R-K recommends sampling and testing of the blended P.O.M. and clay materials for specified gradation prior to the addition of the emulsified asphalt.

Production of the low permeable asphalt mixture will not be allowed until a combined stockpile of the P.O.M. and clay material is produced, and it has been thoroughly tested for gradation and approved for use by the engineering firm.

Extraction of in-place core samples of the low permeable mixture will be impossible due to the extreme hardness of the coarse slag particles. Permeability property verification will be performed on actual on-site produced product and re-molded in the laboratory to the mix design density. The asphalt membrane will be applied in the laboratory at the specified application rate.

Attached as Figure Nos. 1, 2 and 3 are the list of test procedures, test frequencies and specifications for each product to be used on this project.

TEST PROCEDURES
ASARCO COPPER SMELTER
EL PASO, TEXAS

ASTM C 136:	Sieve Analysis of Fine & Coarse Aggregate
ASTM D 5444:	Sieve Analysis Extracted Aggregate
ASTM D 6926:	Molding Marshall Specimens (Modified)
ASTM D 6927:	Marshall Stability & Flow (Modified)
ASTM D 5084:	Remolded Hydraulic Conductivity; Constant Heat Flex Wall
TEX-206-F:	Compacting Test Specimens for Hveem (Modified)
TEX-207-F:	Determining Density of HMAC
TEX-208-F:	Hveem Stability
TEX-236-F:	Determining Asphalt Content – Ignition Oven
TEX-126-E:	Molding and Testing of Asphalt Stabilized Base (Modified)
TEX-113-E:	Moisture Density Relationship
ASTM D 2922:	In-Place Density with Nuclear Gauge
ASTM D 3017:	In-Place Moisture Content with Nuclear Gauge
ASTM D 2216:	Moisture Content
TEX-120-E, Part I:	Compressive Strength of Cement Treated Base

FIGURE 1

**TESTING FREQUENCIES
ASARCO COPPER SMELTER
EL PASO, TEXAS**

Sieve Analysis of POM and Clay Mixture from Stockpile Prior to Production:	1 test/200 tons
Asphalt Content & Sieve Analysis of Produced POM-A and Low Permeable Mixture (Including Marshall and Hveem Stability):	1 test/1000 tons
TEX-126-E on POM-A:	1 test/5000 tons
Remolded K-test on Low Permeable Mix:	1 test/5000 tons
In-Place Moisture & Density (Nuclear) POM-A, POM-B and Low Permeable Mixture:	1 test/5000 sq.ft.
Sieve Analysis & Compressive Strength Of POM-B:	1 test/5000 tons
Environmental – TCLP – POM-A and Low Permeable Mix:	1 test/5000 tons
Thickness Check:	1 test/1000 sq.ft.

FIGURE 2

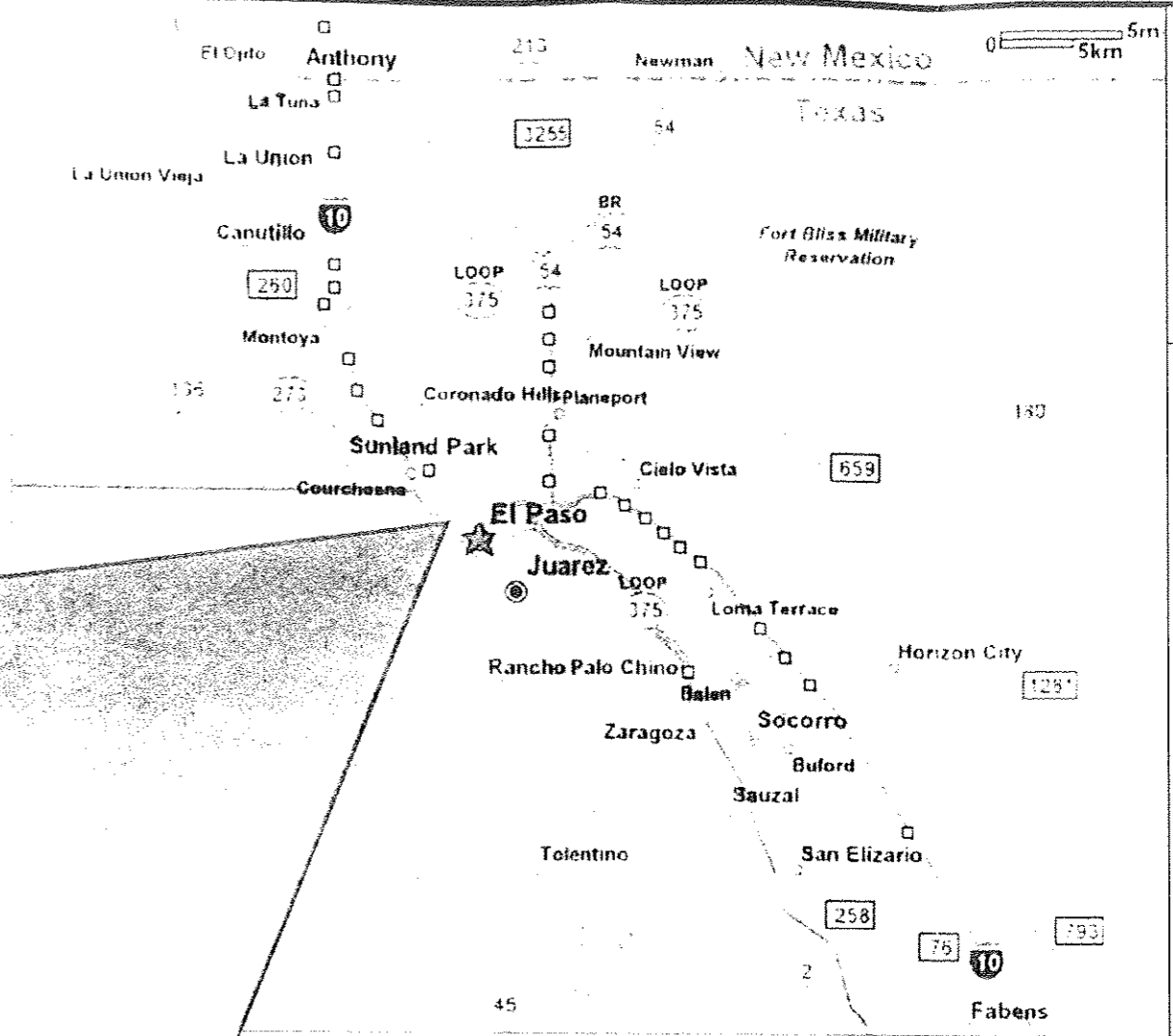
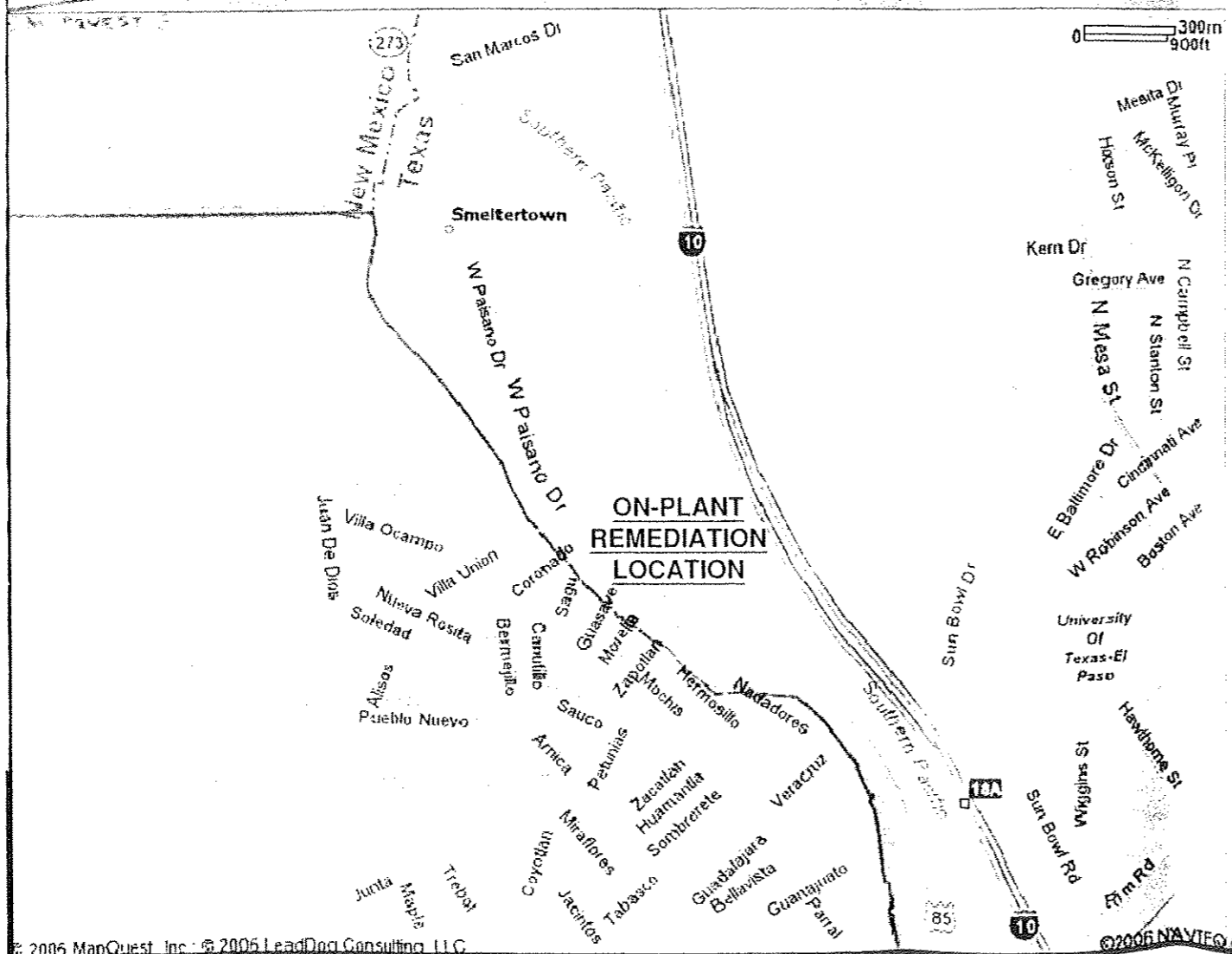
**MATERIAL SPECIFICATIONS
ASARCO COPPER SMELTER
EL PASO, TEXAS**

	Stabilized Subgrade	Fill Material	POM-B	POM-A	Low Perm Mix
In-Place Density (%):	95 min.	95 min.	95 min.	95 min.	95 min.
Compressive Strength (psi):	---	---	150 min.	50 min.	---
Marshall Stability (lbs):	---	---	---	1800 min.	1800 min.
Marshall Flow (.01-inch):	---	---	---	8-16	8-16
Hveem Stability (%):	---	---	---	35 min.	35 min.
Permeability (cm/sec):	---	---	---	---	1 x 10 ⁻⁷
Thickness (inches):	+1	+1	+1/2	+1/2	+1/2
PG 64-22 Asphalt Membrane (gals/sq.yd.):	---	---	---	---	0.32 + .03
Asphalt Content (%):	---	---	---	5.0 + 1.5	9.0 + 2
Versabind (%):	3 + .5	---	4 + 1	5 + 5	5 + 5
Sieve Analysis (% Passing):					
1 1/2-inch	---	---	100	100	---
1-inch	---	---	90-100	90-100	---
3/8-inch	---	---	---	45-100	100
No. 4	---	Max. 70	25-70	30-60	46-62
No. 10	---	---	---	---	39-51
No. 40	---	---	15-50	10-30	27-37
No. 80	---	---	---	---	21-31
No. 200	---	Max. 20	---	---	13.6-21.6
Atterberg Limits:	---	Max. 15	---	---	---

FIGURE 3

ASARCO ON-PLANT REMEDIATION 2006 EL PASO, TEXAS

MAY 19, 2006



OWNER:
MR. LAIRY JOHNSON, P.G.
ASARCO
P.O. BOX 1111
EL PASO, TEXAS 79999

ENGINEER:
RABA-KISTNER CONSULTANTS, INC.
7002 COMMERCE
EL PASO, TEXAS 79915

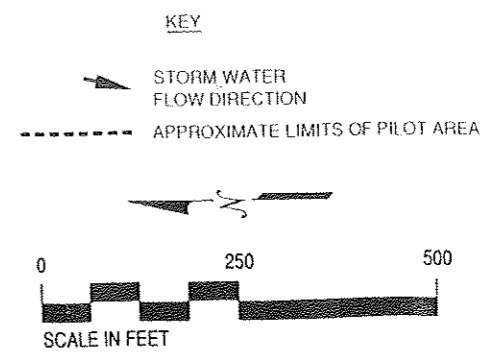
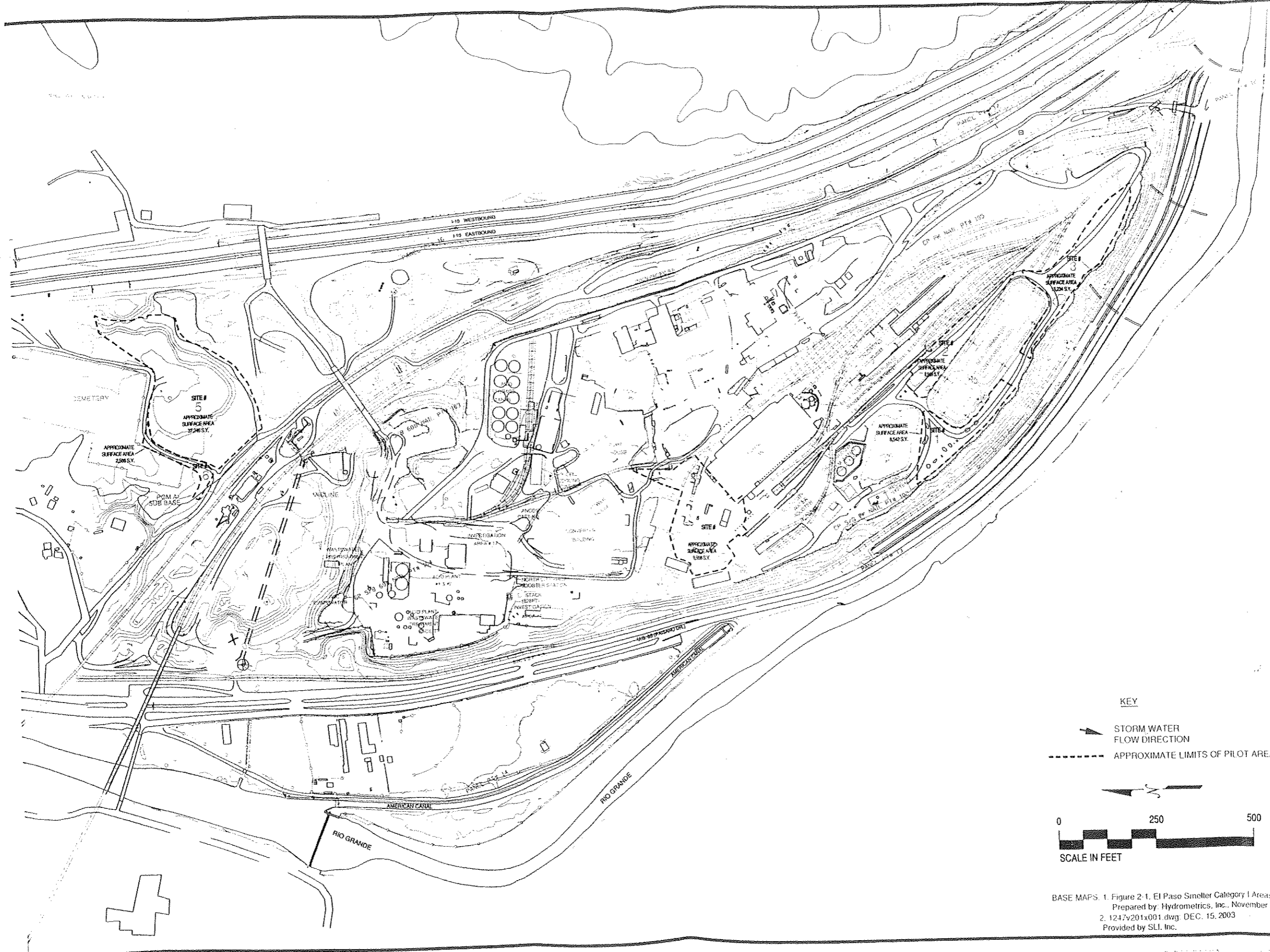
TABLE OF CONTENTS:
SHEET 1: TITLE SHEET
SHEET 2: LOCATION AREA-PILOT AREAS (ALL)
SHEET 3: LOCATION MAP-PILOT AREA (SITE #1)
SHEET 4: LOCATION MAP-PILOT AREA (SITE #2)
SHEET 5: LOCATION MAP-PILOT AREA (SITE #3)
SHEET 6: LOCATION MAP-PILOT AREA (SITE #4)
SHEET 7: LOCATION MAP-PILOT AREAS (SITE #5 & SITE #6)



AREA MAP
ASARCO ON-PLANT REMEDIATION 2006
EL PASO, TEXAS

DATE	5/19/06
FILE NAME	ASARCO
DRAWN BY	AA/ED
CHEK BY	BO
APP'D	BO
SCALE	AS SHOWN
REVISIONS	
No.	Date
Project #	ASF05 245-02

SHEET
1

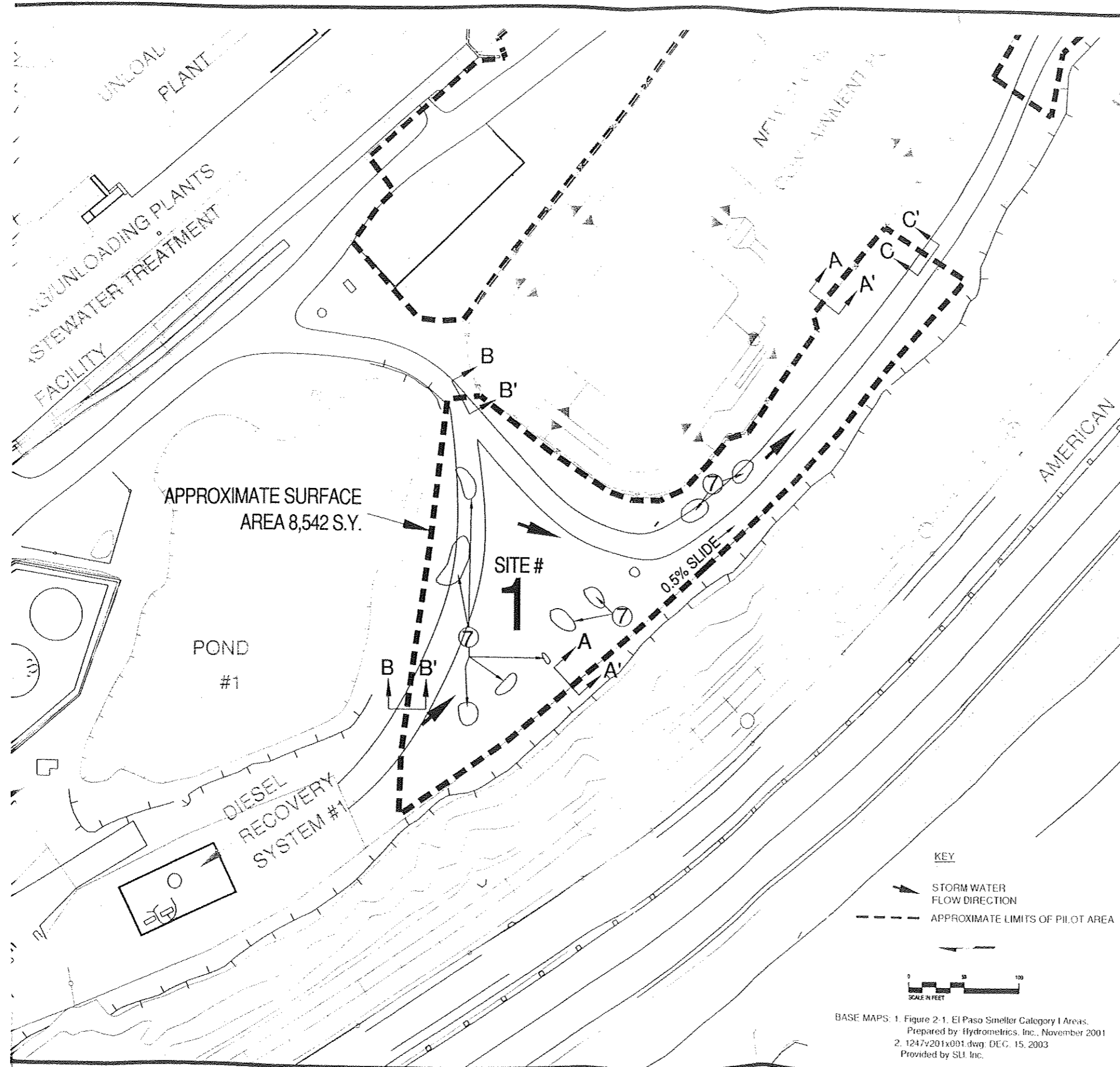


BASE MAPS: 1. Figure 2-1. El Paso Smelter Category 1 Areas.
 Prepared by: Hydrometrics, Inc., November 2001
 2. 1247v201x001.dwg: DEC. 15, 2003
 Provided by SLI, Inc.

LOCATION AREA-PILOT AREAS (ALL)
 ASARCO ON-PLANT REMEDIATION 2006
 EL PASO, TEXAS

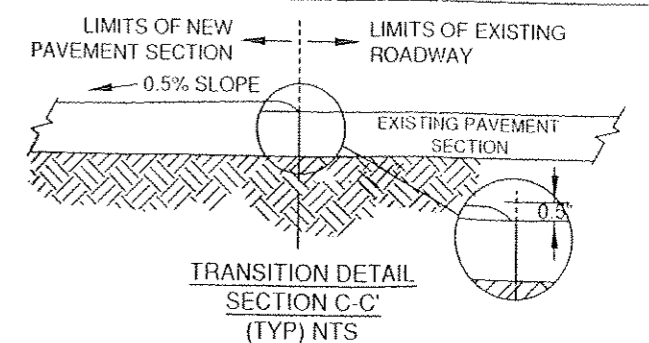
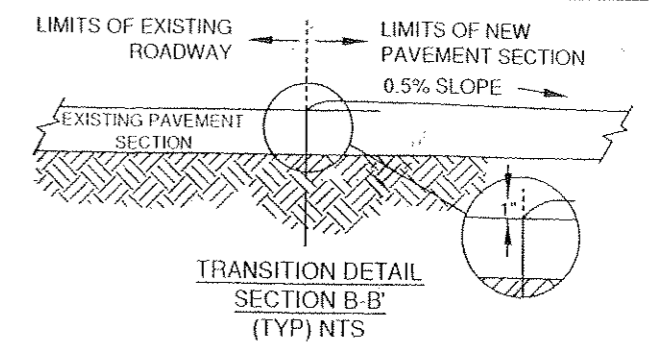
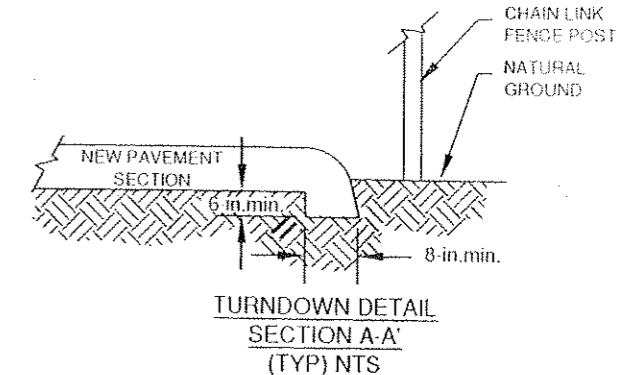
DATE: 5-19-06	
DRAWN BY: AAE	
CHK BY: BO	
APPD: BO	
SCALE: AS SHOWN	
REVISIONS	
No.	Date

Project #:
 ASF05-245-02



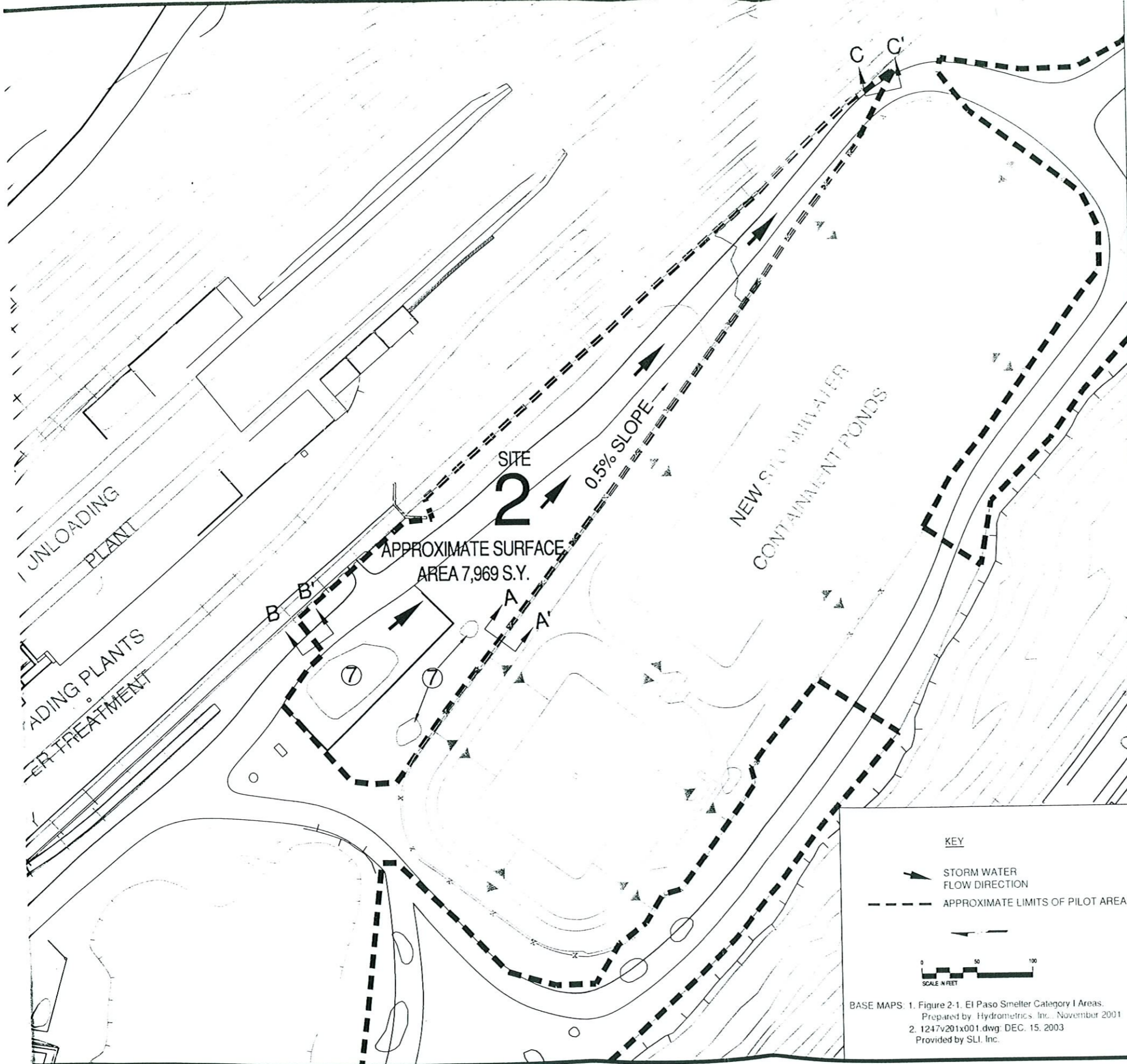
CONSTRUCTION NOTES

- ① CONTRACTOR SHALL REMOVE DEBRIS PRIOR TO INSTALLATION OF TOPPING/PAVING MATERIAL.
- ② CONTRACTOR SHALL EXERCISE CARE WHEN APPLYING THE IMPERMEABLE MEMBRANE LAYER (PG64-22) TO AVOID PUNCTURING OF MEMBRANE.
- ③ CONTRACTOR SHALL CONSTRUCT THE TURNDOWN THICKENED EDGE SECTION AS INDICATED ON SECTION A-A'.
- ④ CONTRACTOR SHALL TAKE THE NECESSARY PROVISIONS TO PROTECT THE EXISTING WELL HEAD(S).
- ⑤ CONTRACTOR SHALL FILL WELL HEAD VOID WITH CONCRETE (3000 PSI),(ABOUT 3 C.Y.)
- ⑥ CONTRACTOR SHALL GRADE SITE TO ACHIEVE SURFACE FLOW IN AS SHOWN ON THIS SHEET.
- ⑦ FILL VOIDS/DEPRESSIONS AS PART OF GRADING OPERATIONS.
- ⑧ EXISTING RAILS OR CONCRETE FOUNDATIONS AT GRADE OR BELOW SURFACE ELEVATION SHALL REMAIN IN PLACE..



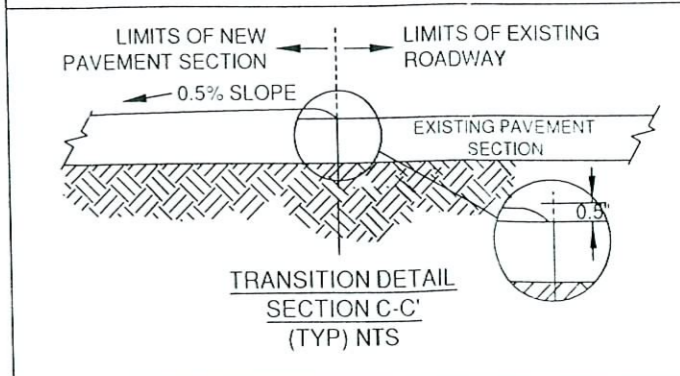
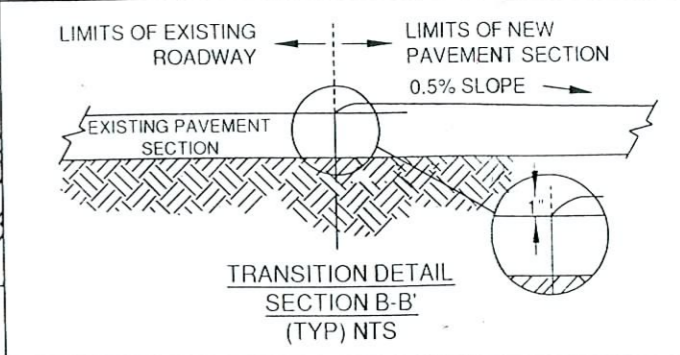
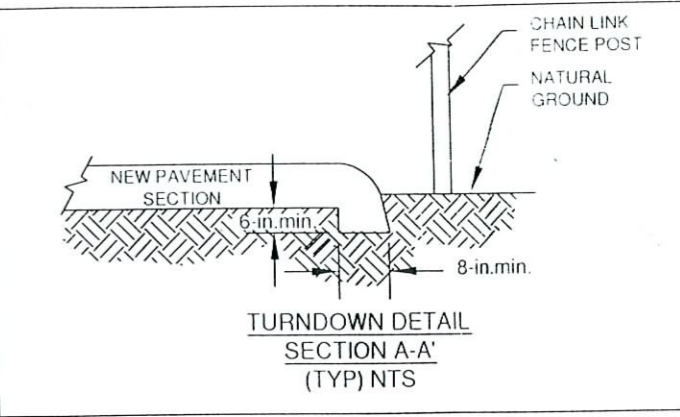
DATE: 5/19/05
DRAWN BY: AAED
CHK BY: BO
APPD: BO
SCALE AS SHOWN
REVISIONS
No. Date

Project #:
 ASF05-245-02



CONSTRUCTION NOTES

- ① CONTRACTOR SHALL REMOVE DEBRIS PRIOR TO INSTALLATION OF TOPPING/PAVING MATERIAL.
- ② CONTRACTOR SHALL EXERCISE CARE WHEN APPLYING THE IMPERMEABLE MEMBRANE LAYER (PG64-22) TO AVOID PUNCTURING OF MEMBRANE.
- ③ CONTRACTOR SHALL CONSTRUCT THE TURNDOWN THICKENED EDGE SECTION AS INDICATED ON SECTION A-A
- ④ CONTRACTOR SHALL TAKE THE NECESSARY PROVISIONS TO PROTECT THE EXISTING WELL HEAD(S).
- ⑤ CONTRACTOR SHALL FILL WELL HEAD VOID WITH CONCRETE (3000 PSI).(ABOUT 3 C.Y.)
- ⑥ CONTRACTOR SHALL GRADE SITE TO ACHIEVE SURFACE FLOW IN AS SHOWN ON THIS SHEET.
- ⑦ FILL VOIDS/DEPRESSIONS AS PART OF GRADING OPERATIONS.
- ⑧ EXISTING RAILS OR CONCRETE FOUNDATIONS AT GRADE OR BELOW SURFACE ELEVATION SHALL REMAIN IN PLACE..



KEY

STORM WATER FLOW DIRECTION

APPROXIMATE LIMITS OF PILOT AREA

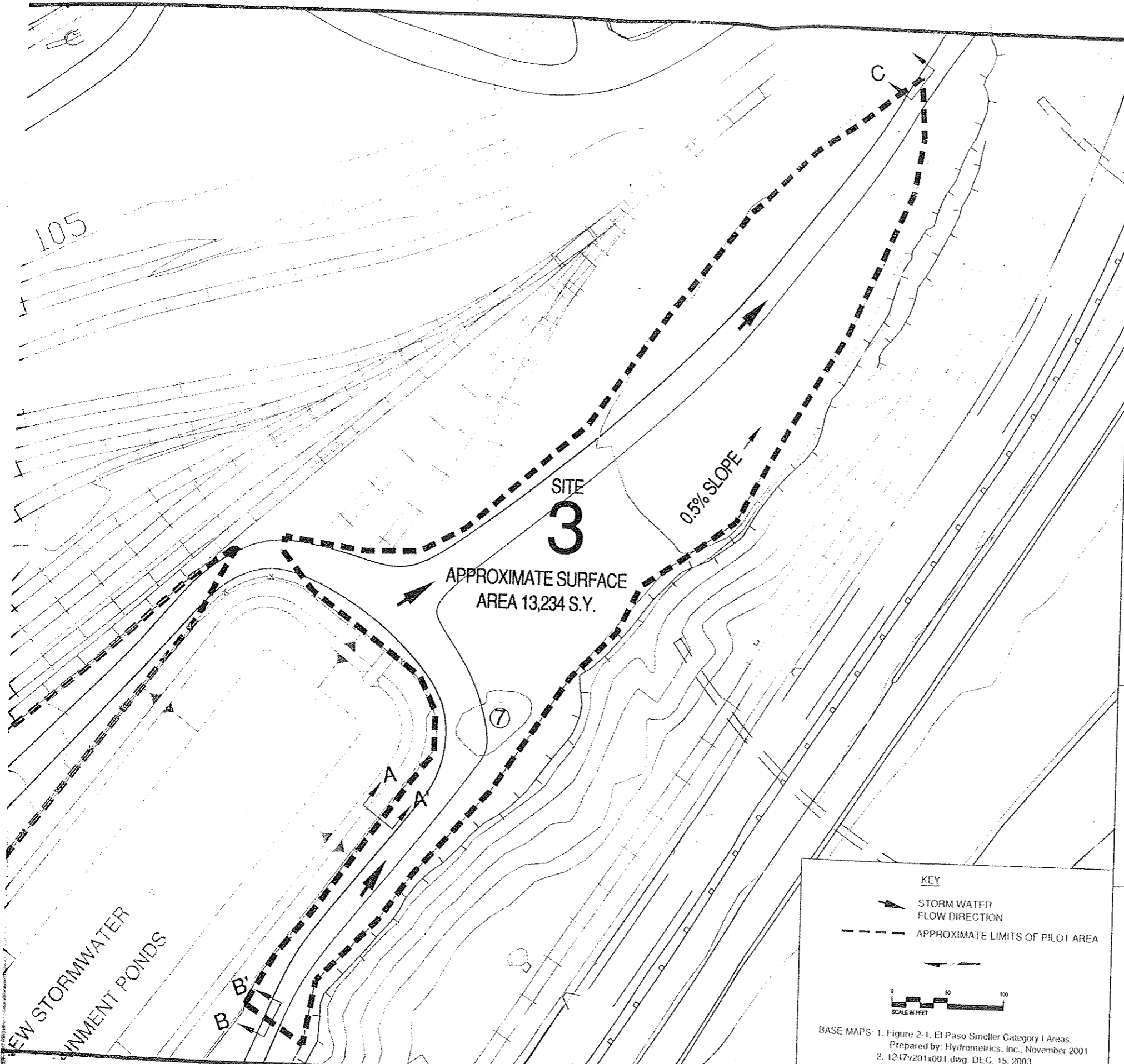
SCALE IN FEET

0 50 100

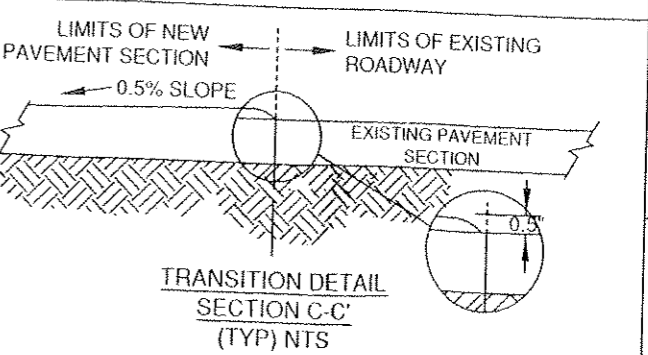
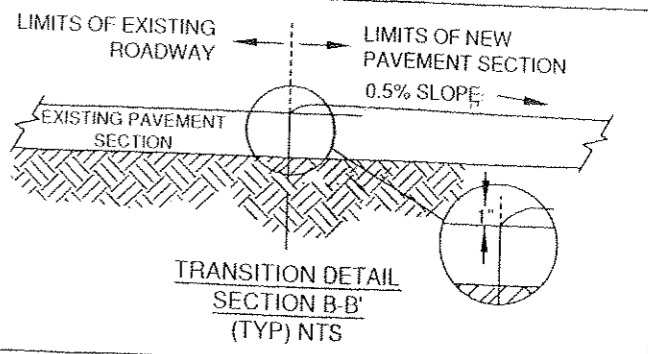
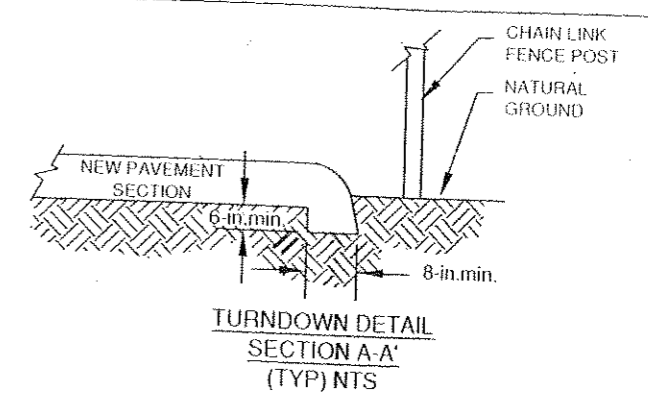
BASE MAPS: 1. Figure 2-1. El Paso Smelter Category I Areas. Prepared by Hydrometrics, Inc., November 2001
2. 1247v201x001.dwg. DEC. 15, 2003. Provided by SLI, Inc.

DATE	5/19/06
PROJECT NAME	ASARCO AREA 2
DRAWN BY	AA/EE
CHK BY	BO
APPD.	BO
SCALE	AS SHOWN
REVISIONS	
No	Date

Project #
ASF05-245-02



- CONSTRUCTION NOTES**
- ① CONTRACTOR SHALL REMOVE DEBRIS PRIOR TO INSTALLATION OF TOPPING/PAVING MATERIAL.
 - ② CONTRACTOR SHALL EXERCISE CARE WHEN APPLYING THE IMPERMEABLE MEMBRANE LAYER (PG64-22) TO AVOID PUNCTURING OF MEMBRANE.
 - ③ CONTRACTOR SHALL CONSTRUCT THE TURNDOWN THICKENED EDGE SECTION AS INDICATED ON SECTION A-A'.
 - ④ CONTRACTOR SHALL TAKE THE NECESSARY PROVISIONS TO PROTECT THE EXISTING WELL HEAD(S).
 - ⑤ CONTRACTOR SHALL FILL WELL HEAD VOID WITH CONCRETE (3000 PSI), (ABOUT 3 C.Y.)
 - ⑥ CONTRACTOR SHALL GRADE SITE TO ACHIEVE SURFACE FLOW IN AS SHOWN ON THIS SHEET.
 - ⑦ FILL VOIDS/DEPRESSIONS AS PART OF GRADING OPERATIONS.
 - ⑧ EXISTING RAILS OR CONCRETE FOUNDATIONS AT GRADE OR BELOW SURFACE ELEVATION SHALL REMAIN IN PLACE.



KEY

- STORM WATER FLOW DIRECTION
- - - - - APPROXIMATE LIMITS OF PILOT AREA

BASE MAPS: 1. Figure 2-1, El Paso Smelter Category I Areas, Prepared by Hydrometrics, Inc., November 2001
 2. 1247v201x001.dwg, DEC. 15, 2003
 Provided by SLL, Inc.



LOCATION MAP-PILOT AREA (SITE #3)
 ASARCO ON-PLANT REMEDIATION 2006
 EL PASO, TEXAS

DATE:	5/19/06
FILENAME:	ASARCO AREA 1.dwg
DRAWN BY:	AA/ED
CHK. BY:	BO
APPD. BY:	BO
SCALE:	AS SHOWN
REVISIONS	
No.	Date

Project #
ASF05-245-02

SHEET
5

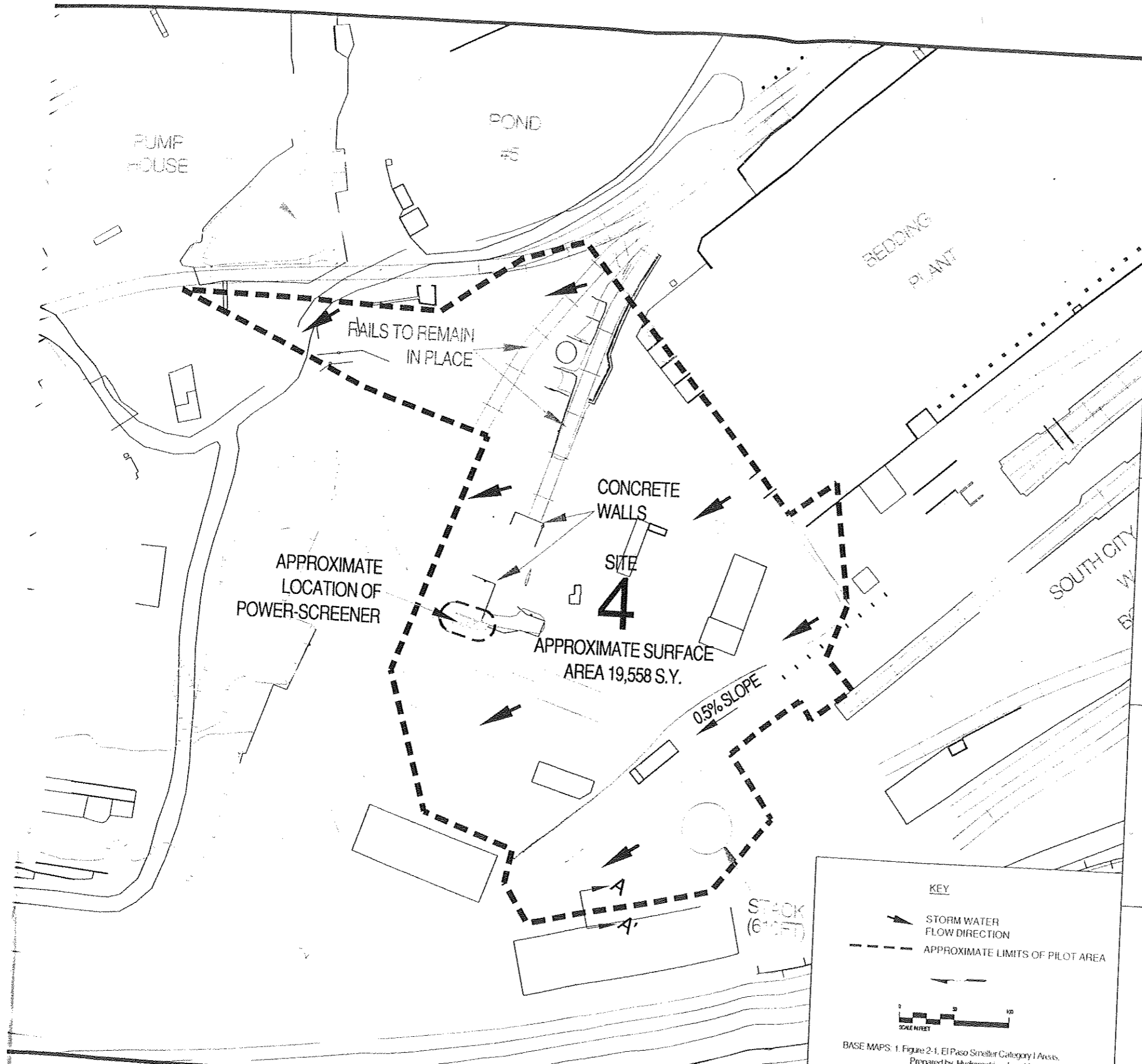
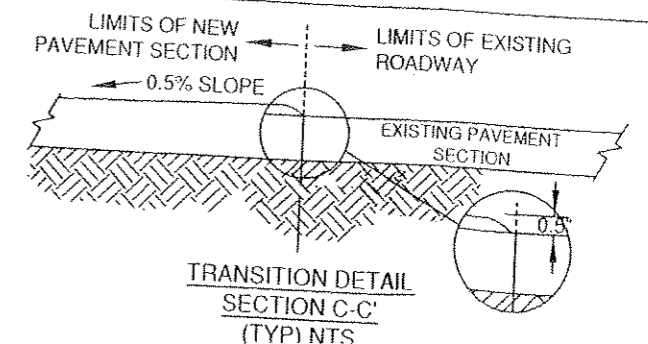
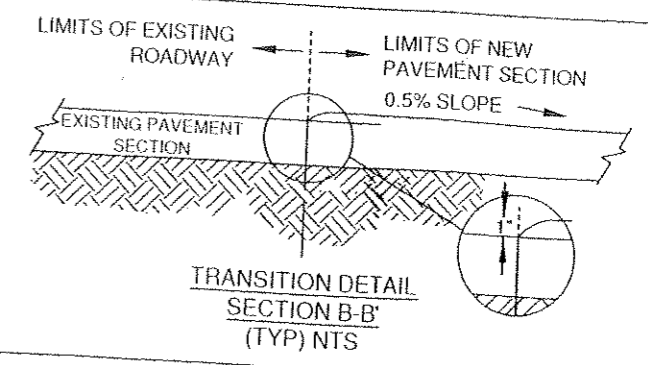
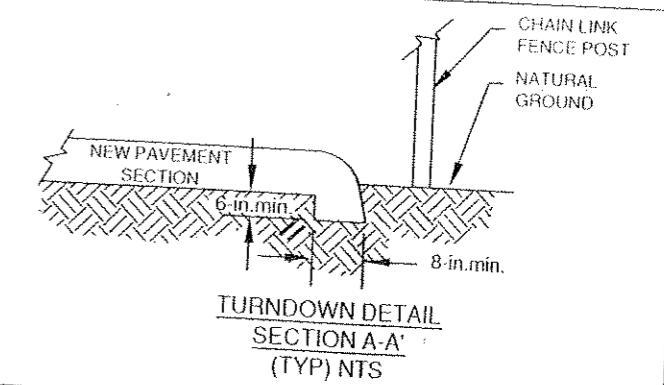
DATE: 5/18/06	
DESIGNED: ASARCO AREA #4003	
DRAWN BY: AAED	
CHK BY: BO	
APP'D: BO	
SCALE: AS SHOWN	
REVISIONS	
No.	Date

Project #
 ASF05-245-02

SHEET

CONSTRUCTION NOTES

- ① CONTRACTOR SHALL REMOVE DEBRIS PRIOR TO INSTALLATION OF TOPPING/PAVING MATERIAL.
- ② CONTRACTOR SHALL EXERCISE CARE WHEN APPLYING THE IMPERMEABLE MEMBRANE LAYER (PG64-22) TO AVOID PUNCTURING OF MEMBRANE.
- ③ CONTRACTOR SHALL CONSTRUCT THE TURNDOWN THICKENED EDGE SECTION AS INDICATED ON SECTION A-A'.
- ④ CONTRACTOR SHALL TAKE THE NECESSARY PROVISIONS TO PROTECT THE EXISTING WELL HEAD(S).
- ⑤ CONTRACTOR SHALL FILL WELL HEAD VOID WITH CONCRETE (3000 PSI), (ABOUT 3 C.Y.)
- ⑥ CONTRACTOR SHALL GRADE SITE TO ACHIEVE SURFACE FLOW IN AS SHOWN ON THIS SHEET.
- ⑦ FILL VOIDS/DEPRESSIONS AS PART OF GRADING OPERATIONS.
- ⑧ EXISTING RAILS OR CONCRETE FOUNDATIONS AT GRADE OR BELOW SURFACE ELEVATION SHALL REMAIN IN PLACE..

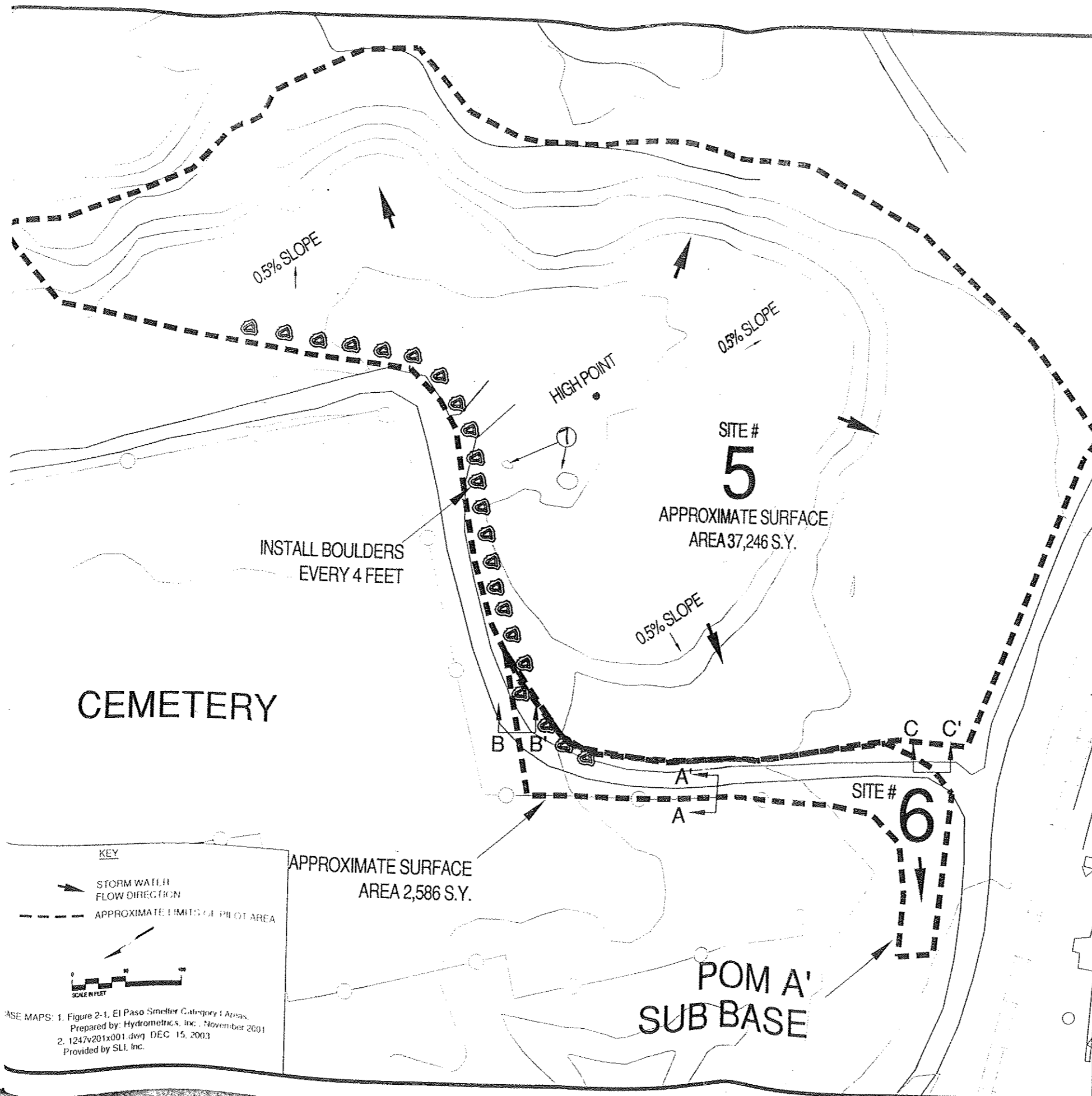


KEY

- STORM WATER FLOW DIRECTION
- - - APPROXIMATE LIMITS OF PILOT AREA

SCALE: 1"=10'

BASE MAPS: 1. Figure 2-1, El Paso Smelter Category I Area, Prepared by Hydrometrics, Inc., November 2001
 2. 1247v201x001.dwg DEC. 15, 2003
 Provided by SLI, Inc.



KEY

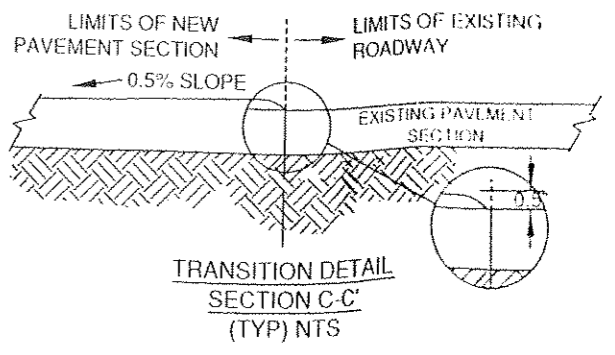
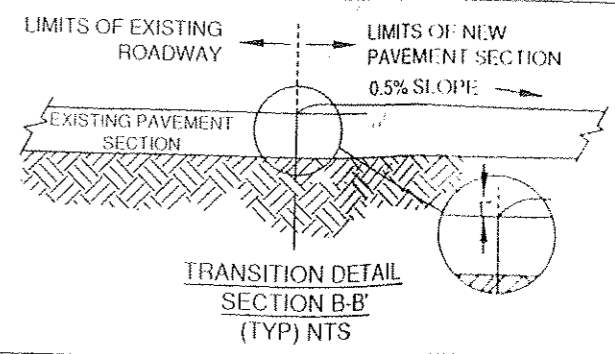
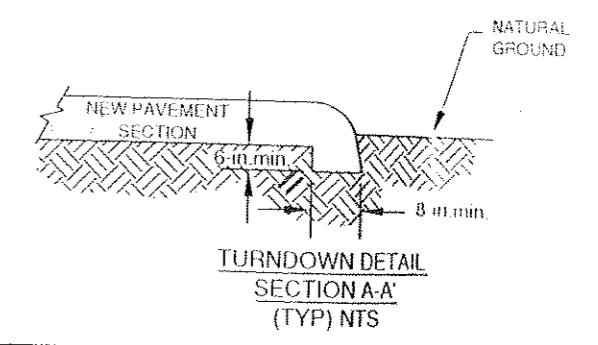
STORM WATER FLOW DIRECTION

APPROXIMATE LIMITS OF PILOT AREA

SCALE IN FEET

BASE MAPS: 1. Figure 2-1. El Paso Smelter Category 1 Areas. Prepared by Hydrometrics, Inc. November 2001
 2. 1247v201x001.dwg DEC 15, 2003
 Provided by SLI, Inc.

- CONSTRUCTION NOTES**
- ① CONTRACTOR SHALL REMOVE DEBRIS PRIOR TO INSTALLATION OF TOPPING PAVING MATERIAL.
 - ② CONTRACTOR SHALL EXERCISE CARE WHEN APPLYING THE IMPERMEABLE MEMBRANE LAYER (PG64-22) TO AVOID PUNCTURING OF MEMBRANE.
 - ③ CONTRACTOR SHALL CONSTRUCT THE TURNDOWN THICKENED EDGE SECTION AS INDICATED ON SECTION A-A'.
 - ④ CONTRACTOR SHALL TAKE THE NECESSARY PROVISIONS TO PROTECT THE EXISTING WELL HEAD(S).
 - ⑤ CONTRACTOR SHALL FILL WELL HEAD VOID WITH CONCRETE (3000 PSI).(ABOUT 3 C.Y.)
 - ⑥ CONTRACTOR SHALL GRADE SITE TO ACHIEVE SURFACE FLOW IN AS SHOWN ON THIS SHEET.
 - ⑦ FILL VOIDS, DEPRESSIONS AS PART OF GRADING OPERATIONS.
 - ⑧ EXISTING RAILS OR CONCRETE FOUNDATIONS AT GRADE OR BELOW SURFACE ELEVATION SHALL REMAIN IN PLACE..



DATE	5/19/06
DESIGNED BY	ASD
DRAWN BY	ASD
CHECK BY	DD
APPROVED BY	
SCALE	AS SHOWN
REVISIONS	
No.	Date

Project #
 ASF05 245-02

Appendix B Project Drawing and Specification – Category II Capping

B.3 2007 Paving Drawings & Specifications

**ASARCO ON-PLANT REMEDIATION 2007
EL PASO PLANT**

FIVE SITES – EL PASO PLANT

BID DOCUMENTS

August 3, 2007

OWNER:
MR. LAIRY JOHNSON, P.G.
ASARCO
P.O. BOX 1111
EL PASO, TEXAS 79999

ENGINEER:
BERNARDINO OLAGUE, P.E.
RABA-KISTNER CONSULTANTS (SW), INC.
7002 COMMERCE
EL PASO, TEXAS 79915

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2006**

INVITATION TO BID

Sealed bids from the contractors listed below will be received by the Engineer, Raba-Kistner Consultants, Inc., 7002 Commerce, El Paso, Texas 79915, or hand-delivered to said address, until 2:00 PM, August 17, 2007. No bid opening session will be conducted, unless otherwise noted. The contract will be awarded on a best-value basis. The best-value criteria (evaluation factors) are presented on Page 8.

List of Prequalified Contractors (in alphabetical order)

- Allied Paving, Inc.
- Camino Contracting, Inc.
- ENTECT Environmental Services
- ENVIROCON, Inc.
- FM 973 Construction
- North Wind, Inc.
- Remedial Construction Services, L.P.

ASARCO (Owner) reserves the right to accept or reject any or all bids and to waive formalities. The project consists of the items of work listed in the scope of work and bid tabulation Form.

BID SECURITY. Each bid must be accompanied by a letter of commitment to have the ability to acquire a bid bond. The letter must be duly executed by the Bidder as principal. Said letter shall name the surety company. The letter shall indicate that the Contractor will be able to secure a bid bond in the amount of 5 percent of the Total Bid price (including base bid and alternates(s)).

INSURANCE. The contractor shall be required to meet the requirements set forth in the contract documents (EXHIBIT A).

HEALTH AND SAFETY PLAN. Each bid must be accompanied by a hard-copy of the Contractor's most current Health and Safety Plan.

Owner funds are anticipated to be used in this project.

QUESTIONS. Question or clarifications shall be addressed and delivered to the Engineer Not Later Than August 15, 2007.

Engineer's Information

Bernardino Olague, P.E.
Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 Phone
(915) 779-8301 Fax
Internet: bolague@rkci.com

ASARCO – EL PASO SMELTER ASARCO ON-PLANT REMEDIATION 2006

SCOPE OF WORK

Project Description

The Contractor shall construct pavement sections in five specific areas (including one additive alternate item), as shown in the project drawings (EXHIBIT B).

Base Bid

The Contractor shall construct pavement sections in five specific areas, identified as Areas A, B, C, D and E, respectively. The Base Bid also requires the successful bidder to provide any and all necessary permits as required by the City of El Paso. In addition, the Base Bid includes the furnishing and installation of a 60-in. RCP starting at ASARCO's East Intake to the Railroad tracks West End of ASARCO. The components of the new pavement capping sections are presented on Pages 4, 5, and 6.

Additive Alternate No. 1 – Railroad Line Removal

The Contractor shall remove steel rails associated with ASARCO's interior railroad network. The Contractor shall also grade and compact sub-base, apply tack-coat, and produce, transport and apply a 3-inch lift of POM-A (refer to Page 6). Further, the Contractor shall place boulders to line the existing curbs. Refer to Sheet 6.

Health and Safety Plan

The Contractor shall maintain an internal HASP that is in consonance with Owner's HASP.

Pre-bid Conference and Site Visit

A non-mandatory pre-bid conference will be held on August 6, 2007 at 3:30 PM at ASARCO El Paso Plant. The purpose of the pre-bid conference is to inform the bidders about the project requirements with respect to fabrication of the paving materials and their application. The purpose of the site visit was to show the bidders the areas that will be improved and to give them an opportunity to familiarize themselves with the site conditions.

The Owner encourages the bidders to visit the site prior to bid opening date to acquaint themselves even further with the project site conditions and verify quantities. Visits are at the bidder's expense.

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2006**

PROJECT SCHEDULE

1. Bid Packages E-Mailed out to Contractors: August 3, 2007
2. Non-mandatory Pre-Bid Conference: August 6, 2007
3. Bids Due Back to Raba-Kistner office: August 17, 2007 (by 2:00 pm MST)
5. Bid Tabulation by Raba-Kistner due: August 20, 2007
6. Estimated time of award for contract: August 24, 2007
7. Project Completion: November 30, 2007

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2007**

TECHNICAL SPECIFICATION

**Low Permeable
Mixture Design and Resulting Properties
ASARCO Copper Smelter
El Paso, Texas
For Bid Purposes**

Size Designation:	Percent of Mixture	
-3/8-inch + No. 4	41.0	
-No. 4 + Nos. 40	19.0	
-No. 40	13.0	
Versabind:	5.0	
Water:	3.0	
CSS-IH Emulsified Asphalt:	9.0	
		Project Specifications
Laboratory Molded Density:	164.6 (lbs/cu.ft.)	Minimum 148
Marshall Strength:	3310 (lbs./sq.ft.)	Minimum 1800
Marshall Flow:	11 (.01-inch)	8-16
HVEEM Stability:	41%	Minimum 35/Maximum 55
Hydraulic Conductivity "Without" Asphalt Membrane:	7×10^{-7} (cm/sec)	10^{-7}
Hydraulic Conductivity "With" Asphalt Membrane:	2.4×10^{-9} (cm/sec)	10^{-7}

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2006**

TECHNICAL SPECIFICATION

**POM-A
Mixture Design and Resulting Properties
ASARCO Copper Smelter
El Paso, Texas
For Bid Purposes**

Sieve Size:	Target Grading Tolerances	
1.5 -in:	100	
1.0-in:	90-100	
3/8 :	45-100	
No.4:	30-60	
No.40:	10-30	
Water:	3.0	
CSS-IH Emulsified Asphalt:	5.0+/-1.0	
Density and Compressive Strength (Tex 126-E):		
Avg. Density (lbs/cu.ft.):	160-180	
Avg. Compressive Strength (psi)	75	Minimum 50 required
HVEEM Stability (Tex 206-F&208-F):	Avg. stability 50	Minimum 35 required
Marshall Stability (ASTM D6926)	Avg. stability (lbs) 2200	Minimum 1800
Marshall Stability (ASTM D6926)	Avg. Flow (.01-in): 14	8-16

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2006**

TECHNICAL SPECIFICATION

**POM-B
Grading and Strength Properties
ASARCO Copper Smelter
El Paso, Texas
For Bid Purposes**

Sieve Size:	Target Grading (% Retained)
1.5 -in:	0
1.0-in:	0-10
No. 4:	30-75
No.40:	50-85
Versabind (%):	4+/-1
Density and Compressive Strength (Tex 113-E):	
Minimum Density	95% (Tex 113-E)
Compressive Strength (psi @ 7-days)	150 minimum

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2006**

BEST VALUE METHODOLOGY

This contract will be awarded on the basis of best-value. Hence, bids will be evaluated based on a "best value methodology" as determined below. In order to identify and select the best value the following criteria and associated point system criteria will be implemented.

	Criteria	Maximum Points
1	Cost (Base Bid and Additive Alternate(s))	35
2	Project Approach (ability to meet project specifications). The contractor must provide a narrative describing its project understanding as well as its approach to achieve the desired pavement sections.	30
3	Project Manager and Key Personnel Experience. Minimum requirements for project manager and superintendent: Project Manager – Must have managed the successful completion of at least three projects of similar characteristics in the last five years. Project Superintendent - Must have managed the successful completion of at least two projects of similar characteristics in the last four years.	15
4	Firm Experience with Similar Projects. The contractor must have at least successfully completed at least four projects similar in scope to this Project in the last five years.	10
5	References on Past Performance. The contractor must provide at least three references for whom the contractor has completed projects in the last five years.	5
6	Health and Safety Plan. The contractor must submit in its bid a copy of its most current HASP.	5
Total		100

BID FORM
Asarco El Paso On-Plant Remediation
2007 Program

BASE BID

Item	Description	Estimated Quantity	Unit	Unit Price (USD)	Extended Price Total
0	Mobilization and Demobilization				
0.1	Mobilization and Demobilization (NTE 8% of Bid)	1.00	LS		
	Sub-total				
1	2007 Remediation Area - A				
1.1	Site Preparation: Grade and Compact Sub-base (Approved on-site materials may be used as fill)	4,592.07	CY		
1.2	Furnish and Apply 2" low permeability mix.	13,790.00	SY		
1.3	Furnish and Apply PG64-22 Impermeable Membrane Layer @ .32 gal/sq. yd.	13,790.00	SY		
1.4	Produce, transport, and apply 4" lift of POM-A	13,790.00	SY		
1.5	Furnish and Apply Tack Coat @ .20 gal/sq. yd.	13,790.00	SY		
1.6	Furnish and Apply 2" HMAC overlay	13,790.00	SY		
	Sub-total				
2	2007 Remediation Area - B				
2.1	Site Preparation: Grade and Compact Sub-base (Approved on-site materials may be used as fill)	9,397.93	CY		
2.2	Furnish and Apply 2" low permeability mix.	28,222.00	SY		
2.3	Furnish and Apply PG64-22 Impermeable Membrane Layer @ .32 gal/sq. yd.	28,222.00	SY		
2.4	Produce, transport, and apply 4" lift of POM-A	28,222.00	SY		
2.5	Furnish and Apply Tack Coat @ .20 gal/sq. yd.	28,222.00	SY		
2.6	Furnish and Apply 2" HMAC overlay	28,222.00	SY		
	Sub-total				
3	2007 Remediation Area - C				
3.1	Site Preparation: Grade and Compact Sub-base (Approved on-site materials may be used as fill)	1,599.40	CY		
3.2	Furnish and Apply 2" low permeability mix.	4,803.00	SY		
3.3	Furnish and Apply PG64-22 Impermeable Membrane Layer @ .32 gal/sq. yd.	4,803.00	SY		
3.4	Produce, transport, and apply 4" lift of POM-A	4,803.00	SY		
3.5	Furnish and Apply Tack Coat @ .20 gal/sq. yd.	4,803.00	SY		
3.6	Furnish and Apply 2" HMAC overlay	4,803.00	SY		
	Sub-total				
4	2007 Remediation Area - D				
4.1	Site Preparation: Grade and Compact Sub-base (Approved on-site materials may be used as fill)	2,874.12	CY		
4.2	Furnish and Apply 2" low permeability mix.	8,631.00	SY		
4.3	Furnish and Apply PG64-22 Impermeable Membrane Layer @ .32 gal/sq. yd.	8,631.00	SY		
4.4	Produce, transport, and apply 4" lift of POM-A	8,631.00	SY		
4.5	Furnish and Apply Tack Coat @ .20 gal/sq. yd.	8,631.00	SY		
4.6	Furnish and Apply 2" HMAC overlay	8,631.00	SY		
	Sub-total				
5	2007 Remediation Area - E (HMAC ONLY)				
5.1	Site Preparation: Grade and Compact Subbase	2,308.02	CY		
5.2	Furnish and Apply PG64-22 Impermeable Membrane Layer @ .32 gal/sq. yd.	6,931.00	SY		
5.3	Produce and Apply 2" of low permeability mix	6,931.00	SY		
5.4	Furnish and Apply tack coat @ .20 gals/sq.yd.	6,931.00	SY		
5.5	Furnish and Apply 2" HMAC overlay	6,931.00	SY		
	Sub-total				

BID FORM
Asarco El Paso On-Plant Remediation
2007 Program

BASE BID

Item	Description	Estimated Quantity	Unit	Unit Price (USD)	Extended Price Total
6	2007 Applicable Remediation City Permit Fees	1.00	LS	_____	_____
7	Furnish and Install 60-in. dia. RCP (avg. invert elevation = 4 ft. below ground surface)	1,000.00	LF	_____	_____

Note: Quantities are not guaranteed.

TOTAL BASE BID : _____ (in letters) _____

Additive Alternate

Remove railroad tracks within remediation areas	1,800.00	LF	_____	_____
---	----------	----	-------	-------

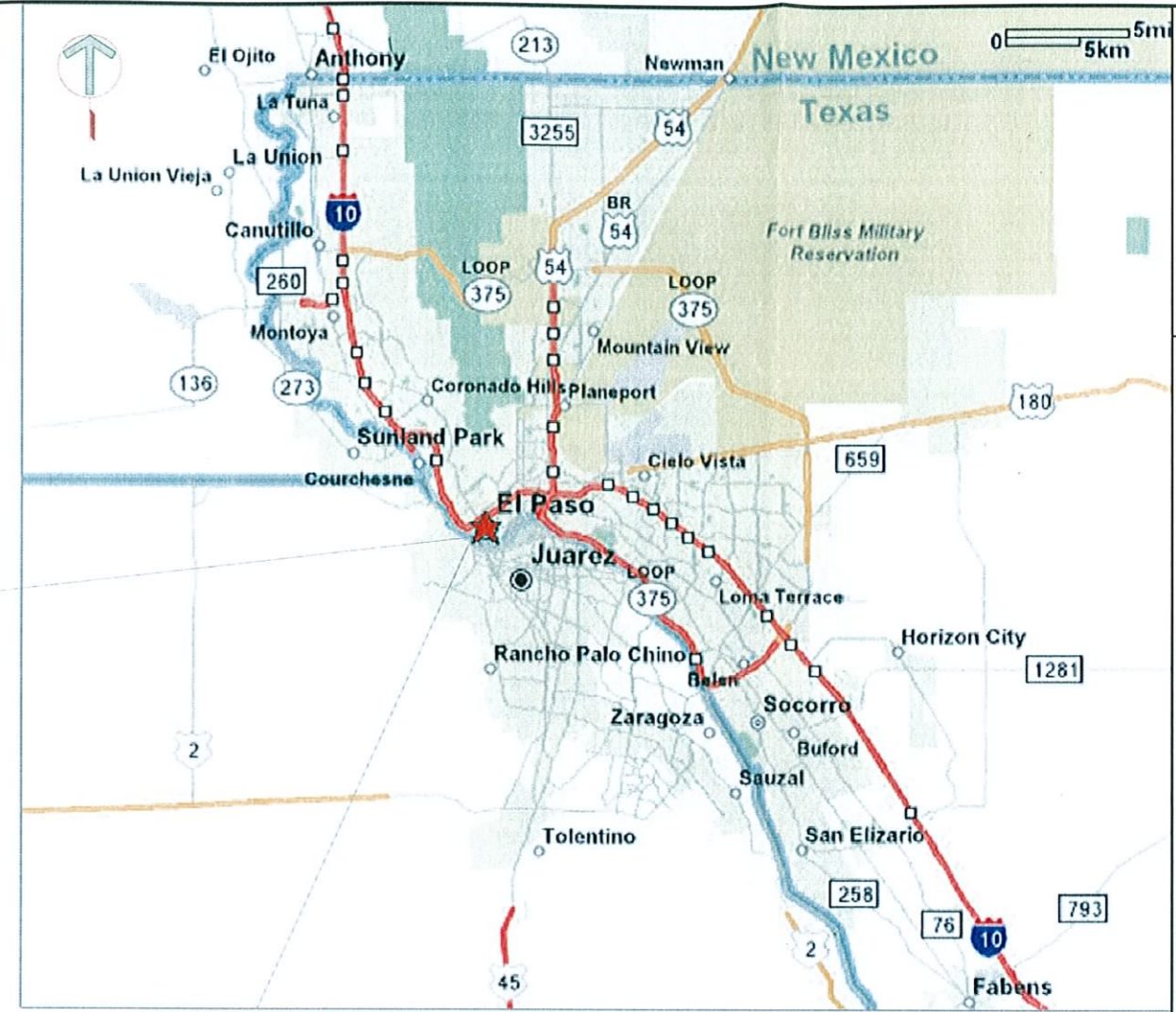
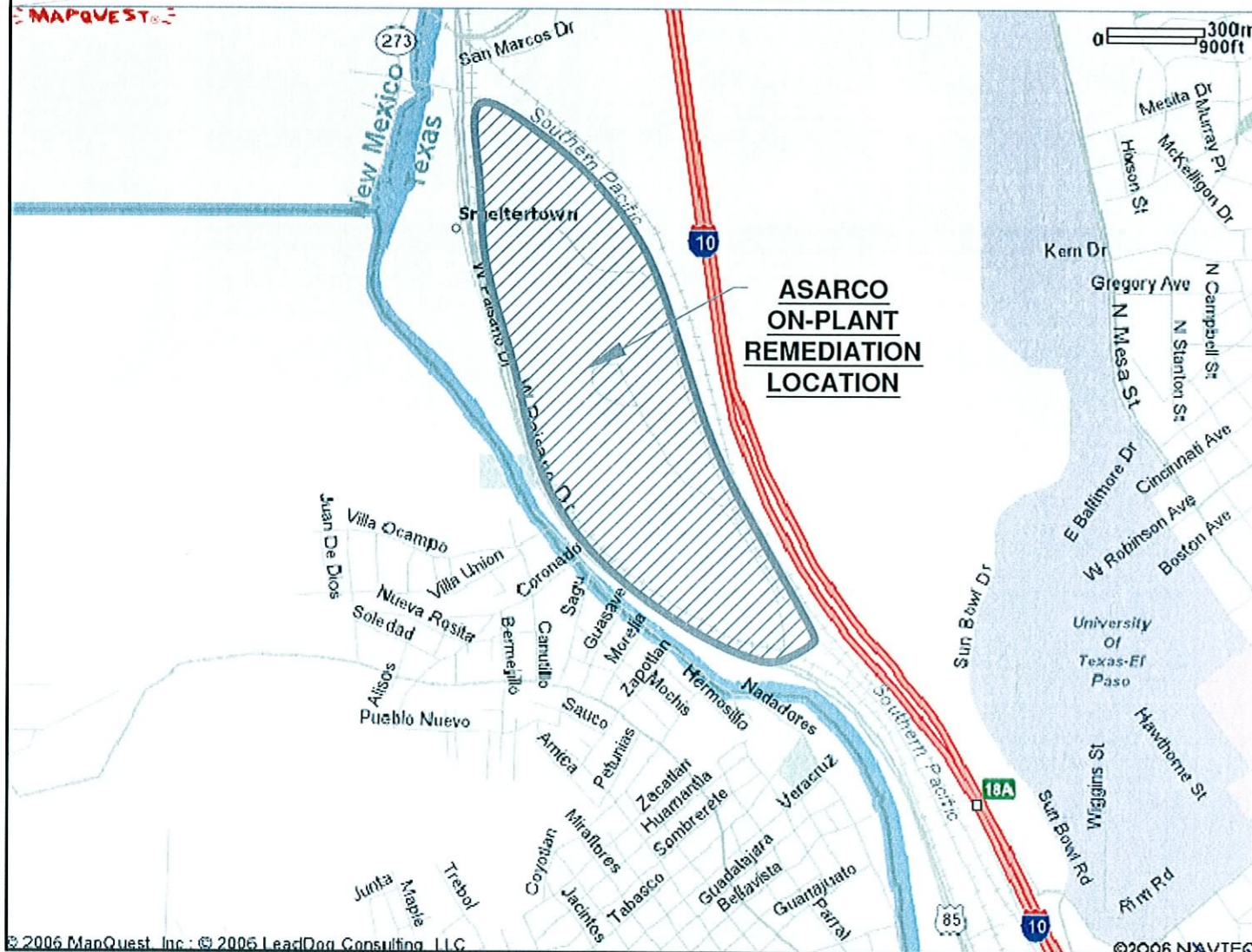
Submitted by: _____ (name of contractor/bidder)

Name and signature of authorized bidder officer: _____

Date: _____

ASARCO ON-PLANT REMEDIATION 2007 EL PASO, TEXAS

AUGUST 2, 2007



OWNER:
ASARCO, INC.
P.O. BOX 1111
EL PASO, TEXAS 79999

ENGINEER:
RABA-KISTNER CONSULTANTS (SW), INC.
7002 COMMERCE
EL PASO, TEXAS 79915

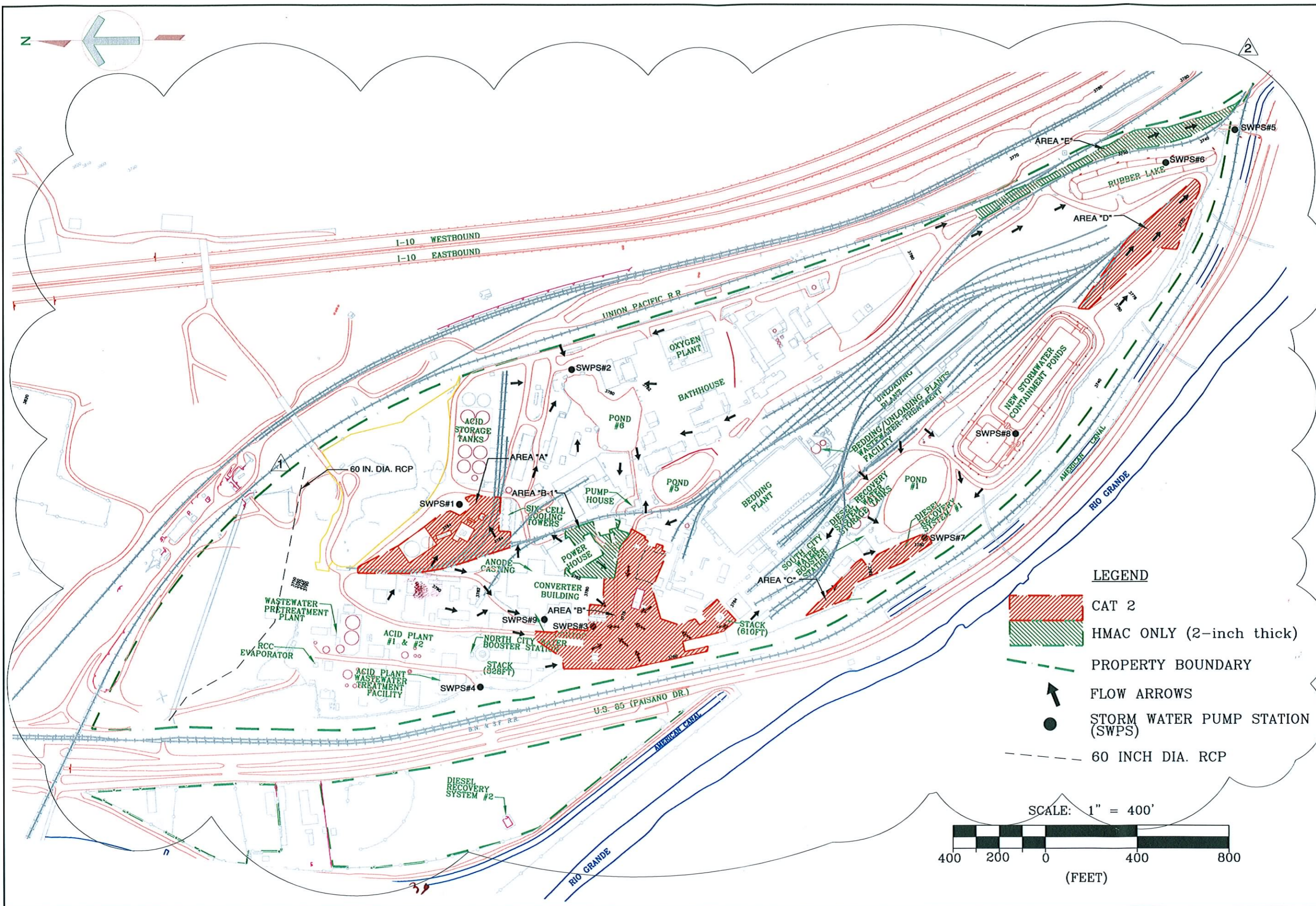
TABLE OF CONTENTS:
SHEET 1: TITLE SHEET
SHEET 2: SITE MAP - ALL AREAS
SHEET 3: SITE MAP-AREA "A"
SHEET 4: SITE MAP-AREA "B"
SHEET 5: SITE MAP-AREA "C"
SHEET 6: SITE MAP-AREA "D"
SHEET 7: SITE MAP-AREA "E"






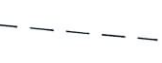


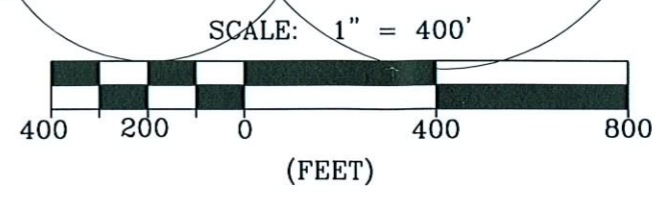
SITE MAP - AREAS A THROUGH E
ASARCO ON-PLANT REMEDIATION 2007
ASARCO, INC.
EL PASO, TEXAS

GRAPHICS BY: BN	
DATE: 8/2/07	
FILENAME: TITLE SHEET.DWG	
DESIGN BY: BN	
CHK. BY: BO	
SCALE: AS SHOWN	
REVISIONS	
No.	Date
Project #: AEA07-051-05	

SHEET
1

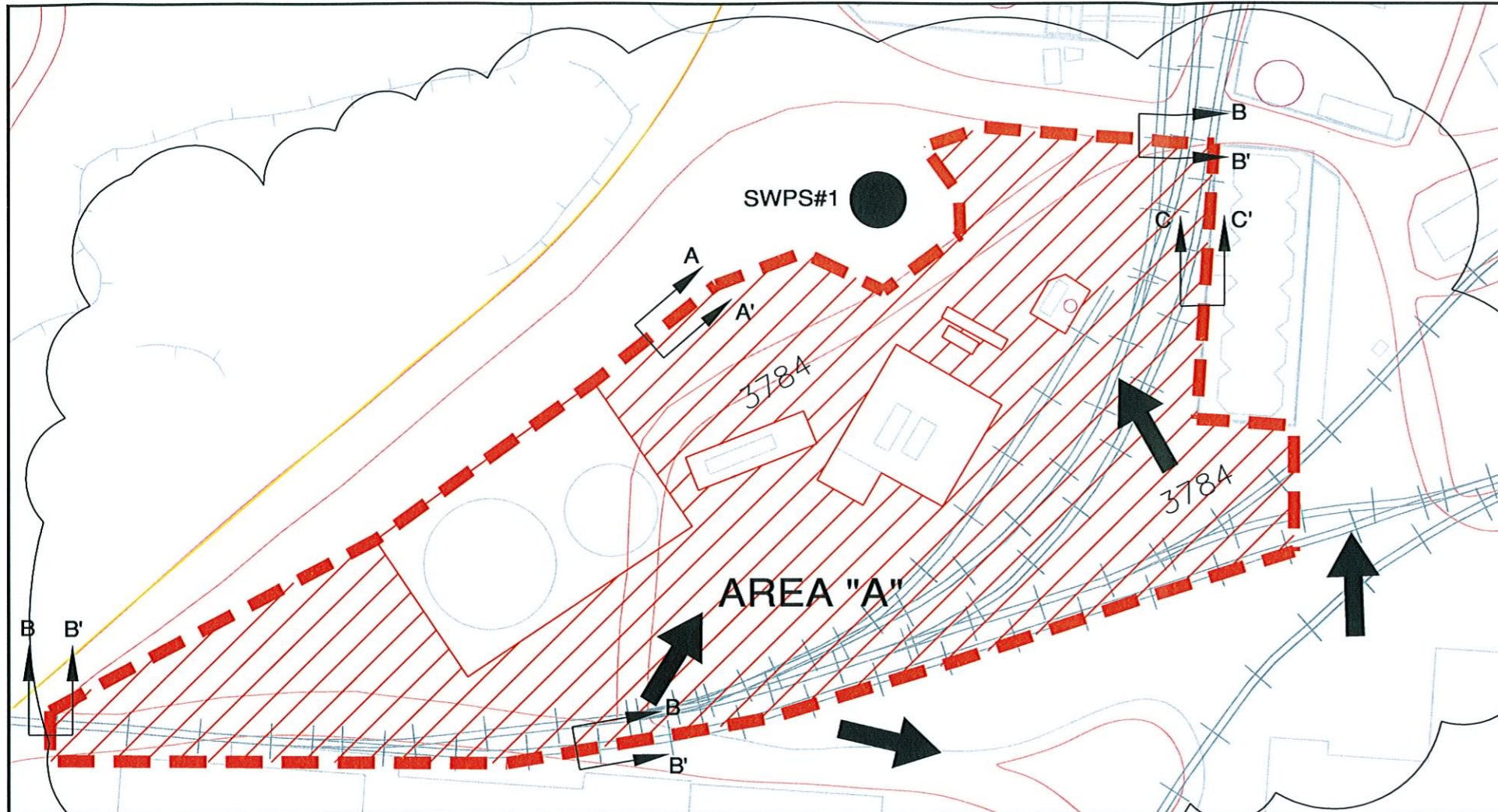


- LEGEND**
-  CAT 2
 -  HMAC ONLY (2-inch thick)
 -  PROPERTY BOUNDARY
 -  FLOW ARROWS
 -  STORM WATER PUMP STATION (SWPS)
 -  60 INCH DIA. RCP



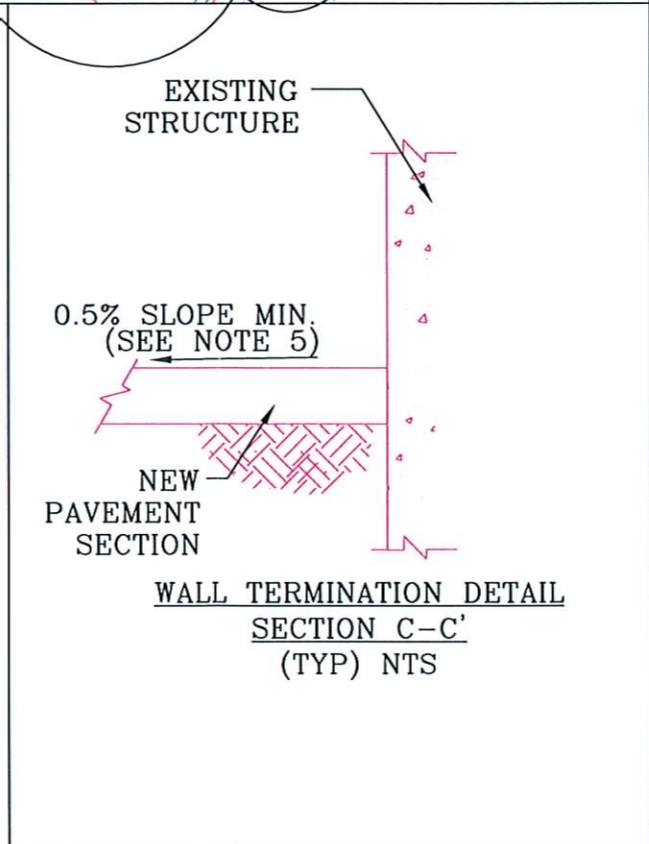
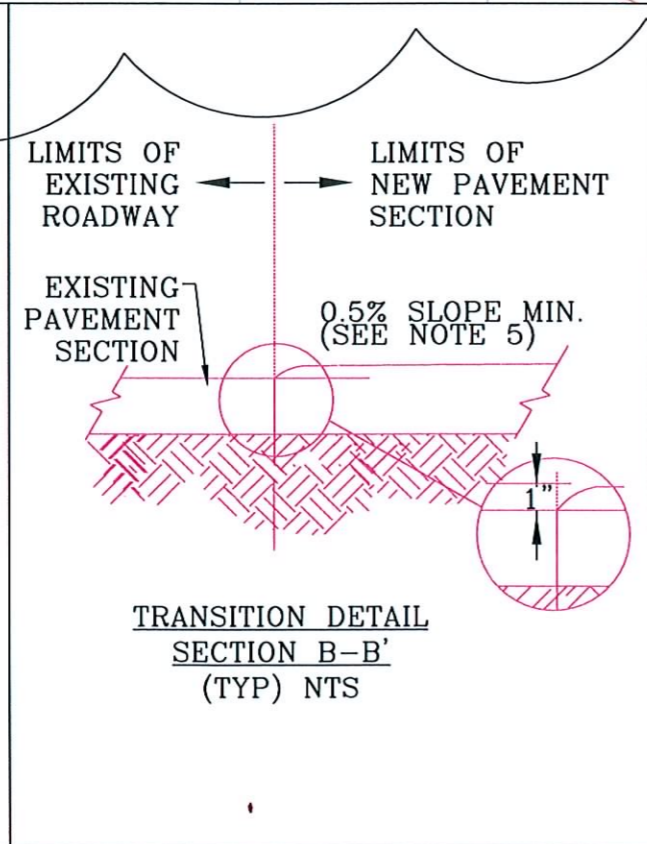
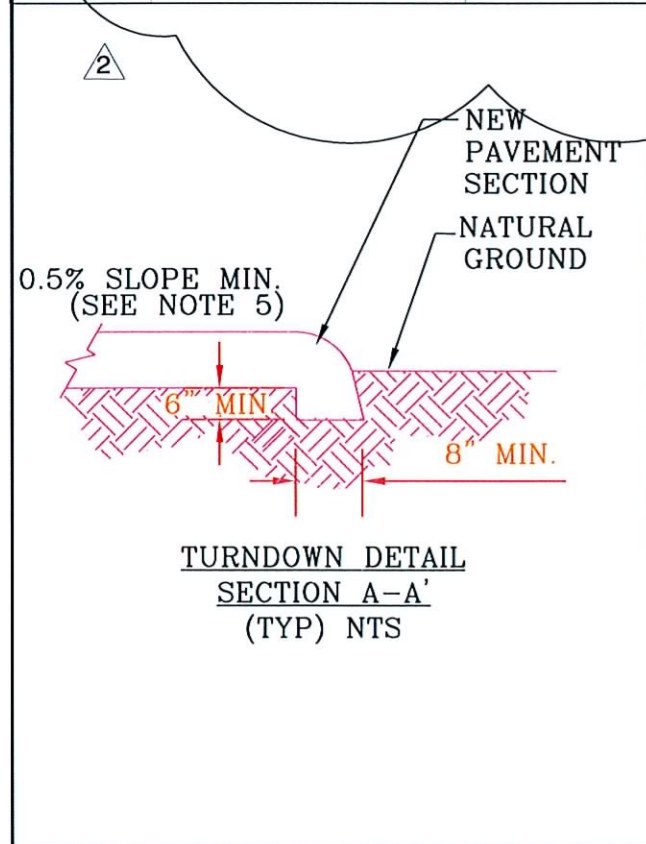
GRAPHICS BY: BN	
DATE: 8/2/07	
FILENAME: Sheets 1-X.DWG	
DESIGN BY: BN	
CHK. BY: BO	
SCALE: AS SHOWN	
REVISIONS	
No.	Date
1	8/7/07
2	8/13/07

Project #:
 AEA07-051-05



CONSTRUCTION NOTES

- 1 CONTRACTOR SHALL REMOVE DEBRIS PRIOR TO INSTALLATION OF TOPPING/PAVING MATERIAL.
- 2 CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN INSTALLING BASE, POM A AND HMAC AROUND EXISTING COLUMNS, BRIDGES, AND EXISTING BUILDINGS.
- 3 CONTRACTOR SHALL CONSTRUCT THE TURNDOWN THICKENED EDGE SECTION AS INDICATED ON SECTION A-A'.
- 4 CONTRACTOR SHALL TAKE THE NECESSARY PROVISIONS TO PROTECT THE EXISTING WELL HEAD(S) AND EXISTING LIVE PIPING AND CONDUIT.
- 5 CONTRACTOR SHALL FILL TO MATCH HIGHEST ELEVATION OF EXISTING CONCRETE ELEMENTS AND GRADE TO PROMOTE DRAINAGE TOWARD EXISTING PUMP STATION.
- 6 CONTRACTOR SHALL GRADE SITE TO ACHIEVE SURFACE FLOW IN AS SHOWN ON THIS SHEET.
- 7 FILL VOIDS/DEPRESSIONS AS PART OF GRADING OPERATIONS.
- 8 EXISTING CONCRETE FOUNDATIONS AT GRADE OR BELOW SURFACE ELEVATION SHALL REMAIN IN PLACE.
- 9 CONTRACTOR WILL BE RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS REQUIRED FOR INSTALLATION OF TOPPING/PAVING MATERIAL.



LEGEND

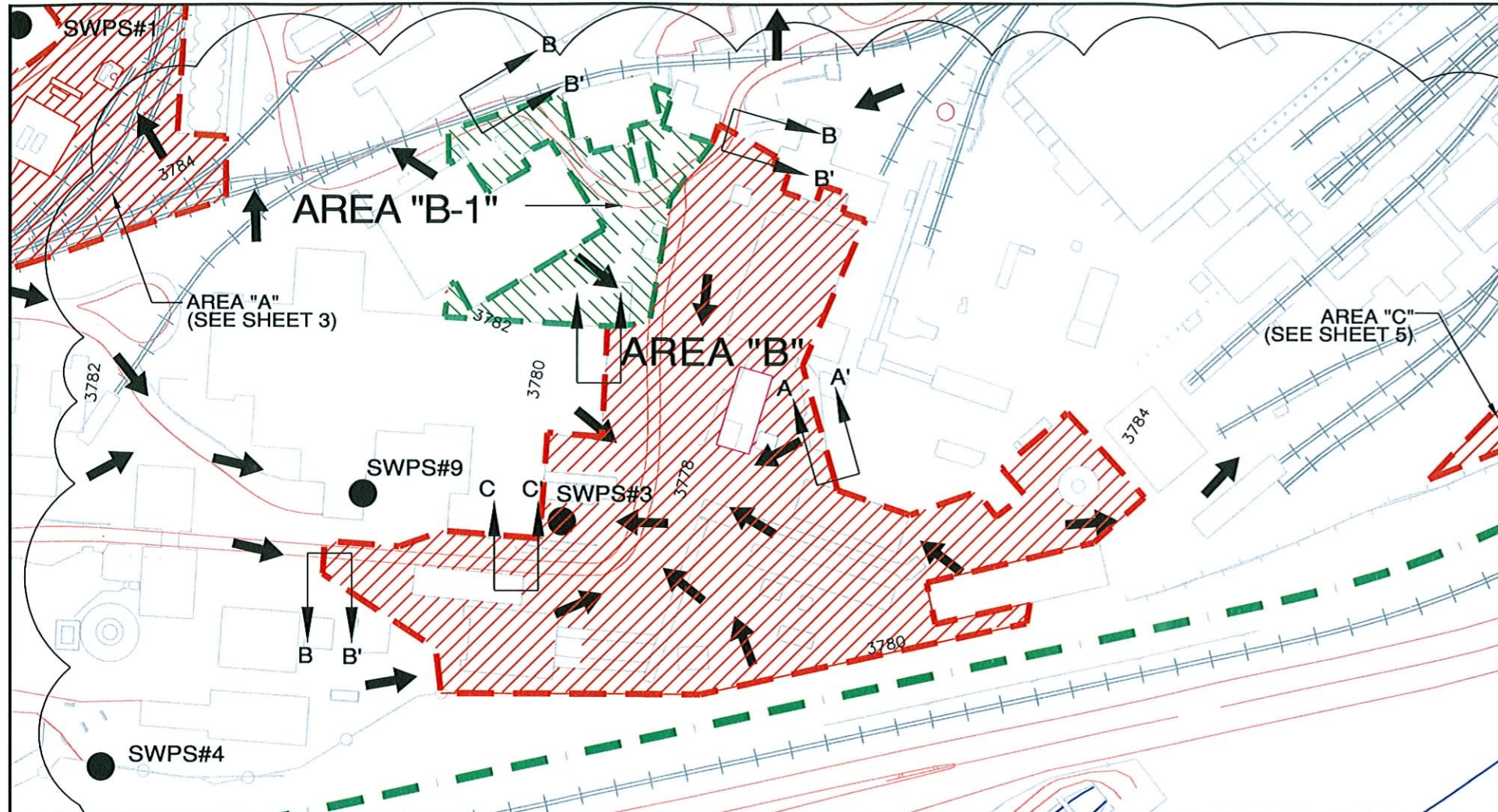
- CAT 2 - POM A SUB-BASE
- PROPERTY BOUNDARY
- FLOW ARROWS
- STORM WATER PUMP STATION (SWPS)

SCALE: 1" = 100'

Raba Kistner
Engineers, Geologists, Hygienists
and Environmental Scientists

LOCATION MAP - AREA A
ASARCO ON-PLANT REMEDIATION 2007
ASARCO, INC.
EL PASO, TEXAS

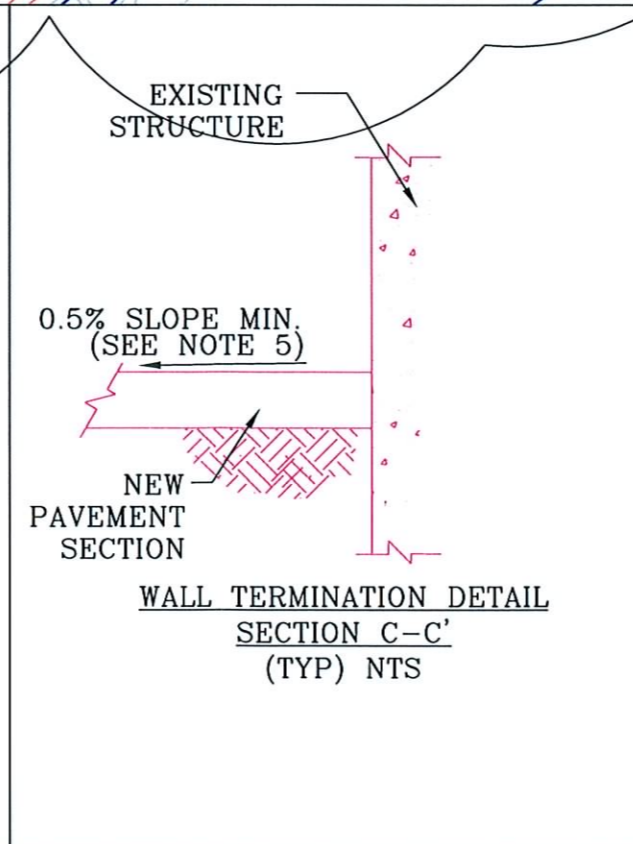
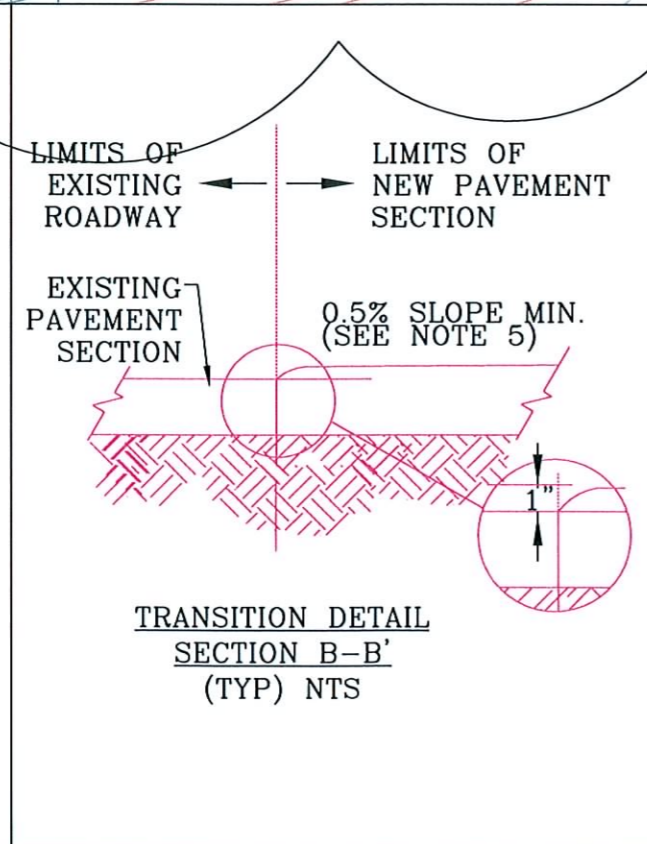
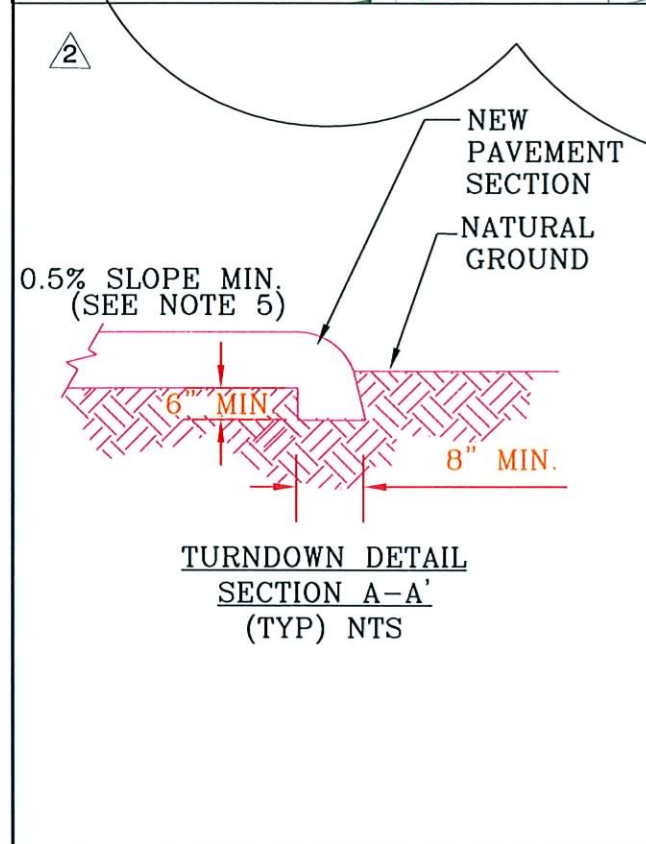
GRAPHICS BY: BN	
DATE: 8/2/07	
FILENAME: Sheets 1-X.DWG	
DESIGN BY: BN	
CHK. BY: BO	
SCALE: AS SHOWN	
REVISIONS	
No.	Date
1	8/13/07
Project #: AEA07-051-05	
SHEET	
3	



CONSTRUCTION NOTES

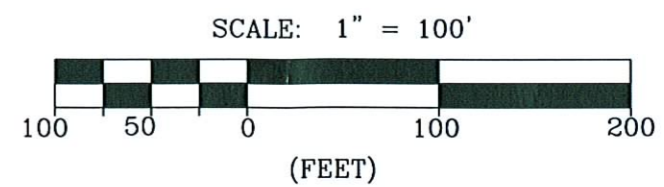
- 1 CONTRACTOR SHALL REMOVE DEBRIS PRIOR TO INSTALLATION OF TOPPING/PAVING MATERIAL.
- 2 CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN INSTALLING BASE, POM A AND HMAC AROUND EXISTING COLUMNS, BRIDGES, AND EXISTING BUILDINGS.
- 3 CONTRACTOR SHALL CONSTRUCT THE TURNDOWN THICKENED EDGE SECTION AS INDICATED ON SECTION A-A'.
- 4 CONTRACTOR SHALL TAKE THE NECESSARY PROVISIONS TO PROTECT THE EXISTING WELL HEAD(S) AND EXISTING LIVE PIPING AND CONDUIT.
- 5 CONTRACTOR SHALL FILL TO MATCH HIGHEST ELEVATION OF EXISTING CONCRETE ELEMENTS AND GRADE TO PROMOTE DRAINAGE TOWARD EXISTING PUMP STATION.
- 6 CONTRACTOR SHALL GRADE SITE TO ACHIEVE SURFACE FLOW IN AS SHOWN ON THIS SHEET.
- 7 FILL VOIDS/DEPRESSIONS AS PART OF GRADING OPERATIONS.
- 8 EXISTING CONCRETE FOUNDATIONS AT GRADE OR BELOW SURFACE ELEVATION SHALL REMAIN IN PLACE.
9. CONTRACTOR WILL BE RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS REQUIRED FOR INSTALLATION OF TOPPING/PAVING MATERIAL.

LOCATION MAP - AREA B AND B-1
 ASARCO ON-PLANT REMEDIATION 2007
 ASARCO, INC.
 EL PASO, TEXAS

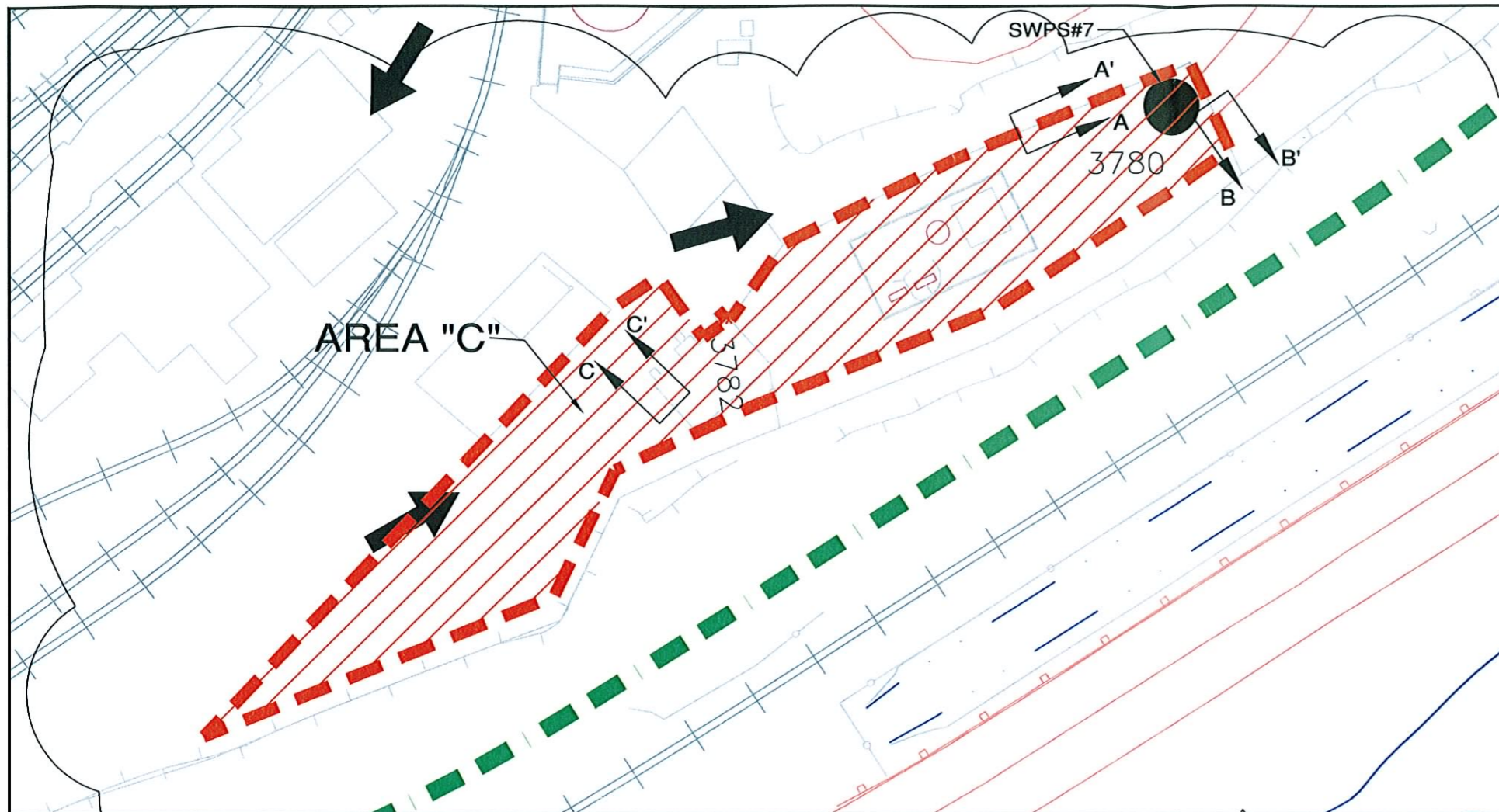


LEGEND

- HMAC - 2 INCH LAYER PAVING MATERIAL
- CAT 2 - POM A SUB-BASE
- PROPERTY BOUNDARY
- FLOW ARROWS
- STORM WATER PUMP STATION (SWPS)

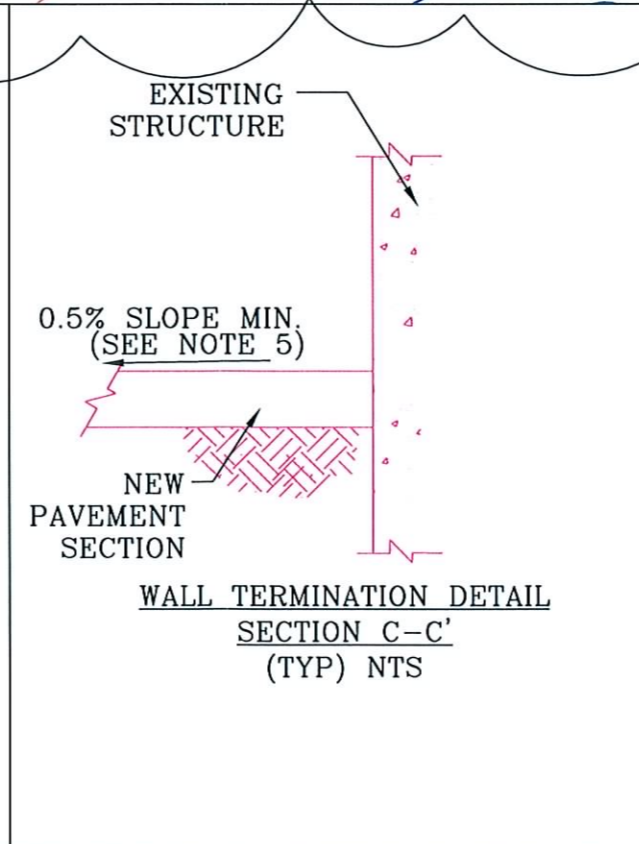
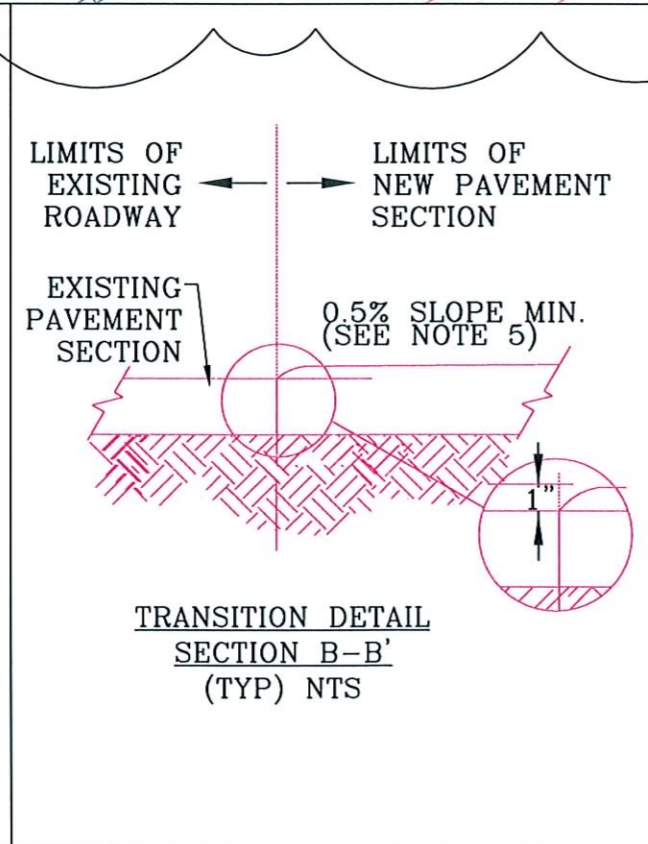
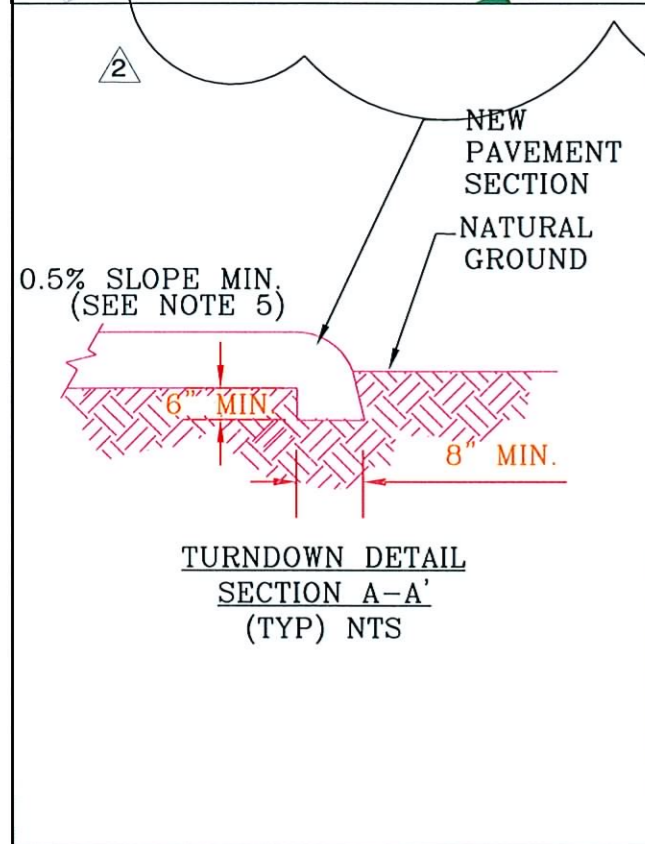


GRAPHICS BY: BN	
DATE: 8/2/07	
FILENAME: Sheets 1-X.DWG	
DESIGN BY: BN	
CHK. BY: BO	
SCALE: AS SHOWN	
REVISIONS	
No.	Date
△	8/13/07
Project #: AEA07-051-05	



CONSTRUCTION NOTES

- 1 CONTRACTOR SHALL REMOVE DEBRIS PRIOR TO INSTALLATION OF TOPPING/PAVING MATERIAL.
- 2 CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN INSTALLING BASE, POM A AND HMAC AROUND EXISTING COLUMNS, BRIDGES, AND EXISTING BUILDINGS.
- 3 CONTRACTOR SHALL CONSTRUCT THE TURNDOWN THICKENED EDGE SECTION AS INDICATED ON SECTION A-A'.
- 4 CONTRACTOR SHALL TAKE THE NECESSARY PROVISIONS TO PROTECT THE EXISTING WELL HEAD(S) AND EXISTING LIVE PIPING AND CONDUIT.
- 5 CONTRACTOR SHALL FILL TO MATCH HIGHEST ELEVATION OF EXISTING CONCRETE ELEMENTS AND GRADE TO PROMOTE DRAINAGE TOWARD EXISTING PUMP STATION.
- 6 CONTRACTOR SHALL GRADE SITE TO ACHIEVE SURFACE FLOW IN AS SHOWN ON THIS SHEET.
- 7 FILL VOIDS/DEPRESSIONS AS PART OF GRADING OPERATIONS.
- 8 EXISTING CONCRETE FOUNDATIONS AT GRADE OR BELOW SURFACE ELEVATION SHALL REMAIN IN PLACE.
- 9 CONTRACTOR WILL BE RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS REQUIRED FOR INSTALLATION OF TOPPING/PAVING MATERIAL.



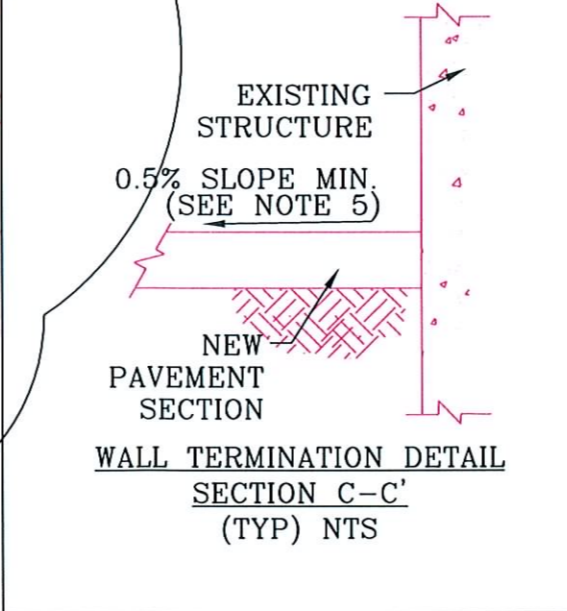
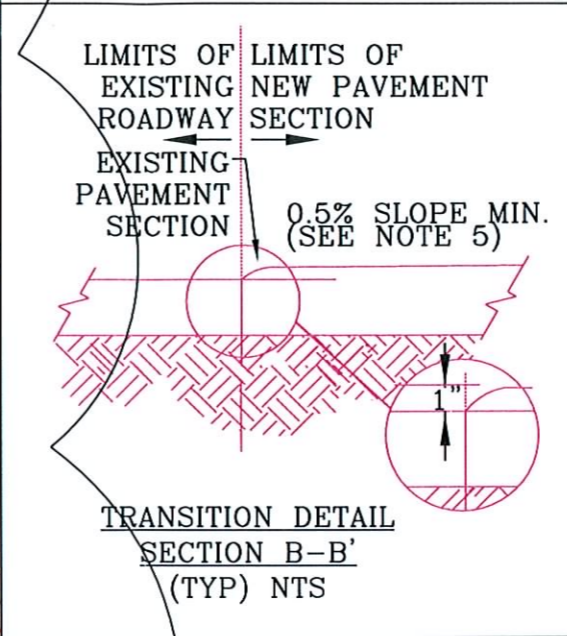
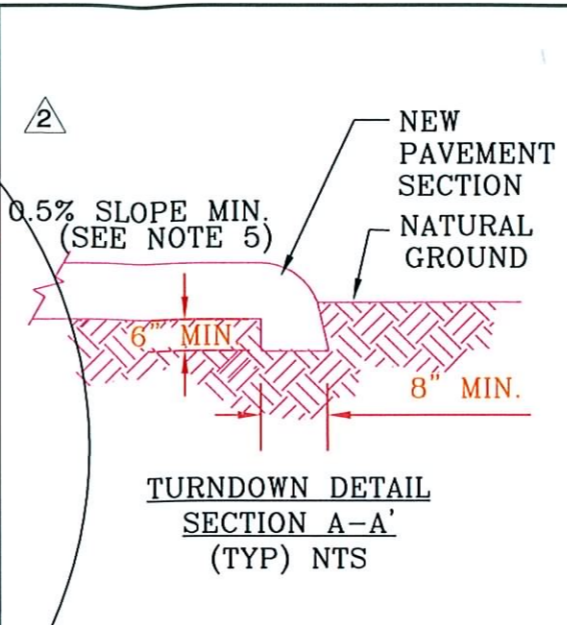
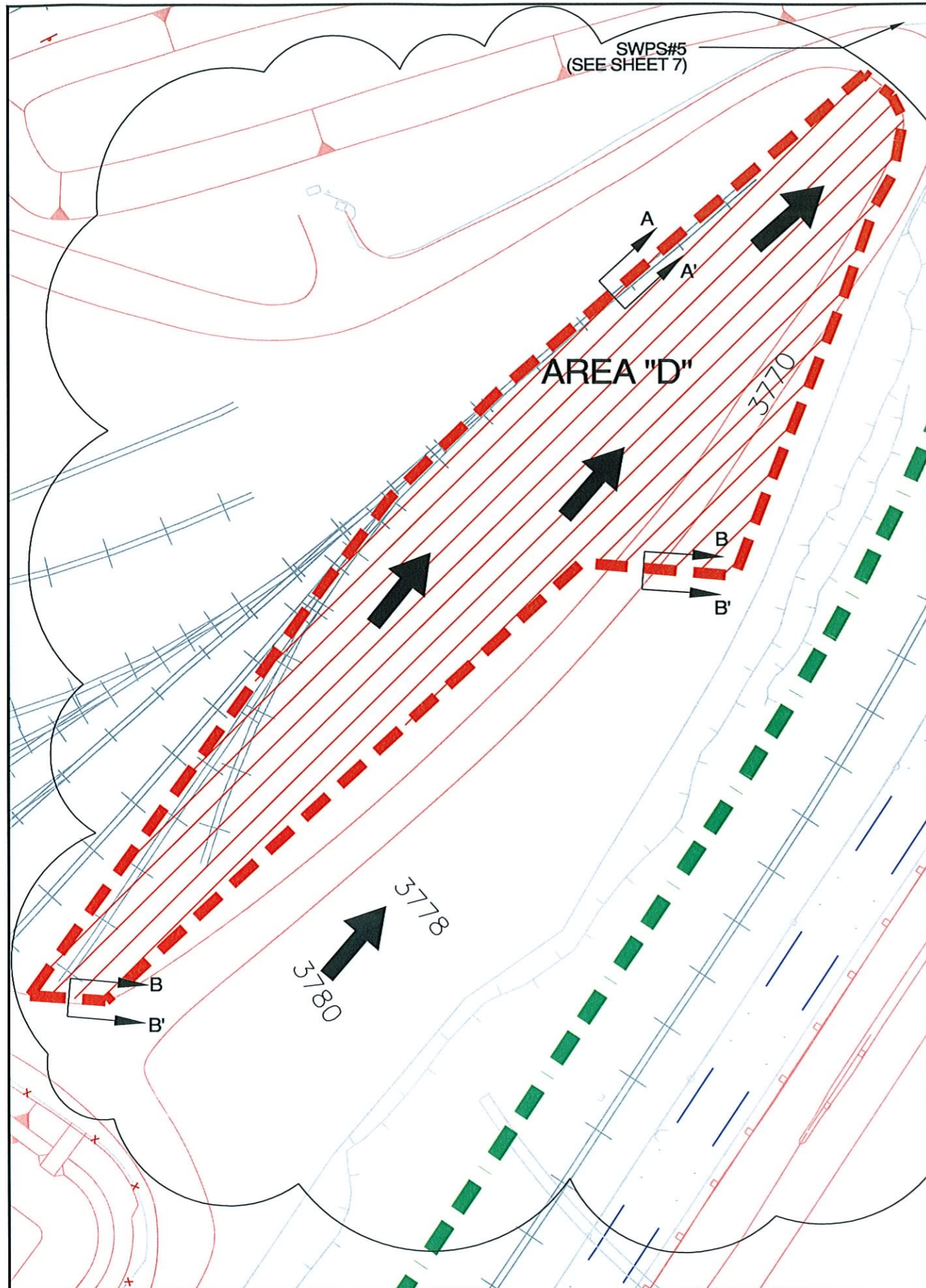
LEGEND

- CAT 2 - POM A SUB-BASE
- PROPERTY BOUNDARY
- FLOW ARROWS
- STORM WATER PUMP STATION (SWPS)

SCALE: 1" = 50'

GRAPHICS BY: BN	
DATE: 8/2/07	
FILENAME: Sheets 1-X.DWG	
DESIGN BY: BN	
CHK. BY: BO	
SCALE: AS SHOWN	
REVISIONS	
No.	Date
1	8/13/07

Project #: AEA07-051-05



CONSTRUCTION NOTES

- 1 CONTRACTOR SHALL REMOVE DEBRIS PRIOR TO INSTALLATION OF TOPPING/PAVING MATERIAL.
- 2 CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN INSTALLING BASE, POM A AND HMAC AROUND EXISTING COLUMNS, BRIDGES, AND EXISTING BUILDINGS.
- 3 CONTRACTOR SHALL CONSTRUCT THE TURNDOWN THICKENED EDGE SECTION AS INDICATED ON SECTION A-A'.
- 4 CONTRACTOR SHALL TAKE THE NECESSARY PROVISIONS TO PROTECT THE EXISTING WELL HEAD(S) AND EXISTING LIVE PIPING AND CONDUIT.
- 5 CONTRACTOR SHALL FILL TO MATCH HIGHEST ELEVATION OF EXISTING CONCRETE ELEMENTS AND GRADE TO PROMOTE DRAINAGE TOWARD EXISTING PUMP STATION.
- 6 CONTRACTOR SHALL GRADE SITE TO ACHIEVE SURFACE FLOW IN AS SHOWN ON THIS SHEET.
- 7 FILL VOIDS/DEPRESSIONS AS PART OF GRADING OPERATIONS.
- 8 EXISTING CONCRETE FOUNDATIONS AT GRADE OR BELOW SURFACE ELEVATION SHALL REMAIN IN PLACE.
9. CONTRACTOR WILL BE RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS REQUIRED FOR INSTALLATION OF TOPPING/PAVING MATERIAL.

LEGEND

- NORTH
- CAT 2 - POM A SUB-BASE
- PROPERTY BOUNDARY
- FLOW ARROWS
- STORM WATER PUMP STATION (SWPS)

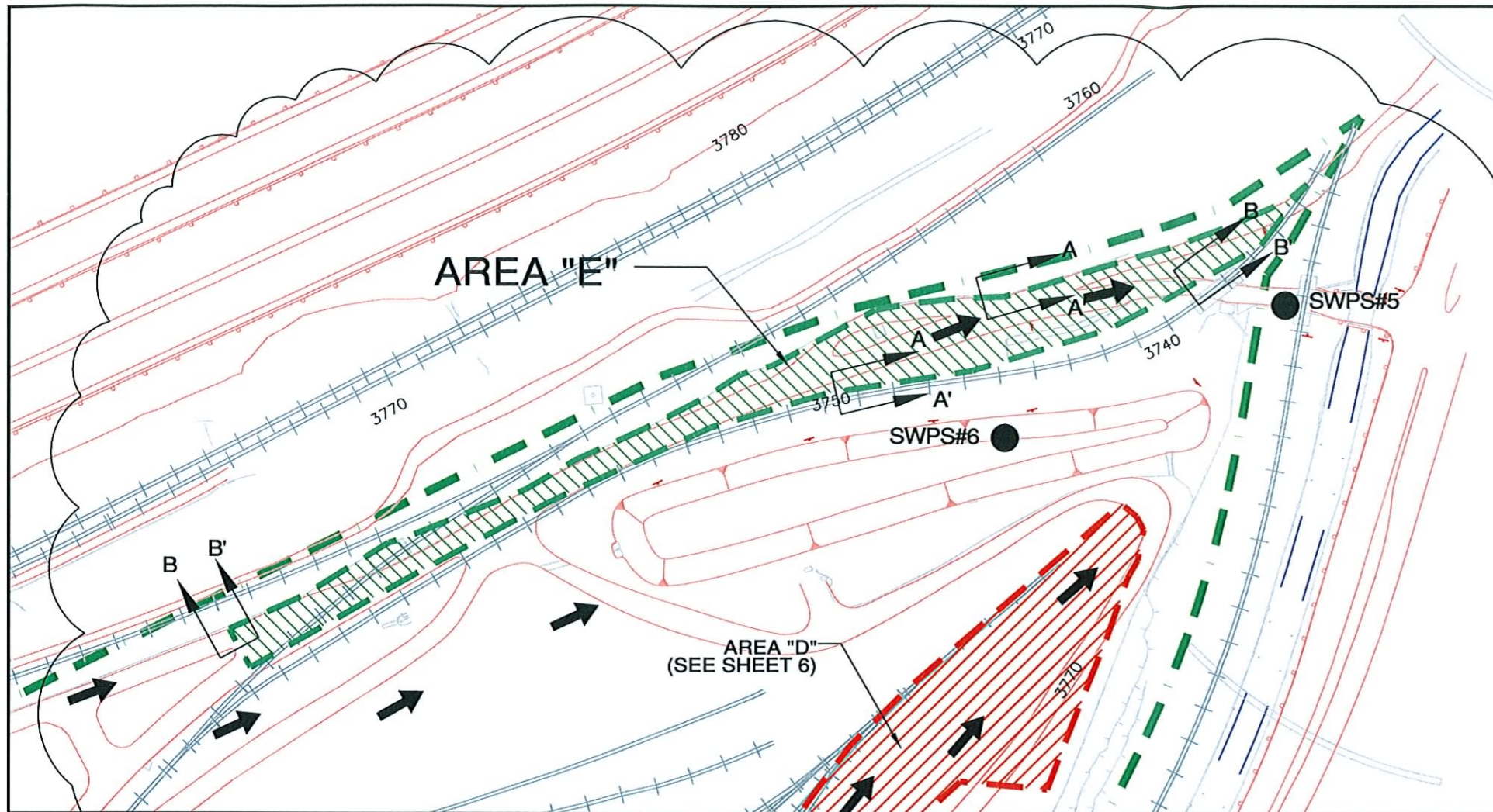
SCALE: 1" = 50'

(FEET)

Raba Kistner
Engineers, Geologists, Hygienists and Environmental Scientists

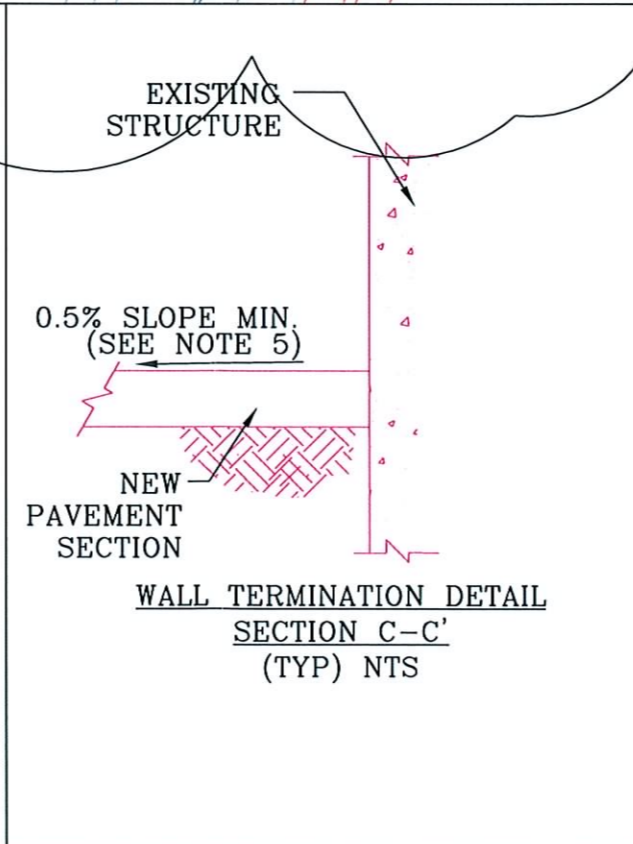
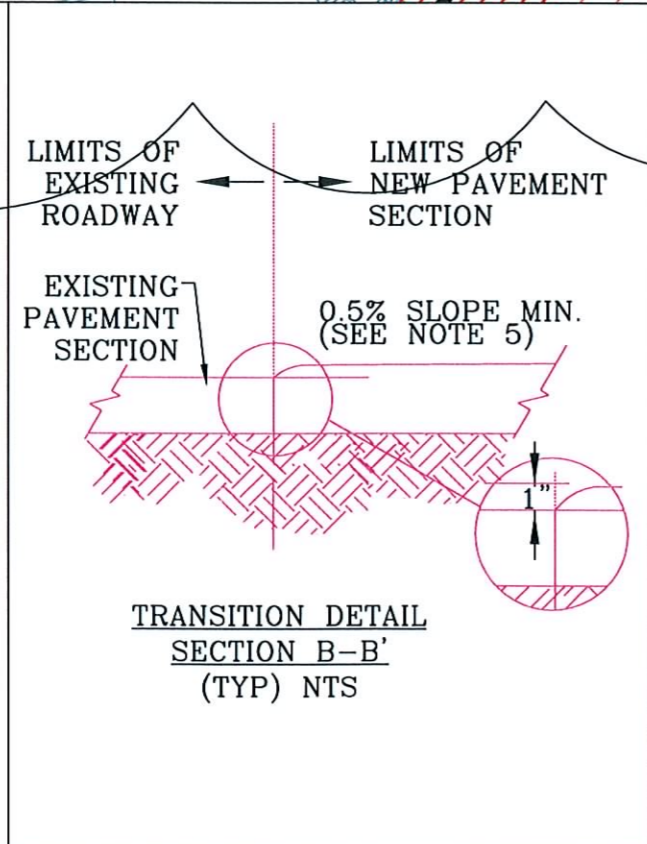
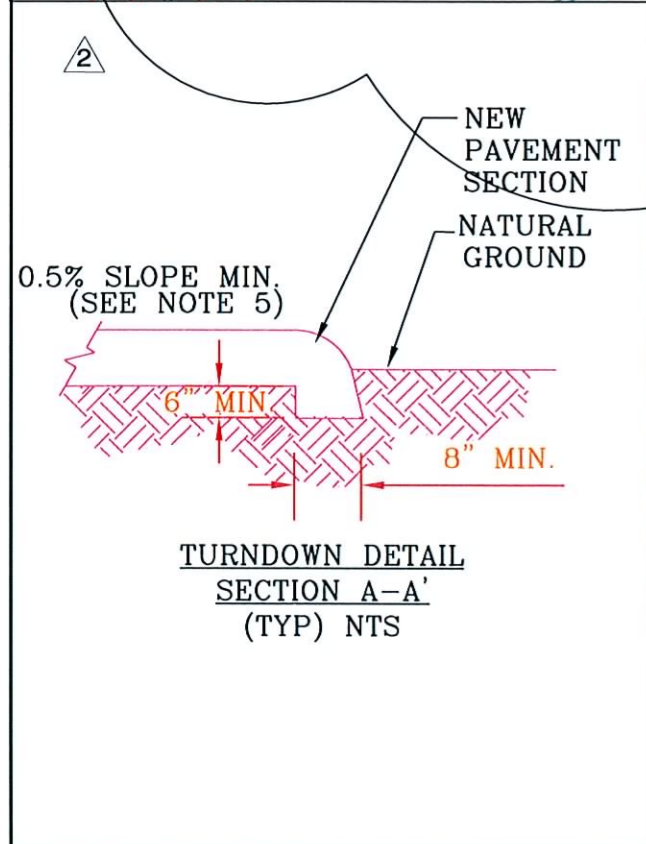
LOCATION MAP - AREA D
ASARCO ON-PLANT REMEDIATION 2007
ASARCO, INC.
EL PASO, TEXAS

GRAPHICS BY: BN	
DATE: 8/2/07	
FILENAME: Sheets 1-X.DWG	
DESIGN BY: BN	
CHK. BY: BO	
SCALE: AS SHOWN	
REVISIONS	
No.	Date
2	8/13/07
Project #: AEA07-051-05	
SHEET	
6	



CONSTRUCTION NOTES

- 1 CONTRACTOR SHALL REMOVE DEBRIS PRIOR TO INSTALLATION OF TOPPING/PAVING MATERIAL.
- 2 CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN INSTALLING BASE, POM A AND HMAC AROUND EXISTING COLUMNS, BRIDGES, AND EXISTING BUILDINGS.
- 3 CONTRACTOR SHALL CONSTRUCT THE TURNDOWN THICKENED EDGE SECTION AS INDICATED ON SECTION A-A'.
- 4 CONTRACTOR SHALL TAKE THE NECESSARY PROVISIONS TO PROTECT THE EXISTING WELL HEAD(S) AND EXISTING LIVE PIPING AND CONDUIT.
- 5 CONTRACTOR SHALL FILL TO MATCH HIGHEST ELEVATION OF EXISTING CONCRETE ELEMENTS AND GRADE TO PROMOTE DRAINAGE TOWARD EXISTING PUMP STATION.
- 6 CONTRACTOR SHALL GRADE SITE TO ACHIEVE SURFACE FLOW IN AS SHOWN ON THIS SHEET.
- 7 FILL VOIDS/DEPRESSIONS AS PART OF GRADING OPERATIONS.
- 8 EXISTING CONCRETE FOUNDATIONS AT GRADE OR BELOW SURFACE ELEVATION SHALL REMAIN IN PLACE.
9. CONTRACTOR WILL BE RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS REQUIRED FOR INSTALLATION OF TOPPING/PAVING MATERIAL.



LEGEND

- HMAC - 2 INCH LAYER PAVING MATERIAL
- PROPERTY BOUNDARY
- FLOW ARROWS
- STORM WATER PUMP STATION (SWPS)

SCALE: 1" = 100'

Raba Kistner
Engineers, Geologists, Hygienists and Environmental Scientists

LOCATION MAP - AREA E
ASARCO ON-PLANT REMEDIATION 2007
ASARCO, INC.
EL PASO, TEXAS

GRAPHICS BY: BN
DATE: 8/2/07
FILENAME: Sheets 1-X.DWG
DESIGN BY: BN
CHK. BY: BO
SCALE: AS SHOWN

REVISIONS	
No.	Date
1	8/13/07

Project #: AEA07-051-05

SHEET
7



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

August 28, 2007

FINAL DOC

Mr. Lairy A. Johnson, P.G.
ASARCO
PO Box 1111
El Paso, Texas 79999

**RE: ASARCO On-Plant Remediation 2007 Project – El Paso Plant
Bid Evaluation Results and Recommendation to Award
El Paso, Texas**

Dear Mr. Johnson:

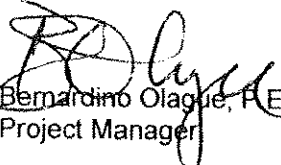
On August 23, 2007, **Raba-Kistner Consultants (SW), Inc. (R-K)** received two sealed bid-proposals and one via internet. The bids came from Allied Paving, Camino Contracting, and JL-D Management. We evaluated the submittals for completeness and adherence to the project specifications and drawings, pursuant to the criteria presented in the project bid documents.

As you know, this Best Value evaluation process affords us an opportunity to not only evaluate unit rates, but also qualifications and experience of the bidders. Upon completion of our evaluation, it is our opinion that the bid-proposal submitted by Allied Paving offers the best-value proposal to ASARCO. Thus, it is our recommendation that ASARCO awards the contract to Allied Paving.

Please contact me if you have comments or questions regarding this transmittal.

Very truly yours,

RABA-KISTNER CONSULTANTS (SW), INC.


Bernardino Olague, P.E.
Project Manager

BO/vg

Attachments: Bid Evaluation Forms
Bid Opening – Notes
Bid-proposals (and amendment from Allied Paving)

cc: Mr. Walter Boyle – ASARCO
File – AEA07-051-00

Engineering • Testing • Environmental • Facilities • Infrastructure



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

FACSIMILE TRANSMISSION COVER PAGE

DATE: August 7, 2007 NUMBER OF PAGE(S): 8
 (INCLUDING THIS COVER)
 TO: Mr. Lairy Johnson, P.G. FAX NO.: (915) 521-3651
Mr. Walter Boyle
ASARCO LLC – El Paso Plant
 FROM: Mr. Benjamin Natera, E.I.T.
 SUBJECT: Addendum No. 1 for the ASARCO On-Plant Remediation Project

- The original of this transmittal will be sent by:
 U.S. Mail Messenger Overnight Mail
- This will be the only form of delivery of this transmittal.
- IF YOU DO NOT RECEIVE ALL PAGES, PLEASE CALL (915) 778-5233.
 Fax transmitted by: Veronica Garcia

COMMENTS:

CONFIDENTIALITY NOTICE: The documents(s) accompanying this facsimile transmission contain legally privileged and/or confidential and proprietary information of Raba-Kistner. The information is intended only for the use of the recipient named herein. If you have received this facsimile in error, please immediately notify us by telephone and arrange for return of the original document(s) to us at the above address. You are hereby notified that any disclosure, copying, distribution or the taking of any action in reliance on the contents of this facsimile information is strictly prohibited.

ADDENDUM NO. 1

ASARCO ON-PLANT REMEDIATION PROJECT (PROJECT)

This Addendum No. 1 shall be made part of the Project bid documents. Bidders are instructed to sign and submit this form in their bid.

CONTENTS

- 1. Documents
 - a. Replace existing Pages 1-3, 5 and 6 with the attached Sheets 1-3, 5 and 6, which are revised as of August 7, 2007.
 - b. Include Figure 1 as part of Addendum 1 (LIGHT TRAFFIC RECOMMENDED PAVEMENT CROSS-SECTION).
 - c. Replace drawing SHEET 2 with SHEET 2 which is revised as of August 7, 2007 and will be mailed out by over-night courier on full size sheet (24x36).
- 2. Engineers Estimate: \$1.5 to \$2.5 million

Name & signature of person submitting bid/date

Company name

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2007**

INVITATION TO BID

Sealed bids from the contractors listed below will be received by the Engineer, Raba-Kistner Consultants, Inc., 7002 Commerce, El Paso, Texas 79915, or hand-delivered to said address, until 2:00 PM, August 17, 2007. No bid opening session will be conducted, unless otherwise noted. The contract will be awarded on a best-value basis. The best-value criteria (evaluation factors) are presented on Page 8.

List of Prequalified Contractors (in alphabetical order)

- Allied Paving, Inc.
- Camino Contracting, Inc.
- ENTECT Environmental Services
- ENVIROCON, Inc.
- FM 973 Construction
- North Wind, Inc.
- Remedial Construction Services, L.P.

ASARCO (Owner) reserves the right to accept or reject any or all bids and to waive formalities. The project consists of the items of work listed in the scope of work and bid tabulation Form.

BID SECURITY. Each bid must be accompanied by a letter of commitment to have the ability to acquire a bid bond. The letter must be duly executed by the Bidder as principal. Said letter shall name the surety company. The letter shall indicate that the Contractor will be able to secure a bid bond in the amount of 5 percent of the Total Bid price (including base bid and alternates(s)).

INSURANCE. The contractor shall be required to meet the requirements set forth in the contract documents (EXHIBIT A).

HEALTH AND SAFETY PLAN. Each bid must be accompanied by a hard-copy of the Contractor's most current Health and Safety Plan.

Owner funds are anticipated to be used in this project.

QUESTIONS. Question or clarifications shall be addressed and delivered to the Engineer Not Later Than August 15, 2007.

Engineer's Information

Bernardino Olague, P.E.
Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 Phone
(915) 779-8301 Fax
Internet: bolaque@rkci.com

ASARCO – EL PASO SMELTER ASARCO ON-PLANT REMEDIATION 2007

SCOPE OF WORK

Project Description

The Contractor shall construct pavement sections in five specific areas (including one additive alternate item), as shown in the project drawings (EXHIBIT B).

Base Bid

The Contractor shall construct pavement sections in five specific areas, identified as Areas A, B, C, D and E, respectively. The Base Bid also requires the successful bidder to provide any and all necessary permits as required by the City of El Paso. In addition, the Base Bid includes the furnishing and installation of a 60-in. RCP starting at ASARCO's East Intake to the Railroad tracks West End of ASARCO. The components of the new pavement capping sections are presented on Pages 4, and 5.

Additive Alternate No. 1 – Railroad Line Removal

The Contractor shall remove steel rails associated with ASARCO's interior railroad network. The Contractor shall also grade and compact sub-base, apply tack-coat, and produce, transport and apply a 3-inch lift of POM-A (refer to Page 5).

Health and Safety Plan

The Contractor shall maintain an internal HASP that is in consonance with Owner's HASP.

Pre-bid Conference and Site Visit

A non-mandatory pre-bid conference will be held on August 6, 2007 at 3:30 PM at ASARCO El Paso Plant. The purpose of the pre-bid conference is to inform the bidders about the project requirements with respect to fabrication of the paving materials and their application. The purpose of the site visit was to show the bidders the areas that will be improved and to give them an opportunity to familiarize themselves with the site conditions.

The Owner encourages the bidders to visit the site prior to bid opening date to acquaint themselves even further with the project site conditions and verify quantities. Visits are at the bidder's expense.

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2007**

PROJECT SCHEDULE

1. Bid Packages E-Mailed out to Contractors: August 3, 2007
2. Non-mandatory Pre-Bid Conference: August 6, 2007
3. Bids Due Back to Raba-Kistner office: August 17, 2007 (by 2:00 pm MST)
5. Bid Tabulation by Raba-Kistner due: August 20, 2007
6. Estimated time of award for contract: August 24, 2007
7. Project Completion: November 30, 2007

**ASARCO – EL PASO SMELTER
ASARCO ON-PLANT REMEDIATION 2007**

TECHNICAL SPECIFICATION

**POM-A
Mixture Design and Resulting Properties
ASARCO Copper Smelter
El Paso, Texas
For Bid Purposes**

Sieve Size:	Target Grading Tolerances	
3/4 -in:	100	
1/2 -in:	79-99	
3/8 :	45-100	
No.4:	30-60	
No.40:	10-30	
Water:	3.0	
CSS-IH Emulsified Asphalt:	5.0+/-1.0	
Density and Compressive Strength (Tex 126-E):		
Avg. Density (lbs/cu.ft.):	140-160	
Avg. Compressive Strength (psi)	75	Minimum 50 required
HVEEM Stability (Tex 206-F&208-F):	Avg. stability 50	Minimum 35 required
Marshall Stability (ASTM D6926)	Avg. stability (lbs) 2200	Minimum 1800
Marshall Stability (ASTM D6926)	Avg. Flow (.01-in): 14	8-16

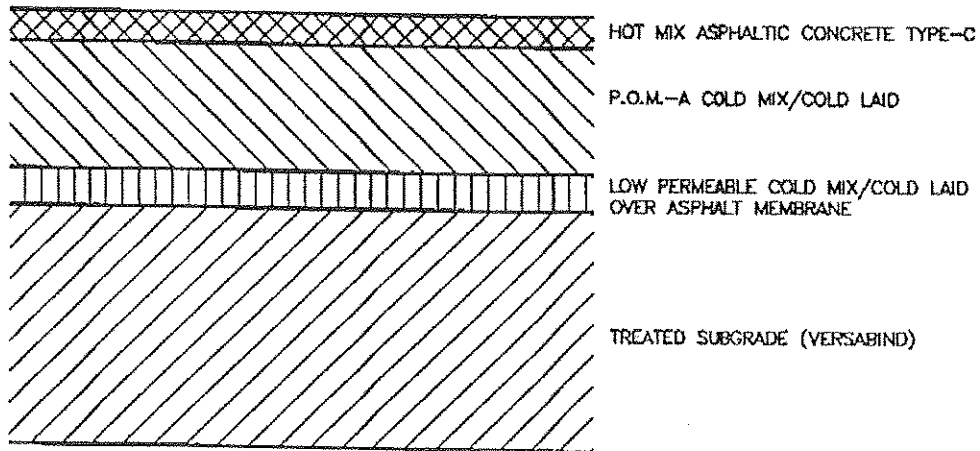
ASARCO – EL PASO SMELTER ASARCO ON-PLANT REMEDIATION 2007

BEST VALUE METHODOLOGY

This contract will be awarded on the basis of best-value. Hence, bids will be evaluated based on a "best value methodology" as determined below. In order to identify and select the best value the following criteria and associated point system criteria will be implemented.

	Criteria	Maximum Points
1	Cost (Base Bid and Additive Alternate(s))	35
2	Project Approach (ability to meet project specifications). The contractor must provide a narrative describing its project understanding as well as its approach to achieve the desired pavement sections.	30
3	<p>Project Manager and Key Personnel Experience. Minimum requirements for project manager and superintendent:</p> <p>Project Manager – Must have managed the successful completion of at least three projects of similar characteristics in the last five years.</p> <p>Project Superintendent - Must have managed the successful completion of at least two projects of similar characteristics in the last four years.</p>	15
4	Firm Experience with Similar Projects. The contractor must have at least successfully completed at least four projects similar in scope to this Project in the last five years.	10
5	References on Past Performance. The contractor must provide at least three references for whom the contractor has completed projects in the last five years.	5
6	Health and Safety Plan. The contractor must submit in its bid a copy of its most current HASP.	5
	Total	100

	LAYERED THICKNESS (INCHES)	S_{dl}	SN
HOT MIX ASPHALTIC CONCRETE TYPE-C	1.5	0.44	0.66
P.O.M.-A COLD MIX/COLD LAID	4.0	(ASSUMED) 0.30	1.20
LOW PERMEABLE COLD MIX/COLD LAID OVER ASPHALT MEMBRANE	2.0	(ASSUMED) 0.28	0.56
TREATED SUBGRADE (VERSABIND)	8.0 (MIN.)	(ASSUMED) 0.14	1.12
			WSN = 3.54



NOTE: GEOGRID TENSAR CAPITOL BX-1100 MAY BE USED IN PLACE OF TREATED SUBGRADE.

**ASARCO ON-PLANT
REMEDATION
PRE BID CONFERENCE – August 6, 2007
Sign-in Sheet
3:30 p.m.**

Name	Company	Phone	E-mail
Tim Mierke	Exc. Co.	98-664-1157	tim.mierke@exc.com
Bob Foster	CAMINO	915 479 2006	BOBFTR@AD.COM
Frank Lera	Raba-Kistner	(602) 776-5233	frank@rki.com
Walter Boyle	Asarco	(915) 541-1820	wboyle@asarco.com
John Wedgworth	JLM	210 2608601	wc.dge.78055@yahoo.com
JAMES L. COOPER	J.L.C.	512 276 7574	J.L.C@JL.C.COM
Coronado Rodriguez	Allied Paving	795 7625	lralliedpaving@elphiglas.com
Manuel Reyes	Raba-Kistner	776-5233	Mreyes@rki.com
LARRY JOHNSON	ASARCO	541-1819	ljohnson2@asarco.com
BERNARDINO CLARK	RABA-KISTNER	776-5233	bernardo.clark@rki.com

Appendix C Field Test Data and Material Certifications – Category II Capping

C.1 2006 Strength Tests and In-Situ Density Tests

LABORATORY TESTING REPORT

Engineering • Testing • Environmental • Facilities • Infrastructure



Raba Kistner Consultants, Inc.
 12821 W. Golden Lane
 P.O. Box 690287, San Antonio, TX 78269-0287
 (210) 699-9090 • FAX (210) 699-6426
 www.rkci.com

CLIENT: ASARCO Incorporated
 3201 West Paisano Street
 El Paso, Texas 79922
 Attn: Mr. Lairy Johnson, P.G.

PROJECT NO.: AED06-067-00
DATE RECEIVED: 11-01-06
SAMPLED BY: R-K, El Paso
DATE TESTED: 11-06-06
TESTED BY: CR
DATE REPORTED: 11-17-06

PROJECT: 2006 Construction Services

RE: Low Permeable Cold Mix/Cold Laid Asphaltic Concrete
 Sample No. 1: (First 500 tons) Strength Test Data
 ASARCO Site No. 1
 El Paso, Texas

MATERIAL DESCRIPTION: Cold Mix/Cold Laid Low Permeable Asphaltic Concrete

Slow Compressive Strength (psi) (TEX-126-E) (Modified):		
		Project Specifications
Average Molded Density (lbs/cu.ft.):	180.8	Minimum 148
Average Compressive Strength (psi):	67	Minimum 35
Marshall Stability & Flow (ASTMD 6926 & D 6927) (Modified):		
Average Stability (lbs):	1927	Minimum 1800
Average Flow (.01-inc):	13	8-16
Hveem Stability (TEX-208-F) (Modified):		
Average Hveem Stability (%):	38	Minimum 35

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to evaluate test results without written approval from Raba-Kistner Consultants, Inc.

COPIES TO: Above (1)

RABA-KISTNER CONSULTANTS, INC.

BY: *K.W. Mangum* 11/27/06

ASSIGNMENT NO.: E06-61071
 /dgp 11-21-06

W:\Active Projects\El Paso\2006\AED06-067-00 ASARCO\E06-61071 Lab Form.doc



LABORATORY TESTING REPORT

Engineering • Testing • Environmental • Facilities • Infrastructure



Raba Kistner Consultants, Inc.
 12821 W. Golden Lane
 P.O. Box 690287, San Antonio, TX 78269-0287
 (210) 699-9090 • FAX (210) 699-6426
 www.rkci.com

CLIENT: ASARCO Incorporated
 3201 West Paisano Street
 El Paso, Texas 79922
 Attn: Mr. Lairy Johnson, P.G.

PROJECT NO.: AED06-067-00
DATE RECEIVED: 11-08-06
SAMPLED BY: R-K, El Paso
DATE TESTED: 11-10-06
TESTED BY: CB/CR
DATE REPORTED: 11-21-06

PROJECT: 2006 Construction Services

RE: Low Permeable Cold Mix/Cold Laid Asphaltic Concrete
 Sample No. 2: Area 4 at 1050 tons

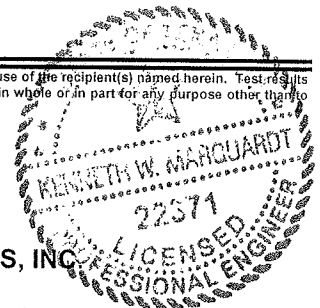
MATERIAL DESCRIPTION: Cold Mix/Cold Laid Low Permeable Asphaltic Concrete

Slow Compressive Strength (psi) (TEX-126-E) (Modified):		
		Project Specifications
Average Molded Density (lbs/cu.ft.):	175.8	Minimum 148
Average Compressive Strength (psi):	40	Minimum 35
Marshall Stability & Flow (ASTMD 6926 & D 6927) (Modified):		
Average Stability (lbs):	2128	Minimum 1800
Average Flow (.01-inc):	14	8-16
Hveem Stability (TEX-208-F) (Modified):		
Average Hveem Stability (%):	36	Minimum 35

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to evaluate test results without written approval from Raba-Kistner Consultants, Inc.

COPIES TO: Above (1)

RABA-KISTNER CONSULTANTS, INC.



BY: *K.W. Marquardt* 11/27/06

ASSIGNMENT NO.: E06-61074
 /dgp 11-21-06



LABORATORY TESTING REPORT



Raba Kistner Consultants, Inc.
 12821 W. Golden Lane
 P.O. Box 690287, San Antonio, TX 78269-0287
 (210) 699-9090 • FAX (210) 699-6426
 www.rkci.com

ATTN: Mr. Lairy Johnson, P.G.
CLIENT: ASARCO Incorporated
 3201 West Paisano Street
 El Paso, Texas 79922

PROJECT: 2006 Construction Services

PROJECT NO.: AED06-067-00
DATE RECEIVED: 12-05-06
SAMPLED BY: Manny Reyes
DATE TESTED: 12-13-06
TESTED BY: Charlie Berger
DATE REPORTED: 01-22-07

RE: Laboratory Molded Density & Compressive Strength – P.O.M.-A Material

MATERIAL DESCRIPTION: Cold Mixed/Cold Laid Processed Ore Material P.O.M.-A

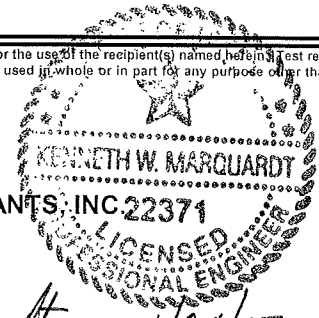
Sample Date:	11-30-06	12-01-06	Project Specifications
Laboratory Molded Density (pcf) Average (TEX-126-E) Modified:	188.4	187.6	---
Compressive Strength (psi) Average (TEX-126-E) Modified:	70	60	Minimum 40

Notes: Test results indicate conformance to project specifications.

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to evaluate test results without written approval from Raba-Kistner Consultants, Inc.

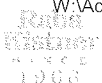
COPIES TO: Above (1)

RABA-KISTNER CONSULTANTS, INC. 22371



BY: K.W. Marquardt 1/24/07

ASSIGNMENT NOS.: E06-013790/E06-013791
 /dgp 01-22-07



REPORT OF FIELD LOW PERMEABILITY ASPHALTIC CONCRETE NUCLEAR DENSITY TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated, Consultant Contract Office
P.O. Box 220182, El Paso, TX 79913

PROJECT NO.: AED06-067-00 **DATE:** 12/01/06 **TECHNICIAN:** MR

MATERIAL TESTED: POM-A Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
26	Area No. 1, 50' west and 50' south of containment pond, north area	Finished POM-A	185.6	178.6	96.2	95.0
27	Area No. 1, 80' south of north end of area No. 1, center line	Finished POM-A	185.6	179.1	96.5	95.0
28	Area No. 3, 25' east and 50' north of southwest corner fence	Finished POM-A	185.6	177.6	95.7	95.0
29	Area No. 3, 50' east and 100' north of southwest corner fence	Finished POM-A	185.6	178.0	95.9	95.0

REMARKS: Tests 26 through 29 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of Recon.

LABORATORY TEST PROCEDURES: *ASTM D 1559

FIELD TEST PROCEDURES: ASTM D 2950-91

*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

Bernardino Olague, P.E. 81628
Vice President



LABORATORY NO.: L-61134

01/23/07 bej; H\CMT\2006\AED06-067-00\AN61134.067

PROJECT NO.: AED06-067-00 **LABORATORY NO.:** L-61134 **DATE:** 12/01/06

MATERIAL TESTED: POM-A Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
30	Area No. 3, 50' east and 150' north of southwest corner fence	Finished POM-A	185.6	176.6	95.1	95.0
31	Area No. 3, 50' east and 200' north of southwest corner fence	Finished POM-A	185.6	179.1	96.5	95.0
32	Area No. 3, 200' north and 100' east of southwest corner fence	Finished POM-A	185.6	180.2	97.1	95.0
33	Area No. 3, 250' north and 250' east of southwest corner fence	Finished POM-A	185.6	182.3	98.2	95.0

REMARKS: Tests 30 through 33 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of Recon.

LABORATORY TESTING REPORT

Engineering • Testing • Environmental • Facilities • Infrastructure



Raba Kistner Consultants, Inc.

12821 W. Golden Lane
 P.O. Box 690287, San Antonio, TX 78269-0287
 (210) 699-9090 • FAX (210) 699-6426
 www.rkci.com

ATTN: Mr. Lairy Johnson, P.G.
CLIENT: ASARCO Incorporated
 3201 West Paisano Street
 El Paso, Texas 79922

PROJECT: 2006 Construction Services

PROJECT NO.: AED06-067-00
DATE RECEIVED: 12-13-06
SAMPLED BY: Manny Reyes
DATE TESTED: 12-21-06
TESTED BY: Kelly McClung
DATE REPORTED: 01-22-07

RE: Laboratory Molded Density & Compressive Strength – P.O.M.-A Material

MATERIAL DESCRIPTION: Cold Mixed/Cold Laid Processed Ore Material P.O.M.-A

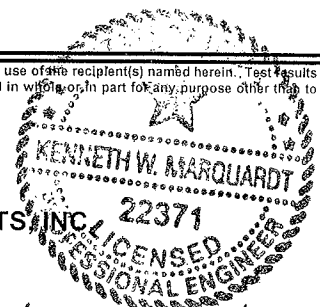
Sample Date:	12-04-06	12-05-06	Project Specifications
Laboratory Molded Density (pcf) Average (TEX-126-E) Modified:	162.7	187.6	---
Compressive Strength (psi) Average (TEX-126-E) Modified:	60	97	Minimum 40

Notes: Test results indicate conformance to project specifications.

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed or used in whole or in part for any purpose other than to evaluate test results without written approval from Raba-Kistner Consultants, Inc.

COPIES TO: Above (1)

RABA-KISTNER CONSULTANTS, INC.



BY: K. W. Marquardt 1/24/07

ASSIGNMENT NOS.: E06-013854/E06-013855
 /dgp 01-22-07

REPORT OF FIELD MOISTURE-DENSITY TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated, Consultant Contract Office
P.O. Box 220182, El Paso, TX 79913

PROJECT NO.: AED06-067-00 **DATE:** 12/08/06 **TECHNICIAN:** MR

MATERIAL TESTED: Stabilized Subgrade

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	SOIL TYPE	MOISTURE CONTENT (%)	WET DENS. (pcf)	% OF MAXIMUM DENSITY
34	Pond No. 1, 200' north of center line	Finished Subgrade	1	5.6	148.4	101.0
35	Pond No. 1, 200' northeast of center line	Finished Subgrade	1	6.0	145.8	100.1
36	Pond No. 1, 180' east of center line	Finished Subgrade	1	5.8	145.0	99.6
37	Pond No. 1, 190' southeast of center line	Finished Subgrade	1	6.1	145.3	99.8

REMARKS: Tests 34 through 37 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of Recon.

SOIL TYPE	SOIL DESCRIPTION	OPTIMUM MOISTURE (%)	MAXIMUM WET DENSITY (pcf)	MOISTURE CONTENT REQUIRED (%)	% OF MAX DENSITY REQUIRED
(1)	Stabilized silty sand with gravel, low plasticity, versa bind tan	N/A	145.6	N/A	95.0

LABORATORY TEST PROCEDURES: ASTM D 1557-00

FIELD TEST PROCEDURES: ASTM D 2922-96, D 3017-96

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bernardino Olague P.E.
Vice President

LABORATORY NO: L-61144

01/24/07 bej; HICMT\2006\AED06-067-00\M.067

PROJECT NO.: AED06-067-00

LABORATORY NO.: L-61144

DATE: 12/08/06

MATERIAL TESTED: Stabilized Subgrade

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	SOIL TYPE	MOISTURE CONTENT (%)	WET DENS. (pcf)	% OF MAXIMUM DENSITY
38	Pond No. 1, 200' south of center line	Finished Subgrade	1	5.5	145.6	100.0
39	Pond No. 1, 200' southwest of center line	Finished Subgrade	1	6.0	146.0	100.3
40	Pond No. 1, 200' west of center line	Finished Subgrade	1	6.2	146.3	100.5
41	Pond No. 1, 200' northwest of center line	Finished Subgrade	1	6.4	146.7	100.8
42	Pond No. 1 at center line	Finished Subgrade	1	5.7	147.0	100.9

REMARKS: Tests 38 through 42 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of Recon.

SOIL TYPE	SOIL DESCRIPTION	OPTIMUM MOISTURE (%)	MAXIMUM WET DENSITY (pcf)	MOISTURE CONTENT REQUIRED (%)	% OF MAX DENSITY REQUIRED
(1)	Stabilized silty sand with gravel, low plasticity, versa bind tan	N/A	145.6	N/A	95.0

REPORT OF FIELD MOISTURE-DENSITY TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated, Consultant Contract Office
P.O. Box 220182, El Paso, TX 79913

PROJECT NO.: AED06-067-00 **DATE:** 12/14/06 **TECHNICIAN:** MR

MATERIAL TESTED: POM-A

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	SOIL TYPE	MOISTURE CONTENT (%)	WET DENS. (pcf)	% OF MAXIMUM DENSITY
43	Area No. 4, 80' north and 100' east from northeast corner of bedding plant building	Finished POM-A	1	N/A	177.4	101.4
44	Area No. 4, 80' north and 150' east from northeast corner of bedding plant building	Finished POM-A	1	N/A	179.0	102.3
45	Area No. 4, 80' north and 50' east from northeast corner of bedding plant building	Finished POM-A	1	N/A	178.6	102.1
46	Area No. 4, 80' north from northeast corner of bedding plant building	Finished POM-A	1	N/A	177.9	101.7
47	Area No. 4, 100' north and 25' west from northeast corner of bedding plant building	Finished POM-A	1	N/A	178.8	102.2

REMARKS: Tests 43 through 47 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of Recon.

SOIL TYPE	SOIL DESCRIPTION	OPTIMUM MOISTURE (%)	MAXIMUM WET DENSITY (pcf)	MOISTURE CONTENT REQUIRED (%)	% OF MAX DENSITY REQUIRED
(1)	POM-A Material	N/A	175.0	N/A	95.0


LABORATORY TEST PROCEDURES: ASTM D 1557-00

FIELD TEST PROCEDURES: ASTM D 2922-96, D 3017-96

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61182

01/31/07 ba; H\CMT\2006\AED06-067-00\M61182.067

REPORT OF FIELD MOISTURE-DENSITY TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated, Consultant Contract Office
P.O. Box 220182, El Paso, TX 79913

PROJECT NO.: AED06-067-00 **DATE:** 12/21/06 **TECHNICIAN:** MR

MATERIAL TESTED: Finished POM-A

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	SOIL TYPE	MOISTURE CONTENT (%)	WET DENS. (pcf)	% OF MAXIMUM DENSITY
48	Area No. 4, 100' north of northeast corner of bedding plant building	Finished POM-A	1	N/A	176.4	100.8
49	Area No. 4, 150' north of northeast corner of bedding plant building	Finished POM-A	1	N/A	175.4	100.2
50	Area No. 4, 200' north of northeast corner of bedding plant building	Finished POM-A	1	N/A	177.0	101.1
51	Area No. 4, 250' north of northeast corner of bedding plant building	Finished POM-A	1	N/A	178.0	101.7

REMARKS: Tests 48 through 51 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of Recon.

SOIL TYPE	SOIL DESCRIPTION	OPTIMUM MOISTURE (%)	MAXIMUM WET DENSITY (pcf)	MOISTURE CONTENT REQUIRED (%)	% OF MAX DENSITY REQUIRED
(1)	POM-A Cold Mix	N/A	175.0	N/A	95.0


LABORATORY TEST PROCEDURES: ASTM D 1557-00

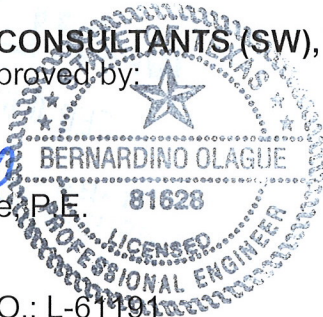
FIELD TEST PROCEDURES: ASTM D 2922-96, D 3017-96

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61191

01/31/07 ba; H\CMT\2006\AED06-067-00\M61191.067

PROJECT NO.: AED06-067-00

LABORATORY NO.: L-61191

DATE: 12/21/06

MATERIAL TESTED: Finished POM-A

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	SOIL TYPE	MOISTURE CONTENT (%)	WET DENS. (pcf)	% OF MAXIMUM DENSITY
52	Area No. 4, 250' north and 50' east of northeast corner of bedding plant building	Finished POM-A	1	N/A	175.6	100.3
53	Area No. 4, 200' north and 100' east of northeast corner of bedding plant building	Finished POM-A	1	N/A	179.0	102.3
54	Area No. 4, 200' north and 150' east of northeast corner of bedding plant building	Finished POM-A	1	N/A	178.2	101.8
55	Area No. 4, 200' north and 200' east of northeast corner of bedding plant building	Finished POM-A	1	N/A	176.9	101.1
56	Area No. 4, 150' north and 50' east of northeast corner of bedding plant building	Finished POM-A	1	N/A	176.7	100.9
57	Area No. 4, 100' north and 50' east of northeast corner of bedding plant building	Finished POM-A	1	N/A	179.1	102.3

REMARKS: Tests 52 through 57 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of Recon.

SOIL TYPE	SOIL DESCRIPTION	OPTIMUM MOISTURE (%)	MAXIMUM WET DENSITY (pcf)	MOISTURE CONTENT REQUIRED (%)	% OF MAX DENSITY REQUIRED
(1)	POM-A Cold Mix	N/A	175.0	N/A	95.0

REPORT OF FIELD LOW PERMEABILITY ASPHALTIC CONCRETE NUCLEAR DENSITY TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated, Consultant Contract Office
P.O. Box 220182, El Paso, TX 79913

PROJECT NO.: AED06-067-00 **DATE:** 01/04/07 **TECHNICIAN:** EK

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
58	Area No. 3, south parking lot, 50' west and 20' north from southeast corner	Finished Asphalt Concrete	152.4	145.9	95.7	95.0
59	Area No. 3, south parking lot, 100' west and 8' north from southeast corner	Finished Asphalt Concrete	152.4	153.8	100.9	95.0
60	Area No. 3, south parking lot, 175' west and 30' north from southeast corner	Finished Asphalt Concrete	152.4	145.2	95.0	95.0
61	Area No. 3, south parking lot, 225' west and 15' north from southeast corner	Finished Asphalt Concrete	152.4	149.7	98.2	95.0

REMARKS: Tests 58 through 61 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of Recon Construction.

LABORATORY TEST PROCEDURES: *ASTM D 1559

FIELD TEST PROCEDURES: ASTM D 2950-91

*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E. 81628
Vice President



LABORATORY NO.: L-61171

01/17/07 bej; HICMT\2006\AED06-067-00\AN61171.067

REPORT OF FIELD LOW PERMEABILITY ASPHALTIC CONCRETE NUCLEAR DENSITY TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated, Consultant Contract Office
P.O. Box 220182, El Paso, TX 79913

PROJECT NO.: AED06-067-00 **DATE:** 01/05/07 **TECHNICIAN:** EK

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
62	South parking lot, 20' south and 40' west from northeast corner of area No. 3	Finished Asphalt Concrete	153.4	148.0	96.5	95.0
63	South parking lot, 10' south and 100' west from northeast corner of area No. 3	Finished Asphalt Concrete	153.4	148.0	96.5	95.0
64	South roadway, 40' west and 3' south from northeast corner of south roadway, area No. 3	Finished Asphalt Concrete	153.4	150.4	98.0	95.0
65	South roadway, 130' west and 5' south from northeast corner of south roadway, area No. 3	Finished Asphalt Concrete	153.4	149.1	97.2	95.0

REMARKS: Tests 62 through 65 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of Recon Construction.

LABORATORY TEST PROCEDURES: *ASTM D 1559

FIELD TEST PROCEDURES: ASTM D 2950-91

*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:



 Bernardino Olague, P.E.
 Vice President

LABORATORY NO.: L-61172

01/17/06 bej; HICMT\2006\AED06-067-00\AN61172.067

REPORT OF FIELD LOW PERMEABILITY ASPHALTIC CONCRETE NUCLEAR DENSITY TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated, Consultant Contract Office
P.O. Box 220182, El Paso, TX 79913

PROJECT NO.: AED06-067-00 **DATE:** 01/06/07 **TECHNICIAN:** MR

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
66	Area No. 1, 180' east and 50' north from southwest corner	Finished Asphalt Concrete	152.0	150.0	98.7	95.0
67	Area No. 1, 250' east and 30' north from southwest corner	Finished Asphalt Concrete	152.0	148.5	97.7	95.0
68	Area No. 1, 330' east and 30' north from southwest corner	Finished Asphalt Concrete	152.0	144.4	95.0	95.0
69	Area No. 1, 410' east and 25' north from southwest corner	Finished Asphalt Concrete	152.0	144.7	95.2	95.0

REMARKS: Tests 66 through 69 conform to project specifications.

PERSON(S) NOTIFIED: Mr. Raul Villa of Villegas and Sons.

LABORATORY TEST PROCEDURES: *ASTM D 1559

FIELD TEST PROCEDURES: ASTM D 2950-91

*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61194

01/17/07 bej; HICMT\2006\AED06-067-00\AN61194.067

REPORT OF FIELD LOW PERMEABILITY ASPHALTIC CONCRETE NUCLEAR DENSITY TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated, Consultant Contract Office
P.O. Box 220182, El Paso, TX 79913

PROJECT NO.: AED06-067-00 **DATE:** 01/08/07 **TECHNICIAN:** EK

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
70	Area 1, 300' east and 65' north from southwest corner	Finished Asphalt Concrete	155.0	147.2	95.0	95.0
71	Area 1, 200' east and 70' north from southwest corner	Finished Asphalt Concrete	155.0	147.2	95.0	95.0

REMARKS: Tests 70 and 71 conform to project specifications.

PERSON(S) NOTIFIED: Mr. Raul Villa of Villegas and Sons.

LABORATORY TEST PROCEDURES: *ASTM D 1559

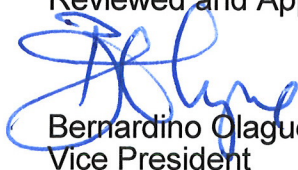
FIELD TEST PROCEDURES: ASTM D 2950-91

*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:



Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61195

01/18/07 bej; HICMT\2006\AED06-067-00\AN61195.067

REPORT OF FIELD LOW PERMEABILITY ASPHALTIC CONCRETE NUCLEAR DENSITY TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated, Consultant Contract Office
P.O. Box 220182, El Paso, TX 79913

PROJECT NO.: AED06-067-00 **DATE:** 01/09/07 **TECHNICIAN:** EK

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
72	Area 1, 100' east and 10' north from southwest corner	Finished Asphalt Concrete	152.8	152.4	99.8	95.0
73	Area 1, 70' east and 25' north from southwest corner	Finished Asphalt Concrete	152.8	145.6	95.3	95.0
74	Area 1, 60' east and 50' north from southwest corner	Finished Asphalt Concrete	152.8	145.7	95.4	95.0
75	Area 1, 80' east and 80' north from southwest corner	Finished Asphalt Concrete	152.8	146.5	95.9	95.0

REMARKS: Tests 72 through 75 conform to project specifications.

PERSON(S) NOTIFIED: Mr. Raul Villa of Villegas and Sons.

LABORATORY TEST PROCEDURES: *ASTM D 1559

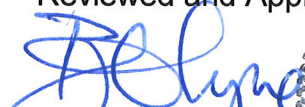
FIELD TEST PROCEDURES: ASTM D 2950-91

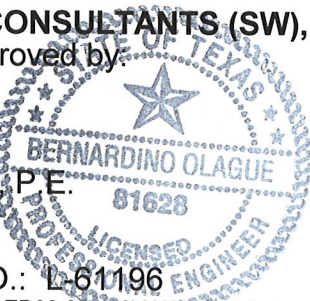
*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61196

01/18/07 bej; H\CMT\2006\AED06-067-00\AN61196.067

PROJECT NO.: AED06-067-00 LABORATORY NO.: L-61196 DATE: 01/09/07

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
76	Area 1, 200' east and 110' north from southwest corner	Finished Asphalt Concrete	152.8	147.0	96.2	95.0
77	Area 1, 210' east and 120' north from southwest corner	Finished Asphalt Concrete	152.8	145.1	95.0	95.0
78	Area 1, 300' east and 140' north from southwest corner	Finished Asphalt Concrete	152.8	145.9	95.6	95.0

REMARKS: Tests 76 through 78 conform to project specifications.

PERSON(S) NOTIFIED: Mr. Raul Villa of Villegas and Sons.

REPORT OF FIELD LOW PERMEABILITY ASPHALTIC CONCRETE NUCLEAR DENSITY TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated, Consultant Contract Office
P.O. Box 220182, El Paso, TX 79913

PROJECT NO.: AED06-067-00 **DATE:** 01/10/07 **TECHNICIAN:** EK

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
79	Area 3, 400' west and 60' north from southeast corner	Finished Asphalt Concrete	154.3	150.7	97.7	95.0
80	Area 3, 380' west and 100' north from southeast corner	Finished Asphalt Concrete	154.3	148.2	96.1	95.0
81	Area 3, 310' west and 120' north from southeast corner	Finished Asphalt Concrete	154.3	146.5	95.0	95.0
82	Area 3, 380' west and 160' north from southeast corner	Finished Asphalt Concrete	154.3	146.5	95.0	95.0

REMARKS: Tests 79 through 82 conform to project specifications.

PERSON(S) NOTIFIED: Mr. Raul Villa of Villegas and Sons.

LABORATORY TEST PROCEDURES: *ASTM D 1559

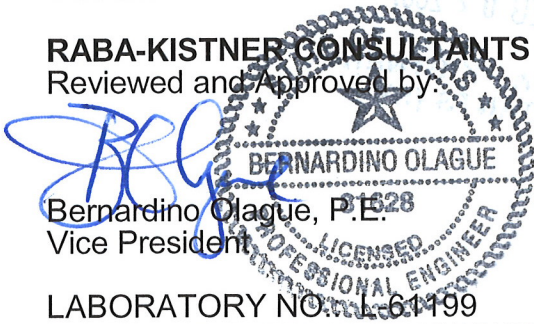
FIELD TEST PROCEDURES: ASTM D 2950-91

*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:



Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-61199

01/27/07 ba; H\CMT\2006\AED06-067-00\AN61199.067

PROJECT NO.: AED06-067-00 LABORATORY NO.: L-61199 DATE: 01/10/07

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
83	Area 2, 180' west and 30' south from northeast corner	Finished Asphalt Concrete	154.3	146.7	95.1	95.0
84	Area 2, 220' west and 40' south from northeast corner	Finished Asphalt Concrete	154.3	152.6	98.9	95.0
85	Area 2, 310' west and 30' south from northeast corner	Finished Asphalt Concrete	154.3	146.6	95.0	95.0
86	Area 2, 400' west and 40' south from northeast corner	Finished Asphalt Concrete	154.3	153.4	99.4	95.0

REMARKS: Tests 83 through 86 conform to project specifications.

PERSON(S) NOTIFIED: Mr. Raul Villa of Villegas and Sons.

REPORT OF FIELD LOW PERMEABILITY ASPHALTIC CONCRETE NUCLEAR DENSITY TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated, Consultant Contract Office
P.O. Box 220182, El Paso, TX 79913

PROJECT NO.: AED06-067-00 **DATE:** 01/11/07 **TECHNICIAN:** EK

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
87	Area No. 2, 200' east and 80' south from northwest corner	Finished Asphalt Concrete	150.2	142.6	95.0	95.0
88	Area No. 2, 150' east and 80' south from northwest corner	Finished Asphalt Concrete	150.2	149.7	99.6	95.0
89	Area No. 2, 80' east and 75' south from northwest corner	Finished Asphalt Concrete	150.2	145.1	96.5	95.0
90	Area No. 2, 80' south and 80' east from northwest corner	Finished Asphalt Concrete	150.2	145.3	96.7	95.0

REMARKS: Tests 87 through 90 conform to project specifications.

PERSON(S) NOTIFIED: Mr. Walter Boyle of ASARCO.

LABORATORY TEST PROCEDURES: *ASTM D 1559

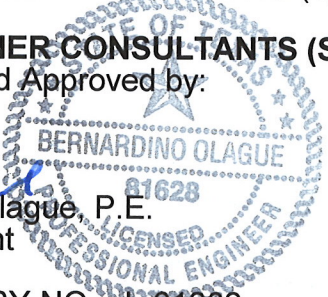
FIELD TEST PROCEDURES: ASTM D 2950-91

*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:



Bernardino Olague
Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-61202

01/22/07 bej; H\CMT\2006\AED06-067-00\AN61202.067

PROJECT NO.: AED06-067-00 LABORATORY NO.: L-61202 DATE: 01/11/07

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
91	Area No. 2, 70' east and 15' south from northwest corner	Finished Asphalt Concrete	150.2	149.7	96.3	95.0
92	Area No. 2, 200' east and 10' south from northwest corner	Finished Asphalt Concrete	150.2	142.6	95.0	95.0
93	Area No. 2, 300' east and 40' south from northwest corner	Finished Asphalt Concrete	150.2	144.9	96.5	95.0
94	Area No. 2, 350' east and 50' south from northwest corner	Finished Asphalt Concrete	150.2	144.3	96.1	95.0

REMARKS: Tests 91 through 94 conform to project specifications.

PERSON(S) NOTIFIED: Mr. Walter Boyle of ASARCO.

REPORT OF FIELD LOW PERMEABILITY ASPHALTIC CONCRETE NUCLEAR DENSITY TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated, Consultant Contract Office
P.O. Box 220182, El Paso, TX 79913

PROJECT NO.: AED06-067-00 **DATE:** 01/12/07 **TECHNICIAN:** EK

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
95	Area No. 4, 65' west and 60' north from southeast corner	Finished Asphalt Concrete	145.8	143.7	98.5	95.0
96	Area No. 4, 100' west and 30' north from southeast corner	Finished Asphalt Concrete	145.8	143.7	98.5	95.0
97	Area No. 4, 180' west and 50' north from southeast corner	Finished Asphalt Concrete	145.8	143.6	98.4	95.0
98	Area No. 4, 80' east and 30' north from southwest corner	Finished Asphalt Concrete	145.8	145.8	100.0	95.0

REMARKS: Tests 95 through 98 conform to project specifications.

PERSON(S) NOTIFIED: Mr. Walter Boyle of ASARCO.

LABORATORY TEST PROCEDURES: *ASTM D 1559

FIELD TEST PROCEDURES: ASTM D 2950-91

*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61206

01/22/07 bej; HICMT\2006\AED06-067-00\AN61206.067

PROJECT NO.: AED06-067-00 LABORATORY NO.: L-61206 DATE: 01/12/07

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
99	Area No. 4, 50' north and 40' east from southwest corner	Finished Asphalt Concrete	145.8	139.0	95.4	95.0
100	Area No. 4, 50' east and 100' north from southwest corner	Finished Asphalt Concrete	145.8	141.7	97.2	95.0
101	Area No. 4, 30' east and 140' north from southwest corner	Finished Asphalt Concrete	145.8	146.6	97.2	95.0
102	Area No. 4, 50' east and 200' north from southwest corner	Finished Asphalt Concrete	145.8	138.9	95.3	95.0
103	Area No. 4, 100' south and 35' east from northwest corner	Finished Asphalt Concrete	145.8	143.4	98.2	95.0
104	Area No. 4, 60' south and 60' east from northwest corner	Finished Asphalt Concrete	145.8	145.8	100.0	95.0
105	Area No. 4, 200' north and 200' west from southeast corner	Finished Asphalt Concrete	145.8	144.8	99.4	95.0
106	Area No. 4, 180' north and 150' west from southeast corner	Finished Asphalt Concrete	145.8	144.9	99.5	95.0

REMARKS: Tests 99 through 106 conform to project specifications.
PERSON(S) NOTIFIED: Mr. Walter Boyle of ASARCO.

REPORT OF FIELD LOW PERMEABILITY ASPHALTIC CONCRETE NUCLEAR DENSITY TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated, Consultant Contract Office
P.O. Box 220182, El Paso, TX 79913

PROJECT NO.: AED06-067-00 **DATE:** 01/13/07 **TECHNICIAN:** EK

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
107	Area No. 4, 250' south and 200' east from northwest corner	Finished Asphalt Concrete	146.7	139.3	95.0	95.0
108	Area No. 4, 300' south and 180' east from northwest corner	Finished Asphalt Concrete	146.7	143.8	98.0	95.0
109	Area No. 4, 180' west and 70' south from northeast corner	Finished Asphalt Concrete	146.7	139.3	95.0	95.0
110	Area No. 4, 140' west and 50' south from northeast corner	Finished Asphalt Concrete	146.7	140.1	95.5	95.0

REMARKS: Tests 107 through 110 conform to project specifications.

PERSON(S) NOTIFIED: Mr. Walter Boyle of ASARCO.

LABORATORY TEST PROCEDURES: *ASTM D 1559


FIELD TEST PROCEDURES: ASTM D 2950-91

*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:



Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L461207

01/22/07 bej; HICMT\2006\AED06-067-00\AN61207.067

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
111	Area No. 4, 40' south and 120' east from northwest corner	Finished Asphalt Concrete	146.7	141.6	96.5	95.0
112	Area No. 4, 60' south and 200' east from northwest corner	Finished Asphalt Concrete	146.7	140.3	95.6	95.0
113	Area No. 4, 100' south and 220' east from northwest corner	Finished Asphalt Concrete	146.7	146.7	100.0	95.0
114	Area No. 4, 180' south and 200' east from northwest corner	Finished Asphalt Concrete	146.7	146.7	100.0	95.0
115	Area No. 4, 200' south and 200' east from northwest corner	Finished Asphalt Concrete	146.7	140.6	95.8	95.0
116	Area No. 4, 100' south and 100' east from northwest corner	Finished Asphalt Concrete	146.7	144.1	98.2	95.0
117	Area No. 4, 80' south and 80' east from northwest corner	Finished Asphalt Concrete	146.7	146.7	100.0	95.0
118	Area No. 4, 60' south and 100' east from northwest corner	Finished Asphalt Concrete	146.7	139.3	95.0	95.0
119	Area No. 4, 60' west and 30' south from northeast corner	Finished Asphalt Concrete	146.7	146.7	100.0	95.0
120	Area No. 4, 30' west and 10' south from northeast corner	Finished Asphalt Concrete	146.7	145.0	98.9	95.0

REMARKS: Tests 111 through 120 conform to project specifications.
PERSON(S) NOTIFIED: Mr. Walter Boyle of ASARCO.

Appendix C Field Test Data and Material Certifications – Category II Capping

C.2 2006 Sieve Analyses and Laboratory Density Tests

REPORT OF SIEVE ANALYSIS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Inc., Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

DATE OF REPORT: 11/10/06

PROJECT NO.: AED06-067-00

SAMPLE DATE: 08/09/06

SAMPLED FROM: POM-B stockpile

SAMPLED BY: MG

SIEVE ANALYSIS			
Sieve Size	% Retained	% Passing	Project Specifications (% Retained)
1-1/2"	0	100	0
1"	0	100	0-10
3/8"	22	78	-----
No. 4	35	65	30-75
No. 40	*88	12	50-85
No. 200	-----	-----	-----

*Out of specification tolerance.

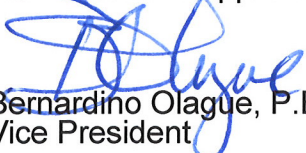
LABORATORY TEST PROCEDURES: ASTM C 117-96, C136-96_a, D 4318-00

REMARKS: Mr. John Wedgewood of ReCon Construction was notified of results.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-60908-4

11/10/06 bej; P:\CMT\2006\AED06-067-00\Sieve60908-4.067

Page 1 of 1

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

REPORT OF SIEVE ANALYSIS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Inc., Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

DATE OF REPORT: 11/10/06

PROJECT NO.: AED06-067-00

SAMPLE DATE: 08/09/06

SAMPLED FROM: POM-A Stockpile

SAMPLED BY: MG

SIEVE ANALYSIS			
Sieve Size	% Retained	% Passing	Project Specifications (% Passing)
1-1/2"	0	100	100
1"	0	100	90-100
3/8"	19	81	45-100
No. 4	33	*67	30-60
No. 40	89	11	10-30
No. 200	-----	-----	-----

*Out of specification tolerance

LABORATORY TEST PROCEDURES: ASTM C 117-96, C136-96a, D 4318-00

REMARKS: Mr. John Wedgewood of ReCon Construction was notified of results.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:



Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-60908-2

11/10/06 bej; P:\CMT\2006\AED06-067-00\Sieve60908-2.067

Page 1 of 1

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

REPORT OF SIEVE ANALYSIS

PROJECT: 2006 Construction Services
CLIENT: ASARCO Inc., Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913 **DATE OF REPORT:** 11/10/06
PROJECT NO.: AED06-067-00 **SAMPLE DATE:** 08/23/06
SAMPLED FROM: Stockpile A – Proposed low permeability aggregate
SAMPLED BY: MG

SIEVE ANALYSIS			
Sieve Size	% Retained	% Passing	Project Specifications (% Passing)
1-1/2"	0	100	-----
1"	1	*99	100
3/8"	18	*82	100
No. 4	38	62	46-62
No. 10	56	44	39-51
No. 40	79	21	27-37
No. 80	86	*14	21-31
No. 200	95.8	*4.2	13.6-21.6

*Out of specification requirements.

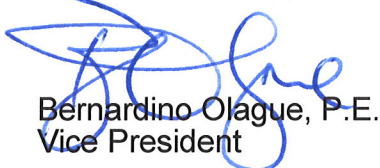
LABORATORY TEST PROCEDURES: ASTM C 117-96, C136-96_a, D 4318-00

REMARKS: Mr. John Wedgewood of ReCon Construction was notified of results.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:



Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-60935

11/10/06 bej; P:\CMT\2006\AED06-067-00\Sieve60935.067

REPORT OF SIEVE ANALYSIS

PROJECT: 2006 Construction Services
CLIENT: ASARCO Inc., Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913 **DATE OF REPORT:** 11/10/06
PROJECT NO.: AED06-067-00 **SAMPLE DATE:** 08/23/06
SAMPLED FROM: Stockpile B – Low permeability proposed aggregate
SAMPLED BY: MG

SIEVE ANALYSIS			
Sieve Size	% Retained	% Passing	Project Specifications (% Passing)
1-1/2"	0	100	-----
1"	0	100	-----
3/8"	51	*49	100
No. 4	60	*40	46-62
No. 10	70	*30	39-51
No. 40	91	*9	27-37
No. 80	93	*7	21-31
No. 200	95.7	4.3	13.6-21.6

*Out of specification requirement.


LABORATORY TEST PROCEDURES: ASTM C 117-96, C136-96_a, D 4318-00

REMARKS: Mr. John Wedgewood of ReCon Construction was notified of results.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-60936

11/10/06 bej; PICMT\2006\AED06-067-00\Sieve60936.067

REPORT OF SIEVE ANALYSIS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Inc., Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

DATE OF REPORT: 11/10/06

PROJECT NO.: AED06-067-00

SAMPLE DATE: 08/30/06

SAMPLED FROM: Low permeability mix (trial) stockpile D

SAMPLED BY: AF

SIEVE ANALYSIS			
Sieve Size	% Retained	% Passing	Project Specifications (% Passing)
1"	0	100	-----
3/4"	1	99	-----
1/2"	11	89	-----
3/8"	25	*75	100
No. 4	54	46	46-62
No. 10	73	*27	39-51
No. 40	87	*13	27-37
No. 80	92	*8	21-31
No. 100	93	7	-----
No. 200	95.8	*4.2	13.6-21.6

*Out of specification tolerance.


LABORATORY TEST PROCEDURES: ASTM C 117-96, C136-96_a, D 4318-00

REMARKS: Mr. John Wedgewood of ReCon Construction was notified of results.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-60941

11/10/06 bej; P:\CMT\2006\AED06-067-00\Sieve60941.067

REPORT OF SIEVE ANALYSIS AND ATTERBERG LIMITS

PROJECT: 2006 Construction Services
CLIENT: ASARCO Inc., Consultant Contract Office
 P.O. Box 220182
 El Paso, Texas 79913 **DATE OF REPORT:** 11/10/06
PROJECT NO.: AED06-067-00 **SAMPLE DATE:** 09/08/06
SAMPLED FROM: Proposed fine aggregate material
SAMPLED BY: MR

SIEVE ANALYSIS			
Sieve Size	% Retained	% Passing	Project Specifications
3/8"	0	100	N/A
No. 4	0	100	N/A
No. 10	1	99	N/A
No. 40	2	98	N/A
No. 80	5	95	N/A
No. 100	8	92	N/A
No. 200	35.4	64.6	N/A

ATTERBERG LIMITS		
TEST	ACTUAL	SPECIFIED
Liquid Limit:	40	N/A
Plasticity Index:	22	N/A

USCS SYMBOL: CL

LABORATORY TEST PROCEDURES: ASTM C 117-96, C136-96_a, D 4318-00

REMARKS: Mr. John Wedgewood of ReCon Construction was notified of results.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:



Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-60948

11/10/06 bej; P:\CMT\2006\AED06-067-00\Sieve60948.067

REPORT OF SIEVE ANALYSIS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Inc., Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

DATE OF REPORT: 11/10/06

PROJECT NO.: AED06-067-00

SAMPLE DATE: 09/19/06

SAMPLED FROM: POM fines stockpile

SAMPLED BY: EA

SIEVE ANALYSIS			
Sieve Size	% Retained	% Passing	Project Specifications
1"	0	100	N/A
3/8"	3	97	N/A
No. 4	8	92	N/A
No. 10	11	89	N/A
No. 40	14	76	N/A
No. 80	16	84	N/A
No. 200	25.8	74.2	N/A

LABORATORY TEST PROCEDURES: ASTM C 117-96, C136-96_a, D 4318-00

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-12771-3

11/10/06 bej; P:\CMT\2006\AED06-067-00\Sieve12771-3.067

Page 1 of 1

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

REPORT OF SIEVE ANALYSIS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Inc., Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

DATE OF REPORT: 11/10/06

PROJECT NO.: AED06-067-00

SAMPLE DATE: 09/19/06

SAMPLED FROM: POM stockpile "A"

SAMPLED BY: EA

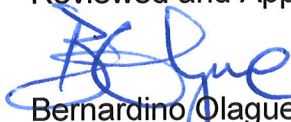
SIEVE ANALYSIS			
Sieve Size	% Retained	% Passing	Project Specifications
1-1/2"	0	100	N/A
1"	2	98	N/A
3/8"	43	57	N/A
No. 4	60	40	N/A
No. 10	80	20	N/A
No. 40	92	18	N/A
No. 80	96	4	N/A
No. 200	98.8	1.2	N/A

LABORATORY TEST PROCEDURES: ASTM C 117-96, C136-96_a, D 4318-00

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:



Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-12771-1

11/10/06 bej; P:\CMT\2006\AED06-067-00\Sieve12771-1.067

REPORT OF SIEVE ANALYSIS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Inc., Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

DATE OF REPORT: 11/10/06

PROJECT NO.: AED06-067-00

SAMPLE DATE: 09/19/06

SAMPLED FROM: POM Stockpile "B"

SAMPLED BY: EA

SIEVE ANALYSIS			
Sieve Size	% Retained	% Passing	Project Specifications
1"	0	100	N/A
3/8"	20	80	N/A
No. 4	39	61	N/A
No. 10	60	40	N/A
No. 40	85	15	N/A
No. 80	93	7	N/A
No. 200	98.2	1.8	N/A

LABORATORY TEST PROCEDURES: ASTM C 117-96, C136-96_a, D 4318-00

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:



Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-12771-2

11/10/06 bej; P:\CMT\2006\AED06-067-00\Sieve12771-2.067

REPORT OF SIEVE ANALYSIS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Inc., Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

DATE OF REPORT: 11/10/06

PROJECT NO.: AED06-067-00

SAMPLE DATE: 10/10/06

SAMPLED FROM: Proposed fines (low permeability mix) stockpile

SAMPLED BY: AF

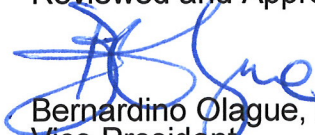
SIEVE ANALYSIS			
Sieve Size	% Retained	% Passing	Project Specifications
1/2"	0	100	N/A
3/8"	1	99	N/A
No. 4	21	79	N/A
No. 10	51	49	N/A
No. 40	81	19	N/A
No. 80	87	13	N/A
No. 200	91.4	8.6	N/A

LABORATORY TEST PROCEDURES: ASTM C 117-96, C136-96_a, D 4318-00

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:



Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-61069

11/10/06 bej; P:\CMT\2006\AED06-067-00\Sieve61069.067

REPORT ON HOT LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Recon Construction

PROJECT NO.: AED06-067-00

DATE: 10/30/06

CONSTRUCTION AREA: Trial Mix (Belt Sample)

SAMPLING LOCATION: On site Plant

OBTAINED AT: 10 tons

TECHNICIAN: MR

<u>Sieve Size</u>	<u>Mix Design Range</u>	<u>Sieve Analysis % Passing by Weight</u>
3/8"	100	*99
No. 4	42-62	*88
No. 10	39-51	*52
No. 40	27-37	*26
No. 80	21-31	*17
No. 200	13.6-21.6	*8.3
Bitumen Content (%)	9.0 ±2.0	*3.6

*Out of specification tolerance

REMARKS: Mr. John Wedgeworth of Recon Construction was notified of results.

TOTAL MIX MOISTURE: 2.2%

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-61070

11/17/06 bej; H:\CMT\2006\AED06-067-00\HOTMXLOW PERM61070.067

REPORT ON LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Recon Construction

PROJECT NO.: AED06-067-00

DATE: 10/30/06

CONSTRUCTION AREA: Areas No. 1 and 3

SAMPLING LOCATION: Plant Sample

OBTAINED AT: 500 tons

TECHNICIAN: MR

<u>Sieve Size</u>	<u>Mix Design Range</u>	<u>Sieve Analysis % Passing by Weight</u>
3/8"	100	100
No. 4	42-62	*86
No. 10	39-51	*60
No. 40	27-37	36
No. 80	21-31	23
No. 200	13.6-21.6	*10.4
Bitumen Content (%)	9.0 ±2.0	8.8

*Out of design tolerance

REMARKS: Mr. John Wedgeworth of Recon Construction was notified of results.

SAMPLE TOTAL MOISTURE: 5.5%

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-61071

11/28/06 bej; HICMT\2006\AED06-067-00\HOTMXLOW PERM61071.067

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

PROJECT NO.: AED06-067-00 **LABORATORY NO.:** L-61071 **DATE:** 10/30/06

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.407	N/A
Unit Weight (pcf)	150.2	N/A
Air Voids (%):	N/A	3.0-5.0
Marshall Stability:	N/A	Minimum 1800
Flow:	N/A	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

REPORT ON HOT LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Recon Construction

PROJECT NO.: AED06-067-00

DATE: 11/01/06

CONSTRUCTION AREA: Areas No. 3 and 4

SAMPLING LOCATION: On site Plant

OBTAINED AT: 1200 tons

TECHNICIAN: MR

<u>Sieve Size</u>	<u>Mix Design Range</u>	<u>Sieve Analysis % Passing by Weight</u>
3/8"	100	100
No. 4	42-62	*93
No. 10	39-51	*63
No. 40	27-37	28
No. 80	21-31	18
No. 200	13.6-21.6	*9.7
Bitumen Content (%)	9.0 ±2.0	10.7

*Out of specification tolerance

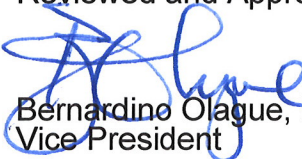
REMARKS: Mr. John Wedgeworth of Recon Construction was notified of results.

TOTAL MIX MOISTURE: 6.1%

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-61074

11/17/06 bej; HCMT\2006\AED06-067-00\HOTMXLOW PERM.067

REPORT ON HOT LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Recon Construction

PROJECT NO.: AED06-067-00

DATE: 11/02/06

CONSTRUCTION AREA: Area No. 4

SAMPLING LOCATION: On site Plant

OBTAINED AT: 2100 tons

TECHNICIAN: MR

<u>Sieve Size</u>	<u>Mix Design Range</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/8"	100	100
No. 4	42-62	*87
No. 10	39-51	*56
No. 40	27-37	32
No. 80	21-31	23
No. 200	13.6-21.6	*12.8
Bitumen Content (%)	9.0 ±2.0	*11.7

*Out of specification tolerance

REMARKS: Mr. John Wedgeworth of Recon Construction was notified of results.

TOTAL MIX MOISTURE: 5.8%

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-61078

11/17/06 bej; HICMT\2006\AED06-067-00\HOTMXLOW PERM61078.067

PROJECT NO.: AED06-067-00 **LABORATORY NO.:** L-61078 **DATE:** 11/02/06

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Unit Weight (pcf)	167.5	N/A
Marshall Stability:	Could not be determined	Minimum 1800
Flow:	18	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

REPORT ON HOT LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Recon Construction

PROJECT NO.: AED06-067-00

DATE: 11/03/06

CONSTRUCTION AREA: Area No. 4

SAMPLING LOCATION: On site Plant

OBTAINED AT: 3000 tons

TECHNICIAN: MR

<u>Sieve Size</u>	<u>Mix Design Range</u>	<u>Sieve Analysis % Passing by Weight</u>
3/8"	100	100
No. 4	42-62	*85
No. 10	39-51	*56
No. 40	27-37	30
No. 80	21-31	*17
No. 200	13.6-21.6	*10.6
Bitumen Content (%)	9.0 ±2.0	12.3

*Out of specification tolerance


REMARKS: Mr. John Wedgeworth of Recon Construction was notified of results.

TOTAL MIX MOISTURE: 6.2

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-61079

11/17/06 bej; H\CMT\2006\AED06-067-00\HOTMXLOW PERM61079.067

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

PROJECT NO.: AED06-067-00 **LABORATORY NO.:** L-61079 **DATE:** 11/03/06

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Unit Weight (pcf)	168.2	N/A
Marshall Stability:	Could not be determined	Minimum 1800
Flow:	20	-----

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

REPORT ON HOT LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Recon Construction

PROJECT NO.: AED06-067-00

DATE: 11/04/06

CONSTRUCTION AREA: Areas No. 4 and 3

SAMPLING LOCATION: On site Plant

OBTAINED AT: 4000 tons

TECHNICIAN: MR

<u>Sieve Size</u>	<u>Mix Design Range</u>	<u>Sieve Analysis % Passing by Weight</u>
3/8"	100	100
No. 4	42-62	*83
No. 10	39-51	*54
No. 40	27-37	33
No. 80	21-31	22
No. 200	13.6-21.6	*10.6
Bitumen Content (%)	9.0 ±2.0	*12.0

*Out of specification tolerance

REMARKS: Mr. John Wedgeworth of Recon Construction was notified of results.

TOTAL MIX MOISTURE: 6.5%

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-61080

11/17/06 bej; HCMT\2006\AED06-067-00\HOTMXLOW PERM61080.067

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

PROJECT NO.: AED06-067-00 **LABORATORY NO.:** L-61080 **DATE:** 11/04/06

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Unit Weight (pcf)	166.6	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

REPORT ON HOT LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Recon Construction

PROJECT NO.: AED06-067-00

DATE: 11/06/06

CONSTRUCTION AREA: Area No. 3

SAMPLING LOCATION: On site Plant

OBTAINED AT: 4800 tons

TECHNICIAN: MR

<u>Sieve Size</u>	<u>Mix Design Range</u>	<u>Sieve Analysis % Passing by Weight</u>
3/8"	100	100
No. 4	42-62	*93
No. 10	39-51	*63
No. 40	27-37	28
No. 80	21-31	*18
No. 200	13.6-21.6	*9.7
Bitumen Content (%)	9.0 ±2.0	10.7

*Out of specification tolerance

REMARKS: Mr. John Wedgeworth of Recon Construction was notified of results.

TOTAL MIX MOISTURE: 4.6%

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-61106

11/17/06 bej; HICMT\2006\AED06-067-00\HOTMXLOW PERM.067

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

PROJECT NO.: AED06-067-00 **LABORATORY NO.:** L-61106 **DATE:** 11/06/06

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	3.140	N/A
Unit Weight (pcf)	167.4	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

REPORT OF SIEVE ANALYSIS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Inc., Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

DATE OF REPORT: 01/23/07

PROJECT NO.: AED06-067-00

SAMPLE DATE: 12/01/06

SAMPLED FROM: POM-A stockpile

SAMPLED BY: MR

SIEVE ANALYSIS			
Sieve Size	% Retained	% Passing	Project Specifications (%Passing)
1-1/2"	0	100	100
1"	0	100	90-100
3/8"	257.8	85	45-100
No. 4	829.0	51	30-60
No. 10	1261.7	26	---
No. 40	1494.7	12	10-30
No. 80	1550.3	9	---
No. 200	1623.7	4.77	---
%Asphalt Content	-----	5.2	5.0 ±0.5

LABORATORY TEST PROCEDURES: ASTM C 117-96, C136-96_a, D 4318-00

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61133

01/23/07 bej; P:\CMT\2006\AED06-067-00\Sieve61133.067

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	N/A	N/A
Unit Weight (pcf)	Samples could not be molded	N/A
Air Voids (%):	N/A	3.0-5.0
Marshall Stability:	N/A	Minimum 1800
Flow:	N/A	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

REPORT OF SIEVE ANALYSIS

PROJECT: 2006 Construction Services
CLIENT: ASARCO Inc., Consultant Contract Office
 P.O. Box 220182
 El Paso, Texas 79913 **DATE OF REPORT:** 01/23/07
PROJECT NO.: AED06-067-00 **SAMPLE DATE:** 12/05/06
SAMPLED FROM: POM-A stockpile
SAMPLED BY: MR


SIEVE ANALYSIS			
Sieve Size	% Retained	% Passing	Project Specifications (%Passing)
1"	0	100	90-100
3/8"	18	82	45-100
No. 4	46	51	30-60
No. 10	66	34	---
No. 40	77	23	10-30
No. 80	82	18	---
No. 200	86.8	13.2	---
Bitumen Content	----	5.4	5.0 ± 0.5

LABORATORY TEST PROCEDURES: ASTM C 117-96, C136-96_a, D 4318-00

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-61141

01/23/07 bej; P:\CMT\2006\AED06-067-00\Sieve61141.067

PROJECT NO.: AED06-067-00 **LABORATORY NO.:** L-61141 **DATE:** 12/05/06

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	N/A	N/A
Unit Weight (pcf)	Samples could not be molded	N/A
Air Voids (%):	N/A	3.0-5.0
Marshall Stability:	N/A	Minimum 1800
Flow:	N/A	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

REPORT OF SIEVE ANALYSIS

PROJECT: 2006 Construction Services
CLIENT: ASARCO Inc., Consultant Contract Office
 P.O. Box 220182
 El Paso, Texas 79913 **DATE OF REPORT:** 01/31/07
PROJECT NO.: AED06-067-00 **SAMPLE DATE:** 12/14/06
SAMPLED FROM: POM-A Stockpile
SAMPLED BY: MR

SIEVE ANALYSIS			
Sieve Size	% Retained	% Passing	Project Specifications (%Passing)
1-1/2"	0	100	100
1"	0	100	90-100
3/8"	13	87	45-100
No. 4	37	*63	30-60
No. 10	60	40	---
No. 40	78	22	10-30
No. 80	87	13	---
No. 200	94.1	5.9	---
Bitumen Content	-----	*5.6	5.0 ± 0.5
Total Moisture Content	-----	3.3	-----

LABORATORY TEST PROCEDURES: ASTM C 117-96, C136-96_a, D 4318-00

REMARKS: Mr. John Wedgeworth of Recon was notified of results.
 *Out of specification tolerance.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bernardino Olague, P.E.
 Vice President

LABORATORY NO.: L-61182

01/31/07 ba; P:\CMT\2006\AED06-067-00\Sieve61182.067

REPORT OF SIEVE ANALYSIS

PROJECT: 2006 Construction Services
CLIENT: ASARCO Inc., Consultant Contract Office
 P.O. Box 220182
 El Paso, Texas 79913 **DATE OF REPORT:** 01/23/07
PROJECT NO.: AED06-067-00 **SAMPLE DATE:** 12/19/06
SAMPLED FROM: Plant Sample low permeability mix
SAMPLED BY: MR

SIEVE ANALYSIS			
Sieve Size	% Retained	% Passing	Project Specifications (%Passing)
1-1/2"	0	100	100
1"	0	100	90-100
3/8"	3	97	45-100
No. 4	13	*87	30-60
No. 10	24	76	---
No. 40	37	*63	10-30
No. 80	68	32	---
No. 200	85.3	14.7	---
Bitumen Content	-----	*6.7	5.0 ± 0.5
Total Moisture Content	-----	6.0	-----

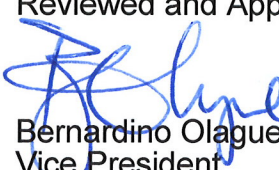
LABORATORY TEST PROCEDURES: ASTM C 117-96, C136-96_a, D 4318-00

REMARKS: Mr. John Wedgeworth of Recon was notified of results. (Deficient areas #1 and 4)
 *Out of specification tolerance.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-61188

01/23/07 bej; P:\CMT\2006\AED06-067-00\Sieve61188.067

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Cemex

PROJECT NO.: AED06-067-00

DATE: 01/04/07

CONSTRUCTION AREA: Area No. 3

SAMPLING LOCATION: Batch Plant Sample

OBTAINED AT: 30 tons

TECHNICIAN: MR

<u>Sieve Size</u>	<u>Mix Design Range</u>	<u>Job Mix Formula</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	93-100	100	99.3
1/2"	85-99	92	92.0
3/8"	75-89	82	82.0
No. 4	48-62	55	48.0
No. 8	33-45	39	32.0
No. 16	22-34	28	25.4
No. 30	14-24	19	20.9
No. 50	7-11	12	13.8
No. 100	4-10	7	4.7
No. 200	1.0-7.0	4.0	1.8
Bitumen Content (%)	4.35-5.25	-----	5.01


LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98


The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61170

01/18/07 bej; H\CMT\2006\AED06-067-00\HOTMX61170.067

PROJECT NO.: AED06-067-00 **LABORATORY NO.:** L-61170 **DATE:** 01/04/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	-----	N/A
Unit Weight (pcf)	152.4	N/A
Air Voids (%):	4.35	3.0-5.0
Marshall Stability:	2442	Minimum 1800
Flow:	14	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

The material tested conforms to the project specifications.

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Cemex

PROJECT NO.: AED06-067-00

DATE: 01/05/07

CONSTRUCTION AREA: Plant at McKelligon Canyon

SAMPLING LOCATION: Plant at McKelligon Canyon

OBTAINED AT: 140 tons

TECHNICIAN: AF

<u>Sieve Size</u>	<u>Job Control Mix Formula</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	93-100	99
1/2"	85-99	88
3/8"	75-89	77
No. 4	48-62	*44
No. 8	33-45	34
No. 16	22-34	24
No. 30	14-24	17
No. 50	7-17	12
No. 100	4-10	7
No. 200	1.0-7.0	4.0
Bitumen Content (%)	4.35-5.25	5.1

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*The material tested does not conform to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61172

01/18/07 bej; H\CMT\2006\AED06-067-00\HOTMX61172.067

PROJECT NO.: AED06-067-00 **LABORATORY NO.:** L-61172 **DATE:** 01/05/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.602	N/A
Unit Weight (pcf)	153.4	N/A
Air Voids (%):	5.5	3.0-5.0
Marshall Stability:	3410	Minimum 1500
Flow:	14	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

The material tested conforms to the project specifications.

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Cemex

PROJECT NO.: AED06-067-00

DATE: 01/06/07

CONSTRUCTION AREA: Area No. 4

SAMPLING LOCATION: McKelligon Canyon Plant

OBTAINED AT: 175 tons

TECHNICIAN: AF

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Job Control Mix Formula</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	93-100	99
1/2"	79-99	85-99	96
3/8"	68-88	75-89	86
No. 4	48-68	48-62	48
No. 8	33-53	33-45	*32
No. 16	20-40	22-34	23
No. 30	14-30	14-24	18
No. 50	9-21	7-17	12
No. 100	6-16	4-10	5
No. 200	3-6	1.0-7.0	2.2
Bitumen Content (%)	N/A	4.35-5.25	5.2

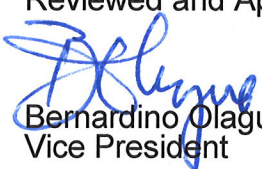
LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

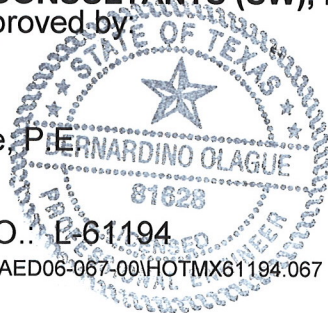
*The material tested does not conform to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61194

01/27/07 bej; HICMT\2006\AED06-067-00\HOTMX61194.067

PROJECT NO.: AED06-067-00 **LABORATORY NO.:** L-61194 **DATE:** 01/06/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.561	N/A
Unit Weight (pcf)	152.9	N/A
Air Voids (%):	4.6	3.0-5.0
Marshall Stability:	3777	Minimum 1500
Flow:	14	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

The material tested conforms to the project specifications.

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Cemex

PROJECT NO.: AED06-067-00

DATE: 01/08/07

CONSTRUCTION AREA: Area No. 4

SAMPLING LOCATION: McKelligon Canyon Plant

OBTAINED AT: 84 tons

TECHNICIAN: AF

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Job Control Mix Formula</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	93-100	99
1/2"	79-99	85-99	95
3/8"	68-88	75-89	85
No. 4	48-68	48-62	49
No. 8	33-53	33-45	36
No. 16	20-40	22-34	27
No. 30	14-30	14-24	21
No. 50	9-21	7-17	14
No. 100	6-16	4-10	6
No. 200	3-6	1.0-7.0	2.2
Bitumen Content (%)	N/A	4.35-5.25	*5.38

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98


*The material tested does not conform to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

REMARKS: Raul Villa of Petra Construction was notified of results.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by



Bernardino Olague
Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-61208

01/27/07 bej; H\CMT\2006\AED06-067-00\HOTMX61208.067

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.588	N/A
Unit Weight (pcf)	155.0	N/A
Air Voids (%):	4.0	3.0-5.0
Marshall Stability:	4387	Minimum 1500
Flow:	10	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

The material tested conforms to the project specifications.

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Cemex

PROJECT NO.: AED06-067-00

DATE: 01/10/07

CONSTRUCTION AREA: Areas 2 and 3

SAMPLING LOCATION: McKelligon Canyon plant sample

OBTAINED AT: 60 tons

TECHNICIAN: BS

<u>Sieve Size</u>	<u>Job Mix Formula</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	93-100	99
1/2"	79-99	85-99	91
3/8"	68-88	75-89	83
No. 4	48-68	48-62	49
No. 8	33-53	33-45	33
No. 16	20-40	22-34	25
No. 30	14-30	14-24	21
No. 50	9-21	7-17	15
No. 100	6-16	4-10	6
No. 200	3-6	1.0-7.0	2.3
Bitumen Content (%)	N/A	4.35-5.25	5.20

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-61199

01/01/07 bej; HICMT\2006\AED06-067-00\HOTMX61199.067

PROJECT NO.: AED06-067-00 **LABORATORY NO.:** L-61199 **DATE:** 01/10/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.558	N/A
Unit Weight (pcf)	154.3	N/A
Air Voids (%):	3.3	3.0-5.0
Marshall Stability:	3024	Minimum 1800
Flow:	14	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

The material tested conforms to the project specifications.

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Cemex

PROJECT NO.: AED06-067-00

DATE: 01/12/07

CONSTRUCTION AREA: Area No. 4

SAMPLING LOCATION: McKelligon Canyon Plant

OBTAINED AT: 70 tons

TECHNICIAN: AF

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Job Control Mix Formula</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	93-100	99
1/2"	79-99	85-99	89
3/8"	68-88	75-89	83
No. 4	48-68	48-62	50
No. 8	33-53	33-45	34
No. 16	20-40	22-34	26
No. 30	14-30	14-24	21
No. 50	9-21	7-17	15
No. 100	6-16	4-10	6
No. 200	3-6	1.0-7.0	3
Bitumen Content (%)	N/A	4.35-5.25	4.8

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61211

01/27/07 bej; H\CMT\2006\AED06-067-00\HOTMX61211.067

PROJECT NO.: AED06-067-00 **LABORATORY NO.:** L-61211 **DATE:** 01/12/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.561	N/A
Unit Weight (pcf)	152.2	N/A
Air Voids (%):	4.8	3.0-5.0
Marshall Stability:	2697	Minimum 1500
Flow:	15	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

The material tested conforms to the project specifications.

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Jobe

PROJECT NO.: AED06-067-00

DATE: 01/12/07

CONSTRUCTION AREA: Area No. 4

SAMPLING LOCATION: 60' to 70' north and 40' to 140' west of northeast corner of Area No. 4

OBTAINED AT: 280.82 tons

TECHNICIAN: AF

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Job Control Mix Formula</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	93-100	100
1/2"	79-99	83-97	90
3/8"	68-88	75-89	83
No. 4	48-68	48-62	59
No. 8	33-53	32-44	39
No. 16	20-40	22-34	29
No. 30	14-30	15-25	22
No. 50	9-21	8-18	15
No. 100	6-16	4-10	8
No. 200	3-6	2.0-8.0	4.1
Bitumen Content (%)	N/A	4.75-5.65	5.58

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:



Bernardino Olague
Bernardino Olague, P.E. 81628
Vice President

LABORATORY NO.: 161212

01/27/07 bej; H\CMT\2006\AED06-067-00\HOTMX61212.067

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

PROJECT NO.: AED06-067-00 **LABORATORY NO.:** L-61212 **DATE:** 01/12/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.462	N/A
Unit Weight (pcf)	148.8	N/A
Air Voids (%):	3.2	3.0-5.0
Marshall Stability:	2892	Minimum 1800
Flow:	14	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

The material tested conforms to the project specifications.

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: 2006 Construction Services

CLIENT: ASARCO Incorporated
Consultant Contract Office
P.O. Box 220182
El Paso, Texas 79913

SUPPLIER: Jobe Materials

PROJECT NO.: AED06-067-00

DATE: 01/13/07

CONSTRUCTION AREA: Area No. 4

SAMPLING LOCATION: Jobe Plant

OBTAINED AT: 750 tons

TECHNICIAN: JO

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Job Mix Formula</u>	<u>Mix Design Range</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	96	96	93-100	99
1/2"	79-93	88	82-96	88
3/8"	64-86	81	75-89	81
No. 4	48-68	52	51-65	59
No. 8	33-53	36	33-45	40
No. 16	20-40	24	23-35	29
No. 30	14-30	18	16-26	23
No. 50	9-21	11	9-19	16
No. 100	6-16	7	5-11	9
No. 200	3-6	4.5	1.0-7.0	4.1
Bitumen Content (%)	N/A	4.90	4.55-5.45	4.9


LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Lairy Johnson

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61213

01/27/07 bej; H\CMT\2006\AED06-067-00\HOTMX61213.067

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.434	N/A
Unit Weight (pcf)	146.7	N/A
Air Voids (%):	4.0	3.0-5.0
Marshall Stability:	3505	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

The material tested conforms to the project specifications.

Appendix C Field Test Data and Material Certifications – Category II Capping

C.3 2007 Moisture-Density Tests and In-Situ Density Tests

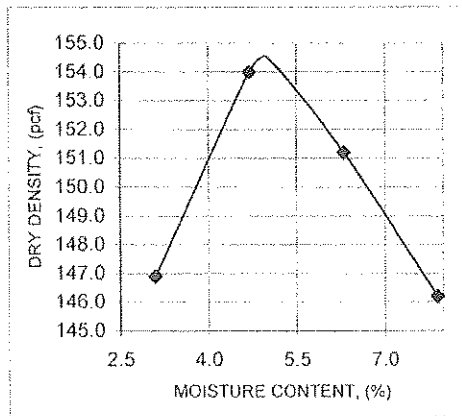


Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

**REPORT OF MOISTURE-DENSITY
 RELATIONSHIP OF SOILS, SIEVE ANALYSIS
 AND ATTERBERG LIMITS**

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999
PROJECT: Quality Assurance/Control - Construction Phase
PROJECT NO.: AEA07-051-07
SAMPLE TYPE/DESCRIPTION: Existing Subgrade/Silty sand with gravel, non plastic, gray
SAMPLE LOCATION: Area "A" stockpile
SAMPLED BY: CP **SAMPLE DATE:** 11/16/07

Trial No.	Moisture Content (%)	Dry Density (pcf)
1	3.1	146.9
2	4.7	154.0
3	6.3	151.2
4	7.9	146.2
Method of Preparation		ASTM D1557-00
Maximum Density (pcf)		154.5
Optim. Moist. Content, (%)		5.0



LABORATORY TEST PROCEDURES: ASTM D 1557-00, method C
LAB NO.: L-61696
COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS, INC.
 Reviewed and Approved by:

B. Olague
 BERNARDINO OLAGUE
 81628
 Vice President
 PROFESSIONAL ENGINEER

12/13/07 bej; P: GEO\2007\AEA07-051-07\IP61696.051.07

NOTICE: Raba-Kistner Consultants (SW), Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants (SW), Inc.



Project No.: AEA07-051-07

Laboratory No.: L-61696

Sample Date: 11/16/07

SIEVE ANALYSIS, ASTM C 117-95/C 136-96 _a			
Sieve Size	% Retained	% Passing	Project Specifications (% Passing by Weight)
1-1/2"	0	100	-----
1"	6	94	-----
3/4"	10	90	70-100
1/2"	17	83	-----
3/8"	22	78	-----
No. 4	38	62	45-100
No. 10	51	49	-----
No. 40	65	35	-----
No. 100	79	21	-----
No. 200	85	15	5-45

ATTERBERG LIMITS, ASTM D 4318-00		
<u>TEST</u>	<u>ACTUAL</u>	<u>SPECIFIED</u>
Liquid Limit:	Could not be determined	Maximum 40
Plasticity Index:	Non Plastic	Maximum 12

USCS SYMBOL: SM

The material tested is an existing material.



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT OF FIELD ASPHALTIC COLD MIX CONCRETE NUCLEAR DENSITY TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

PROJECT NO.: AEA07-051-07 **DATE:** 11/28/07 **TECHNICIAN:** CP

MATERIAL TESTED: Cold Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
1	Cold mix low permeable, area "A", 25' north and 10' west from pump station #1	Final Lift	128.1	123.13	96.12	94.0
2	Cold mix low permeable, area "A", 30' south and 5' west from pump station #1	Final Lift	128.1	122.92	95.96	94.0
3	Cold mix low permeable, area "A", 150' south and 10' west from pump station #1	Final Lift	128.1	125.24	97.77	94.0
4	Cold mix low permeable, area "A", 140' south and 50' west from pump station #1	Final Lift	128.1	126.14	98.47	94.0

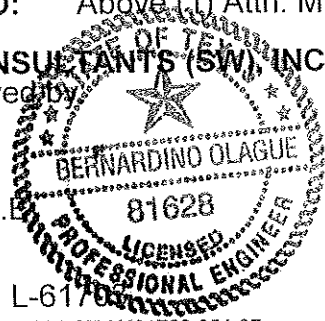
REMARKS: Tests 1 through 4 conform to project specifications.
PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

LABORATORY TEST PROCEDURES: *ASTM D 1559
FIELD TEST PROCEDURES: ASTM D 2950-91
 *This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.
COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.

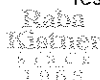
Reviewed and Approved by

B. Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-61703
 12/12/07 bej; HIGEOV2007VAEA07-051-07VAN61703.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



MATERIAL TESTED: Cold Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
5	Cold mix low permeable, area "A", 20' south and 60' west from pump station #1	Final Lift	128.1	125.04	97.61	94.0
6	Cold mix low permeable, area "A", 20' north and 60' west from pump station #1	Final Lift	128.1	126.14	98.47	94.0
7	Cold mix low permeable, area "A", 25' north and 15' west from southwest corner of storm water tank #2	Final Lift	128.1	124.87	97.48	94.0
8	Cold mix low permeable, area "A", 25' north and 50' west from southwest corner of storm water tank #2	Final Lift	128.1	122.87	95.92	94.0
9	Cold mix low permeable, area "A", 15' south and 15' west from northwest corner of storm water tank #1	Final Lift	128.1	124.41	97.12	94.0
10	Cold mix low permeable, area "A", 20' north and 2' east from northwest corner of storm water tank #1	Final Lift	128.1	126.20	98.52	94.0
11	Cold mix low permeable, area "A", 25' north and 8' west from northeast corner of storm water tank #1	Final Lift	128.1	125.40	97.89	94.0
12	Cold mix low permeable, area "A", 60' north and 10' west from northeast corner of storm water tank #1	Final Lift	128.1	126.67	98.88	94.0

REMARKS: Tests 5 through 12 conform to project specifications.
PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

REPORT OF FIELD MOISTURE-DENSITY TESTS



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999

PROJECT NO.: AEA07-051-07 **DATE:** 12/03/07 **TECHNICIAN:** CP

MATERIAL TESTED: Prepared Subgrade

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	SOIL TYPE	MOISTURE CONTENT (%)	DRY DENS. (pcf)	% OF MAXIMUM DENSITY
13	Area "B" pad, 120' north and 40' west from pump station #3	Final Lift	1	4.3	147.8	95.7
14	Area "B" pad, 60' north and 150' west from pump station #3	Final Lift	1	4.0	149.4	96.7
15	Area "B" pad, 40' south and 145' west from pump station #3	Final Lift	1	4.8	154.3	99.9
16	Area "B" pad, 30' south and 25' east from pump station #3	Final Lift	1	3.8	152.3	98.6

REMARKS: Tests 13 through 16 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

SOIL TYPE	SOIL DESCRIPTION	OPTIMUM MOISTURE (%)	MAXIMUM DENSITY (pcf)	MOISTURE CONTENT REQUIRED (%)	% OF MAX DENSITY REQUIRED
(1)	Brown clayey silty sand with gravel	5.0	154.5	±3	95.0

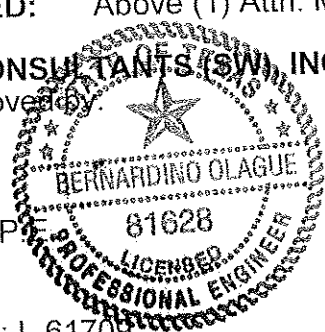
LABORATORY TEST PROCEDURES: ASTM D 1557-00
FIELD TEST PROCEDURES: ASTM D 2922-96, D 3017-96

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

Bernardino Olague
Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61709

12/12/07 bej; HIGEO\2007\AEA07-057-01\M61709.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

MATERIAL TESTED: Prepared Subgrade

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	SOIL TYPE	MOISTURE CONTENT (%)	DRY DENS. (pcf)	% OF MAXIMUM DENSITY
17	Area "B" pad, 30' south and 125' east from pump station #3	Final Lift	1	3.1	148.0	95.8
18	Area "B" pad, 40' south and 200' east from pump station #3	Final Lift	1	4.8	160.3	103.8
19	Area "B" pad, 80' south and 120' east from pump station #3	Final Lift	1	4.3	156.9	101.6
20	Area "B" pad, 75' south and 210' east from pump station #3	Final Lift	1	4.0	154.2	99.8
21	Area "B" pad, 80' south and 260' east from pump station #3	Final Lift	1	4.1	152.9	99.0

REMARKS: Tests 17 through 21 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

SOIL TYPE	SOIL DESCRIPTION	OPTIMUM MOISTURE (%)	MAXIMUM DENSITY (pcf)	MOISTURE CONTENT REQUIRED (%)	% OF MAX DENSITY REQUIRED
(1)	Brown clayey silty sand with gravel	5.0	154.5	±3	95.0



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT OF FIELD ASPHALTIC COLD MIX CONCRETE NUCLEAR DENSITY TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

PROJECT NO.: AEA07-051-07 **DATE:** 12/04/07 **TECHNICIAN:** CP

MATERIAL TESTED: Cold Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
22	Area "B" pad, 210' east and 75' south from pump station #3	Final Lift	129.4	124.60	96.30	94.0
23	Area "B" pad, 280' east and 110' south from pump station #3	Final Lift	129.4	124.90	96.52	94.0
24	Area "B" pad, 275' east and 80' south from pump station #3	Final Lift	129.4	125.55	97.03	94.0
25	Area "B" pad, 215' east and 130' south from pump station #3	Final Lift	129.4	124.48	96.20	94.0

REMARKS: Tests 22 through 25 conform to project specifications.
PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

LABORATORY TEST PROCEDURES: *ASTM D 1559

FIELD TEST PROCEDURES: ASTM D 2950-91

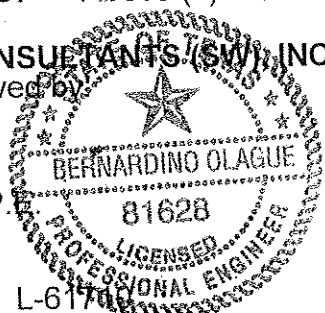
*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.

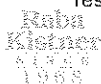
Reviewed and Approved by

Bernardino Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-617
 12/12/07 bej; H:\GEO\2007\AEA07-051-07\AN61710.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61710 DATE: 12/04/07

MATERIAL TESTED: Cold Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
26	Area "B" pad, 200' east and 20' south from pump station #3	Final Lift	129.4	125.64	97.10	94.0
27	Area "B" pad, 250' east and 55' south from pump station #3	Final Lift	129.4	125.36	96.88	94.0
28	Area "B" pad, 80' east and 30' south from pump station #3	Final Lift	129.4	126.51	97.77	94.0
29	Area "B" pad, 5' east and 30' south from pump station #3	Final Lift	129.4	125.5	97.03	94.0

REMARKS: Tests 26 through 29 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

12/12/07 bej; H:\GEO\2007\AEA07-051-07\AN61710.051.07

Page 2 of 2

REPORT OF FIELD ASPHALTIC COLD MIX CONCRETE NUCLEAR DENSITY TESTS



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
P.O. Box 11111, El Paso, TX 79999
PROJECT NO.: AEA07-051-07 **DATE:** 12/06/07 **TECHNICIAN:** CP
MATERIAL TESTED: Cold Mix Asphaltic Concrete

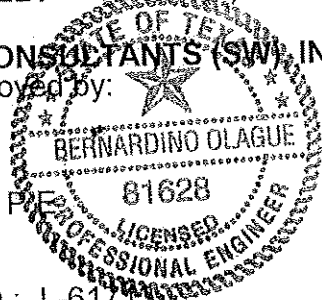
TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
30	Area "B" pad, 120' west and 30' north from pump station #3	Final Lift	129.1	126.80	98.22	94.0
31	Area "B" pad, 110' west and 10' south from pump station #3	Final Lift	129.1	127.53	98.79	94.0
32	Area "B" pad, 115' west and 80' south from pump station #3	Final Lift	129.1	125.57	97.27	94.0
33	Area "B" pad, 30' west and 100' north from pump station #3	Final Lift	129.1	127.03	98.40	94.0

REMARKS: Tests 30 through 33 conform to project specifications.
PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

LABORATORY TEST PROCEDURES: *ASTM D 1559
FIELD TEST PROCEDURES: ASTM D 2950-91
*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.
COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.
Reviewed and Approved by:

B. Olague
Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-617
12/12/07 bej; HIGEO\2007\AEA07-051-07\AN61713.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



MATERIAL TESTED: Cold Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
34	Area "B" pad, 25' west and 10' south from pump station #3	Final Lift	129.1	127.94	99.10	94.0
35	Area "B" pad, 30' west and 60' south from pump station #3	Final Lift	129.1	126.87	98.27	94.0
36	Area "B" pad, 45' west and 110' south from pump station #3	Final Lift	129.1	126.03	97.62	94.0
37	Area "B" pad, 45' west and 180' south from pump station #3	Final Lift	129.1	126.27	97.81	94.0

REMARKS: Tests 34 through 37 conform to project specifications.
PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

REPORT OF FIELD MOISTURE-DENSITY TESTS



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999

PROJECT NO.: AEA07-051-07 **DATE:** 12/07/07 **TECHNICIAN:** CP

MATERIAL TESTED: Prepared Subgrade

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	SOIL TYPE	MOISTURE CONTENT (%)	DRY DENS. (pcf)	% OF MAXIMUM DENSITY
38	Area "C" pad, 120' west and 60' north from pump station #6	Final Lift	1	4.1	152.5	98.7
39	Area "C" pad, 110' west and 5' south from pump station #6	Final Lift	1	4.8	153.2	99.2
40	Area "C" pad, 120' west and 80' south from pump station #6	Final Lift	1	3.8	151.7	98.2
41	Area "C" pad, 110' west and 175' south from pump station #6	Final Lift	1	3.9	150.8	97.6

REMARKS: Tests 38 through 41 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

SOIL TYPE	SOIL DESCRIPTION	OPTIMUM MOISTURE (%)	MAXIMUM DENSITY (pcf)	MOISTURE CONTENT REQUIRED (%)	% OF MAX DENSITY REQUIRED
(1)	Brown clayey silty sand with gravel	5.0	154.5	±3	95.0

LABORATORY TEST PROCEDURES: ASTM D 1557-00
FIELD TEST PROCEDURES: ASTM D 2922-96, D 3017-96

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

B. Olague
Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61776
12/12/07 bej; HVGEO\2007\AEA07-057-01\M61715.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

MATERIAL TESTED: Prepared Subgrade

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	SOIL TYPE	MOISTURE CONTENT (%)	DRY DENS. (pcf)	% OF MAXIMUM DENSITY
42	Area "C" pad, 50' west and 260' south from pump station #6	Final Lift	1	4.0	151.5	98.1
43	Area "C" pad, 50' west and 160' south from pump station #6	Final Lift	1	3.8	150.8	97.6
44	Area "C" pad, 60' west and 50' south from pump station #6	Final Lift	1	3.6	152.3	98.6

REMARKS: Tests 42 through 44 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

SOIL TYPE	SOIL DESCRIPTION	OPTIMUM MOISTURE (%)	MAXIMUM DENSITY (pcf)	MOISTURE CONTENT REQUIRED (%)	% OF MAX DENSITY REQUIRED
(1)	Brown clayey silty sand with gravel	5.0	154.5	±3	95.0

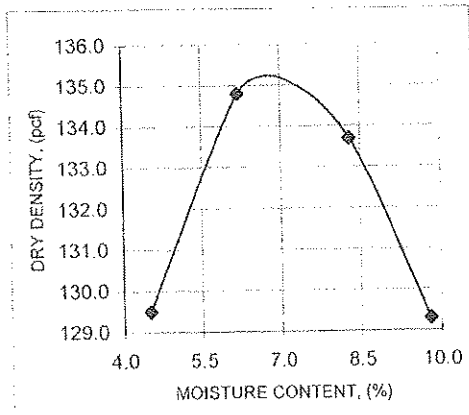


**REPORT OF MOISTURE-DENSITY
RELATIONSHIP OF SOILS, SIEVE ANALYSIS
AND ATTERBERG LIMITS**

Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999
PROJECT: Quality Assurance/Control - Construction Phase
PROJECT NO.: AEA07-051-07
SAMPLE TYPE/DESCRIPTION: Existing Subgrade/Silty sand with gravel, non plastic, brown
SAMPLE LOCATION: 20' south and 10' west from pump station #7
SAMPLED BY: CP **SAMPLE DATE:** 12/07/07

Trial No.	Moisture Content (%)	Dry Density (pcf)
1	4.5	129.5
2	6.2	134.8
3	8.3	133.7
4	9.8	129.3
Method of Preparation		ASTM D1557-00
Maximum Density (pcf) D4718 corrected		135.2
Optim. Moist. Content, (%)		7.0



LABORATORY TEST PROCEDURES: ASTM D 1557-00, method C

LAB NO.: L-61714

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

CDM (1) Attn: Mr. Walter Smith

RABA-KISTNER CONSULTANTS, INC.

Reviewed and Approved by:

BERNARDINO OLAGUE

010828

Bernardino Olague
Vice President



01/10/08 bej; O: GEO\2007\AEA07-051-07\161714.051.07

NOTICE: Raba-Kistner Consultants (SW), Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants (SW), Inc.



Project No.: AEA07-051-07
 Laboratory No.: L-61714
 Sample Date: 12/07/07

SIEVE ANALYSIS, ASTM C 117-95/C 136-96 _a			
Sieve Size	% Retained	% Passing	Project Specifications (% Passing by Weight)
1"	0	100	----
3/4"	1	99	70-100
1/2"	6	94	----
3/8"	9	91	----
No. 4	19	81	45-100
No. 10	29	71	----
No. 40	42	58	----
No. 100	72	28	----
No. 200	83.2	16.8	5-45

ATTERBERG LIMITS, ASTM D 4318-00		
<u>TEST</u>	<u>ACTUAL</u>	<u>SPECIFIED</u>
Liquid Limit:	Could not be determined	Maximum 40
Plasticity Index:	Non Plastic	Maximum 12

USCS SYMBOL: SM

The material tested is an existing material.



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

REPORT OF FIELD ASPHALTIC COLD MIX CONCRETE NUCLEAR DENSITY TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999
PROJECT NO.: AEA07-051-07 **DATE:** 12/11/07 **TECHNICIAN:** CP
MATERIAL TESTED: Cold Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
45	Area "C" pad, 120' south and 160' west from pump station #6	Final Lift on Cold Mix	127.1	108.78	*85.59	94.0
46	Area "C" pad, 12' north and 120' west from pump station #6	Final Lift on Cold Mix	127.1	98.65	*77.62	94.0
47	Area "C" pad, 5' north and 25' west from pump station #6	Final Lift on Cold Mix	127.1	103.10	*81.12	94.0
48	Area "C" pad, 240' south and 30' west from pump station #6	Final Lift on Cold Mix	127.1	108.19	85.12	94.0

REMARKS: *Tests 45 through 48 do not conform to the project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

LABORATORY TEST PROCEDURES: *ASTM D 1559

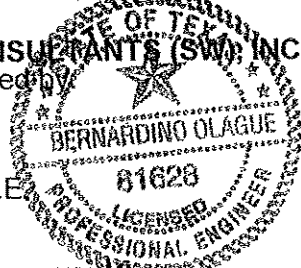
FIELD TEST PROCEDURES: ASTM D 2950-91

*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
Reviewed and Approved by


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61721

01/29/08 bej; HNGEOI2007\AEA07-051-07\AN61721.051.07

Page 1 of 1

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.





Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

REPORT OF FIELD ASPHALTIC COLD MIX CONCRETE NUCLEAR DENSITY TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
P.O. Box 11111, El Paso, TX 79999
PROJECT NO.: AEA07-051-07 DATE: 12/11/08 TECHNICIAN: CP
MATERIAL TESTED: Cold Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
49	Area "C" pad, 120' south and 160' west from pump station #6 (Retest of #45, L-61721)	Final Lift on Cold Mix	127.1	120.91	95.13	94.0
50	Area "C" pad, 12' north and 120' west from pump station #6 (Retest of #46, L-61721)	Final Lift on Cold Mix	127.1	121.91	95.92	94.0
51	Area "C" pad, 5' north and 25' west from pump station #6 (Retest of #47, L-61721)	Final Lift on Cold Mix	127.1	120.68	94.95	94.0
52	Area "C" pad, 240' south and 30' west from pump station #6 (Retest of #48, L-61721)	Final Lift on Cold Mix	127.1	120.81	95.05	94.0
53	Area "C" pad, 100' south and 50' west from pump station #6	Final Lift on Cold Mix	127.1	120.91	95.13	94.0

REMARKS: Tests 49 through 53 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

LABORATORY TEST PROCEDURES: *ASTM D 1559


FIELD TEST PROCEDURES: ASTM D 2950-91

*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by


Bernardino Olague
Vice President



LABORATORY NO.: L-61722

01/29/08 bej; HIGEO\2007\AEA07-051-07\AN61722.051.07

Page 1 of 1

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.





Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT OF FIELD ASPHALTIC COLD MIX CONCRETE NUCLEAR DENSITY TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

PROJECT NO.: AEA07-051-07 **DATE:** 12/14/07 **TECHNICIAN:** CP

MATERIAL TESTED: Cold Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
54	2" cold mix area "B/C", 40' north and 5' west from pump station #6	Final Lift	128.6	125.6	97.7	94.0
55	2" cold mix area "B/C", 80' north and 20' east from pump station #6	Final Lift	128.6	128.4	99.9	94.0
56	2" cold mix area "B/C", 160' north and 30' east from pump station #6	Final Lift	128.6	126.9	98.7	94.0
57	2" cold mix area "B/C", 210' north and 20' west from pump station #6	Final Lift	128.6	123.8	96.3	94.0

REMARKS: Tests 54 through 57 conform to project specifications.
PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

LABORATORY TEST PROCEDURES: *ASTM D 1559

FIELD TEST PROCEDURES: ASTM D 2950-91

*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bernardino Olague
 Bernardino Olague, P.E.
 Vice President


LABORATORY NO.: L-61731

12/27/07 bej, H:\GEO\2007\AEA07-051-07\AN61731.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.





Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT OF FIELD MOISTURE-DENSITY TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 11111, El Paso, TX 79999

PROJECT NO.: AEA07-051-07 **DATE:** 12/14/07 **TECHNICIAN:** CP

MATERIAL TESTED: Prepared Subgrade

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	SOIL TYPE	MOISTURE CONTENT (%)	DRY DENS. (pcf)	% OF MAXIMUM DENSITY
58	Area "C", 20' west and 5' south from pump station #7	Final Lift	1	5.2	129.8	96.0
59	Area "C", 10' east and 10' north from pump station #7	Final Lift	1	4.1	133.3	98.6
60	Area "C", 15' west and 75' north from pump station #7	Final Lift	1	4.3	134.6	99.6
61	Area "C", 5' west and 200' north from pump station #7	Final Lift	1	4.0	130.1	96.2

REMARKS: Tests 58 through 61 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

SOIL TYPE	SOIL DESCRIPTION	OPTIMUM MOISTURE (%)	MAXIMUM DENSITY (pcf)	MOISTURE CONTENT REQUIRED (%)	% OF MAX DENSITY REQUIRED
(1)	Light brown clayey silty sand with gravel	7.0	135.2	±3	95.0

LABORATORY TEST PROCEDURES: ASTM D 1557-00


FIELD TEST PROCEDURES: ASTM D 2922-96, D 3017-96

COPIES SUBMITTED: 1 Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

[Signature]
 Bernardino Olague
 Vice President



LABORATORY NO.: L-61732

12/27/07 bej: HIGEO\2007\AEA07-057-01\M61732.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.





Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT OF FIELD ASPHALTIC COLD MIX CONCRETE NUCLEAR DENSITY TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999
PROJECT NO.: AEA07-051-07 **DATE:** 12/14/07 **TECHNICIAN:** CP
MATERIAL TESTED: Cold Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
62	2" cold mix area "C", 200' south and 30' west from pump station #6	Final Lift	128.6	126.1	98.1	94.0
63	2" cold mix area "C", 250' south and 25' west from pump station #6	Final Lift	128.6	125.7	97.8	94.0
64	2" cold mix area "C", 275' south and 60' west from pump station #6	Final Lift	128.6	124.8	97.1	94.0
65	2" cold mix area "C", 250' south and 75' west from pump station #6	Final Lift	128.6	126.5	98.4	94.0

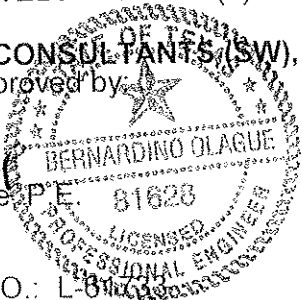
REMARKS: Tests 62 through 65 conform to project specifications.
PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

LABORATORY TEST PROCEDURES: *ASTM D 1559
FIELD TEST PROCEDURES: ASTM D 2950-91
 *This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.
COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bernardino Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-811628
 12/27/07 bej; HNGEO\2007\AEA07-051-07\AN61733.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



REPORT OF FIELD ASPHALTIC COLD MIX CONCRETE NUCLEAR DENSITY TESTS



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999

PROJECT NO.: AEA07-051-07 **DATE:** 12/17/07 **TECHNICIAN:** CP

MATERIAL TESTED: Cold Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
66	Area "C" pad, cold mix, 20' south and 25' west from pump station #7	Final Lift	128.6	125.4	97.5	94.0
67	Area "C" pad, cold mix, 75' north and 30' west from pump station #7	Final Lift	128.6	126.1	98.1	94.0
68	Area "C" pad, cold mix, 180' north and 10' west from pump station #7	Final Lift	128.6	125.9	97.9	94.0
69	Area "C" pad, cold mix, 80' north and 2' east from pump station #7	Final Lift	128.6	125.0	97.2	94.0

REMARKS: Tests 66 through 69 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

LABORATORY TEST PROCEDURES: *ASTM D 1559

FIELD TEST PROCEDURES: ASTM D 2950-91

*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

BC
Bernardino Olague, P.E.
Vice President

LABORATORY NO.: L-61874

12/12/07 bej; HIGEO\2007\AEA07-051-07\AN61874.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.





Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT OF FIELD POM-A COLD MIX CONCRETE NUCLEAR DENSITY TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999
PROJECT NO.: AEA07-051-07 **DATE:** 01/04/08 **TECHNICIAN:** CP
MATERIAL TESTED: POM-A Asphaltic Concrete

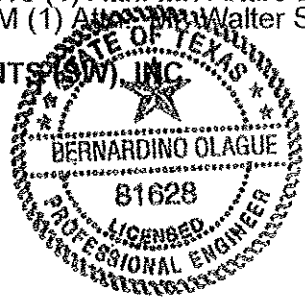
TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
70	Area "A" pad, 50' north and 20' west from northeast corner of storm water tank #1	POM-A final lift	131.0	124.1	94.7	94.0
71	Area "A" pad, 10' north and 12' west from northeast corner of storm water tank #1	POM-A final lift	131.0	124.8	95.3	94.0
72	Area "A" pad, 25' south and 10' west from northwest corner of storm water tank #1	POM-A final lift	131.0	123.5	94.3	94.0
73	Area "A" pad, 5' south and 30' west from southwest corner of storm water tank #2	POM-A final lift	131.0	125.7	96.0	94.0

REMARKS: Tests 70 through 73 conform to project specifications.
PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

LABORATORY TEST PROCEDURES: *ASTM D 1559
FIELD TEST PROCEDURES: ASTM D 2950-91
 *This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.
COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC
 Reviewed and Approved by:

B. Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-61885
 01/14/08 bej; HIGEO\2007\AEA07-051-07\AN61885.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



MATERIAL TESTED: POM-A Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
74	Area "A" pad, 5' north and 15' west from pump station #1	POM-A final lift	131.0	124.6	95.1	94.0
75	Area "A" pad, 50' south and 20' west from pump station #1	POM-A final lift	131.0	124.3	94.9	94.0
76	Area "A" pad, 55' south and 60' west from pump station #1	POM-A final lift	131.0	125.7	96.0	94.0
77	Area "A" pad, 160' south and 30' west from pump station #1	POM-A final lift	131.0	124.8	95.3	94.0

REMARKS: Tests 74 through 77 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

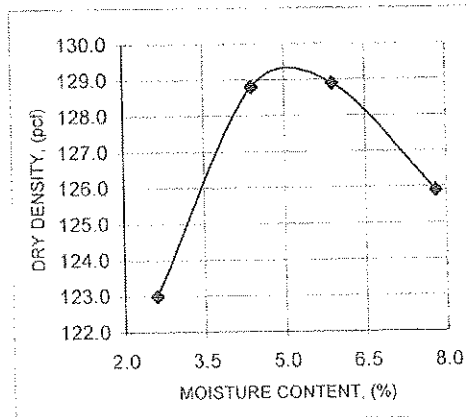


**REPORT OF MOISTURE-DENSITY
RELATIONSHIP OF SOILS, SIEVE ANALYSIS
AND ATTERBERG LIMITS**

Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999
PROJECT: Quality Assurance/Control - Construction Phase
PROJECT NO.: AEA07-051-07
SAMPLE TYPE/DESCRIPTION: Existing Subgrade/Silty sand with gravel, non plastic, dark gray
SAMPLE LOCATION: Area "D" stockpile
SAMPLED BY: CP **SAMPLE DATE:** 01/11/08

Trial No.	Moisture Content (%)	Dry Density (pcf)
1	2.6	123.0
2	4.4	128.8
3	5.9	128.9
4	7.8	125.9
Method of Preparation		ASTM D1557-00
Maximum Density (pcf) D4718 corrected		129.2
Optim. Moist. Content, (%)		5.1



LABORATORY TEST PROCEDURES: ASTM D 1557-00, method C
LAB NO.: L-61892
COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
CDM (1) Attn: Mr. Walter Smith

RABA-KISTNER CONSULTANTS, INC.
Reviewed and Approved by:

Bernardino Olague
Bernardino Olague, P.E.
Vice President



01/29/08 bej; O: GEO\2007\AEA07-051-07\1P61892.051.07

NOTICE: Raba-Kistner Consultants (SW), Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants (SW), Inc.



Project No.: AEA07-051-07

Laboratory No.: L-61892

Sample Date:

SIEVE ANALYSIS, ASTM C 117-95/C 136-96,			
Sieve Size	% Retained	% Passing	Project Specifications (% Passing by Weight)
1-1/2"	0	100	-----
1"	3	97	-----
3/4"	5	95	70-100
1/2"	14	86	-----
3/8"	16	84	-----
No. 4	23	77	45-100
No. 10	32	68	-----
No. 40	49	51	-----
No. 100	69	31	-----
No. 200	77	23	5-45

ATTERBERG LIMITS, ASTM D 4318-00		
<u>TEST</u>	<u>ACTUAL</u>	<u>SPECIFIED</u>
Liquid Limit:	Could not be determined	Maximum 40
Plasticity Index:	Non Plastic	Maximum 12

USCS SYMBOL: SM

The material tested is an existing material.



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT OF FIELD ASPHALTIC COLD MIX CONCRETE NUCLEAR DENSITY TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

PROJECT NO.: AEA07-051-07 **DATE:** 01/16/08 **TECHNICIAN:** CP

MATERIAL TESTED: POM-A Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
78	Area "B" pad, 25' west and 50' north from pump station #3	Final Lift POM-A	127.9	125.2	97.9	94.0
79	Area "B" pad, 60' west and 10' south from pump station #3	Final Lift POM-A	127.9	123.0	96.2	94.0
80	Area "B" pad, 75' west and 60' south from pump station #3	Final Lift POM-A	127.9	122.6	95.9	94.0
81	Area "B" pad, 40' west and 125' south from pump station #3	Final Lift POM-A	143.2	137.7	96.2	94.0

REMARKS: Tests 78 through 81 conform to project specifications.
PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

LABORATORY TEST PROCEDURES: *ASTM D 1559

FIELD TEST PROCEDURES: ASTM D 2950-91

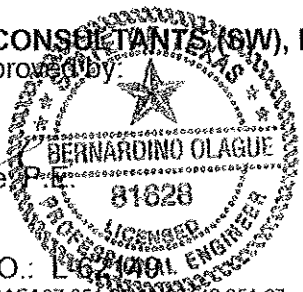
*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bernardino Olague
 Bernardino Olague
 Vice President



LABORATORY NO.: L105
 01/29/08 bej; HIGEO\2007\AEA07-051-07\AN62149.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



MATERIAL TESTED: POM-A Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
82	Area "B" pad, 40' south and 10' east from pump station #3	Final Lift POM-A	127.9	125.3	98.0	94.0
83	Area "B" pad, 45' south and 130' east from pump station #3	Final Lift POM-A	131.0	127.2	97.1	94.0
84	Area "B" pad, 60' south and 225' east from pump station #3	Final Lift POM-A	131.0	124.8	95.3	94.0
85	Area "B" pad, 75' south and 290' east from pump station #3	Final Lift POM-A	131.0	126.1	96.3	94.0
86	Area "B-C" pad, 30' east and 350' north from pump station C	Final Lift POM-A	143.2	136.2	95.1	94.0
87	Area "B-C" pad, 5' west and 200' north from pump station C	Final Lift POM-A	143.2	136.9	95.6	94.0
88	Area "C" pad, 30' west and 30' north from pump station C	Final Lift POM-A	137.2	132.1	96.3	94.0
89	Area "C" pad, 25' west and 40' south from pump station C	Final Lift POM-A	137.2	131.4	95.8	94.0
90	Area "C" pad, 30' west and 125' south from pump station C	Final Lift POM-A	137.2	131.8	96.1	94.0
91	Area "C" pad, 60' west and 150' south from pump station C	Final Lift POM-A	137.2	132.5	96.6	94.0
92	Area "C" pad, 75' west and 125' south from pump station C	Final Lift POM-A	137.2	131.4	95.8	94.0
93	Area "C" pad, 50' west and 60' south from pump station C	Final Lift POM-A	137.2	130.4	95.1	94.0

REMARKS: Tests 82 through 93 conform to project specifications.
PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

REPORT OF FIELD MOISTURE-DENSITY TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999

PROJECT NO.: AEA07-051-07 **DATE:** 01/17/08 **TECHNICIAN:** CP

MATERIAL TESTED: Prepared Subgrade

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	SOIL TYPE	MOISTURE CONTENT (%)	DRY DENS. (pcf)	% OF MAXIMUM DENSITY
94	Area "D", pad, 20' east and 60' north from southwest corner	Finished Subgrade	1	6.1	126.5	97.9
95	Area "D", pad, 30' east and 160' north from southwest corner	Finished Subgrade	1	6.0	126.6	98.0
96	Area "D", pad, 25' east and 200' south from northwest corner	Finished Subgrade	1	5.7	126.2	97.7
97	Area "D", pad, 30' east and 100' south from northwest corner	Finished Subgrade	1	5.8	125.8	97.4

REMARKS: Tests 94 through 97 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

SOIL TYPE	SOIL DESCRIPTION	OPTIMUM MOISTURE (%)	MAXIMUM DENSITY (pcf)	MOISTURE CONTENT REQUIRED (%)	% OF MAX DENSITY REQUIRED
(1)	Existing Subgrade/Silty sand with gravel, dark gray	5.1	129.2	±3	95.0

LABORATORY TEST PROCEDURES: ASTM D 1557-00

FIELD TEST PROCEDURES: ASTM D 2922-96, D 3017-96

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

Bernardino Olague
Bernardino Olague
Vice President
E. 81628
LICENSED PROFESSIONAL ENGINEER

LABORATORY NO.: L-62151

01/29/08 bej; HIGEOI2007\AEA07-057-01\W62151.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.





Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

**REPORT OF MOISTURE-DENSITY
 RELATIONSHIP OF SOILS, SIEVE ANALYSIS
 AND ATTERBERG LIMITS**

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

PROJECT: Quality Assurance/Control - Construction Phase

PROJECT NO.: AEA07-051-07

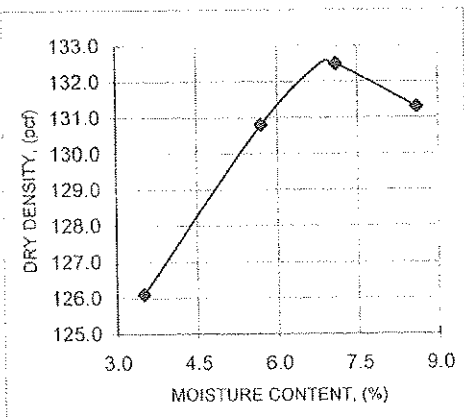
SAMPLE TYPE/DESCRIPTION: Base Course/TxDOT Item 247, Type A, Grade 3, non plastic, light brown
 Stockpile at Area "B"

SAMPLE LOCATION: CP

SAMPLED BY: CP

SAMPLE DATE: 01/17/08

Trial No.	Moisture Content (%)	Dry Density (pcf)
1	3.5	126.1
2	5.7	130.8
3	7.1	132.5
4	8.6	131.3
Method of Preparation		ASTM D1557-00
Maximum Density (pcf) D4718 corrected		132.5
Optim. Moist. Content, (%)		6.8



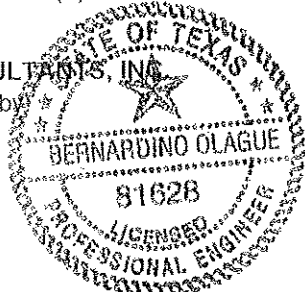
LABORATORY TEST PROCEDURES: ASTM D 1557-00, method C

LAB NO.: L-62150

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith

RABA-KISTNER CONSULTANTS, INC.
 Reviewed and Approved by

B. Olague
 Bernardino Olague, P.E.
 Vice President



02/12/08 bej, O: GEO\2007\AEA07-051-07\1P62150.051.07

NOTICE: Raba-Kistner Consultants (SW), Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants (SW), Inc.



Project No.: AEA07-051-07

Laboratory No.: L-62150

Sample Date: 01/17/08

SIEVE ANALYSIS, ASTM C 117-95/C 136-96 _a			
Sieve Size	% Retained	% Passing	Project Specifications (% Passing by Weight)
2-1/2"	0	100	-----
1-3/4"	0	100	-----
1-1/2"	7	93	-----
1"	20	80	-----
3/4"	25	75	70-100
1/2"	32	68	-----
3/8"	37	63	-----
No. 4	47	53	45-100
No. 10	58	42	-----
No. 40	72	28	50-85
No. 100	82	18	-----
No. 200	86	14	5-45

ATTERBERG LIMITS, ASTM D 4318-00		
<u>TEST</u>	<u>ACTUAL</u>	<u>SPECIFIED</u>
Liquid Limit:	Could not be determined	Maximum 40
Plasticity Index:	Non Plastic	Maximum 12

The material tested conforms to the project specifications for Sieve Analysis and Atterberg Limits.



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT OF FIELD MOISTURE-DENSITY TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

PROJECT NO.: AEA07-051-07 **DATE:** 01/22/08 **TECHNICIAN:** CP

MATERIAL TESTED: Flexible Base

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	SOIL TYPE	MOISTURE CONTENT (%)	DRY DENS. (pcf)	% OF MAXIMUM DENSITY
98	Area "B", fence line backfill, 250' south and 75' west from pump station #3	1 st Lift	1	8.6	128.9	97.3
99	Area "B", fence line backfill, 300' south and 80' west from pump station #3	1 st Lift	1	8.0	127.2	96.0

REMARKS: Tests 98 and 99 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

SOIL TYPE	SOIL DESCRIPTION	OPTIMUM MOISTURE (%)	MAXIMUM DENSITY (pcf)	MOISTURE CONTENT REQUIRED (%)	% OF MAX DENSITY REQUIRED
(1)	Base Course	6.8	132.5	±2	95.0

LABORATORY TEST PROCEDURES: ASTM D 1557-00
FIELD TEST PROCEDURES: ASTM D 2922-96, D 3017-96

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

B. Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-62155
 02/12/08 bej; HIGEO\2007\AEA07-057-01\M62155.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



REPORT OF FIELD ASPHALTIC COLD MIX CONCRETE NUCLEAR DENSITY TESTS



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999
PROJECT NO.: AEA07-051-07 **DATE:** 01/30/08 **TECHNICIAN:** CP
MATERIAL TESTED: Low Perm Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
100	Area "D" pad, 20' south and 20' west from northeast corner of pad	Final Lift Low Perm	145.5	138.6	95.3	94.0
101	Area "D" pad, 60' south and 10' east from northwest corner of pad	Final Lift Low Perm	145.5	139.1	95.6	94.0
102	Area "D" pad, center of pad	Final Lift Low Perm	145.5	139.2	95.7	94.0
103	Area "D" pad, 60' north and 10' west from southeast corner of pad	Final Lift Low Perm	145.5	139.7	96.0	94.0

REMARKS: Tests 100 through 103 conform to project specifications.
PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

LABORATORY TEST PROCEDURES: *ASTM D 1559
FIELD TEST PROCEDURES: ASTM D 2950-91
*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.
COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
Reviewed and Approved by:

Bernardino Olague
Bernardino Olague, P.E. 81628
Vice President

LABORATORY NO.: L-02104
02/20/08 bej, OIGEO\2007\AEA07-051-07\AN62164.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-62164 DATE: 01/30/08

MATERIAL TESTED: Low Perm Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
104	Area "D" pad, 30' north and 10' east from southwest corner of pad	Final Lift Low Perm	145.5	138.5	95.2	94.0
105	Area "D1" pad, 10' south and 30' west from northeast corner of pad	Final Lift Low Perm	145.5	139.1	95.6	94.0
106	Area "D1" pad, 50' south and 25' west from northeast corner of pad	Final Lift Low Perm	145.5	138.6	95.3	94.0
107	Area "D1" pad, 20' north and 30' west from southeast corner of pad	Final Lift Low Perm	145.5	138.3	95.1	94.0

REMARKS: Tests 104 through 107 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

02/20/08 bej;OH\GEO\2007\AEA07-051-07\AN62164.051.07

Page 2 of 2



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT OF FIELD MOISTURE-DENSITY TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

PROJECT NO.: AEA07-051-07 **DATE:** 01/31/08 **TECHNICIAN:** CP

MATERIAL TESTED: Flexible Base

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	SOIL TYPE	MOISTURE CONTENT (%)	DRY DENS. (pcf)	% OF MAXIMUM DENSITY
108	Area "B", fence line, 300' south and 100' west from pump station #3	Final Lift	1	5.8	128.2	96.8
109	Area "B", fence line, 200' south and 100' west from pump station #3	Final Lift	1	5.1	128.6	97.1
110	Area "B", fence line, 75' south and 100' west from pump station #3	Final Lift	1	5.4	127.4	96.2

REMARKS: Tests 108 through 110 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

SOIL TYPE	SOIL DESCRIPTION	OPTIMUM MOISTURE (%)	MAXIMUM DENSITY (pcf)	MOISTURE CONTENT REQUIRED (%)	% OF MAX DENSITY REQUIRED
(1)	Base Course	6.8	132.5	±2	95.0

LABORATORY TEST PROCEDURES: ASTM D 1557-00

FIELD TEST PROCEDURES: ASTM D 2922-96, D 3017-96

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW) INC.

Reviewed and Approved by

B. Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-62165

02/12/08 bej; HIGEOI2007\AEA07-057-01\M62165.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.





Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT OF FIELD ASPHALTIC COLD MIX CONCRETE NUCLEAR DENSITY TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

PROJECT NO.: AEA07-051-07 **DATE:** 03/03/08 **TECHNICIAN:** CP

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
111	Area "A" pad, 100' south and 20' west from pump station #1	Final	143.2	139.9	97.7	94.0
112	Area "A" pad, 10' north and 100' west from pump station #1	Final	143.2	138.6	96.8	94.0
113	Area "A" pad, 80' south and 30' west from northwest corner of storm tank #1	Final	143.2	139.3	97.3	94.0

REMARKS: Tests 111 thru -113 conform to project specifications.
PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

LABORATORY TEST PROCEDURES: *ASTM D 1559

FIELD TEST PROCEDURES: ASTM D 2950-91

*This standard discontinued by ASTM in 1998, used as required by project specifications or mix design submittal.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

B. Olague
 BERNARDINO OLAGUE
 81628
 LICENSED PROFESSIONAL ENGINEER

LABORATORY NO.: L-62206
 03/14/08 sw; H:\GEO\2007\AEA07-051-07\AN62206.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-62206 DATE: 03/03/08

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
114	Area "A" pad, 80' north and 20' east from northwest corner of storm tank #1	Final	143.2	139.6	97.5	94.0
115	Area "B" pad, 100' north and 20' west from pump station #3	Final	144.3	138.9	96.3	94.0
116	Area "B" pad, 220' south and 30' west from pump station #3	Final	144.3	139.7	96.8	94.0
117	Area "B" pad, 40' south and 100' east from pump station #3	Final	144.3	140.1	97.1	94.0
118	Area "B" pad, 280' east and 60' south from pump station #3	Final	144.3	138.5	96.0	94.0
119	Area "B" pad, 275' east and 20' south from pump station #3	Final	144.3	141.1	97.8	94.0
120	Area "B" to "C" pad, 340' north and 5' east from pump station "C"	Final	144.3	140.0	97.1	94.0
121	Area "B" to "C" pad, 280' north and 10' east from pump station "C"	Final	144.3	141.4	98.0	94.0
122	Area "C" pad, 60' north and 60' west from pump station "C"	Final	144.3	138.8	96.2	94.0
123	Area "C" pad, 100' south and 80' west from pump station "C"	Final	144.3	141.0	97.7	94.0
124	Area "C" pad, 280' south and 25' west from pump station "C"	Final	144.3	140.7	97.5	94.0
125	Area "C" pad, 10' north and 30' west from pump station #7	Final	144.3	139.2	96.5	94.0
126	Area "C" pad, 180' north and 5' east from pump station #7	Final	144.3	140.0	97.0	94.0

REMARKS: Tests 114 thru 126 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

PROJECT NO.: AEA07-051-07

LABORATORY NO.: L- L-62206

DATE: 03/03/08

MATERIAL TESTED: Hot Mix Asphaltic Concrete

TEST NO.	TEST LOCATION	LIFT NO./ ELEV.	MARSHALL DENSITY (pcf)	FIELD DENSITY (pcf)	% OF MARSHALL DENSITY	% OF MAX DENSITY REQUIRED
128	Area "D" pad, 200' north and 40' west from southeast corner of pad "D"	Final	140.4	135.2	96.3	94.0
129	Area "D" pad, 200' south and 50' west from northeast corner of pad "D"	Final	140.4	134.8	96.0	94.0
130	Area "D" pad, 40' south and 20' west from northeast corner of pad "D"	Final	140.4	136.3	97.1	94.0

REMARKS: Tests 128 thru 130 conform to project specifications.

PERSON(S) NOTIFIED: Mr. John Wedgeworth of JLD.

03/14/08 sw; HIGEO\2007\AEA07-051-07\AN62206.051.07

Appendix C Field Test Data and Material Certifications – Category II Capping

C.4 2007 Sieve Analyses and Laboratory Density Tests



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 11/20/07
CONSTRUCTION AREA: Area "A"
SAMPLING LOCATION: Plant Sample
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	100
1/2"	79-99	99
3/8"	68-88	*94
No. 4	48-68	*69
No. 8	33-53	46
No. 16	20-40	30
No. 30	14-30	20
No. 50	9-21	13
No. 100	6-16	7
No. 200	3-6	4.03
Bitumen Content (%)	N/A	8.27

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of gradation tolerance.

The material tested is for Asphaltic Cold Mix utilizing commercial aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved

B. Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-61008

12/12/07 bej; HIGEO\2007\AEA07-051-07\HOTMX61698.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.327	N/A
Unit Weight (pcf)	128.10	N/A
Air Voids (%):	11.8	N/A
Marshall Stability:	1840	N/A
Flow:	19.3	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra

PROJECT NO.: AEA07-051-07 **DATE:** 11/20/07

CONSTRUCTION AREA: Area "A"

SAMPLING LOCATION: Plant Sample

OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	100
1/2"	99
3/8"	94
No. 4	69
No. 8	46
No. 16	30
No. 30	20
No. 50	13
No. 100	7
No. 200	4.03
Bitumen Content (%)	8.27

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for Asphaltic Cold Mix utilizing commercial aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

Bernardino Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-61698
 12/12/07 bej; H:\GEO\2007\AEA07-051-07\HOTMX61698.051.G7



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61698 DATE: 11/20/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.327	N/A
Unit Weight (pcf)	128.10	N/A
Air Voids (%):	5.0	3.0-5.0
Marshall Stability:	1840	Minimum 1800
Flow:	16	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

SUPPLIER: Petra

PROJECT NO.: AEA07-051-07

DATE: 11/28/07

CONSTRUCTION AREA: Area "A"

SAMPLING LOCATION: 60' to 70' west and 0' to 25' north from southwest corner of storm water tank #1

OBTAINED AT: 100 tons

TECHNICIAN: CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	100
1/2"	79-99	*100
3/8"	68-88	*94
No. 4	48-68	*73
No. 8	33-53	51
No. 16	20-40	34
No. 30	14-30	26
No. 50	9-21	15
No. 100	6-16	8
No. 200	3-6	4.99
Bitumen Content (%)	N/A	8.19

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of gradation tolerance.

The material tested is for Asphaltic Cold Mix utilizing commercial aggregate

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

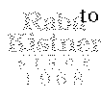
RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by

[Signature]
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-6170
 12/12/07 bej; HIGEO\2007\AEA07-051-07\HOTMX61703.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.291	N/A
Unit Weight (pcf)	130.0	N/A
Air Voids (%):	9.0	N/A
Marshall Stability:	1840	N/A
Flow:	19	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra

PROJECT NO.: AEA07-051-07 **DATE:** 11/28/07

CONSTRUCTION AREA: Area "A"

SAMPLING LOCATION: 60' to 70' west and 0' to 25' north from southwest corner of storm water tank #1

OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	100
1/2"	100
3/8"	94
No. 4	73
No. 8	51
No. 16	34
No. 30	26
No. 50	15
No. 100	8
No. 200	4.99
Bitumen Content (%)	8.19

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

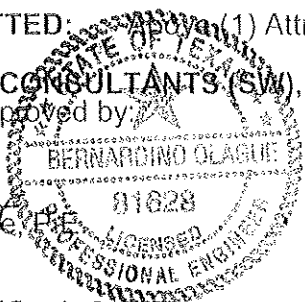
The material tested is for Asphaltic Cold Mix utilizing commercial aggregate

COPIES SUBMITTED: Approved (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bernardino Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-61703

12/12/07 bej; HIGEO\2007\AEA07-051-07\HOTMX61703.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61703 DATE: 11/28/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.291	N/A
Unit Weight (pcf)	130.0	N/A
Air Voids (%):	4.5	3.0-5.0
Marshall Stability:	1840	Minimum 1800
Flow:	16	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

SUPPLIER: Petra

PROJECT NO.: AEA07-051-07

DATE: 11/29/07

CONSTRUCTION AREA: Area "A"

SAMPLING LOCATION: 0' to 12' north and 0' to 20' west from northeast corner of storm water tank #1

OBTAINED AT: 583 tons

TECHNICIAN: CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	100
1/2"	79-99	99
3/8"	68-88	*93
No. 4	48-68	*73
No. 8	33-53	51
No. 16	20-40	34
No. 30	14-30	23
No. 50	9-21	14
No. 100	6-16	9
No. 200	3-6	5.3
Bitumen Content (%)	N/A	8.11

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

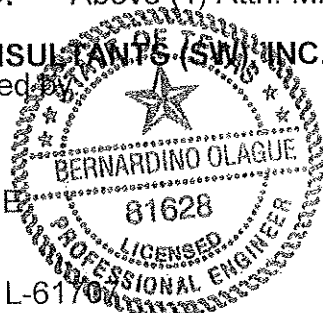
*Out of gradation tolerance.

The material tested is for Asphaltic Cold Mix utilizing commercial aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

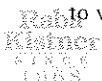
RABA-KISTNER CONSULTANTS (SW) INC.
 Reviewed and Approved

Bernardino Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-6170
 12/12/07 bej; HIGEO\2007\AEA07-051-07\HOTMX61707.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.270	N/A
Unit Weight (pcf)	129.4	N/A
Air Voids (%):	8.7	N/A
Marshall Stability:	1810	N/A
Flow:	17	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra

PROJECT NO.: AEA07-051-07 **DATE:** 11/29/07

CONSTRUCTION AREA: Area "A"

SAMPLING LOCATION: 0' to 12' north and 0' to 20' west from northeast corner of storm water tank #1

OBTAINED AT: 583 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	100
1/2"	99
3/8"	93
No. 4	73
No. 8	51
No. 16	34
No. 30	23
No. 50	14
No. 100	9
No. 200	5.3
Bitumen Content (%)	8.11

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for Asphaltic Cold Mix utilizing commercial aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

[Signature]
 BERNARDINO OLAGUE
 01628
 Bernardino Olague, P.E.
 Vice President
 PROFESSIONAL ENGINEER

LABORATORY NO.: L-61707

12/12/07 bej; H:\GEO\2007\AEA07-051-07\HOTMX61707.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61707 DATE: 11/29/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.270	N/A
Unit Weight (pcf)	129.4	N/A
Air Voids (%):	4.4	3.0-5.0
Marshall Stability:	1810	Minimum 1800
Flow:	16	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 11111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/04/07
CONSTRUCTION AREA: Area "B"
SAMPLING LOCATION: 60' to 72' north and 100' to 120' west from southeast corner of section "B"
OBTAINED AT: 200 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	100
1/2"	79-99	99
3/8"	68-88	*95
No. 4	48-68	*76
No. 8	33-53	52
No. 16	20-40	34
No. 30	14-30	23
No. 50	9-21	16
No. 100	6-16	10
No. 200	3-6	*6.3
Bitumen Content (%)	N/A	8.5

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of gradation tolerance.

The material tested is for Asphaltic Cold Mix utilizing commercial aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.

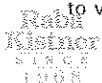
Reviewed and Approved by:

B. Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-011111
 12/12/07 bej; HIGEO\2007\AEA07-051-07\HOTMX61710.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.156	N/A
Unit Weight (pcf)	129.1	N/A
Air Voids (%):	4.0	N/A
Marshall Stability:	1520	N/A
Flow:	15	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra

PROJECT NO.: AEA07-051-07 **DATE:** 12/04/07

CONSTRUCTION AREA: Area "B"

SAMPLING LOCATION: 60' to 72' north and 100' to 120' west from southeast corner of section "B"

OBTAINED AT: 200 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	100
1/2"	99
3/8"	95
No. 4	76
No. 8	52
No. 16	34
No. 30	23
No. 50	16
No. 100	10
No. 200	6.3
Bitumen Content (%)	8.5


LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for Asphaltic Cold Mix utilizing commercial aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by


 Bernardino Olague, P.E.
 Vice President

LABORATORY NO.: 1710

12/12/07 bej; HIGEO\2007\AEA07-051-07\HOTMX61710.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61710 DATE: 12/04/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.156	N/A
Unit Weight (pcf)	129.1	N/A
Air Voids (%):	4.0	3.0-5.0
Marshall Stability:	1800	Minimum 1800
Flow:	15	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 11111, El Paso, TX 79999
SUPPLIER: Petra
PROJECT NO.: AEA07-051-07
DATE: 12/05/07
CONSTRUCTION AREA: Area "B"
SAMPLING LOCATION: 20' to 30' south and 40' to 60' east from south corner of storm pump station #3
OBTAINED AT: 300 tons
TECHNICIAN: CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	100
1/2"	79-99	99
3/8"	68-88	*96
No. 4	48-68	78
No. 8	33-53	*55
No. 16	20-40	36
No. 30	14-30	23
No. 50	9-21	13
No. 100	6-16	8
No. 200	3-6	5
Bitumen Content (%)	N/A	8.1

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

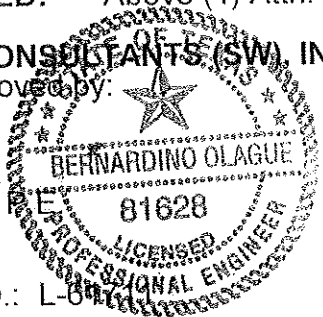
*Out of gradation tolerance.

The material tested is for Asphaltic Cold Mix utilizing commercial aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

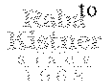
RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

Bernardino Olague
 Bernardino Olague,
 Vice President



LABORATORY NO.: L-04
 12/12/07 bej; HIGEO\2007\AEA07-051-07\HOTMX61711.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.101	N/A
Unit Weight (pcf)	127.1	N/A
Air Voids (%):	3.0	N/A
Marshall Stability:	2500	N/A
Flow:	15	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

SUPPLIER: Petra

PROJECT NO.: AEA07-051-07

DATE: 12/05/07

CONSTRUCTION AREA: Area "B"

SAMPLING LOCATION: 20' to 30' south and 40' to 60' east from south corner of storm pump station #3

OBTAINED AT: 300 tons

TECHNICIAN: CP

Sieve Size	Sieve Analysis % Passing by Weight
3/4"	100
1/2"	99
3/8"	96
No. 4	78
No. 8	55
No. 16	36
No. 30	23
No. 50	13
No. 100	8
No. 200	5
Bitumen Content (%)	8.1

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for Asphaltic Cold Mix utilizing commercial aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

Bernardino Olague
 Bernardino Olague
 Vice President

LABORATORY NO.: L-61711

12/12/07 bej; HIGEO\2007\AEA07-051-07\HOTMX61711.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61711 DATE: 12/05/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.101	N/A
Unit Weight (pcf)	127.1	N/A
Air Voids (%):	3.0	3.0-5.0
Marshall Stability:	2500	Minimum 1800
Flow:	15	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

REPORT ON LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra

PROJECT NO.: AEA07-051-07 **DATE:** 12/06/07

CONSTRUCTION AREA: Area "B"

SAMPLING LOCATION: 30' to 40' west and 60' to 70' north from northwest corner of pump station #7

OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	100
1/2"	79-99	*100
3/8"	68-88	*96
No. 4	48-68	*77
No. 8	33-53	52
No. 16	20-40	33
No. 30	14-30	22
No. 50	9-21	14
No. 100	6-16	8
No. 200	3-6	5.6
Bitumen Content (%)	N/A	6.0

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of specification tolerance.

The material tested is for low permeability cold mix asphaltic concrete using commercially supplied aggregates.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
ODM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


BERNARDINO OLAGUE
81628
Bernardino Olague, P.E.
Vice President
PROFESSIONAL ENGINEER

LABORATORY NO.: L-61712

01/09/08 bej; OIGEO\2007\AEA07-051-07\HOTMX61712.051.07

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.268	N/A
Unit Weight (pcf)	126.8	N/A
Air Voids (%):	10.4	N/A
Marshall Stability:	1780	N/A
Flow:	13	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 11111, El Paso, TX 79999 **SUPPLIER:** Petra

PROJECT NO.: AEA07-051-07 **DATE:** 12/06/07

CONSTRUCTION AREA: Area "B"

SAMPLING LOCATION: 30' to 40' west and 60' to 70' north from northwest corner of pump station #7

OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	100
1/2"	100
3/8"	96
No. 4	77
No. 8	52
No. 16	33
No. 30	22
No. 50	14
No. 100	8
No. 200	5.6
Bitumen Content (%)	6.0

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for low permeability cold mix asphaltic concrete using commercially supplied aggregates.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 GDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bernardino Olague
 Bernardino Olague, P.E.
 Vice President

LABORATORY NO.: L-61712

01/09/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX61712.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61712 DATE: 12/06/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.268	N/A
Unit Weight (pcf)	126.8	N/A
Air Voids (%):	5.2	3.0-5.0
Marshall Stability:	1800	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 11111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/07/07
CONSTRUCTION AREA: Area "C"
SAMPLING LOCATION: 120' west and 30' south from pump station #6
OBTAINED AT: 200 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	99
1/2"	79-99	98
3/8"	68-88	*94
No. 4	48-68	*76
No. 8	33-53	53
No. 16	20-40	35
No. 30	14-30	23
No. 50	9-21	15
No. 100	6-16	9
No. 200	3-6	6.0
Bitumen Content (%)	N/A	6.9

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of specification tolerance.

The material tested is for low permeability cold mix asphaltic concrete using commercially supplied aggregates.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

BO

 BERNARDINO OLAGUE
 P-51628
 Licensed Professional Engineer

LABORATORY NO: 01/09/08 bej; O\GEO\2007\AEA07-051-07\HOTMX61716.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.271	N/A
Unit Weight (pcf)	128.6	N/A
Air Voids (%):	9.2	N/A
Marshall Stability:	1840	N/A
Flow:	15	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/07/07
CONSTRUCTION AREA: Area "C"
SAMPLING LOCATION: 120' west and 30' south from pump station #6
OBTAINED AT: 200 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	99
1/2"	98
3/8"	94
No. 4	76
No. 8	53
No. 16	35
No. 30	23
No. 50	15
No. 100	9
No. 200	6.0
Bitumen Content (%)	6.9

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for low permeability cold mix asphaltic concrete using commercially supplied aggregates.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

B. Olague
 Bernardino Olague
 Vice President

LABORATORY NO.: L-61716

01/09/08 bej: O:\GEO\2007\AEA07-051-07\HOTMX61716.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61716 DATE: 12/07/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.271	N/A
Unit Weight (pcf)	128.6	N/A
Air Voids (%):	4.6	3.0-5.0
Marshall Stability:	1840	Minimum 1800
Flow:	15	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/13/07
CONSTRUCTION AREA: Area "B"
SAMPLING LOCATION: 200' to 220' north and 0' to 12' west from pump station #6
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	100
1/2"	79-99	99
3/8"	68-88	*93
No. 4	48-68	*72
No. 8	33-53	50
No. 16	20-40	33
No. 30	14-30	21
No. 50	9-21	12
No. 100	6-16	8
No. 200	3-6	4.8
Bitumen Content (%)	N/A	5.6

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of specification tolerance.

The material tested is for low permeability cold mix asphaltic concrete using commercially supplied aggregates.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bernardino Olague
 BERNARDINO OLAGUE
 91628
 Vice President
 LICENSED PROFESSIONAL ENGINEER

LABORATORY NUMBER: 161725

01/09/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX61725.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.264	N/A
Unit Weight (pcf)	129.1	N/A
Air Voids (%):	8.6	N/A
Marshall Stability:	1780	N/A
Flow:	16	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/13/07
CONSTRUCTION AREA: Area "B"
SAMPLING LOCATION: 200' to 220' north and 0' to 12' west from pump station #6
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	100
1/2"	99
3/8"	93
No. 4	72
No. 8	50
No. 16	33
No. 30	21
No. 50	12
No. 100	8
No. 200	4.8
Bitumen Content (%)	5.6

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for low permeability cold mix asphaltic concrete using commercially supplied aggregates.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bernardino Olague
 Bernardino Olague
 Vice President

LABORATORY NO.: L
 01/09/08 bej; O:\GEO\2007\AEA07-051-07\HOT\MX61725.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61725 DATE: 12/13/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.264	N/A
Unit Weight (pcf)	129.1	N/A
Air Voids (%):	4.3	3.0-5.0
Marshall Stability:	1800	Minimum 1800
Flow:	16	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/14/07
CONSTRUCTION AREA: Area "C"
SAMPLING LOCATION: 220' north and 20' east from pump station #7
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	100
1/2"	79-99	*100
3/8"	68-88	*92
No. 4	48-68	68
No. 8	33-53	46
No. 16	20-40	31
No. 30	14-30	20
No. 50	9-21	13
No. 100	6-16	8
No. 200	3-6	5.0
Bitumen Content (%)	N/A	5.91

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of specification tolerance.

The material tested is for low permeability cold mix asphaltic concrete using commercially supplied aggregates.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 BDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

BA
 BERNARDINO OLAGUE
 81628
 Bernardino Olague, P.E.
 Vice President
 PROFESSIONAL ENGINEER

LABORATORY NO.: L-61872

01/09/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX61872.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.320	N/A
Unit Weight (pcf)	131.0	N/A
Air Voids (%):	9.5	N/A
Marshall Stability:	1680	N/A
Flow:	14	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON LOW PERMEABILITY COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/14/07
CONSTRUCTION AREA: Area "C"
SAMPLING LOCATION: 220' north and 20' east from pump station #7
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	100
1/2"	100
3/8"	92
No. 4	68
No. 8	46
No. 16	31
No. 30	20
No. 50	13
No. 100	8
No. 200	5.0
Bitumen Content (%)	5.91

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for low permeability cold mix asphaltic concrete using commercially supplied aggregates.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

Bej
 Bernardino Olague
 Vice President

LABORATORY NO.: L-61872
 01/09/08 bej: O:\GEO\2007\AEA07-051-07\HOTMX61872.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61872 DATE: 12/14/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.320	N/A
Unit Weight (pcf)	131.0	N/A
Air Voids (%):	4.8	3.0-5.0
Marshall Stability:	1880	Minimum 1800
Flow:	14	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/17/07
CONSTRUCTION AREA: Area "A" POM-A
SAMPLING LOCATION: 20' to 25' east and 40' to 50' south from pump station #3
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	100
1/2"	79-99	99
3/8"	68-88	*89
No. 4	48-68	65
No. 8	33-53	44
No. 16	20-40	29
No. 30	14-30	19
No. 50	9-21	12
No. 100	6-16	8
No. 200	3-6	5.0
Bitumen Content (%)	N/A	5.01

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of specification tolerance.

The material tested is for POM-A cold mix asphaltic concrete using commercially supplied aggregates.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

Bernardino Olague
 BERNARDINO OLAGUE
 81628
 Bernardino Olague, P.E.
 Vice President
 LICENSED PROFESSIONAL ENGINEER

LABORATORY NO.: E-81876

01/09/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX61876.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.302	N/A
Unit Weight (pcf)	131.5	N/A
Air Voids (%):	8.5	N/A
Marshall Stability:	2510	N/A
Flow:	14	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/17/07
CONSTRUCTION AREA: Area "A" POM-A
SAMPLING LOCATION: 20' to 25' east and 40' to 50' south from pump station #3
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	100
1/2"	99
3/8"	89
No. 4	65
No. 8	44
No. 16	29
No. 30	19
No. 50	12
No. 100	8
No. 200	5.0
Bitumen Content (%)	5.01

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

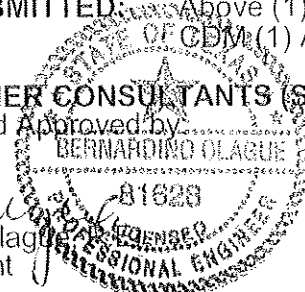
The material tested is for POM-A cold mix asphaltic concrete using commercially supplied aggregates.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

B. Olague
 Bernardino Olague
 Vice President



LABORATORY NO.: L-61876

01/09/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX61876.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61876 DATE: 12/17/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.302	N/A
Unit Weight (pcf)	131.5	N/A
Air Voids (%):	4.3	3.0-5.0
Marshall Stability:	2510	Minimum 1800
Flow:	14	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/18/07
CONSTRUCTION AREA: Area "A" POM-A
SAMPLING LOCATION: 10' to 15' south and 30' to 40' west from pump station #1
OBTAINED AT: 200 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	100
1/2"	79-99	86
3/8"	68-88	83
No. 4	48-68	*76
No. 8	33-53	53
No. 16	20-40	34
No. 30	14-30	22
No. 50	9-21	13
No. 100	6-16	8
No. 200	3-6	5.0
Bitumen Content (%)	N/A	7.14

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of specification tolerance.

The material tested is for POM-A cold mix asphaltic concrete using commercially supplied aggregates.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

BO
 BERNARDINO OLAGUE
 Bernardino Olague, P.E. 28
 Vice President
 LICENSED PROFESSIONAL ENGINEER

LABORATORY NUMBER: 61878

01/09/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX61878.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.300	N/A
Unit Weight (pcf)	131.0	N/A
Air Voids (%):	8.7	N/A
Marshall Stability:	2440	N/A
Flow:	14	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/18/07
CONSTRUCTION AREA: Area "A" POM-A
SAMPLING LOCATION: 10' to 15' south and 30' to 40' west from pump station #1
OBTAINED AT: 200 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	100
1/2"	86
3/8"	83
No. 4	76
No. 8	53
No. 16	34
No. 30	22
No. 50	13
No. 100	8
No. 200	5.0
Bitumen Content (%)	7.14

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for POM-A cold mix asphaltic concrete using commercially supplied aggregates.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 Above (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

Bernardino Olague
 BERNARDINO OLAGUE
 81028
 LICENSED PROFESSIONAL ENGINEER

LABORATORY NO.: L-01878

01/09/08 bej; O:\GEO\2007\AEA07-051-07\I\TMX61878.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61878 DATE: 12/18/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.300	N/A
Unit Weight (pcf)	131.0	N/A
Air Voids (%):	4.4	3.0-5.0
Marshall Stability:	2440	Minimum 1800
Flow:	14	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/19/07
CONSTRUCTION AREA: Area "A" POM-A
SAMPLING LOCATION: 15' to 20' north and 5' to 10' east from pump station #1
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*96
1/2"	79-99	*74
3/8"	68-88	68
No. 4	48-68	59
No. 8	33-53	39
No. 16	20-40	26
No. 30	14-30	17
No. 50	9-21	10
No. 100	6-16	6
No. 200	3-6	4
Bitumen Content (%)	N/A	7.2

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of gradation specification tolerance.

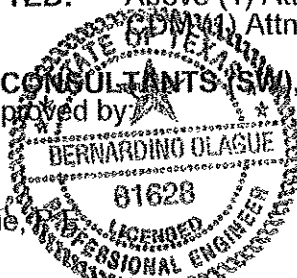
The material tested is a POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
CDM41 Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague,
Vice President



LABORATORY NO.: L-61879

01/29/08 bej; OIGEO\2007\AEA07-051-07\HOTMX61879.051.07

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.445	N/A
Unit Weight (pcf)	127.6	N/A
Air Voids (%):	16.4	N/A
Marshall Stability:	2410	N/A
Flow:	15	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/19/07
CONSTRUCTION AREA: Area "A" POM-A
SAMPLING LOCATION: 15' to 20' north and 5' to 10' east from pump station #1
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	96
1/2"	74
3/8"	68
No. 4	59
No. 8	39
No. 16	26
No. 30	17
No. 50	10
No. 100	6
No. 200	4
Bitumen Content (%)	7.2

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is a POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bernardino Olague
 Bernardino Olague
 Vice President

LABORATORY NO.: L-61879

01/29/08 bej: O:\GEO\2007\AEA07-051-07\HOTMX61879.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61879 DATE: 12/19/07

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.445	N/A
Unit Weight (pcf)	127.6	N/A
Air Voids (%):	4.6	3.0-5.0
Marshall Stability:	2410	Minimum 1800
Flow:	15	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/20/07
CONSTRUCTION AREA: Area "A", POM-A
SAMPLING LOCATION: 30' to 40' north and 0' to 10' west from storm water tank #2
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*99
1/2"	79-99	88
3/8"	68-88	71
No. 4	48-68	64
No. 8	33-53	44
No. 16	20-40	27
No. 30	14-30	18
No. 50	9-21	11
No. 100	6-16	7
No. 200	3-6	4.5
Bitumen Content (%)	N/A	6.8

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of gradation specification tolerance

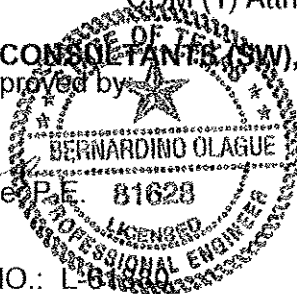
The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

Bernardino Olague
Bernardino Olague, P.E. 81628
Vice President



LABORATORY NO.: L-6160
01/29/08 bej; OIGEO\2007\AEA07-051-07\HOTMX61880.051.07

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.





Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 12/20/07
CONSTRUCTION AREA: Area "A", POM-A
SAMPLING LOCATION: 30' to 40' north and 0' to 10' west from storm water tank #2
OBTAINED AT: 100 tons **TECHNICIAN:** CP


<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	99
1/2"	88
3/8"	71
No. 4	64
No. 8	44
No. 16	27
No. 30	18
No. 50	11
No. 100	7
No. 200	4.5
Bitumen Content (%)	6.8


LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

 Bernardino Olague
 Vice President



LABORATORY NO.: L-61880
 01/29/08 bej, O:\GEO\2007\AEA07-051-07\HOTMX61880.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.444	N/A
Unit Weight (pcf)	127.9	N/A
Air Voids (%):	4.6	3.0-5.0
Marshall Stability:	2380	Minimum 1800
Flow:	15	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra

PROJECT NO.: AEA07-051-07 **DATE:** 01/02/08

CONSTRUCTION AREA: Area "B", POM-A

SAMPLING LOCATION: 160' to 175' west and 10' to 20' north from pump station #3

OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*99
1/2"	79-99	*76
3/8"	68-88	68
No. 4	48-68	56
No. 8	33-53	37
No. 16	20-40	24
No. 30	14-30	16
No. 50	9-21	11
No. 100	6-16	7
No. 200	3-6	4.4
Bitumen Content (%)	N/A	5.1

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of gradation specification tolerance

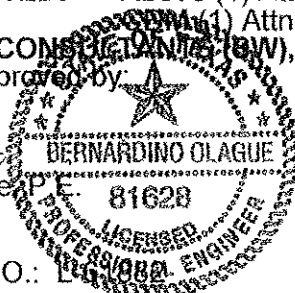
The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
(1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


Bernardino Olague
Vice President



LABORATORY NO.: L101082
01/29/08 bej; O\GEO\2007\AEA07-051-07\HOTMX61882.051.07

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.437	N/A
Unit Weight (pcf)	137.2	N/A
Air Voids (%):	9.8	N/A
Marshall Stability:	2910	N/A
Flow:	13	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra

PROJECT NO.: AEA07-051-07 **DATE:** 01/02/08

CONSTRUCTION AREA: Area "B", POM-A

SAMPLING LOCATION: 160' to 175' west and 10' to 20' north from pump station #3

OBTAINED AT: 100 tons **TECHNICIAN:** CP

Sieve Size	Sieve Analysis % Passing by Weight
3/4"	99
1/2"	76
3/8"	68
No. 4	56
No. 8	37
No. 16	24
No. 30	16
No. 50	11
No. 100	7
No. 200	4.4
Bitumen Content (%)	5.1

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bernardino Olague
 BERNARDINO OLAGUE
 81628
 PROFESSIONAL ENGINEER

LABORATORY NO.: L-61882

01/29/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX61882.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61882 DATE: 01/02/08

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.437	N/A
Unit Weight (pcf)	137.2	N/A
Air Voids (%):	4.6	3.0-5.0
Marshall Stability:	2910	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra

PROJECT NO.: AEA07-051-07 **DATE:** 01/03/08

CONSTRUCTION AREA: Area "B", POM-A

SAMPLING LOCATION: 100' to 110' west and 75' to 85' south from pump station #3

OBTAINED AT: 200 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*99
1/2"	79-99	*68
3/8"	68-88	*61
No. 4	48-68	*46
No. 8	33-53	*31
No. 16	20-40	20
No. 30	14-30	14
No. 50	9-21	10
No. 100	6-16	7
No. 200	3-6	44
Bitumen Content (%)	N/A	4.8

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of gradation specification tolerance

The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-01610
01/29/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX61883.051.07

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.455	N/A
Unit Weight (pcf)	143.2	N/A
Air Voids (%):	6.5	N/A
Marshall Stability:	3960	N/A
Flow:	11	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/03/08
CONSTRUCTION AREA: Area "B", POM-A
SAMPLING LOCATION: 100' to 110' west and 75' to 85' south from pump station #3
OBTAINED AT: 200 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	99
1/2"	68
3/8"	61
No. 4	46
No. 8	31
No. 16	20
No. 30	14
No. 50	10
No. 100	7
No. 200	44
Bitumen Content (%)	4.8

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

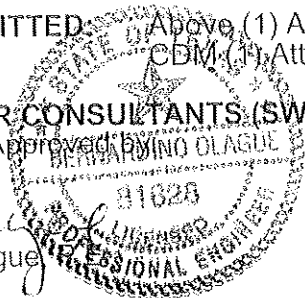
The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

 Bernardino Olague
 Vice President



LABORATORY NO.: L-61883
 01/29/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX61883.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.455	N/A
Unit Weight (pcf)	143.2	N/A
Air Voids (%):	3.3	3.0-5.0
Marshall Stability:	3960	Minimum 1800
Flow:	11	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999

SUPPLIER: Petra

PROJECT NO.: AEA07-051-07

DATE: 01/04/08

CONSTRUCTION AREA: Area "B"

SAMPLING LOCATION: 40' to 60' east from pump station #3

OBTAINED AT: 200 tons

TECHNICIAN: CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*99
1/2"	79-99	*77
3/8"	68-88	*67
No. 4	48-68	*40
No. 8	33-53	*25
No. 16	20-40	*16
No. 30	14-30	*11
No. 50	9-21	*8
No. 100	6-16	6
No. 200	3-6	3.8
Bitumen Content (%)	N/A	4.6

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

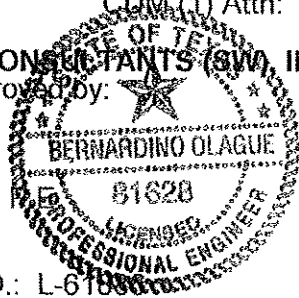
*Out of gradation specification tolerance

The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
Reviewed and Approved by:

Bernardino Olague
Bernardino Olague,
Vice President



LABORATORY NO.: L-61886

01/29/08 bej; OIGEO\2007\AEA07-051-07\HOTMX61886.051.07

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.501	N/A
Unit Weight (pcf)	146.0	N/A
Air Voids (%):	6.4	N/A
Marshall Stability:	3730	N/A
Flow:	12	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra

PROJECT NO.: AEA07-051-07 **DATE:** 01/04/08

CONSTRUCTION AREA: Area "B"

SAMPLING LOCATION: 40' to 60' east from pump station #3

OBTAINED AT: 200 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	99
1/2"	77
3/8"	67
No. 4	40
No. 8	25
No. 16	16
No. 30	11
No. 50	8
No. 100	6
No. 200	3.8
Bitumen Content (%)	4.6

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

[Signature]
 BERNARDINO OLAGUE
 Bernardino Olague, P.E.
 Vice President
 PROFESSIONAL ENGINEER

LABORATORY NO.: L-61886

01/29/08 bej: O:\GEO\2007\AEA07-051-07\HOTMX61886.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61886 DATE: 01/04/08

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.501	N/A
Unit Weight (pcf)	146.0	N/A
Air Voids (%):	3.2	3.0-5.0
Marshall Stability:	3730	Minimum 1800
Flow:	12	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/07/08
CONSTRUCTION AREA: Area "B-C" POM-A
SAMPLING LOCATION: 300' south and 10' west from pump station #3
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*99
1/2"	79-99	81
3/8"	68-88	73
No. 4	48-68	49
No. 8	33-53	33
No. 16	20-40	21
No. 30	14-30	*11
No. 50	9-21	10
No. 100	6-16	8
No. 200	3-6	5.0
Bitumen Content (%)	N/A	4.31

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of gradation specification tolerance

The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

B. Olague
 Bernardino Olague P.E.
 Vice President



LABORATORY NO.: L-61887

02/12/08 bej: OIGEO\2007\AEA07-051-07\HOTMX61887\001.rpt

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.472	N/A
Unit Weight (pcf)	146.5	N/A
Air Voids (%):	5.0	N/A
Marshall Stability:	3910	N/A
Flow:	9	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/07/08
CONSTRUCTION AREA: Area "B-C" POM-A
SAMPLING LOCATION: 300' south and 10' west from pump station #3
OBTAINED AT: 100 tons **TECHNICIAN:** CP

Sieve Size	Sieve Analysis % Passing by Weight
3/4"	99
1/2"	81
3/8"	73
No. 4	49
No. 8	33
No. 16	21
No. 30	11
No. 50	10
No. 100	8
No. 200	5.0
Bitumen Content (%)	4.31

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98


The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: 3 Above (1) Attn: Mr. Arturo Burgos
 1 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bernardino Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-61887

02/12/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX61887.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61887 DATE: 01/07/08

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.472	N/A
Unit Weight (pcf)	146.5	N/A
Air Voids (%):	5.0	3.0-5.0
Marshall Stability:	3910	Minimum 1800
Flow:	9	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/08/08
CONSTRUCTION AREA: Area "C" POM-A
SAMPLING LOCATION: 250' south and 25' west from pump station #6
OBTAINED AT: 200 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*98
1/2"	79-99	85
3/8"	68-88	79
No. 4	48-68	52
No. 8	33-53	33
No. 16	20-40	22
No. 30	14-30	15
No. 50	9-21	11
No. 100	6-16	8
No. 200	3-6	5.3
Bitumen Content (%)	N/A	3.97

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of gradation specification tolerance
 The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDMSP Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by

Bernardino Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-61888
 02/12/08 bej; OIGEO\2007\AEA07-051-07\HOTMX61888.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.469	N/A
Unit Weight (pcf)	149.6	N/A
Air Voids (%):	2.9	N/A
Marshall Stability:	3690	N/A
Flow:	13	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 11111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/08/08
CONSTRUCTION AREA: Area "C" POM-A
SAMPLING LOCATION: 250' south and 25' west from pump station #6
OBTAINED AT: 200 tons **TECHNICIAN:** CP

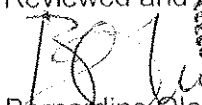

Sieve Size	Sieve Analysis % Passing by Weight
3/4"	98
1/2"	85
3/8"	79
No. 4	52
No. 8	33
No. 16	22
No. 30	15
No. 50	11
No. 100	8
No. 200	5.3
Bitumen Content (%)	3.97

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: 1 Above (1) Attn: Mr. Arturo Burgos
 1 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

 Bernardino Olague
 Vice President


LABORATORY NO.: L-61888
 02/12/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX61888.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61888 DATE: 01/08/08

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.469	N/A
Unit Weight (pcf)	149.6	N/A
Air Voids (%):	3.0	3.0-5.0
Marshall Stability:	3690	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/09/08
CONSTRUCTION AREA: Area "C" POM-A
SAMPLING LOCATION: 100' north and 30' east from pump station #7
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*99
1/2"	79-99	80
3/8"	68-88	70
No. 4	48-68	*44
No. 8	33-53	*29
No. 16	20-40	20
No. 30	14-30	14
No. 50	9-21	11
No. 100	6-16	8
No. 200	3-6	4.9
Bitumen Content (%)	N/A	4.6

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of gradation specification tolerance

The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDMAA Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by

B. Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-61889
 02/12/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX61889.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.475	N/A
Unit Weight (pcf)	146.0	N/A
Air Voids (%):	5.5	N/A
Marshall Stability:	3600	N/A
Flow:	13	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 11111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/09/08
CONSTRUCTION AREA: Area "C" POM-A
SAMPLING LOCATION: 100' north and 30' east from pump station #7
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	99
1/2"	80
3/8"	70
No. 4	44
No. 8	29
No. 16	20
No. 30	14
No. 50	11
No. 100	8
No. 200	4.9
Bitumen Content (%)	4.6

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

[Signature]
 Bernardino Olague, P.E. 01028
 Vice President

LABORATORY NO.: L-01889

02/12/08 bej: O:\GE\2007\AEA07-051-07\HOTMX61889.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61889 DATE: 01/09/08

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.475	N/A
Unit Weight (pcf)	146.0	N/A
Air Voids (%):	5.0	3.0-5.0
Marshall Stability:	3600	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/10/08
CONSTRUCTION AREA: Area "C" POM-A
SAMPLING LOCATION: 20' south and 10' west from pump station #6
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*99
1/2"	79-99	81
3/8"	68-88	73
No. 4	48-68	48
No. 8	33-53	33
No. 16	20-40	21
No. 30	14-30	*11
No. 50	9-21	9
No. 100	6-16	7
No. 200	3-6	4.2
Bitumen Content (%)	N/A	4.1

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98


*Out of gradation specification tolerance

The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:


 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-61890
 02/12/08 bej, O\GEO\2007\AEA07-051-07\HOTM\021208\05107

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.471	N/A
Unit Weight (pcf)	146.8	N/A
Air Voids (%):	4.8	N/A
Marshall Stability:	3750	N/A
Flow:	13	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra

PROJECT NO.: AEA07-051-07 **DATE:** 01/10/08

CONSTRUCTION AREA: Area "C" POM-A

SAMPLING LOCATION: 20' south and 10' west from pump station #6

OBTAINED AT: 100 tons **TECHNICIAN:** CP

Sieve Size	Sieve Analysis % Passing by Weight
3/4"	99
1/2"	81
3/8"	73
No. 4	48
No. 8	33
No. 16	21
No. 30	11
No. 50	9
No. 100	7
No. 200	4.2
Bitumen Content (%)	4.1

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

[Signature]
 Bernardino Olague
 Vice President

LABORATORY NO.:
 02/12/08 bej; OYGE0\2007\AEA07-051-07\HOTMX61890.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.471	N/A
Unit Weight (pcf)	146.8	N/A
Air Voids (%):	4.8	3.0-5.0
Marshall Stability:	3750	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/11/08
CONSTRUCTION AREA: Area "C" POM-A
SAMPLING LOCATION: 35' west and 10' north from pump station #7
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*99
1/2"	79-99	87
3/8"	68-88	78
No. 4	48-68	49
No. 8	33-53	*29
No. 16	20-40	20
No. 30	14-30	14
No. 50	9-21	10
No. 100	6-16	7
No. 200	3-6	4.8
Bitumen Content (%)	N/A	4.19

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of gradation specification tolerance

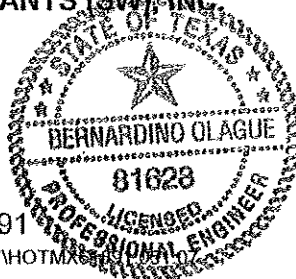
The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW) INC.

Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-61891

02/12/08 bej; O:\GEO\2007\AEA07-051-07\HOTM\

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.439	N/A
Unit Weight (pcf)	146.0	N/A
Air Voids (%):	4.1	N/A
Marshall Stability:	4130	N/A
Flow:	11	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/11/08
CONSTRUCTION AREA: Area "C" POM-A
SAMPLING LOCATION: 35' west and 10' north from pump station #7
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	99
1/2"	87
3/8"	78
No. 4	49
No. 8	29
No. 16	20
No. 30	14
No. 50	10
No. 100	7
No. 200	4.8
Bitumen Content (%)	4.19

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested is for POM-A Cold Mix Asphaltic Concrete using commercially supplied aggregate.

COPIES SUBMITTED: 3 Above (1) Attn: Mr. Arturo Burgos
 (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

[Signature]
 Bernardino Olague, P.E. 1822
 Vice President


LABORATORY NO.: L001891
 02/12/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX61891.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-61891

DATE: 01/11/08

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.439	N/A
Unit Weight (pcf)	146.0	N/A
Air Voids (%):	4.1	3.0-5.0
Marshall Stability:	4130	Minimum 1800
Flow:	11	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79916
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/16/08
CONSTRUCTION AREA: Area "A"
SAMPLING LOCATION: 30' to 40' south and 0' to 10' west from pump station #1
OBTAINED AT: 10 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Job Mix Formula</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	86-100	98
1/2"	83-97	92
3/8"	74-90	81
No. 4	50-75	51
No. 8	34-46	37
No. 16	24-38	28
No. 30	16-28	20
No. 50	8-18	11
No. 100	3-9	4
No. 200	1.0-6.0	2.3
Bitumen Content (%)	4.5-5.5	4.8

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

B. Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-62148
 02/12/08 bej, OIGEO\2007\AEA07-051-07\HOTMX62148.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.358	N/A
Unit Weight (pcf)	140.6	N/A
Air Voids (%):	4.5	3.0-5.0
Marshall Stability:	3000	Minimum 1800
Flow:	12	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/21/08
CONSTRUCTION AREA: Area "A"
SAMPLING LOCATION: 10' north and 5' west from pump station #1
OBTAINED AT: 10 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Job Mix Formula</u>	<u>Sieve Analysis</u> <u>% Passing by Weight</u>
3/4"	86-100	99
1/2"	83-97	96
3/8"	74-90	87
No. 4	50-75	63
No. 8	34-46	44
No. 16	24-38	32
No. 30	16-28	22
No. 50	8-18	12
No. 100	3-9	6
No. 200	1.0-8.0	3.9
Bitumen Content (%)	4.5-5.5	4.8

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM, Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

B. Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-62153
 02/12/08 bej; OIGEO\2007\AEA07-051-07\HOTMX62153.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.365	N/A
Unit Weight (pcf)	140.1	N/A
Air Voids (%):	5.0	3.0-5.0
Marshall Stability:	2800	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra

PROJECT NO.: AEA07-051-07 **DATE:** 01/22/08

CONSTRUCTION AREA: Area "A"

SAMPLING LOCATION: 30' west and 40' south from pump station #3

OBTAINED AT: 10 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	86-100	99
1/2"	93-97	95
3/8"	74-90	87
No. 4	50-75	62
No. 8	34-46	46
No. 16	24-36	34
No. 30	16-28	25
No. 50	8-18	14
No. 100	3-9	6
No. 200	1.0-8.0	3.8
Bitumen Content (%)	4.5-5.5	4.5

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW) INC.
Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-62156
02/12/08 bej; OIGEO\2007\AEA07-051-07\HOTMX62156.051.07

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.377	N/A
Unit Weight (pcf)	141.7	N/A
Air Voids (%):	4.5	3.0-5.0
Marshall Stability:	3210	Minimum 1800
Flow:	12	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
7002 Commerce
El Paso, Texas 79915
(915) 778-5233 • FAX (915) 779-8301
www.rkci.com

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
P.O. Box 1111, El Paso, TX 79999 SUPPLIER: Petra
PROJECT NO.: AEA07-051-07 DATE: 01/25/08
CONSTRUCTION AREA: Area "A"
SAMPLING LOCATION: 20' south and 60' west from pump station #3
OBTAINED AT: 21 tons TECHNICIAN: CP


<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	86-100	100
1/2"	83-97	96
3/8"	74-90	89
No. 4	50-75	67
No. 8	34-46	49
No. 16	24-36	35
No. 30	16-28	25
No. 50	8-18	14
No. 100	3-9	7
No. 200	1.0-8.0	4.5
Bitumen Content (%)	4.5-5.5	5.5

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
Reviewed and Approved by:


Bernardino Olague, P.E.
Vice President



LABORATORY NO.: L-62158

02/15/08 bej; OIGEO\2007\AEA07-051-07\HOTMX62158.051.07

Page 1 of 2

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.384	N/A
Unit Weight (pcf)	142.6	N/A
Air Voids (%):	4.1	N/A
Marshall Stability:	3400	N/A
Flow:	14	N/A

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON LOW PERM MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

SUPPLIER: Petra

PROJECT NO.: AEA07-051-07

DATE: 01/26/08

CONSTRUCTION AREA: Area "D" Low Perm

SAMPLING LOCATION: 275' to 300' north and 0' to 10' east from southwest corner of Area "D" pad

OBTAINED AT: 10 tons

TECHNICIAN: CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	100
1/2"	79-99	99
3/8"	68-88	84
No. 4	48-68	*44
No. 8	33-53	28
No. 16	20-40	20
No. 30	14-30	14
No. 50	9-21	10
No. 100	6-16	7
No. 200	3-6	4.7
Bitumen Content (%)	N/A	4.69

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*Out of gradation specification tolerance

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

Bernardino Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-62150
 02/12/08 bej; O\GEO\2007\AEA07-051-07\HOTM\SEC000001.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.418	N/A
Unit Weight (pcf)	145.5	N/A
Air Voids (%):	3.6	3.0-5.0
Marshall Stability:	1950	Minimum 1800
Flow:	15	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON LOW-PERM MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/29/08
CONSTRUCTION AREA: Area "D"
SAMPLING LOCATION: 0' to 15' south and 12' to 25' west from northeast corner of Area "D"
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	100
1/2"	79-99	*100
3/8"	68-88	*89
No. 4	48-68	55
No. 8	33-53	37
No. 16	20-40	26
No. 30	14-30	20
No. 50	9-21	15
No. 100	6-16	9
No. 200	3-6	5.1
Bitumen Content (%)	N/A	6.8

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98


*The material tested does not conform to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

Bernardino Olague
 Bernardino Olague
 Vice President



LABORATORY NO. 1-62-16
 02/20/08 bej; DIGEO\2007\AEA07-051-07\HOTMX62161.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.501	N/A
Unit Weight (pcf)	136.1	N/A
Air Voids (%):	*12.9	3.0-5.0
Marshall Stability:	2050	Minimum 1800
Flow:	14	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

*The material tested does not conform to project specifications.



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON LOW PERM MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 11111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/30/08
CONSTRUCTION AREA: Area "D"
SAMPLING LOCATION: 30' to 40' north and 20' to 30' east from southwest corner of Area "D"
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*97
1/2"	79-99	79
3/8"	68-88	69
No. 4	48-68	*46
No. 8	33-53	*30
No. 16	20-40	20
No. 30	14-30	14
No. 50	9-21	11
No. 100	6-16	7
No. 200	3-6	4.7
Bitumen Content (%)	N/A	7.0

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*The material tested does not conform to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

B. Olague
 Bernardino Olague, P.E. 6162B
 Vice President

LABORATORY NO.: 02/20/08 bej; OIGEO12007\AEA07-051-07\HOTMX62162.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.444	N/A
Unit Weight (pcf)	136.0	N/A
Air Voids (%):	*10.8	3.0-5.0
Marshall Stability:	1600	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

*The material tested does not conform to project specifications.



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 11111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 01/30/08
CONSTRUCTION AREA: Area "B"
SAMPLING LOCATION: 250' to 275' east and 50' to 60' south from pump station #1
OBTAINED AT: 131 tons **TECHNICIAN:** CP

Sieve Size	Surface Course Master Grading	Sieve Analysis % Passing by Weight
3/4"	86-100	98
1/2"	93-97	95
3/8"	74-90	88
No. 4	50-75	61
No. 8	34-46	43
No. 16	24-36	32
No. 30	16-28	23
No. 50	8-18	12
No. 100	3-9	6
No. 200	1.0-8.0	4.0
Bitumen Content (%)	4.5-5.5	5.3

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

B. Olague
 Bernardino Olague
 Vice President



LABORATORY NO.:
 02/20/08 bej; O\GEO\2007\AEA07-051-07\022163.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.404	N/A
Unit Weight (pcf)	142.6	N/A
Air Voids (%):	4.9	3.0-5.0
Marshall Stability:	3660	Minimum 1800
Flow:	15	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 11111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 02/01/08
CONSTRUCTION AREA: Area "B"
SAMPLING LOCATION: 200' east and 40' south from pump station #3
OBTAINED AT: 46 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	86-100	98
1/2"	93-97	95
3/8"	74-90	87
No. 4	50-75	61
No. 8	34-46	43
No. 16	24-36	32
No. 30	16-28	21
No. 50	8-18	11
No. 100	3-9	6
No. 200	1.0-8.0	3.1
Bitumen Content (%)	4.5-5.5	5.36

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

B. Olague
 Bernardino Olague
 Vice President



LABORATORY NO.: L-62184

02/20/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX62184.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-62184 DATE: 02/01/08

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.406	N/A
Unit Weight (pcf)	142.7	N/A
Air Voids (%):	5.0	3.0-5.0
Marshall Stability:	2900	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 779-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 11111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 02/04/08
CONSTRUCTION AREA: Area "B" – "C"
SAMPLING LOCATION: 120' north and 10' east from pump station "C"
OBTAINED AT: 163 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	86-100	98
1/2"	93-97	95
3/8"	74-90	86
No. 4	50-75	60
No. 8	34-46	42
No. 16	24-36	30
No. 30	16-28	22
No. 50	8-18	12
No. 100	3-9	6
No. 200	1-8	3.3
Bitumen Content (%)	4.5-5.5	5.2

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

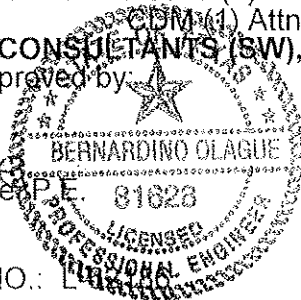
The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

B. Olague
 Bernardino Olague
 Vice President



LABORATORY NO.: L
 02/20/08 bej; O\GEO\2007\AEA07-051-07\HOTMX62186.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-62186 DATE: 02/04/08

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.409	N/A
Unit Weight (pcf)	142.9	N/A
Air Voids (%):	4.9	3.0-5.0
Marshall Stability:	3250	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 02/05/08
CONSTRUCTION AREA: Area "C"
SAMPLING LOCATION: 25' west and 50' north from pump station #7
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*97
1/2"	79-99	79
3/8"	68-88	69
No. 4	48-68	*46
No. 8	33-53	*30
No. 16	20-40	20
No. 30	14-30	14
No. 50	9-21	11
No. 100	6-16	7
No. 200	3-6	4.7
Bitumen Content (%)	N/A	4.03

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*The material tested does not conform to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

[Signature]
 Bernardino Olague, R.
 Vice President
 LABORATORY NO. L-62187
 02/20/08 bej, OIGEO12007AEA07-051-07HOTMX62187.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.595	N/A
Unit Weight (pcf)	145.0	N/A
Air Voids (%):	*10.4	3.0-5.0
Marshall Stability:	2740	Minimum 1800
Flow:	11	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

*The material tested does not conform to project specifications.



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 02/06/08
CONSTRUCTION AREA: Area "D"
SAMPLING LOCATION: 40' west and 120' south from northeast corner of pad "D"
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*99
1/2"	79-99	*75
3/8"	68-88	*62
No. 4	48-68	*39
No. 8	33-53	*25
No. 16	20-40	*17
No. 30	14-30	*10
No. 50	9-21	*7
No. 100	6-16	*5
No. 200	3-6	3.8
Bitumen Content (%)	N/A	4.59

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98


*The material tested does not conform to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bej
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-62188

02/20/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX62188.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.473	N/A
Unit Weight (pcf)	138.5	N/A
Air Voids (%):	*10.2	3.0-5.0
Marshall Stability:	2200	Minimum 1800
Flow:	14	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

*The material tested does not conform to project specifications.



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON POM-A COLD MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 11111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 02/07/08
CONSTRUCTION AREA: Area "D"
SAMPLING LOCATION: 20' east and 200' north from southwest corner of pad "D"
OBTAINED AT: 100 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*99
1/2"	79-99	*76
3/8"	68-88	*63
No. 4	48-68	*41
No. 8	33-53	*27
No. 16	20-40	*18
No. 30	14-30	*13
No. 50	9-21	9
No. 100	6-16	6
No. 200	3-6	4.3
Bitumen Content (%)	N/A	4.06


LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*The material tested does not conform to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by


 Bernardino Olague, P.E.
 Vice President



LABORATORY NO. L-62189

02/20/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX62189.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.488	N/A
Unit Weight (pcf)	134.8	N/A
Air Voids (%):	*13.1	3.0-5.0
Marshall Stability:	2330	Minimum 1800
Flow:	15	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

*The material tested does not conform to project specifications.



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 02/08/08
CONSTRUCTION AREA: Area "A"
SAMPLING LOCATION: 60' south and 20' west from pump station #3
OBTAINED AT: 24 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	86-100	99
1/2"	83-97	97
3/8"	74-90	89
No. 4	50-75	65
No. 8	34-46	46
No. 16	24-36	36
No. 30	16-28	26
No. 50	8-18	14
No. 100	3-9	7
No. 200	1.0-6.0	4.0
Bitumen Content (%)	4.5-5.5	5.41

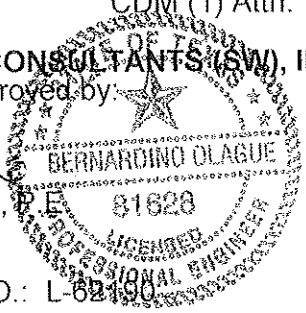
LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

Bernardino Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-62190
 02/20/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX62190.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.386	N/A
Unit Weight (pcf)	143.2	N/A
Air Voids (%):	3.8	3.0-5.0
Marshall Stability:	3660	Minimum 1800
Flow:	14	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 02/11/08
CONSTRUCTION AREA: Area "B"
SAMPLING LOCATION: 120' west and 10' south from pump station #3
OBTAINED AT: 36 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	86-100	99
1/2"	83-97	86
3/8"	74-90	79
No. 4	50-75	56
No. 8	34-46	42
No. 16	24-36	32
No. 30	16-28	23
No. 50	8-18	13
No. 100	3-9	6
No. 200	1.0-8.0	3.6
Bitumen Content (%)	4.5-5.5	-----

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

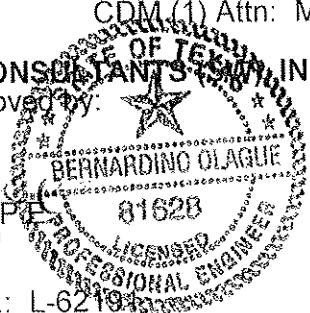
COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW) INC.

Reviewed and Approved by:

B. Olague

Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L-6219
 02/20/08 bej, OIGEO\2007\AEA07-051-07\HOTMX62191.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.425	N/A
Unit Weight (pcf)	144.3	N/A
Air Voids (%):	4.7	3.0-5.0
Marshall Stability:	4300	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-6233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 02/12/08
CONSTRUCTION AREA: Area "B"
SAMPLING LOCATION: 120' west and 80' south from pump station #3
OBTAINED AT: 23 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	100	*99
1/2"	79-99	96
3/8"	68-88	*89
No. 4	48-68	65
No. 8	33-53	45
No. 16	20-40	35
No. 30	14-30	26
No. 50	9-21	14
No. 100	6-16	6
No. 200	3-6	3.6
Bitumen Content (%)	N/A	5.0

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*The material tested does not conform to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

Bernardino Olague
 Bernardino Olague, P.E.
 Vice President

LABORATORY NO.: L-02192
 02/20/08 bej; OIGEO\2007\AEA07-051-07\HOTMX62192.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.380	N/A
Unit Weight (pcf)	143.3	N/A
Air Voids (%):	3.5	3.0-5.0
Marshall Stability:	3790	Minimum 1800
Flow:	14	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



REPORT ON HOT MIX ASPHALT CONCRETE TESTS

Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 02/13/08
CONSTRUCTION AREA: Area "C"
SAMPLING LOCATION: 80' west and 10' north from Pump Station "C"
OBTAINED AT: 108 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	86-100	100
1/2"	83-97	93
3/8"	74-90	83
No. 4	50-75	53
No. 8	34-46	37
No. 16	24-36	27
No. 30	16-28	19
No. 50	8-18	10
No. 100	3-9	4
No. 200	1.0-6.0	2.5
Bitumen Content (%)	4.5-5.5	*5.7

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

*The material tested does not conform to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Bej
 Bernardino Olague, P.E. 61628
 Vice President

LABORATORY NO.: 162193
 03/04/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX62193.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



PROJECT NO.: AEA07-051-07 LABORATORY NO.: L-62193 DATE: 02/13/08

ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.377	N/A
Unit Weight (pcf)	142.0	N/A
Air Voids (%):	4.3	3.0-5.0
Marshall Stability:	2840	Minimum 1800
Flow:	12	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



REPORT ON HOT MIX ASPHALT CONCRETE TESTS

Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 02/14/08
CONSTRUCTION AREA: Area "C"
SAMPLING LOCATION: 60' west and 20' north from Pump Station "C"
OBTAINED AT: 11 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	86-100	99
1/2"	83-97	95
3/8"	74-90	84
No. 4	50-75	57
No. 8	34-46	41
No. 16	24-36	29
No. 30	16-28	21
No. 50	8-18	11
No. 100	3-9	5
No. 200	1.0-6.0	2.5
Bitumen Content (%)	4.5-5.5	5.5

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

B. Olague
 Bernardino Olague, P.E. 1628
 Vice President


LABORATORY NO.: 1000194
 03/04/08 bej; OIGEO\2007\AEA07-051-07\HOTMX62194.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.379	N/A
Unit Weight (pcf)	142.6	N/A
Air Voids (%):	4.0	3.0-5.0
Marshall Stability:	3400	Minimum 1800
Flow:	15	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



REPORT ON HOT MIX ASPHALT CONCRETE TESTS

Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 02/18/08
CONSTRUCTION AREA: Area "C"
SAMPLING LOCATION: 60' west and 80' south from Pump Station "C"
OBTAINED AT: 197 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	86-100	100
1/2"	83-97	96
3/8"	74-90	84
No. 4	50-75	62
No. 8	34-46	42
No. 16	24-36	31
No. 30	16-28	23
No. 50	8-18	13
No. 100	3-9	6
No. 200	1.0-6.0	3.1
Bitumen Content (%)	4.5-5.5	5.11

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved

AC
 Bernardino Olague, P.E. 1628
 Vice President


LABORATORY NO.: 1100196
 03/04/08 bej: O\GEO\2007\AEA07-051-07\HOTMX62196.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.360	N/A
Unit Weight (pcf)	139.9	N/A
Air Voids (%):	5.0	3.0-5.0
Marshall Stability:	3280	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00 .



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 02/19/08
CONSTRUCTION AREA: Area "C"
SAMPLING LOCATION: 80' north and 5' west from Pump Station "C"
OBTAINED AT: 121 tons **TECHNICIAN:** CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	86-100	100
1/2"	83-97	96
3/8"	74-90	87
No. 4	50-75	64
No. 8	34-46	41
No. 16	24-36	36
No. 30	16-28	26
No. 50	8-18	15
No. 100	3-9	7
No. 200	1.0-6.0	4.4
Bitumen Content (%)	4.5-5.5	4.86

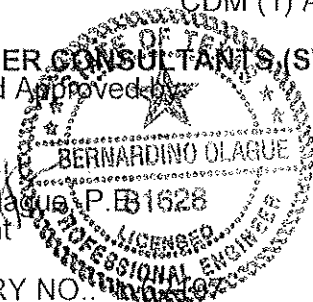
LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

B. Olague
 Bernardino Olague, P.E. 1628
 Vice President


LABORATORY NO.:

03/04/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX62197.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.368	N/A
Unit Weight (pcf)	140.6	N/A
Air Voids (%):	4.9	3.0-5.0
Marshall Stability:	3370	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 02/20/08
CONSTRUCTION AREA: Area "C"
SAMPLING LOCATION: 80' north and 30' west from Pump Station No. 7
OBTAINED AT: 87 tons **TECHNICIAN:** CP

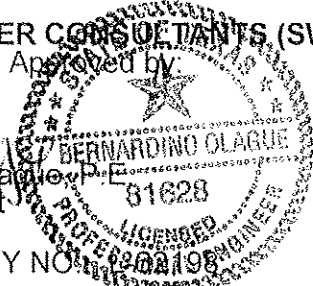
<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	86-100	99
1/2"	83-97	97
3/8"	74-90	87
No. 4	50-75	63
No. 8	34-46	42
No. 16	24-36	35
No. 30	16-28	25
No. 50	8-18	12
No. 100	3-9	5
No. 200	1.0-6.0	2.7
Bitumen Content (%)	4.5-5.5	5.45

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by:

Bernardino Olague
 Bernardino Olague, P.E.
 Vice President


LABORATORY NO: 03/04/08 bej; OIGEO\2007\AEA07-051-07\HOTMX62198.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.359	N/A
Unit Weight (pcf)	140.4	N/A
Air Voids (%):	4.6	3.0-5.0
Marshall Stability:	3340	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



REPORT ON HOT MIX ASPHALT CONCRETE TESTS

Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

SUPPLIER: Petra

PROJECT NO.: AEA07-051-07

DATE: 02/21/08

CONSTRUCTION AREA: Area "D"

SAMPLING LOCATION: Northeast corner of Area "D", 0' to 10' south and 0' to 10' west from northwest corner

OBTAINED AT: 25 tons

TECHNICIAN: CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	93-100	98
1/2"	85-99	93
3/8"	75-89	81
No. 4	48-62	52
No. 8	33-45	36
No. 16	22-34	26
No. 30	14-24	17
No. 50	7-17	9
No. 100	4-10	4
No. 200	1.0-7.0	1.9
Bitumen Content (%)	4.35-5.25	4.81

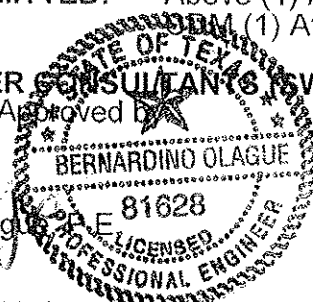
LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.
 Reviewed and Approved by

BK
 Bernardino Olague
 Vice President



LABORATORY NO.: L-62199

03/09/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX62199.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.526	N/A
Unit Weight (pcf)	150.1	N/A
Air Voids (%):	4.8	3.0-5.0
Marshall Stability:	3250	Minimum 1800
Flow:	13	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



REPORT ON HOT MIX ASPHALT CONCRETE TESTS

Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

PROJECT: Quality Assurance/Control - Construction Phase
CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999 **SUPPLIER:** Petra
PROJECT NO.: AEA07-051-07 **DATE:** 02/23/08
CONSTRUCTION AREA: Area "D"
SAMPLING LOCATION: 25' north and 10' east from southwest corner of pad
OBTAINED AT: 100 tons **TECHNICIAN:** FT

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	86-100	100
1/2"	83-97	95
3/8"	74-90	83
No. 4	50-75	60
No. 8	34-46	44
No. 16	24-36	36
No. 30	16-28	27
No. 50	8-18	15
No. 100	3-9	7
No. 200	1.0-6.0	4.6
Bitumen Content (%)	4.5-5.5	4.84

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

Bej
 Bernardino Olague, P.E. 81628
 Vice President

LABORATORY NO.: L-02000
 03/09/08 bej, OIGEO\2007\AEA07-051-07\HOTMX62200.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.446	N/A
Unit Weight (pcf)	145.6	N/A
Air Voids (%):	4.6	3.0-5.0
Marshall Stability:	3030	Minimum 1800
Flow:	11	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



REPORT ON HOT MIX ASPHALT CONCRETE TESTS

Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

SUPPLIER: Petra

PROJECT NO.: AEA07-051-07

DATE: 02/26/08

CONSTRUCTION AREA: Area "C"

SAMPLING LOCATION: 80' north and 5' west from Pump Station No. 7

OBTAINED AT: 45 tons

TECHNICIAN: CP

Sieve Size	Surface Course Master Grading	Sieve Analysis % Passing by Weight
3/4"	86-100	100
1/2"	83-97	95
3/8"	74-90	86
No. 4	50-75	59
No. 8	34-46	42
No. 16	24-36	36
No. 30	16-28	26
No. 50	8-18	15
No. 100	3-9	7
No. 200	1.0-6.0	4.4
Bitumen Content (%)	4.5-5.5	4.98

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

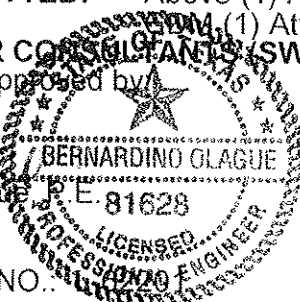
COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos

(1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by:

Signature
 Bernardino Olague
 Vice President



LABORATORY NO.:

03/09/08 bej; OVGEO2007\AEA07-051-07\HOTMX62201.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.436	N/A
Unit Weight (pcf)	145.3	N/A
Air Voids (%):	4.4	3.0-5.0
Marshall Stability:	2900	Minimum 1800
Flow:	11	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

REPORT ON HOT MIX ASPHALT CONCRETE TESTS

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

SUPPLIER: Petra

PROJECT NO.: AEA07-051-07

DATE: 02/27/08

CONSTRUCTION AREA: Area "C"

SAMPLING LOCATION: 30' west and 30' north from Pump Station "C"

OBTAINED AT: 40 tons

TECHNICIAN: CP

Sieve Size	Surface Course Master Grading	Sieve Analysis % Passing by Weight
3/4"	86-100	100
1/2"	83-97	96
3/8"	74-90	88
No. 4	50-75	59
No. 8	34-46	46
No. 16	24-36	34
No. 30	16-28	24
No. 50	8-18	13
No. 100	3-9	6
No. 200	1.0-6.0	3.4
Bitumen Content (%)	4.55-5.50	5.17

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 GDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and approved by:

Bernardino Olague
 Bernardino Olague, P.E.
 Vice President



LABORATORY NO.: L62202

03/09/08 bej: O:\GEO\2007\AEA07-051-07\HOTMX62202.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.454	N/A
Unit Weight (pcf)	146.1	N/A
Air Voids (%):	4.6	3.0-5.0
Marshall Stability:	3280	Minimum 1800
Flow:	12	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



REPORT ON HOT MIX ASPHALT CONCRETE TESTS

Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

SUPPLIER: Petra

PROJECT NO.: AEA07-051-07

DATE: 02/28/08

CONSTRUCTION AREA: Area "B"

SAMPLING LOCATION: 80' south and 20' east from Pump Station No. 3

OBTAINED AT: 22 tons

TECHNICIAN: CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	86-100	100
1/2"	83-97	93
3/8"	74-90	84
No. 4	50-75	59
No. 8	34-46	47
No. 16	24-36	36
No. 30	16-28	27
No. 50	8-18	16
No. 100	3-9	7
No. 200	1.0-6.0	4.4
Bitumen Content (%)	4.5-5.5	5.39

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

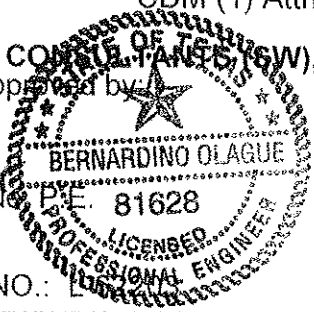
The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

B. Olague
 Bernardino Olague, P.E. 81628
 Vice President



LABORATORY NO.: L

03/09/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX62203.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.364	N/A
Unit Weight (pcf)	142.7	N/A
Air Voids (%):	3.3	3.0-5.0
Marshall Stability:	3850	Minimum 1800
Flow:	10	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00



REPORT ON HOT MIX ASPHALT CONCRETE TESTS

Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

PROJECT: Quality Assurance/Control - Construction Phase

CLIENT: ASARCO, Inc.
 P.O. Box 1111, El Paso, TX 79999

SUPPLIER: Petra

PROJECT NO.: AEA07-051-07

DATE: 02/29/08

CONSTRUCTION AREA: Area "B-C"

SAMPLING LOCATION: 200' north and 40' west from Pump Station "C" behind retaining wall

OBTAINED AT: 11 tons

TECHNICIAN: CP

<u>Sieve Size</u>	<u>Surface Course Master Grading</u>	<u>Sieve Analysis % Passing by Weight</u>
3/4"	86-100	100
1/2"	83-97	96
3/8"	74-90	89
No. 4	50-75	64
No. 8	34-46	46
No. 16	24-36	35
No. 30	16-28	26
No. 50	8-18	16
No. 100	3-9	7
No. 200	1.0-6.0	4.2
Bitumen Content (%)	4.5-5.5	5.26

LAB TEST PROCEDURES: ASTM D 6307-98, D 544-98

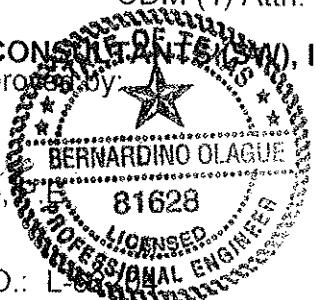
The material tested conforms to the City of El Paso standard specifications for Type "C" Hot Mix Asphaltic Concrete.

COPIES SUBMITTED: Above (1) Attn: Mr. Arturo Burgos
 CDM (1) Attn: Mr. Walter Smith (e-mail)

RABA-KISTNER CONSULTANTS (SW), INC.

Reviewed and Approved by

B. Olague
 Bernardino Olague,
 Vice President



LABORATORY NO.: L-03/09/08 bej; O:\GEO\2007\AEA07-051-07\HOTMX62204.051.07

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



ASPHALTIC CONCRETE TEST REPORT

<u>TEST/CALCULATION</u>	<u>RESULT</u>	<u>PROJECT SPECIFICATIONS</u>
Maximum Theoretical Specific Gravity	2.356	N/A
Unit Weight (pcf)	140.3	N/A
Air Voids (%):	4.4	3.0-5.0
Marshall Stability:	3280	Minimum 1800
Flow:	11	8-16

LAB TEST PROCEDURES: ASTM D 2041-00, D 2726-00, D 1559-98, D 3203-00

Appendix D Construction Progress Reports – Category II Capping

D.1 Raba Kistner 2006 Daily Construction Reports

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 9-19-06

PROJECT: Asarco

PROJECT NO.: _____

CLIENT: _____

CONTRACTOR: _____

TECHNICIAN: Enrique

Day	S	M	<u>W</u>	W	T	F	S
WEATHER	<u>Sunny</u>	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	<u>70 85</u>	85 up		
WIND	<u>Still</u>	Moderate	High	Relates to Lab.			
HUMIDITY	<u>Low</u>	Moderate	High	No.: _____			

I pick up three samples
one sample of fine silty clay
two samples from stock file "A"
one sample from stock file "B"

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

J. Wedgwood
 Received By

 Title

9-19-06
 Date



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 10/4/06
 PROJECT: Asarco Plant Remediation 2006
 PROJECT NO.: AED06-067-00
 CLIENT: ASARCO
 CONTRACTOR: Recon
 TECHNICIAN: M. Reyes

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: _____			

@ site, 9:30 a.m. (security not @ gate - stand-by) Contractor working on area #4. Batch Plant machine down on 2nd half of morning. Picked up sample and delivered to lab for analysis. Back @ site, Plant picked up again P.M. Not ready for density's

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

to site 9:00 A.M.

Arrived Site:	9:30
Tech Time:	
Stand by Time:	
Departed Site:	2:30
Travel Time:	05 ca. way

3:00 @ Lab

Received By: [Signature]
 Title: _____
 Date: _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkcl.com

DATE: 10/30/06
 PROJECT: ASARCO Plant Remediation 2006
 PROJECT NO.: AED06-067-00
 CLIENT: ASARCO
 CONTRACTOR: Recon
 TECHNICIAN: M. Reyes

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61071</u>			

@ site, Recon placing low permeability mix (2" layer) on South end of Area # 1 and Area # 3, North side. Picked up sample for Analyzing.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

To site 11:30	
Arrived Site:	12:00
Tech Time:	
Stand by Time:	
Departed Site:	1:00
Travel Time:	.50

@ Lab 1:30
 Received By [Signature]

Title _____
 Date _____



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-1-06
 PROJECT: ASARCO Plant Remediation 2006
 PROJECT NO.: AED06-067-00
 CLIENT: ASARCO
 CONTRACTOR: Recon
 TECHNICIAN: M. Reyes

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab. No.: 61072			
HUMIDITY	Low	Moderate	High	No.: 61074			

At site, Took Nuclear densities on Area #1 and #3.
 Used Hveem unit wt. for reference on Low Permeability Mix. South end of Area #3 still pending for placement.
 Picked up field sample in the afternoon. Mix Grading perimeter close but still out. John w/Recon said that mix is performing well and it is all we have to work with, same reaction from Larry Johnson.
 All areas tested, passed requirement.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Second visit 12:00 to site @site
 12:30 To 3:30
 4:00 @ Lab

8:30 To site

Arrived Site:	8:50
Tech Time:	
Stand by Time:	
Departed Site:	10:00
Travel Time:	

Received By John W. Johnson

Title _____
 Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-7-06

PROJECT: ASARCO Plant Remediation Zone

PROJECT NO.: AED06-067-00

CLIENT: ASARCO

CONTRACTOR: Recon

TECHNICIAN: M. Reyes

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast		Rain		Snow
TEMP (°F)	To 32	32 50	50 70		70 85		85 up
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61073</u>			

@ site, Contractor working on Area # 4 West end Close to Bedding Plant bldg. (North side of bldg parking area). Took 7 densities and picked up sample in which I delivered to the Lab for ANALYTICAL TESTING. Some Areas were re-rolled due to low Compaction. All Areas passed Compaction requirements.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

John Wedgworth
 Received By

 Title

 Date



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkcl.com

DATE: 11-3-06
 PROJECT: ASARCO Plant Remediation
 PROJECT NO.: AED06-067-00
 CLIENT: ASARCO
 CONTRACTOR: Recon
 TECHNICIAN: M. Keyes

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61081</u>			

@ site, Area #4, Northwest Quadrant from Approx. 610 ft. stack North being worked on. Contractor reworked Area since moisture seems to be in abundance in the Area. Picked up sample of low perme Mix. Contractor Averaging 800 to 900 Tons per day. Notified Contractor Superintendent of Grading shortcomings but all was accepted. Ran 5 dewiters and picked up sample for delivery to lab for Analysis.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

9:30 to site

Arrived Site:	9:50 A.M.
Tech Time:	
Stand by Time:	
Departed Site:	12:00
Travel Time:	

@ Lab 12:30
 Received By: J. Woodgett

Title: _____
 Date: _____



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkcl.com

DATE: 11-6-06
 PROJECT: ASARCO Plant Remediation 2006
 PROJECT NO.: AED06-067-00
 CLIENT: ASARCO
 CONTRACTOR: Recon
 TECHNICIAN: M. Reyes

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: _____			

At site, Contractor working on the rest of Area # 3 (North radius next to Containment Ponds Fence and South third of whole area).
 Low Perm mix being placed. All areas tested Passed Requirement.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

To site 12:30

Arrived Site:	1100
Tech Time:	
Stand by Time:	
Departed Site:	3:30
Travel Time:	.5

AT LAB 4:00 pm

Received By: John Wedgworth
 Title: _____
 Date: 11-6-06

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-7-06
 PROJECT: ASARCO Plant Remediation 2006
 PROJECT NO.: AED06-06700
 CLIENT: ASARCO
 CONTRACTOR: Recon
 TECHNICIAN: M. Reyes

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32-50	50-70	70-85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: _____			

@ site, Took densities on Area # 3 (Radial close to fence)
And Toward South 1/3 of Area.
All areas that were deficient were rerolled & corrected.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

1:15 TO SITE

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By J. Helgert

Title _____
 Date 11-7-06

Appendix D Construction Progress Reports – Category II Capping

D.2 JL-D 2007 Weekly Progress Reports

JL-D

7670 Nez Perce Trace
Manor, TX 78653
(512) 276-7575 (Office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project - El Paso, Texas

Date: 10/22/07
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James L. Lozier- JL-D
Subject: Period 10/15/07- 10/21/07

1.0 INTRODUCTION

JL-D has prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, October 15th - Cleaned out around the metal beams in Area B used the Bobcat, Gehl, and labors. Hauled out of the fill dirt stock pile into the hole north of pad 4 in Area B with the John Deere loader smoothed out the fill dirt in Area B with the case loader Hauled 176 loads of fill dirt 2,112 yd3.

Tuesday, October 16th - Finished cleaning out around the beams in the Area B hauled fill dirt from stockpiles, 2,208 yd3 184 loads. Back filled the hole in Area B.

Wednesday, October 17th - Cleaned out around and next to the beams on Area B haul 194 loads of fill dirt out of the stock pile into the hole in Area B 2328 yd3, filled the diesel tank at 7:30 am. We also received the conex.

Thursday, October 18th - Finished shoveling around the beams in Area B completely handled fill dirt, 107 loads, 1,284 yd3 of clean fill dirt into the hole in Area B. Hauled contaminated dirt from Area B into pond 525 loads, 300yd3. Loaded tools and supplies into the conex. Checked over the pug mill and conveyers picked up rocks in Area A.

Friday, October 19th - Worked on the pug mill serviced the motor changed rollers greased it all. Worked on Area A uncovering man holes and electrical bores hauled dirt from stock pile into Area B, 168 loads and 2,016 yd3.

Saturday, October 20th - Mr. Wedgworth the safety manager and a couple of other employees worked on the following: Worked on Area B grating and smoothing dirt and did the same in Area A. Paper work was worked on time sheets as well as the end of week report.

Sunday, October 21st- Off

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD - Continue working on Area B, and Area A hauling fill dirt working on sub grade. Will be working on the Pug mill and getting ready to pave. Will be hauling rock to make black base.

4.0 Project PERSONNEL ON-SITE

JL-D Personnel:

James L. Lozier - Project Manager	Gomez, Edward - Labor
John Wedgworth - Project Superintendant	Mier, Louie - Labor
Jessica Valdez - Safety Manager	Monarez, Daniel - Labor
Allman, Chris - Operator	Muraira, Tony - Operator
Angel, Jacob D. - Labor	Person, Albert A. - Labor
Barth, Matthew - Operator	Reyes, Jesus - Labor
Carlson, Jeffrey- Labor	Smith, Brant - Labor
De La Cruz, Carlos - Labor	Soto, Leo C. - Operator
Ennis, Nicholas- Labor	Wolf, Danny - Labor

SUBCONTRACTORS:

WORK PERFORMED

NAME

|

Drivers

Hauling Dirt

Villegas & Sons

Hauling Dirt

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION
Worked on contaminated soil in Area B all employees wore respirators and goggles.

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD – None

7.0 RESOLUTION OF ISSUES OR CONCERNS – None

8.0 Project Contact INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Project Manager
(210) 260-8601(cell)
wedge78055@yahoo.com



Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-74546 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project – El Paso, Texas

Date: 10-28-07
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D
Subject: Period 10/22/07 - 10/28/07

1.0 INTRODUCTION

JL-D prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, October 22nd - Hauled fill dirt from stockpile 176 loads 2,112 yards into Area B. Also hauled fill dirt into Area A 36 loads 432 yards. Worked on pads and on pug mill.

Tuesday, October 23rd - Hauled 68 loads into Area A 816 yards. Worked on the pads in Area B and on the pug mill.

Wednesday, October 24th - Worked on the pads on Area B. Cut the road out in Area B 20 yards. Fine graded the pad in Area A. Got the pug mill running. Petra started hauling rock into the plant for the mix design.

Thursday, October 25th - Did fine grading in the pad in Area A. Cleaned around the building in Area A 22 buckets at 4 yards equals 88 yards. Worked on the pad in Area B. Cut the ditch in Area B. Worked on the pug mill. Hauled rock from Petra for the mix.

Friday, October 26th - Took apart the pug mill conveyers worked on the pad in Area A. Shoveled around the building in Area A. Took up asphalt in Area A. Hauled 8 loads at 12 yards total 96 yards of fill dirt into Area A from the stock pile.

Saturday, October 27th – Off

Sunday, October 28th – Worked on time sheets as ell as on Weekly Progress Report.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Complete dirt work on Area A and most of Area B. Still hauling gravel for the asphalt.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Personnel:

James Lozier – Admin Project Manager	Jeffrey Carlson – Labor
John Wedgworth – Project Superintendent	Carlos De La Cruz - Labor
Jessica Valdez – Safety Manager	Nicholas Ennis – Labor
Chris Allman - Operator	Edward Gomez – Labor
Matthew Barth - Operator	Louie Mier – Labor
Tony Muraira - Operator	Daniel Monarez – Labor
Leo Soto – Operator	Albert Person – Labor
Jacob Angel – Labor	Jesus Reyes – Labor
Brant Smith – Labor	Danny Wolf - Labor

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Dirt Hauled Dirt

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD – Discussed digging hole around test well. Discussed taking out a fiber glass tank in Area A.

7.0 RESOLUTION OF ISSUES OR CONCERNS- None

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Project Manager
(210) 260-8061 (cell)
wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project-- El Paso, Texas

Date: 11-5-07
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D
Subject: Period 10/29/07 - 11/4/07

1.0 INTRODUCTION

JL-D prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, October 29th - Worked on pad in Area A, Hauled 16 loads of field dirt into pad in Area A, Which was 12yds per load. Cleaned out around structures in Area A. Petra hauled asphalt rock in. Moved 18 buckets at 3yds each of dirt from around the building.

Tuesday, October 30th - Saw cut the asphalt in Area A. Hauled 22 loads at 3yds of dirt from pad A. Extension of dirt on pad A on south east end of pad A.

Wednesday, October 31st - Cleaned around the buildings in Area A. Saw cut the asphalt in Area A, Graded in Area A. Cleaned around the structures in Area B, excavated the road in Area B, also worked on pug mill.

Thursday, November 1st - Bladed, rolled and watered the pad in Area A. Cleaned around the fence in Area B, bladed, picked up rocks and trash in Area B. Area B was also watered and rolled. Pug mill ready for conveyers. There were also 86 loads at 3yds each hauled into Area B.

Friday, November 2nd - Cleaned up rocks in Area B, unloaded the geo-grid off the 18 wheeler, fine graded the pad in Area B. Received oxygen.

Saturday, November 3rd - Off

Sunday, November 4th - Worked on time sheets as well as on Weekly Progress Report.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Finish preparing area A & B. Will start setting up conveyers on pug mill. Will be receiving load of GEO TECH. Will start hauling gravel for asphalt mix.

4.0 PROJECT PERSONNEL ON-SITE

Personnel:

James Lozier -- Admin Project Manager	Jeffrey Carlson -- Labor
John Wedgworth -- Project Superintendent	Carlos De La Cruz - Labor
Jessica Valdez -- Safety Manager	Nicholas Ennis -- Labor
Chris Allman - Operator	Edward Gomez -- Labor
Matthew Barth - Operator	Louie Mier -- Labor
Tony Muraira - Operator	Daniel Monarez -- Labor
Leo Soto -- Operator	Albert Person -- Labor
Jacob Angel -- Labor	Jesus Reyes -- Labor
Brant Smith -- Labor	Danny Wolf - Labor

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Dirt Hauled Dirt

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- Jesus Reyes was fired due to safety issues that involved himself and the safety of other employees.

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - Water drainage in area A.

7.0 RESOLUTION OF ISSUES OR CONCERNS -- None yet.

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Project Superintendent
(210) 260-8061 (cell)
wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project— El Paso, Texas

Date: 11-12-07
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D
Subject: Period 11/5/07 - 11/11/07

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, November 5th – Watered, rolled and bladed pad in Area B. Unloaded Geo-Tech from semi a total of 105 rolls was unloaded. Hauled trash materials to bin #2. Hauled some rock for paving.

Tuesday, November 6th – Conducted some work in Area C. The fence in Area C was taken down. Took down the concrete pillar in Area A (2 hrs. Case backhoe), the concrete pillar was also taken down from Area B. Petra hauled in more material for the asphalt mix it was also watered. Steel was also cut out from concrete it took 4 laborers 1 hr.

Wednesday, November 7th – Hauled dirt from Area A to Area C a total of 75 loads. Area C was bladed, rolled, watered some cleaning was also done around the buildings. The conveyers arrived and were unloaded by the pug mill. Cement pillars were broken in Area B (8hrs. Case backhoe). The concrete humps in Area B were also broken. Petra hauled in sand for asphalt mix. More steel was cut out of the concrete (4 laborers, 6 hrs.).

Thursday, November 8th – A total of 42 loads were hauled from Area A to Area C. Work was conducted in Area C part of it consisted of cleaning around the buildings. Worked on the pug mill. Area A was bladed, busted up concrete in Area B (9.5 hrs on Case backhoe). Petra hauled in more sand.

Friday, November 9th – Area C was watered, rolled, bladed and also cleaned around the buildings. Thirty yards of fill were hauled with the loaders in to Area C. Petra hauled in sand for the asphalt mix. Some more concrete was broken in Area B (9.5 hrs.).

Saturday, November 10th – Cleaned Area C around the structures and buildings. Area C was also watered, rolled and bladed. Sand was pushed up by the pug mill area. Petra hauled in more sand. Sixty six buckets of fill to Area C

(3 yds.)

Sunday, November 11^h - Worked on time sheets as well as on Weekly Progress Report.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Will start setting up conveyers on pug mill. Will continue hauling sand for asphalt mix. Finish sub-grade in Area C. Start prepping Area A for asphalt. Try to start mixing on Friday.

4.0 PROJECT PERSONNEL ON-SITE

Personnel:

James Lozier -- Admin Project Manager	Jeffrey Carlson -- Labor
John Wedgworth -- Project Superintendent	Carlos De La Cruz - Labor
Jessica Valdez -- Safety Manager	Nicholas Ennis -- Labor
Chris Allman - Foreman operator	Edward Gomez -- Labor
Matthew Barth - Operator	Louie Mier -- Labor
Tony Muraira - Operator	Daniel Monarez -- Labor
Leo Soto -- Operator	Albert Person -- Labor
Jacob Angel -- Labor	Danny Wolf - Labor
Brant Smith -- Labor	

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Dirt Hauled Dirt

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD -

7.0 RESOLUTION OF ISSUES OR CONCERNS -- Drainage in Area A fixed.

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Project Superintendent
(210) 260-8061 (cell)
wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project-- El Paso, Texas

Date: 11-19-07
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier-JL-D
Subject: Period 11/12/07 - 11/18/07

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, November 12th – Area C was bladed. Watered, rolled and cleaned around the structures. Area B was watered, rolled and cleaned around the pipes. The rail road iron in Area B was cleaned up. Petra hauled in more sand for the asphalt mix. Rocks were hauled into bin 1.

Tuesday, November 13th – Area C was watered, rolled and bladed. Fill dirt was hauled into Area C (50 at 3 yards cubed). Thirty loads of trash and rocks were hauled from Area C into bin 2 (15 @ 3 yards cubed). Hauled 64 loads of fill dirt into Area C from the pug mill (34 loads @ 3 yards cubed, 30 loads @ 3 yards cubed). Concrete on Area B was cleaned up (6 hrs. of labor). Cut rail road tracks in Area C (1 hrs. labor). Remaining concrete in Area B was broken with hammer (2 hrs. labor). The concrete in bin 2 was also broken (1 ½ hrs. labor). Petra continued to haul in sand for asphalt mix.

Wednesday, November 14th – Area C was bladed, rolled and watered, the dirt around the fence was cleaned up as well as the rocks. The sand Petra is hauling in was pushed up. Asphalt in Area A was screened. Shoveled around the fence in Area B and finished hammering (Case and rock hammer).

Thursday, November 15th – Cleaned around the edges in Area A finished screening asphalt and also hauled in 10 loads (3 Cubic yards per load). Area C was bladed, rolled, and watered, fill dirt was also hauled in from dirt pile by the pug mill in to Area C. The rail road in Area A was cut out. Cut rebar in Area B. Sand was pushed up as Petra continues to haul it in.

Friday, November 16th – Area A was watered, rolled and bladed. Cut rebar and steel out of pad in Areas A & B (8.5 hrs labor, cutting torch was used and 4 laborers). Hauled fill dirt into Area A from the stockpile by the pug mill barn. Petra continues to haul in sand for asphalt mix. The pug mill was worked on the equipment utilized was: Volvo skid steer, takahuchi skid steer, welder, gator plus 3 laborers and a total of ten hours of labor.

Saturday, November 17th -- Bladed, watered and rolled Area A. Picked up rocks and cleaned around edges in Area A worked on pug mill, finished the ramp to the hoppers on the conveyers as well as wipers. Cement bags were delivered and unloaded. A total of six employees worked on pug mill 2 laborers, 4 operators, and the superintendent which consisted of 73 hours of labor. Petra hauled in sand and gravel for the asphalt mix. Greased and put oil in motors and Barings.

Sunday, November 18th -- Worked on time sheets, Weekly Progress Report and on Petra invoice. Finished building the hoppers on the conveyers got everything ready on the pug mill the electricians wire up the pug mill. Five employees showed up to do work on the pug mill 3 operators, 2 laborers and superintendent, 40.5 hours of labor.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Will start setting up conveyers on pug mill. Will continue hauling sand for asphalt mix. Finish sub-grade in Area C. Start prepping Area A for asphalt. Try to start mixing on Friday.

4.0 PROJECT PERSONNEL ON-SITE

ENTACT Personnel:

James Lozier – Admin Project Manager	Jeffrey Carlson – Labor
John Wedgworth – Project Superintendent	Carlos De La Cruz - Labor
Jessica Valdez -- Safety Manager	Nicholas Ennis – Labor
Chris Allman - Foreman operator	Edward Gomez – Labor
Matthew Barth - Operator	Louie Mier – Labor
Tony Muraira - Operator	Daniel Monarez – Labor
Leo Soto – Operator	Albert Person – Labor
Jacob Angel – Labor	Danny Wolf - Labor
Brant Smith – Labor	

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Dirt Hauled Dirt

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS – None

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Project Superintendent
(210) 260-8061 (cell)
wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project— El Paso, Texas

Date: 11-26-07
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D
Subject: Period 11/19/07 - 11/25/07

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, November 19th — Worked in Area B, bladed, rolled and cleaned it up. Worked on pug mill the electricity was fixed as well as the motor and the wipers. A total of 160 tons of mix were made and 2,175 gallons of oil were used. Petra hauled in more rock for the asphalt mix. .

Tuesday, November 20th — Geo- Tech was layed down, but it was not working good the asphalt was cracking as it was being rolled. Batched 447 tons and started doing hand work with asphalt. Total tons batched to date are 607 and gallons of oil used are 12,435. Raul Villa tested gradation the test came back 5% short of sand. As a result more sand was added to mix. Petra continued to haul in sand for asphalt mix.

Wednesday, November 21st — Worked on pug mill 16 hours of labor were put into it. Villegas & Son layed down asphalt with lay down machine, geo tech problem was solved.

Thursday, November 22nd — Off (Thanksgiving)

Friday, November 23rd — Off

Saturday, November 24th — Worked on reports.

Sunday, November 25^h — Worked on time sheets, Weekly Progress Report and on Petra invoice.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Plan on mixing small batch of asphalt on Tuesday, finish laying asphalt to cover mat. Prepare Area A & B. There is a chance it might rain on Thursday will continue as weather permits.

4.0 PROJECT PERSONNEL ON-SITE

Personnel:

James Lozier – Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth – Project Superintendent	Nicholas Ennis – Labor
Jessica Valdez – Safety Manager	Edward Gomez – Labor
Chris Allman - Foreman operator	Louie Mier – Labor
Matthew Barth - Operator	Daniel Monarez -- Labor
Tony Muraira - Operator	Albert Person – Labor
Leo Soto – Operator	Danny Wolf - Labor
Jacob Angel – Labor	
Brant Smith – Labor	

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers	Hauled Dirt
Villegas & Sons	Hauled Dirt

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS – None

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
 JL-D Project Superintendent
 (210) 260-8061 (cell)
 wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project-- El Paso, Texas

Date: 12-3-07
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D
Subject: Period 11/26/07 - 12/02/07

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, November 26th – Worked on ASARCO invoice.

Tuesday, November 27th – Cleaned around the pug mill. Hauled off train track, rail parts, rail road out of Area D. Cut out rebar from Area B. Operator worked out Area A. Geo- Tech was laid out in Area A. The ditch in Area C & D was bladed out. The tracks in Area A were exposed with the blade.

Wednesday, November 28th – Worked in Area A cleaned off the tracks, and piled dirt. Cleaned the fence in Area C. Mixed asphalt a total of 683 tons and laid it in Area A.

Thursday, November 29th – Hauled dirt from Area A to Area B. Cut rebar in Area B & C. Cleaned underneath the columns in Area B. Dug around the well in Area B and paved the Area B.

Friday, November 30th – Filled in pot holes on roads and laid asphalt over tracks, also rolled and swept roads. Worked in Area B cleaned around edges, rolled, bladed and hauled trash from Area B. Washed the John Deere loader. Cut pipe out of Area A.

Saturday, December 1st – Cleaned around cemetery fence line.

Sunday, December 2nd - Worked on time sheets, Weekly Progress Report.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Mix asphalt Tuesday-Thursday possibly Friday. Work on final preparations in Areas B & C.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Management Co., Inc Personnel:

James Lozier – Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth – Project Superintendent	Nicholas Ennis – Labor
Jessica Valdez – Safety Manager	Chris De La Cruz- Labor
Chris Allman - Foreman operator	Louie Mier – Labor
Matthew Barth - Operator	Albert Person – Labor
Tony Muraira - Operator	Danny Wolf - Labor
Leo Soto – Operator	Jeffrey Carlson- Labor
Brant Smith – Labor	

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Dirt Hauled Dirt

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- Category 1 material in Area D.

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS – None

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Project Superintendent
(210) 260-8061 (cell)
wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project— El Paso, Texas

Date: 12-10-07
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier-JL-D
Subject: Period 12/03/07 - 12/09/07

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, December 3rd — Hauled fill dirt from Area A to Area B. Cleaned around edges in Area B in preparation for paving. PETRA continues to haul in rock for asphalt mix.

Tuesday, December 4th — Batched asphalt a total of 787 tons. Laid asphalt in Area B. Cleaned edges in Area A. PG-64-22 was sprayed in Area A.

Wednesday, December 5th — Batched 1,063 tons of asphalt and laid it in Area B. Watered roads as needed. Cleaned edges and picked up trash in Area C.

Thursday, December 6th — Batched 545 tons of asphalt. Cleaned up Area C and also shot grade. Watered roads as needed. PETRA continues to haul in material. Paved Area C.

Friday, December 7th — Cleaned Area C watered roads as needed. Laid asphalt in Area C approximately 13,000 squared yards.

Saturday, December 8th — Bladed roads in the back of the plant. Cleaned Area D watered roads as needed. Rolled the asphalt in Area C.

Sunday, December 9th - Worked on time sheets, Weekly Progress Report.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Mix low perm for Areas B & C. Mix Pom-A for Area A. Spray PG-64-22 on Areas B & C. Work on Area D removing category 1 material and haul it to bin 11 and shape Area D.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Management Co., Inc Personnel:

James Lozier – Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth – Project Superintendent	Nicholas Ennis -- Labor
Jessica Valdez – Safety Manager	Edward Gomez – Labor
Chris Allman - Foreman operator	Louie Mier – Labor
Matthew Barth - Operator	Carlos Delgado – Labor
Tony Muraira - Operator	Albert Person -- Labor
Leo Soto -- Operator	Danny Wolf - Labor
Jacob Angel – Labor	De La Cruz, Chris - Labor
Brant Smith -- Labor	Jeffrey Carlson- Labor

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Dirt Hauled Dirt

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS – None

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Project Superintendent
(210) 260-8061 (cell)
wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project— El Paso, Texas

Date: 12-17-07
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D
Subject: Period 12/10/07 - 12/16/07

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, December 10th – Cleaned up scrap metal and moved it from Area A.

Tuesday, December 11th – Worked in Area A swept the tracks and hauled off dirt. Worked in Area B cleaning up the areas was asphalt need to be laid by hand. Hauled trash to Area A. Moved Geo Tech rolls to new location. Watered roads as needed. Excavated bad dirt from Area D to stock pile.

Wednesday, December 12th – Paved Area B. Swept and cleaned up Area A. Mixed a total of 732 tons of asphalt. Began asphalt repair in Area C. Watered roads as needed. Continued preparation in Area D.

Thursday, December 13th – Mixed a total of 626 tons of asphalt. Laid asphalt in Areas B & C. Finished removing asphalt from Area C. Watered roads as needed.

Friday, December 14th – Took up bad asphalt from Area C. Re-laid asphalt in Area C. Watered and rolled Area C. Removed wet dirt from Area C replaced with dry clay. Started shooting Areas B & C with PG 64-22.

Saturday, December 15th – Paved Areas B & C. Finished spraying PG 64-22. Put cones for safety where PG 64-22 was shot. Watered roads as needed. Rolled Area C. Hauled trash asphalt from Area C to bin 1. Hauled 6 loads @ 6 yards of category 1 material to bin 11.

Sunday, December 16th - Worked on time sheets, Weekly Progress Report.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Finish low perm in Areas A, B & C. Start making Pom-A and put in Areas A, B & C. Work in Area D hauling category 1 material to bin 11.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Management Co., Inc Personnel:

James Lozier – Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth – Project Superintendent	Nicholas Ennis – Labor
Jessica Valdez – Safety Manager	Chris De La Cruz- Labor
Chris Allman - Foreman operator	Louie Mier – Labor
Matthew Barth - Operator	Albert Person – Labor
Tony Muraira - Operator	Danny Wolf - Labor
Leo Soto – Operator	Jeffrey Carlson- Labor
Brant Smith – Labor	

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Dirt Hauled Dirt

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS – None

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Project Superintendent
(210) 260-8061 (cell)
wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project— El Paso, Texas

Date: 12-21-07
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D Management Co., Inc.
Subject: Period 12/17/07 - 12/23/07

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, December 17th – Batched 106 tons of low perm mix for Area C. Batched 567 tons of POM-A. Hauled category 1 material from Area D to bin 11, a total of 15 loads @ 12 yards. Watered Area D and roads as needed.

Tuesday, December 18th – Batched POM-A for Area A and laid it. Removed category 1 material from Area D to bin 11, a total of 2 loads @ 12 yards. Re-sloped stock pile in bin 11. Watered Area D and roads as needed.

Wednesday, December 19th – Batched 315 tons of POM-A for Area A and laid it. Hauled category 1 material to bin 11 a total of 79 loads @ 12 yards. Began removing rail road track in Area D. Sprayed PG64-22 in Areas A, B, & C and blocked off Areas. Watered Area D and roads as needed.

Thursday, December 20th – Bathed a total of 719 tons of POM-A and laid it in Area B. Hauled 54 loads of category 1 material from Area D to bin 11. Watered Area D and roads as needed.

Friday, December 21st – Serviced equipment.

Saturday, December 22nd – Off for the Holidays.

Sunday, December 23rd - Off for the Holidays.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Continue to lay POM-A in Areas B & C. Work in Area D hauling category 1 material to bin 11. Spray CSS-1H in Areas with a wand where the truck was unable to spray PG64-22.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Management Co., Inc Personnel:

James Lozier – Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth – Project Superintendent	Nicholas Ennis – Labor
Jessica Valdez – Safety Manager	Brant Smith – Labor
Chris Allman - Foreman operator	Louie Mier – Labor
Matthew Barth - Operator	Albert Person – Labor
Tony Muraira - Operator	Danny Wolf - Labor
Leo Soto – Operator	

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Material Hauled Material

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- Category 1 material in Area D.

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS – All people working in Area D are wearing respirators for category 1 material. Will be receiving two excavators to handle material and load trucks and to help keep the dust down.

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
 JL-D Management Co., Inc.
 Project Superintendent
 (210) 260-8061 (cell)
 wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project-- El Paso, Texas

Date: 1-7-08
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D Management Co., Inc.
Subject: Period 12/31/07 - 1/6/08

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, December 30th – Off

Tuesday, January 1st – Off

Wednesday, January 2nd– Batched 900 tons of POM-A. Hauled asphalt to Area B. Worked on Area D hauling category 2 material to bin 11. Watered Area D and roads as needed.

Thursday, January 3rd – Batched a total of 1,289 tons of POM-A, laid it in Area B. Worked on Area D hauling category 2 material to bin 11. Watered Area D and roads as needed.

Friday, January 4th – Batched a total of 1,973 tons of POM-A, laid it in Area B. Worked on Area D hauling category 2 material to bin 11. Watered Area D and roads as needed.

Saturday, January 5th – Laid asphalt in Area B all hand work was done. Worked on Area D hauling category 2 material to bin 11. Watered Area D and roads as needed.

Sunday, January 6th- Worked on time sheets, weekly progress report and invoices.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Continue to lay POM-A in Areas B & C. Work in Area D hauling category 1 material to bin 11. Should be done laying POM-A in Area B & C.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Management Co., Inc Personnel:

James Lozier -- Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth -- Project Superintendent	Nicholas Ennis -- Labor
Jessica Valdez -- Safety Manager	Brant Smith -- Labor
Chris Allman - Foreman operator	Louie Mier -- Labor
Matthew Barth - Operator	Albert Person -- Labor
Tony Muraira - Operator	Danny Wolf - Labor
Leo Soto -- Operator	Daniel Monarez - Labor

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Material Hauled Material

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- Category 2 material in Area D.

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS -- All people working in Area D are wearing respirators for category 2 material.

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Management Co., Inc.
Project Superintendent
(210) 260-8061 (cell)
wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project- El Paso, Texas

Date: 1-14-08
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D Management Co., Inc.
Subject: Period 1/7/08 - 1/13/08

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, January 7th – Batched 1,537 tons of POM-A. Hauled and laid asphalt to Area B. Worked on Area D hauling category 1 material to bin 11. Watered Area D and roads as needed.

Tuesday, January 8th – Batched 2,002 tons of POM-A. Hauled and laid asphalt to Area C. Worked on Area D hauling category 1 material to bin 10. Watered Area D and roads as needed.

Wednesday, January 9th– Batched 631 tons of POM-A. Hauled asphalt to Area C. Worked on Area D hauling category 1 material to bin 10. Watered Area D and roads as needed.

Thursday, January 10th – Batched a total of 529 tons of POM-A, laid it in Area B. Worked on Area D hauling category 1 material to bin 10. Watered Area D and roads as needed.

Friday, January 11th – Batched a total of 202 tons of POM-A, laid it in Areas A, B, and C. Worked on Area D hauling category 2 material to bin 10. Watered Area D and roads as needed.

Saturday, January 12th – Hauled trash asphalt to bin 5. Patched pot holes in roads around plant. Worked in Area D. Watered Area D and roads as needed.

Sunday, January 13th- Worked on time sheets, weekly progress report and invoices.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Will continue to level Area D. Will begin to lay hot mix during the middle of the week.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Management Co., Inc. Personnel:

James Lozier – Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth – Project Superintendent	Nicholas Ennis – Labor
Jessica Valdez – Safety Manager	Brant Smith – Labor
Chris Allman - Foreman/ Operator	Louie Mier – Labor
Matthew Barth - Operator	Albert Person – Labor
Tony Muraira - Operator	Danny Wolf - Labor
Leo Soto – Operator	Daniel Monarez - Labor

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Material Hauled Material

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS –N/A

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
 JL-D Management Co., Inc.
 Project Superintendent
 (210) 260-8061 (cell)
 wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project-- El Paso, Texas

Date: 1-21-08
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D Management Co., Inc.
Subject: Period 1/14/08 - 1/20/08

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, January 14th -- Bladed Area D, watered the Area and other roads as needed. Rolled and watered pond in Area C.

Tuesday, January 15th -- Bladed Area D, watered the Area and other roads as needed.

Wednesday, January 16th-- Bladed Area D, watered the Area and other roads as needed. Started paving Area A.

Thursday, January 17th -- Bladed Area D, watered the Area and other roads as needed. Continued to pave Area A. Started filling along fence line with base in Area B to prepare for paving.

Friday, January 18th -- Froze no water in plant. Safety training.

Saturday, January 19th -- Patched part of road in front of guard shack.

Sunday, January 20th- Worked on time sheets, weekly progress report and invoices.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Continue laying base in Area D. Continue paving in Area A and continue putting base along fence line in Area B.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Management Co., Inc Personnel:

James Lozier – Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth – Project Superintendent	Nicholas Ennis – Labor
Jessica Valdez – Safety Manager	Brant Smith – Labor
Chris Allman - Foreman/ Operator	Louie Mier – Labor
Matthew Barth - Operator	Albert Person – Labor
Tony Muraira - Operator	Danny Wolf - Labor
Leo Soto – Operator	Daniel Monarez - Labor

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Material Hauled Material

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS -- None

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Management Co., Inc.
Project Superintendent
(210) 260-8061 (cell)
wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project— El Paso, Texas

Date: 1-28-08
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D Management Co., Inc.
Subject: Period 1/21/08 - 1/27/08

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, January 21st – Bladed Area D watered the Area and other roads as needed. Started filling along fence line with base in Area B to prepare for paving.

Tuesday, January 22nd – Bladed Area D watered the Area and other roads as needed. Started filling along fence line with base in Area B to prepare for paving.

Wednesday, January 23rd– Bladed Area D watered the Area and other roads as needed. Started filling along fence line with base in Area B to prepare for paving.

Thursday, January 24th – Bladed Area D watered the Area and other roads as needed. Started filling along fence line with base in Area B to prepare for paving.

Friday, January 25th – Worked on pug mill. Mixed 75 tons of cold mix and laid it on Area D.

Saturday, January 26th – Worked on pug mill. Mixed 700 tons of cold mix and laid it on Area D. Finished preparing Area B for paving.

Sunday, January 27th- Worked on time sheets, weekly progress report and invoices.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Will finish paving Area A and start paving in Area B. Will also finish low perm in Area D and spray PG-64-22 on Wednesday.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Management Co., Inc Personnel:

James Lozier – Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth – Project Superintendent	Nicholas Ennis – Labor
Jessica Valdez – Safety Manager	Brant Smith – Labor
Chris Allman - Foreman/ Operator	Louie Mier – Labor
Matthew Barth - Operator	Albert Person – Labor
Tony Muraira - Operator	Danny Wolf - Labor
Leo Soto – Operator	Daniel Monarez - Labor

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Material Hauled Material

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS – N/A

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
 JL-D Management Co., Inc.
 Project Superintendent
 (210) 260-8061 (cell)
 wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project— El Paso, Texas

Date: 2-4-08
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D Management Co., Inc.
Subject: Period 1/28/08 - 2/3/08

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, January 28th – Worked on pug mill, unable to pave due to weather.

Tuesday, January 29th – Mixed 343 tons of cold mix and laid on Area D. Laid 158 tons of hot mix in Area B.

Wednesday, January 30th– Mixed 200 tons of cold mix and laid on Area D. Laid 444 tons of hot mix in Area B.

Thursday, January 31st – Serviced and washed equipment with steam cleaner. Serviced pug mill. Unable to pave due to weather.

Friday, February 1st – Laid 386 tons of hot mix in Area B.

Saturday, February 2nd – Laid 514 tons of hot mix in Area B.

Sunday, February 3rd- Worked on time sheets and weekly progress report.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Continue laying hot mix in Area B. Will start laying hot mix in Area C and Area D.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Management Co., Inc Personnel:

James Lozier – Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth – Project Superintendent	Nicholas Ennis – Labor
Jessica Valdez – Safety Manager	Gomez, Edward – Labor
Chris Allman - Foreman/ Operator	Louie Mier – Labor
Matthew Barth - Operator	Albert Person – Labor
Tony Muraira - Operator	Danny Wolf - Labor
Leo Soto – Operator	Daniel Monarez - Labor

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Material Hauled Material

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS – N/A

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Management Co., Inc.
Project Superintendent
(210) 260-8061 (cell)
wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project— El Paso, Texas

Date: 2-11-08
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D Management Co., Inc.
Subject: Period 2/4/08 - 2/10/08

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, February 4th – Laid a total of 395 tons of hot mix in Area B.

Tuesday, February 5th – Mixed and laid a total of 1,057 of POM-A on Area D.

Wednesday, February 6th– Mixed 1,501 tons of POM-A, continued laying on Area D.

Thursday, February 7th – Mixed 961 tons of POM-A, continued laying on Area D.

Friday, February 8th – Mixed 380 tons of POM-A, continued laying on Area D. Laid hot mix on Area A.

Saturday, February 9th – Finished laying POM-A on Area D. Laid POM-A by Acid Plant free of charge. Laid hot mix on Area B.

Sunday, February 10th- Worked on time sheets and weekly progress report.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Continue laying hot mix in Area B and C.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Management Co., Inc Personnel:

James Lozier – Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth – Project Superintendent	Nicholas Ennis – Labor
Jessica Valdez – Safety Manager	Louie Mier – Labor
Chris Allman - Foreman/ Operator	Albert Person – Labor
Matthew Barth - Operator	Danny Wolf - Labor
Tony Muraira - Operator	Daniel Monarez - Labor
Leo Soto – Operator	

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Material Hauled Material

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS – N/A

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Management Co., Inc.
Project Superintendent
(210) 260-8061 (cell)
wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project— El Paso, Texas

Date: 2-25-08
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D Management Co., Inc.
Subject: Period 2/18/08 - 2/24/08

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, February 18th – A total of 382.54 tons of hot mix were laid in Area D. Serviced pug mill and steamed cleaned equipment.

Tuesday, February 19th – A total of 144.32 tons of hot mix were laid in Area D. Continued to steam clean equipment.

Wednesday, February 20th– A total of 141.76 tons of hot mix were laid in Area D. Swept Area A and serviced equipment.

Thursday, February 21st – Continued to service pug mill as well as equipment.

Friday, February 22nd – Removed old asphalt from bin in Area C to be hauled out of plant.

Saturday, February 23rd – A total of 482.23 tons of hot mix were laid in Area D.

Sunday, February 24th- Worked on time sheets and weekly progress report.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Continue laying hot mix in Area B and C. Finish laying hot mix in Area D.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Management Co., Inc Personnel:

James Lozier – Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth – Project Superintendent	Nicholas Ennis – Labor
Jessica Valdez – Safety Manager	Louie Mier – Labor
Chris Allman - Foreman/ Operator	Albert Person – Labor
Matthew Barth - Operator	Danny Wolf - Labor
Tony Muraira - Operator	Daniel Monarez - Labor
Leo Soto – Operator	
Jake Sander - Operator	

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Material Hauled Material

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS – N/A

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Management Co., Inc.
Project Superintendent
(210) 260-8061 (cell)
wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project— El Paso, Texas

Date: 3-3-08
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D Management Co., Inc.
Subject: Period 2/25/08 - 3/2/08

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, February 25th — A total of 477.51 tons of hot mix were laid in Areas A, B, C & D. Serviced pug mill and steamed cleaned equipment.

Tuesday, February 26th — A total of 312.39 tons of hot mix were laid in Areas A, B, C & D. Continued to steam clean equipment.

Wednesday, February 27th— A total of 189.296 tons of hot mix were laid in Areas A, B, C & D.

Thursday, February 28th — A total of 102.44 tons of hot mix were laid in Areas A, B, C & D. Continued to service pug mill as well as equipment.

Friday, February 29th — A total of 76.24 tons of hot mix were laid in Areas A, B, C & D (hand work).

Saturday, March 1st — A total of 44.19 tons of hot mix were laid in Areas A, B, C, & D (hand work).

Sunday, March 2nd- Worked on time sheets and weekly progress report.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Continue laying hot mix in Areas B, C & D.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Management Co., Inc Personnel:

James Lozier – Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth – Project Superintendent	Nicholas Ennis – Labor
Jessica Valdez – Safety Manager	Louie Mier – Labor
Chris Allman - Foreman/ Operator	Albert Person – Labor
Matthew Barth - Operator	Danny Wolf - Labor
Tony Muraira - Operator	Daniel Monarez - Labor
Leo Soto – Operator	Mekeli Ieremia - Labor
Jake Sander - Operator	

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Material Hauled Material

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS – N/A

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Management Co., Inc.
Project Superintendent
(210) 260-8061 (cell)
wedge78055@yahoo.com

JL-D Management Co., Inc.
7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project— El Paso, Texas

Date: 3-10-08
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D Management Co., Inc.
Subject: Period 3/3/08 - 3/9/08

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, March 3rd – A total of 21.72 tons of hot mix were laid in Areas A, B, C & D (hand work). Serviced pug mill and steamed cleaned equipment.

Tuesday, March 4th – A total of 21.91 tons of hot mix were laid in Areas A, B, C & D (hand work). Continued to steam clean equipment.

Wednesday, March 5th – A total of 9.69 tons of hot mix were laid in Areas A, B, C & D (hand work).

Thursday, March 6th – Started cleaning pug mill.

Friday, March 7th – Continued to cleaning and disassembling the pug mill.

Saturday, March 8th – Continued to cleaning and disassembling the pug mill.

Sunday, March 9th - Worked on time sheets and weekly progress report.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Finish clean up and administrative work.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Management Co., Inc Personnel:

James Lozier – Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth – Project Superintendent	Nicholas Ennis – Labor
Jessica Valdez – Safety Manager	Louie Mier – Labor
Chris Allman - Foreman/ Operator	Albert Person – Labor
Matthew Barth - Operator	Danny Wolf - Labor
Tony Muraira - Operator	Daniel Monarez - Labor
Leo Soto – Operator	Mekeli Ieremia - Labor
Jake Sander - Operator	

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Material Hauled Material

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS – N/A

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Management Co., Inc.
Project Superintendent
(210) 260-8061 (cell)
wedge78055@yahoo.com

JL-D Management Co., Inc.

7670 Nez Perce Trace
Manor, TX 78653
(512)276-7575 (office)
(512) 276-7456 (fax)

Weekly Progress Report

ASARCO El Paso Paving Project– El Paso, Texas

Date: 3-17-08
Completed by: John Wedgworth
cc: Walter Boyle-ASARCO, James Lozier- JL-D Management Co., Inc.
Subject: Period 3/10/08 - 3/16/08

1.0 INTRODUCTION

JL-D Management Co., Inc. prepared the following summary report to describe project activities at the ASARCO Incorporated facility located at 2301 W. Paisano Drive, El Paso, Texas.

2.0 SITE ACTIVITIES COMPLETED THIS REPORTING PERIOD

Monday, March 10th – Continued the cleanup process and disassembling of pug mill.

Tuesday, March 11th – Continued the cleanup process and disassembling of pug mill.

Wednesday, March 12th – Continued the cleanup process and disassembling of pug mill.

Thursday, March 13th – Continued the cleanup process and disassembling of pug mill

Friday, March 14th – Continued the cleanup process and disassembling of pug mill.

Saturday, March 15th – Continued the cleanup process and disassembling of pug mill.

Sunday, March 16th - Worked on time sheets and weekly progress report.

3.0 SITE ACTIVITIES PLANNED FOR NEXT REPORTING PERIOD

Administrative work.

4.0 PROJECT PERSONNEL ON-SITE

JL-D Management Co., Inc Personnel:

James Lozier – Admin Project Manager	Carlos De La Cruz - Labor
John Wedgworth – Project Superintendent	Nicholas Ennis – Labor
Jessica Valdez – Safety Manager	Louie Mier – Labor
Chris Allman - Foreman/ Operator	Albert Person – Labor
Matthew Barth - Operator	Danny Wolf - Labor
Tony Muraira - Operator	Daniel Monarez - Labor
Leo Soto – Operator	Mekeli Ieremia - Labor
Jake Sander - Operator	

SUBCONTRACTORS:

NAME	WORK PERFORMED
Drivers Villegas & Sons	Hauled Material Hauled Material

5.0 HEALTH & SAFETY ISSUES/CONCERNS/HAZARD RECOGNITION- None

6.0 ISSUES/CONCERNS/DISCUSSIONS ARISING THIS PERIOD - None

7.0 RESOLUTION OF ISSUES OR CONCERNS – N/A

8.0 PROJECT CONTACT INFORMATION

If you have any questions or comments pertaining to this report, please contact:

John Wedgworth
JL-D Management Co., Inc.
Project Superintendent
(210) 260-8061 (cell)
wedge78055@yahoo.com

Appendix D Construction Progress Reports – Category II Capping

D.3 CDM 2007 Daily Construction Reports



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Nov 19, 2007 (Monday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny **TEMPERATURE:** 38am, 69pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator

Activities for today:

- JL-D started pug mill and prepared a batch of the 2" Low Permeability Mix material (cold mix) for installation at Area A.
- Asarco (Walter Boyle) asked CDM to confirm with Raba Kistner whether application of a tack coat was necessary on the prepared sub-base prior to laying the 2" Low Permeability mix. Berna Olague (Raba Kistner) stated that tack coat application on the prepared sub-base is not required.
- JL-D continued sub-base preparation in areas A and B.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Hemanth Haft</i> CDM – RPR	19 Nov 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Nov 20, 2007 (Monday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Cloudy **TEMPERATURE:** 46am, 74pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- JL-D completed installation of geogrid mat (TenCate Mirafi) along east side of Area A (by storm-water storage tanks)
- 2" Low Permeability Mix layer installed on portions of south side of Area A (north of existing tracks)
- JL-D concerned that drainage would be affected in Area A as a result of not paving over certain tracks in Area A. CDM informed Asarco (via e-mail) of JL-D's concern
- Raba Kistner was on-site to collect samples (3) of 2" Low Permeability Mix batch prepared today.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Hemanth Haft</i> CDM – RPR	20 Nov 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Nov 26, 2007 (Monday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Overcast **TEMPERATURE:** 33am, 45pm

Manpower on site: 1 Safety Manager 1 Superintendent

Equipment on site: 1-Motor Grader 3-FE Loader 2-Skid Steers
 1- Water truck 1-Flat Wheel Roller 1-Gator

Activities for today:

- JL-D not working today due to wet conditions resulting from snow on Saturday and Sunday.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Hemanth Haft</i> CDM – RPR	26 Nov 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Nov 27, 2007 (Tuesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Cloudy **TEMPERATURE:** 34am, 50pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator

Activities for today:

- JL-D removed fill material covering tracks in Area A (along west side) using blade and sweeper
- JL-D resumed sub-base preparation and grading of portions of Area A to drain towards the sump
- No activity at pug mill
- Removal of concrete debris and rebar at north end of Area B.
- Removal of stockpiled debris from Area D

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Hemanth Haft</i> CDM – RPR	27 Nov 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Nov 28, 2007 (Wednesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Overcast **TEMPERATURE:** 42am, 60pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- JL-D & Southwest Paving resumed installation of 2" Low Permeability mix (cold mix) layer in Area A
- Removal of material from over existing tracks in Area A in order to expose tracks for future Asarco operations
- Begin installation of Geogrid mat (TenCate Mirafi) in Area B along east side of fence (property line)

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Hemanth Haft</i> CDM – RPR	28 Nov 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Nov 29, 2007 (Thursday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Cloudy **TEMPERATURE:** 43am, 59pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- JL-D & Southwest Paving begin installation of 2" Low Permeability mix (cold mix) layer in Area B along east side of fence.
- Weekly progress meeting from 9:00 am to 10:30 am – Meeting minutes include information on JL-D 2-week schedule, testing, concerns etc.
- Manny Reyes (Raba Kistner) on site around 3:00 pm to observe paving in Area B. Manny recommended rolling pattern to achieve better compaction of 2" low permeability mix layer.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Hemanth Haft</i> CDM – RPR	29 Nov 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Nov 30, 2007 (Friday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Overcast **TEMPERATURE:** 51am, 59pm

Manpower on site:	1 Safety Manager 3 Operators	1 Superintendent 1 Foreman	4 Operators/Laborers 3 Laborers
Equipment on site:	1-Motor Grader 1- Water truck	3-FE Loader 1-Flat Wheel Roller	2-Skid Steers 1-Gator
Activities for today:			
<ul style="list-style-type: none"> • Rain overnight – no paving work today. JL-D will resume installation of 2" Low Permeability mix layer at Area B on Tuesday. • JL-D performed clean-up and sub-base preparation in Area B (east side towards Pond 5). 			

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Hemanth Haft</i> CDM – RPR	30 Nov 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Dec 03, 2007 (Monday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny **TEMPERATURE:** 40am, 55pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator

Activities for today:

- JL-D resume sub-base preparation work in Area B. Stockpiled material from Area A (removed from existing tracks) used as fill for portions of Area B.
- Raba Kistner recommended installing 2" Low Permeability Mix layer directly over prepared sub-base in Area B without placing geogrid mat (TenCate Mirafi). The decision was made as a result of problems encountered with installation of mat in Area A. CDM e-mailed Raba Kistner (Bernadino O.) to confirm this design change.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Hemanth Haft</i> CDM – RPR	03 Dec 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Dec 04, 2007 (Tuesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Clear **TEMPERATURE:** 38am, 61pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- JL-D & Southwest Paving placed 2" Low Permeability Mix layer on Area B (east side). Geogrid mat was not installed on prepared sub-base. Raba Kistner collected 4 samples of the cold mix material.
- Western Emulsions was on site to apply PG64 coat on the 2" Low Permeability Mix layer installed in Area A. Ticket provided by operator indicated that product being sprayed was PG64-16 instead of PG64-22 (specified in Bid Form). Informed John W (JL-D) and Asarco of the discrepancy.
- JL-D was informed that the coat will need to be re-applied if the installed product does not meet specifications.
- JL-D stated that PG64-16 is equivalent to PG64-22. JL-D to provide documentation/cut sheets to substantiate this.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Hemanth Haft</i> CDM – RPR	04 Dec 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Dec 05, 2007 (Wednesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Clear **TEMPERATURE:** 40am, 65pm

Manpower on site:	1 Safety Manager 3 Operators	1 Superintendent 1 Foreman	4 Operators/Laborers 3 Laborers
Equipment on site:	1-Motor Grader 1- Water truck 1-Asphalt Lay-down machine	3-FE Loader 1-Flat Wheel Roller	2-Skid Steers 1-Gator
Activities for today:			
<ul style="list-style-type: none"> • JL-D and Southwest Paving resumed installation of 2" Low Permeability Mix layer on Area B (east side). Geogrid mat was not installed on prepared sub-base. • Cold mix material placed yesterday on Area B (east side) was compacted using roller . • JL-D cleared stockpiled fill material from along the fence in Area C. 			

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Hemanth Haft</i> CDM – RPR	05 Dec 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Dec 07, 2007 (Friday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny **TEMPERATURE:** 50am, 65pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- JL-D and Southwest Paving started the installation of the 2" Low Permeability Mix layer on Area C. Geogrid mat was not installed on prepared sub-base. According to John of JLD, they will resume rolling the material late today to achieve proper compaction. Charles of Raba-Kistner stated that he would be out early tomorrow morning to check on the compaction of the material.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE <i>Walter E. Smith Jr.</i> CDM – CM/RPR	DATE 07 Dec 2007	SUPERVISOR'S INITIAL	DATE
---	---------------------	----------------------	------



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Dec 10, 2007 (Monday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Cloudy raining on and off **TEMPERATURE:** 39am, 58pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed clearing Area A where it has not yet been prepared for cold mix.
- Charles Powers of Raba-Kistner took density tests on Area C 2" Low Permeability Mix that was placed on 12-07-07. The initial results were indicating readings in the low to high 80's. Charles re-calibrated the machine and took one test that showed mid-90's but it started raining very hard which led Charles to cancel the testing so as to not damage the Density Nuclear Machine. Testing will be performed tomorrow as per Charles.
- JLD left the site at approximately 9:45AM due to steady rains.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	10 Dec 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Dec 11, 2007 (Tuesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Cloudy **TEMPERATURE:** 39am, 58pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed clearing Area A where it has not yet been prepared for cold mix.
- Also resumed clearing out Area D.
- Charles Powers of Raba-Kistner took density tests on Area C 2" Low Permeability Mix that was placed on 12-07-07. The initial results were indicating readings in the low to high 80's. Charles re-tested after a couple of hours and the results were above the minimum 94% compaction requirement. JLD was advised.
- Charles of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	11 Dec 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Dec 13, 2007 (Thursday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny **TEMPERATURE:** 32am, 56pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed clearing out Area D.
- Placed 2" Low Perm at section that connects Areas B and C.
- Removed the 2" Low Perm at Area C between the two power poles where the material was not satisfactorily installed.
- Charles of Raba-Kistner on site. He took Low Perm samples on the section between B&C. Also took preliminary density tests on that section to provide the Contractor a roll pattern.
- Progress Meeting No.3 held today.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE <i>Walter E. Smith Jr.</i> CDM – CM/RPR	DATE 13 Dec 2007	SUPERVISOR'S INITIAL	DATE
---	---------------------	----------------------	------



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Dec 14, 2007 (Friday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny **TEMPERATURE:** 32am, 52pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Sprayed PG64-22 starting at section that connects Areas B and C and headed southward onto Area C. not all of Area C was completely sprayed. Will complete at another date.
- Removed some of the subgrade at Area C between the two power poles where the material was not satisfactorily installed and the subgrade was still "pumping".
- Placed 2" Low Perm Cold Mix up against the building on south and east sides of Area B.
- Charles of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	14 Dec 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Dec 15, 2007 (Saturday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny **TEMPERATURE:** 30am, 46pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed placing with Lay down machine 2" Low Perm Cold Mix up against the building on south and east sides of Area B. Rolled the material for compaction.
- Also placed 2" Low Perm Cold Mix south of Area C and matched to existing asphalt area.
- Sprayed PG64-22 on Area B and finished Area C.
- Started loading contaminated soil into dump trucks using FE Loader and transporting the soil to Bin 11.
- Charles of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s). Advised John Wedgeworth and Jessica that they need better dust control in Area D where the contaminated soil is being loaded into dump trucks and transported to Bin 11. They agreed. They were advised that if better dust control did not happen, higher level of PPE would have to happen if air sampling indicated air contamination. Situation was taken care of immediately.

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	15 Dec 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Dec 17, 2007 (Monday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny **TEMPERATURE:** 28am, 59pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Finished placing 2" Low Perm Cold Mix south of Area C and matched to existing asphalt area.
- Started placing 4"s of POM A at Area A. A grader and a bobcat were used to spread the material as well as manual labor with shovels.
- Resumed removing Cat 2 material from Area D and placing it in Bin 11 with a FE Loader and dump trucks.
- Charles of Raba-Kistner on site.
- It was determined by Arturo Burgos (Asarco) that JLD was to remove some portion of existing railroad tracks and clear that area and blend it in with original Area D work. This work is on the eastern side of Area D. Photos were taken of area. John of JLD was present and agreed.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE <i>Walter E. Smith Jr.</i> CDM – CM/RPR	DATE 17 Dec 2007	SUPERVISOR'S INITIAL	DATE
---	---------------------	----------------------	------



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Dec 18, 2007 (Tuesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny **TEMPERATURE:** 32am, 62pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed placing 4”s of POM A at Area A. A grader and a bobcat were used to spread the material as well as manual labor with shovels.
- Resumed removing Cat 2 material from Area D with FE Loader and dump truck and placing it in Bin 11.
- Walter Boyle was advised that there were some areas in between structures at Area A (between Electrical Room and Emergency Generator) that did not have the PG64-22 sprayed onto the 2” Low Perm and was asked if Asarco wanted the membrane sprayed there or if it was not of concern to them. This will all be discussed tomorrow when the Emulsion truck arrives to see if it can be done in such a small area.
- Charles of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	18 Dec 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Dec 19, 2007 (Wednesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny **TEMPERATURE:** 34am, 62pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed placing 4”s of POM A at Area A. A grader and a bobcat were used to spread the material as well as manual labor with shovels. JLD ran out of oil so they stopped for today and finished rolling today’s material.
- Resumed and finished applying PG64-22 on Area B.
- Resumed removing Cat 2 material from Area D with FE Loader and dump truck and placing it in Bin 11.
- Walter Boyle was advised yesterday that there were some areas in between structures at Area A (between Electrical Room and Emergency Generator) that did not have the PG64-22 sprayed onto the 2” Low Perm. Walter agreed to let JLD apply tack coat material.
- Charles of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE <i>Walter E. Smith Jr.</i> CDM – CM/RPR	DATE 19 Dec 2007	SUPERVISOR'S INITIAL	DATE
---	---------------------	----------------------	------



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Dec 20, 2007 (Thursday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny **TEMPERATURE:** 33am, 61pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed and finished placing 4”s of POM A at Area A. A grader and a bobcat were used to spread the material as well as manual labor with shovels.
- Started placing POM A at Area B with the same methods as in Area A.
- Resumed removing Cat 2 material from Area D with FE Loader and dump truck and placing it in Bin 11.
- Charles of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE <i>Walter E. Smith Jr.</i> CDM – CM/RPR	DATE 20 Dec 2007	SUPERVISOR'S INITIAL	DATE
---	---------------------	----------------------	------



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Dec 21, 2007 (Friday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny **TEMPERATURE:** 34am, 60pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed placing 4”s of POM A that was produced yesterday at Area B. A grader and a bobcat were used to spread the material as well as manual labor with shovels.
- Resumed removing Cat 2 material from Area D with FE Loader and dump truck and placing it in Bin 11.
- Charles of Raba-Kistner on site.
- JLD will resume work activities on Jan 02, 2008.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	21 Dec 2007		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 02, 2008 (Wednesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Partly Sunny, breezy **TEMPERATURE:** 25am, 56pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed placing 4”s of POM A at Area B. A grader was used to spread the material as well as manual labor with shovels.
- Resumed removing Cat 2 material (railroad ties) from Area D with an Excavator and dump truck and placing it in Bin 2.
- Charles of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	02 Jan 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 04, 2008 (Friday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Partly sunny, light breeze **TEMPERATURE:** 39am, 60pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Again resumed placing 4”s of POM A at the northeast section of Area B by the High Line columns. A grader was used to spread the material as well as manual labor with shovels.
- Resumed removing Cat 2 material from Area D with Excavators and dump truck and placing it in Bin 11.
- Charles of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE <i>Walter E. Smith Jr.</i> CDM – CM/RPR	DATE 04 Jan 2008	SUPERVISOR'S INITIAL	DATE
---	---------------------	----------------------	------



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 05, 2008 (Saturday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny, windy pm **TEMPERATURE:** 40am, 65pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed placing 4”s of POM A by the area where B and C meet. It was also placed under the High Line columns. A grader was used to spread the material as well as manual labor with shovels and a bobcat.
- Resumed removing Cat 2 material from Area D with Excavators and dump truck and placing it in Bin 11.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	05 Jan 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 07, 2008 (Monday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny, windy pm **TEMPERATURE:** 40am, 60pm

Manpower on site:	1 Safety Manager 3 Operators	1 Superintendent 1 Foreman	4 Operators/Laborers 3 Laborers
Equipment on site:	1-Motor Grader 1- Water truck 1-Asphalt Lay-down Machine	3-FE Loader 1-Flat Wheel Roller	2-Skid Steers 1-Gator
Activities for today:			
<ul style="list-style-type: none"> Resumed placing 4" of POM A by the area where B and C meet. A grader was used to spread the material as well as manual labor with shovels and a bobcat. Resumed removing Cat 2 material from Area D with Excavators and dump truck and placing it in Bin 11. Charles of Raba-Kistner on site. Discussed with Arturo Burgos and Walter Boyle (ASARCO) and Charles Powers (R-K) to try and come up with a plan on being able to retain the storm water on the west end of Area B. Charles called Ben Natera (R-K) and Ben stated during his site visit that he would pass the info to Berna (R-K) and let him make a decision. 			

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE <i>Walter E. Smith Jr.</i> CDM – CM/RPR	DATE 07 Jan 2008	SUPERVISOR'S INITIAL	DATE
---	---------------------	----------------------	------



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 09, 2008 (Wednesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny, windy pm **TEMPERATURE:** 40am, 63pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed placing 4”s of POM A on Area C. A grader was used to spread the material as well as manual labor with shovels and a Bobcat.
- Resumed removing Cat 2 material from Area D with an Excavator and dump trucks and placing it in Bin 11.
- Charles of Raba-Kistner on site.
- Discussed with Walter Boyle (ASARCO) and Charles Powers (R-K) the possibility of installing a pipe underground in Area B to have all of the collected storm water by the retaining rock wall drain from the west to the east side. Walter Smith will bring a tri-pod and level tomorrow to shoot elevations to see if this will work as far as having enough gravity from one side to the other.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	09 Jan 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 10, 2008 (Thursday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny, breezy **TEMPERATURE:** 35am, 63pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed placing 4”s of POM A on Area C. A grader was used to spread the material as well as manual labor with shovels and a Bobcat.
- Resumed removing Cat 2 material from Area D with an Excavator and dump trucks and placing it in Bin 11.
- Charles of Raba-Kistner on site.
- Progress Meeting No.4 was held today at ASARCO.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	10 Jan 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 11, 2008 (Friday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny, breezy **TEMPERATURE:** 34am, 64pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed placing 4" of POM A on Area C. A grader was used to spread the material as well as manual labor with shovels and a Bobcat. There is an area that does not yet have the PG64-22 sprayed. This will be sprayed at a later date.
- Resumed removing Cat 2 material from Area D with an Excavator and dump trucks and placing it in Bin 11.
- Charles of Raba-Kistner on site.
- Reviewed R-K documentation of reports for ASARCO with Charles Powers. Still pending documentation that will be turned in at a later date.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	11 Jan 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 12, 2008 (Saturday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny, breezy **TEMPERATURE:** 31am, 60pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed removing Cat 2 material from Area D with an Excavator and dump trucks and placing it in Bin 11. Existing material was graded and compacted along with plenty of water for those activities.
- Some potholes were covered on the roadway from the Guard House heading towards the Pug Mill using left over POM A material from yesterday. The sweeper was used to clean-up the area prior to patching.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE <i>Walter E. Smith Jr.</i> CDM – CM/RPR	DATE 12 Jan 2008	SUPERVISOR'S INITIAL	DATE
---	---------------------	----------------------	------



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 14, 2008 (Monday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Partly sunny, windy **TEMPERATURE:** 28am, 55pm

Manpower on site:	1 Safety Manager 3 Operators	1 Superintendent 1 Foreman	4 Operators/Laborers 3 Laborers
Equipment on site:	1-Motor Grader 1- Water truck 1-Asphalt Lay-down Machine	3-FE Loader 1-Flat Wheel Roller	2-Skid Steers 1-Gator
Activities for today:			
<ul style="list-style-type: none"> Resumed removing Cat 2 material from Area D with an Excavator and dump trucks and placing it in Bin 11. Existing material was graded and compacted along with plenty of water for those activities. Charles Powers of Raba-Kistner on site. 			

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	14 Jan 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 15, 2008 (Tuesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Partly sunny **TEMPERATURE:** 28am, 54pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Resumed removing Cat 2 material from Area D with an Excavator and dump trucks and placing it in Bin 11. Existing material was graded and compacted along with plenty of water for those activities.
- Sprayed oil tack coat on Area A on top of the new POM A for HMAC paving tomorrow according to John Wedgeworth. JL-D was advised that paving needed to take place with temperatures of 40 degrees and rising.
- Charles Powers of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	15 Jan 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 16, 2008 (Wednesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Partly sunny **TEMPERATURE:** 28am, 54pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- The following information was provided by Tyler Irwin of CDM.
- Existing material at Area D was graded and compacted along with plenty of water for those activities.
- Sprayed oil tack coat on Area A on top of the new POM A for HMAC paving that was done today using the Lay-down machine.
- Charles Powers of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE <i>Walter E. Smith Jr.</i> CDM – CM/RPR	DATE 18 Jan 2008	SUPERVISOR'S INITIAL	DATE
---	---------------------	----------------------	------



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 17, 2008 (Thursday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Partly sunny **TEMPERATURE:** 28am, 54pm

Manpower on site:	1 Safety Manager 3 Operators	1 Superintendent 1 Foreman	4 Operators/Laborers 3 Laborers
Equipment on site:	1-Motor Grader 1- Water truck 1-Asphalt Lay-down Machine	3-FE Loader 1-Flat Wheel Roller	2-Skid Steers 1-Gator
Activities for today:			
<ul style="list-style-type: none"> • The following information was provided by Tyler Irwin of CDM. • No paving was done today due to the ambient temperature being too cold to pave. • Resumed existing material grading and compaction at Area D along with plenty of water for those activities. • Charles Powers of Raba-Kistner on site. 			

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE <i>Walter E. Smith Jr.</i> CDM – CM/RPR	DATE 18 Jan 2008	SUPERVISOR'S INITIAL	DATE
---	---------------------	----------------------	------



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 18, 2008 (Friday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny, breezy **TEMPERATURE:** 22am, 51pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- No paving was done today due to the ambient temperature being too cold to pave.
- Hauled in basecourse for the additional work to be done at Area B by the west fence line.
- Contractor left early today.
- No work is scheduled for tomorrow.
- Charles Powers of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE <i>Walter E. Smith Jr.</i> CDM – CM/RPR	DATE 18 Jan 2008	SUPERVISOR'S INITIAL	DATE
---	---------------------	----------------------	------



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 21, 2008 (Monday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny, breezy **TEMPERATURE:** 26am, 60pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Paving was done today on Area A laying down about 90 tons. (Villegas & Sons).
- Started placing basecourse on Area B by the west fence line for the additional work there.
- Basecourse material was delivered for Area D. Walter Boyle advised John that the basecourse was not needed and to stop the delivery of the material. The basecourse that was delivered was filled in the low spots.
- No work was performed this past Saturday.
- Charles Powers of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE <i>Walter E. Smith Jr.</i> CDM – CM/RPR	DATE 21 Jan 2008	SUPERVISOR'S INITIAL	DATE
---	---------------------	----------------------	------



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 22, 2008 (Tuesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Partly Sunny **TEMPERATURE:** 30am, 60pm

Manpower on site:	1 Safety Manager	1 Superintendent	4 Operators/Laborers
	3 Operators	1 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	3-FE Loader	2-Skid Steers
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Paving resumed today on Area A laying down about 112 tons. (Villegas & Sons).
- Resumed placing basecourse on Area B by the west fence line for the additional work there. R-K took densities there. Tests passed.
- Charles Powers of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	22 Jan 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 23, 2008 (Wednesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Partly Sunny **TEMPERATURE:** 32am, 57pm

Manpower on site:	1 Safety Manager	1 Superintendent	2 Operators/Laborers
	2 Operators	0 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	2-FE Loader	1-Skid Steer
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- No paving was done today due to electrical problems at the hotmix plant and also due to colder weather, this according to John of JL-D.
- Resumed placing basecourse on Area B by the west fence line for the additional work there.
- Charles Powers of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	23 Jan 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 24, 2008 (Thursday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Partly Sunny, rain AM **TEMPERATURE:** 33am, 53pm

Manpower on site:	1 Safety Manager	1 Superintendent	2 Operators/Laborers
	2 Operators	0 Foreman	3 Laborers

Equipment on site:	1-Motor Grader	2-FE Loader	1-Skid Steer
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- No paving was done today due to wet and cold weather, this according to John of JL-D.
- Resumed placing basecourse on Area B by the west fence line for the additional work there.
- Charles Powers of Raba-Kistner on site.
- Progress Meeting No.5 held today at ASARCO conference room.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	24 Jan 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

ASARCO, El Paso Plant - On-Plant Remediation Project CDM DAILY CONSTRUCTION REPORT

DATE: Jan 25, 2008 (Friday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
 OWNER: ASARCO
 CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Partly cloudy TEMPERATURE: 36am, 60pm

Manpower on site:	1 Safety Manager	1 Superintendent	2 Operators/Laborers
	2 Operators	0 Foreman	3 Laborers
Equipment on site:	1-Motor Grader	2-FE Loader	1-Skid Steer
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Paving (Villegas) started at Area D with the 2" Low Perm layer but stopped due to the Pug Mill "plugging up". (75 tons placed)
- Paved placing 88.11 tons of 2" hotmix at Area A with the laydown machine.
- Charles Powers of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	25 Jan 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 26, 2008 (Saturday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Partly cloudy **TEMPERATURE:** 36am, 65pm

Manpower on site:	1 Safety Manager 2 Operators	1 Superintendent 0 Foreman	2 Operators/Laborers 3 Laborers
Equipment on site:	1-Motor Grader 1- Water truck 1-Asphalt Lay-down Machine	2-FE Loader 1-Flat Wheel Roller	1-Skid Steer 1-Gator
Activities for today:			
<ul style="list-style-type: none"> Paved resumed at Area D placing 700 tons of 2" Low Perm with the laydown machine. Material was rolled with rollers. Charles Powers of Raba-Kistner on site. 			

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	26 Jan 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 28, 2008 (Monday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Cloudy, raining **TEMPERATURE:** 44am, 66pm

Manpower on site:	1 Safety Manager 2 Operators	1 Superintendent 0 Foreman	2 Operators/Laborers 3 Laborers
Equipment on site:	1-Motor Grader 1- Water truck 1-Asphalt Lay-down Machine	2-FE Loader 1-Flat Wheel Roller	1-Skid Steer 1-Gator
Activities for today:			
<ul style="list-style-type: none"> No paving was done due to rainy conditions and rain forecasted for the rest of the day. Charles Powers of Raba-Kistner on site. 			

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).			
INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	28 Jan 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 30, 2008 (Wednesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny, windy **TEMPERATURE:** 37am, 61pm

Manpower on site:	1 Safety Manager	1 Superintendent	2 Operators/Laborers
	2 Operators	0 Foreman	1 Laborer

Equipment on site:	1-Motor Grader	2-FE Loader	1-Skid Steer
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Paving resumed and was finished (Villegas Paving) at Area D with the 2" Low Perm layer using the Laydown machine and dump trucks. They also resumed and finished at Area A paving there with 2" HMAC on the northwest side of the area over the 4" POM A material. They then moved to the east side of Area B and started paving there with 2" HMAC over the 4" POM A material.
- Tack oil was sprayed at Area B prior to HMAC paving activities.
- PG64-22 was sprayed onto Areas C and D on top of the 2" Low Perm material
- Charles Powers of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE <i>Walter E. Smith Jr.</i> CDM – CM/RPR	DATE 30 Jan 2008	SUPERVISOR'S INITIAL	DATE
---	---------------------	----------------------	------



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Jan 31, 2008 (Thursday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny, breezy **TEMPERATURE:** 30am, 47pm

Manpower on site:	1 Safety Manager	1 Superintendent	2 Operators/Laborers
	2 Operators	0 Foreman	1 Laborer

Equipment on site:	1-Motor Grader	2-FE Loader	1-Skid Steer
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- No paving was done due to temperature forecast being too low. (47 degrees for the high)
- Cleaning and maintenance of equipment was done.
- Charles Powers of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	31 Jan 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Feb 01, 2008 (Friday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
 OWNER: ASARCO
 CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny, breezy TEMPERATURE: 28am, 59pm

Manpower on site:	1 Safety Manager	1 Superintendent	2 Operators/Laborers
	2 Operators	0 Foreman	1 Laborer

Equipment on site:	1-Motor Grader	2-FE Loader	1-Skid Steer
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Paving resumed (Villegas Paving) at Area B with the 2" HMAC layer using the Laydown machine and dump trucks. This activity started at about 11:30am after the temperature was above 40 degrees and rising.
- Charles Powers of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	01 Feb 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Feb 04, 2008 (Monday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny, breezy **TEMPERATURE:** 40am, 60pm

Manpower on site:	1 Safety Manager 2 Operators	1 Superintendent 0 Foreman	2 Operators/Laborers 1 Laborer
Equipment on site:	1-Motor Grader 1- Water truck 1-Asphalt Lay-down Machine	2-FE Loader 1-Flat Wheel Roller	1-Skid Steer 1-Gator
Activities for today:			
<ul style="list-style-type: none"> • Paving resumed (Villegas Paving) at Area B and into Area C with the 2" HMAC layer using the Laydown machine and dump trucks. • Charles Powers of Raba-Kistner on site. 			

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	04 Feb 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Feb 05, 2008 (Tuesday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Cloudy, breezy **TEMPERATURE:** 37am, 50pm

Manpower on site:	1 Safety Manager	1 Superintendent	2 Operators/Laborers
	2 Operators	0 Foreman	1 Laborer

Equipment on site:	1-Motor Grader	2-FE Loader	1-Skid Steer
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Paving resumed (Villegas Paving) at Area C by the Lunch Room and started with Area D with the 4" POM A layer using the Grader machine, Bobcat, and dump trucks.
- Started reviewing the JL-D pay app for January 2008.
- Charles Powers of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	05 Feb 2008		



4110 Rio Bravo Drive, Suite 201
 El Paso, Texas 79902
 Tel: 915-544-2340
 Fax: 915-544-1345

**ASARCO, El Paso Plant - On-Plant Remediation Project
 CDM DAILY CONSTRUCTION REPORT**

DATE: Feb 08, 2008 (Friday)

PROJECT: ASARCO ON-PLANT REMEDIATION PROJECT
OWNER: ASARCO
CONTRACTOR: JL-D Management Co., Inc.

WEATHER: Sunny **TEMPERATURE:** 41am, 69pm

Manpower on site:	1 Safety Manager	1 Superintendent	2 Operators/Laborers
	2 Operators	0 Foreman	1 Laborer

Equipment on site:	1-Motor Grader	2-FE Loader	1-Skid Steer
	1- Water truck	1-Flat Wheel Roller	1-Gator
	1-Asphalt Lay-down Machine		

Activities for today:

- Paving again resumed at Area D with the 4" POM A layer using the Grader machine, Bobcat, and dump trucks.
- Started placing HMAC berms (hand work) at Area A.
- Charles Powers of Raba-Kistner on site.

SAFETY (Including any infractions of safety regulation from owner. Specify corrective action/s).

INSPECTOR'S SIGNATURE	DATE	SUPERVISOR'S INITIAL	DATE
<i>Walter E. Smith Jr.</i> CDM – CM/RPR	08 Feb 2008		

Appendix D Construction Progress Reports – Category II Capping

D.4 Raba Kistner 2007 Daily Construction Reports

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-6-07

PROJECT: ASARCO

PROJECT NO.: AEA 07-051-07

CLIENT: ASARCO

CONTRACTOR: _____

TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: _____			

*DEMO AND CLEAN UP STARTED AT AREA BC. REMOVAL OF FENCE AND FENCE POLES
 REMOVAL OF ELECTRICAL BOXES AND CONDUIT.
 NO ACTIVITY ON AREA A
 NO ACTIVITY ON AREA B*

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>8:30 AM</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>4:00</u>
Travel Time:	<u>30 MIN.</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-7-07

PROJECT: ASARCO

PROJECT NO.: AEA-07-051-07

CLIENT: ASARCO

CONTRACTOR: _____

TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: _____			

DEMO AND CLEAN UP CONTINUES AT AREA C
 SOIL REMOVAL IS STARTED AT AREA A WITH THE REMOVAL OF 3' RAMP
 REMOVAL OF PLUMBING BY CUTTING OF PIPES WITH TORCH IS STARTED AT
 AREA B NEXT TO PIT. CONTRACTOR SET UP PUMP AND REMOVED ALL STANDING
 WATER INSIDE PIT AT AREA B
 PICK UP SAMPLES OF MIX DESIGN (3/4 ROCK, 3/8 ROCK, CLAY, SCREENING)

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	7:30 AM
Tech Time:	
Stand by Time:	
Departed Site:	4:00 PM
Travel Time:	30 MIN

Received By _____

Title _____

Date _____



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-8-07
 PROJECT: ASARCO
 PROJECT NO.: AEA-07-051-07
 CLIENT: ASARCO
 CONTRACTOR: _____
 TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61676</u>			

CLEAN UP CONTINUES AT AREA C. BACKFILL CONTINUES AROUND Bldgs AT AREA C. SPREADING AND COMPACTING OF SOIL AT AREA B CONTINUES WITH SOIL REMOVED FROM AREA BA. JACK HAMMER OF CONCRETE HOLDING TANK AT NORTH EDGE OF AREA B IS STARTED. SOIL REMOVAL TO EXPOSE RR TRACKS AT AREA A CONTINUES

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:30</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>4:00</u>
Travel Time:	<u>30 min</u>

Received By _____

Title _____

Date _____



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-9-07

PROJECT: ASARCO

PROJECT NO.: AEA-07-051-07

CLIENT: ASARCO

CONTRACTOR: _____

TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61677</u>			

SPREADING OF SOIL ON AREA C AND CLEAN UP CONTINUES PROGRESS MOVING SLOW

NO MOVEMENT ON AREA A

NO MOVEMENT ON AREA B

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:30</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>4:00</u>
Travel Time:	<u>30 min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-12-07

PROJECT: ASARCO

PROJECT NO.: AEA 07-051-07

CLIENT: ASARCO

CONTRACTOR: _____

TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61683</u>			

CLEAN UP AND LEVELING OF SOIL CONTINUES ON AREA C. LOADER REMOVING EXCESS SOIL, Blade LEVELING AREA south OF BUILDING ON South side OF AREA C
No activity ON AREA B
No activity ON AREA A

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:00</u>
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	<u>30 min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-13-07
 PROJECT: Asarco
 PROJECT NO.: AEA-07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61687</u>			

No activity ON AREA A
No Activity ON AREA B
Moving of soil with blade continues. CREW CLEANING AROUND DRAIN HOLES AND COMPACTION SOIL AROUND DRAINS
ADVISED John Wedgeworth ABOUT LARGE ROCKS STAYING INTO SOIL THAT IS BEING PROCESSED AND SPREAD OUT. AND John ADVISED THAT THERE IS NO SPEC. CALLING TO REMOVE LARGE ROCKS. CONTRACTOR- ELECTED TO CONTINUE LEAVING LARGE ROCKS

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>1:00</u>
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	<u>30min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkcl.com

DATE: 11-14-07

PROJECT: Asarco

PROJECT NO.: AEA 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>6689</u>			

No activity at AREA A
BREAKING OF CONCRETE PIT WALL CONTINUES ON AREA B
BLADE CONTINUES LEVELLING OUT AREA C NO OTHER ACTIVITY

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-15-07
 PROJECT: ASARCO
 PROJECT NO.: AEA 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61694</u>			

REMOVAL OF ASPHALT PILE AND DEBRIS FROM AREA A IS STARTED
 CREW REMOVING SOIL FROM AROUND DRAIN FOR WATER FLOW AND ALSO
 CLEAN UP AROUND DRAIN.
 NO ACTIVITY AT AREA B
 MATERIAL BEING SPREAD ON EASTSIDE OF AREA C. ROLLER COMPACTING
 SOIL AND BLADE MOVING SOIL TO CREATE RUN OFF

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-16-07
 PROJECT: ASARCO
 PROJECT NO.: AEA 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast		Rain		Snow
TEMP (°F)	To 32	32 50	50 70		70 85		85 up
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61695</u>			

BLADE GRADING BEHIND DIESEL FUEL STATION AT AREA A. LOADER REMOVING EXCESS MATERIAL TO STOCKPILE. ROLLER ALSO ROLLING AREA FOR COMPACTION. BLADE ALSO GRADING AROUND STORAGE TANKS.

NO ACTIVITY ON AREA C

CLEAN UP ON NORTHSIDE OF AREA B IS STARTED WITH THE REMOVAL OF REBAR AND CONCRETE FROM GROUND. CREW USING CUTTING TOOLS TO CUT AND REMOVE REBAR.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-17-07
 PROJECT: ASARCO
 PROJECT NO.: AEA 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

	Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow			
TEMP (°F)	To 32	32 50	50 70	70 85	85 up			
WIND	Still	Moderate	High	Relates to Lab.				
HUMIDITY	Low	Moderate	High	No.: <u>61697</u>				

BLADE CONTINUES TO ~~IMPROVE~~ GRADE AREA A. CREW REMOVING LARGE ROCKS FROM GROUND. ROLLER COMPACTION MATERIAL WHERE BLADE HAS GRADED.

SOIL SAMPLE WAS PICK UP ON FRIDAY FOR PROCTOR AND RESULTS CAN BE READY THE WEEK OF 11/19. NO DENSITIES HAVE BEEN PROGRAMED. JOHN WENDEWORTH ADVISED THAT SAMPLES OF MIX WILL BE RUN ON MONDAY 11/26

No Activity on AREA "B"

No Activity on AREA "C"

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-20-07
 PROJECT: ASARCO
 PROJECT NO.: AEA-07-057-07
 CLIENT: ASARCO
 CONTRACTOR: J.L.D.
 TECHNICIAN: J.O.

Day	S	M	<u>T</u>	W	T	F	S
WEATHER	<u>Sunny</u>	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	<u>70 85</u>	85 up		
WIND	<u>Still</u>	Moderate	High	Relates to Lab.			
HUMIDITY	<u>Low</u>	Moderate	High	No.: _____			

I Pick-up 3 Samples cold mix asphalt from NWest stock pile of Pugmill. Also they start Laying down the asphalt @ Section A. Sample was taken @ 1:20 pm 1st sample
 2:20 pm 2nd sample
 3:20 3rd sample
 I notified to Hemanth Haft from CDM

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

X Hemanth Haft, CDM
 Received By
Environmental Engineer
 Title
11/20/07
 Date

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-26-07
 PROJECT: Asarco
 PROJECT NO.: AEA 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JDL
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61701</u>			

ARRIVE TO SITE AND NO ACTIVITY ON AREA A. AREA COVERED WITH FIBER MAT AND 2" OF MIX LAID DOWN ON AREA AROUND STORAGE TANK. ADVISED THAT MIX WAS LAID DOWN ON WED. 11/21/07.

No activity on Area B
 No activity on Area C

ADVISED BY HEMANTH HART OF CDM THAT CREW LEFT SITE EARLY DUE TO GROUND BEING TOO WET TO WORK ON DUE TO WEEK END SNOW STORM

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-27-07

PROJECT: Asarco

PROJECT NO.: AEA 07-051-07

CLIENT: Asarco

CONTRACTOR: JL D

TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61702</u>			

ARRIVE TO AREA "A" AND CREW IS LAYING ENGINEER MAT DOWN ON ALL OF AREA UP TO RAILROAD TRACKS. LOADER REMOVING SOIL TO UNCOVER RAILROAD TRACKS

CREW CUTTING REBAR AND I-BEAM FROM GROUND ON AREA "B" CREW USING CUTTING TOOLS TO CUT METAL. BACKFILL OF SMALL AREA ON NORTHWEST CORNER OF AREA "B" CONTINUES

NO ACTIVITY ON AREA "C"

CLEAN UP IS STARTED AT AREA "D"

SOIL STILL TO WET FOR MIX TO BE LND OUT ON AREA "A". LAY DOWN CONTRACTOR MAT ON SITE

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-28-07

PROJECT: Asarco

PROJECT NO.: AEA 07-051-01

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61703</u>			

*PAVING OF AREA "A" CONTINUES ON WESTSIDE OF STORM WATER TANK #1, AND #2
 PAVING ALSO STARTED ON NORTH SIDE OF STORM WATER TANK #1. TOTAL OF MIX
 PRODUCED WAS 683 TONS FOR THE DAY AND THE ARE COVERED WAS
 0 TO 72' W AND 0 TO 80' NORTH FROM STORM WATER TANK #1 AND #2
 ALSO 0 TO 40' W AND 0 TO 24' NORTH WERE COVERED WITH 2" OF MIX FOR THE
 DAY
 FIBER INSTALLED ON AREA "B"
 NO ACTIVITY ON AREA "C"*

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-29-07

PROJECT: ASARCO

PROJECT NO.: ^{AEA}07-051-07

CLIENT: ASARCO

CONTRACTOR: JLD

TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61706</u>			

PACK AND PREP 2ND BATCH OF MIX TO SHIP OUT TO SAN ANTONIO FOR MATERIAL STATS. MIX PRODUCED 11/28. LAY DOWN OF 2" MIX CONTINUES ON AREA "A" NORTH SIDE OF STEAM WATER TANK #1. AREA COVERED WAS FROM 24' N TO 60' N AND 0 TO 40' W NEC OF STEAM WATER TANK #1. AREA "A" COMPLETE WITH 1ST LAYER OF 2" VERABIND. CREW MOVED TO AREA "B" TO START LAY DOWN OF MIX REST OF MATERIAL PRODUCED YESTERDAY 11/28. ATTEND WEEKLY MEETING TO DISCUSS PROGRESS WITH PROJECT ADVISED BY JOHN WEDGEWORTH FROM JLD THAT NO MIX WILL BE RUN TODAY. MIX TO BE RUN ON TUESDAY 12/4

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

16/04 bej; P\CMT\Technicians forms\Daily Report

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11-30-07

PROJECT: Asarco

PROJECT NO.: 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61708</u>			

Crew cleaning up around area "A" and "B"

Crew also doing patch work on roads around plant

Call San Antonio and talked to Kelly McClune for stats results and was advised that sample testing will be started on Monday 12/3

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-3-07
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61709</u>			

REROLL OF AREA "A" IS STARTED DUE TO COMPACTION BEING LOW. AREAS HAVE SPOTS WITH TENSAR MAT EXPOSED AND COLD MIX IS "FLOATING". RETEST DENSITIES AND COMPACTION W/ WY TESTS WERE BETWEEN 95.7% TO 97.6%.

CLEANUP AND ROLLING OF SOIL CONTINUES ON AREA "B". DENSITIES WERE TAKEN USING 130.07 MA. 9 DENSITIES WERE TAKEN ON VARIOUS PLACES AROUND AREA "B" USING 154.5 @ 5.0 PROCTOR. DENSITIES TAKEN WERE BETWEEN 95.7% AND 103.8%.

ADVISED JOHN WEDGEWORTH OF RESULTS AND NO TENSAR MAT WILL BE USED UNDER 2" OF COLD MIX

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-4-07
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61710</u>			

Spraying of PG 64-22 is started on northside of Area "A". Advised John Wedekind of JLD that material that is being sprayed is PG 64-16 not PG 64-22. John to investigate and supply documentation on material differences or sub-mittal. Advised by John that bill of lading was mixed up and correct bill of lading was supplied.

Lay down of 2" low perm material on Area "B" is started with a total of 787 tons made for the day. Densities were taken and all test exceeded 97.0% so no tensor mat was placed.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

16/04 bej; P\CMT\Technicians forms\Daily Report

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-5-07
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61711</u>			

Lay down of 2" cold mix continues on area "B" south and east on pump station #3. Due to compaction exceeding 95% no TENSAR MAT was placed underneath cold mix. Material used was produced onsite yesterday and new mix is being produced to continue. A total of 1063 tons were produced today.

Met with Ben Natema from R-K to help locate areas on area "A" and area "B" and "C" to provide info on square footage as per Walter Boyles request.

Samples of cold mix pickup at every 100 tons laid out

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-6-07
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: CHARLIE

Day	S	M	T	W	<u>T</u>	F	S
WEATHER	<u>Sunny</u>	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	<u>50 70</u>	70 85	85 up		
WIND	<u>Still</u>	Moderate	High	Relates to Lab.			
HUMIDITY	<u>Low</u>	Moderate	High	No.: <u>61712</u> <u>61713</u>			

LAY DOWN OF 2" LOW PERMIT COLD MIX CONTINUES ON WESTSIDE OF AREA "B"
 MATERIAL USED WAS PRODUCED YESTERDAY 12/5 AND WAS STOCKPILED NEXT TO PUG
 MILL. SAMPLES WERE PICKED UP EVERY 100 TONS DELIVERED TO AREA. AND
 DENSITIES WERE TAKEN OF COLD MIX LAID DOWN YESTERDAY 12/5 USING A MA. OF
 1291. 8 DENSITIES WERE TAKEN AND ALL TEST SOUTH AND SOUTHWEST OF
 PUMP STATION #7 WERE BETWEEN 97.27% TO 99.10. ATTEND WEEKLY
 MEETING TO DISCUSS PROJECT. AND WAS ASKED TO HAVE BERNA SEND A LETTER
 OR E-MAIL SAYING THAT IF SOIL COMPACTION IS ABOVE 95% THAT TENSAR
 MAT DOES NOT HAVE TO BE USED. ALSO ONCE DOCUMENTATION IS PROVIDED
 BY JOHN WEDGEWORTH ON P664-22 AND P664-16 BERNA IS TO EVALUATE
 IF P664-16 CAN BE USED

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-7-07

PROJECT: Asarce

PROJECT NO.: 07-051-07

CLIENT: Asarce

CONTRACTOR: JLD

TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: 61714 61715 61716			

Pick up soil sample for proctor from southside of AREA "C" 20's + 10'w from Pump station #7. Conduct 7 densities for AREA "C" using 154.5 @ 5.0 Proctor test recorded between 97.6 to 99.2 AND GAVE THE OK TO PAVE Southside PAVING CONTINUED TO LAY DOWN 2" OF LOW PENN COLD MIX WITH NO TERSAR mat below cold mix. MATERIAL USING WAS PRODUCED ON 12/5/07 AND MIXED WITH MATERIAL MIXED 12/6/07. MATERIAL PRODUCED YESTERDAY 12/6 WAS 445.0 TONS. SAMPLES OF MIX WERE PICKED UP EVERY 100 TONS LAY DOWN ON AREA "C"

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-8-07
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast		Rain		Snow
TEMP (°F)	To 32	32 50	50 70		70 85		85 up
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61717</u>			

Arrive to conduct densities for 2" cold mix on Area "C" using 129.1 MA. TEST WERE BETWEEN 89.00% TO 98.00%. ADVISED BY John Wedgworth OF JLD THAT THEY WILL CONTINUE ROLLING TODAY SO THAT DENSITIES CAN BE CONDUCTED ON Monday 12/10 FOR RECORDED RESULTS. ALSO ADVISED John OF A 20'x20' AREA THAT ~~was loose~~ HAS LOOSE MATERIAL AND John ADVISED THAT IF AREA DOES NOT Tighten up HE WILL REMOVE AND REPLACE WITH FRESH MATERIAL

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-10-07
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61718</u>			

ARRIVE TO SITE AND CLEAN UP CONTAINERS ON AREA B-C. ATTEMPTED TO DO ASPHALT DENSITIES ON AREA "C" BUT WEATHER NOT PERMITTING DUE TO LIGHT RAIN. REMOVAL OF SOIL STOCKPILE IS STARTED ON AREA "A". CONDUCTED A DRIVE THRU AROUND AREAS TO LOCATE ANY PUDDLED AREAS WHERE WATER IS NOT RUNNING OFF. LOCATED 1 AREA ON AREA "B" 60' E + 10'S FROM PUMP STATION #3.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-11-07
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61721</u> <u>61722</u>			

ARRIVE TO SITE CREW DOING CLEANUP ON AREA B-C. CONDUCT 4 DENSITIES FOR 2" cold Mix ON AREA "C" AND ALL 4 TEST FAILED ✓
 85.59, 77.62, 81.12, 85.12. JOHN WEDSEWORTH ADVISED OF ~~MAJOR~~ FAILURES
 RETEST FAILURES BY PLACING WATER ON TEST AREAS AND RECORDED 5
 PASSING DENSITIES 95.13, 95.92, 94.95, 95.05, 95.13 ALL TEST INCLUDING
 FAILURES WERE TESTED USING 127.1 MA. ADVISED BY JOHN WEDSEWORTH THAT
 A 15' X 30' AREA THAT DID NOT HAVE 2" cold mix laid down NON HAD
 A solid finish will be REMOVED AND REPLACED. No cold Mix was produced
 TODAY DUE TO PREDICTION OF RAIN IN THE FORECAST

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-12-07
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61724</u>			

FILL IN OF 2" LOW PERM COLD MIX IS STARTED ON HIGH LINE COLUMN AREA AT AREA "B". ADVISED CONTRACTOR OF A 4'X6' AREA THAT WAS FULL OF MUD. CONTRACTOR REMOVED MUD WITH BACK HOE AND REFILLED WITH DRY SOIL AND COMPACTED. TOTAL OF 732 TONS OF LOW PERM COLD MIX WAS PRODUCED. ~~APPROXIMATE~~ AN ESTIMATED 200 TONS WERE USED FOR THE DAY AND REMAINING MIX WAS STOCKPILED FOR TOMORROW. REMOVAL OF 2 SECTIONS ON THE SOUTHWEST END OF AREA "C" IS STARTED. AREAS AREA ABOUT 10' X 20' AND 10' X 10' AND ARE BEING REMOVED DUE TO LOW PERM MIXING LAYER BEING TOO THIN AND TOO SOFT. NO SAMPLES OF PRODUCED LOW PERM COLD MIX WAS TAKEN DUE TO CONTRACTOR ADVISING THAT ONLY A SMALL BATCH WILL BE PRODUCED FOR SMALL AREAS TO FILL IN. CONTRACTOR ELECTED TO PRODUCE 732 TONS. I WAS NOT NOTIFIED OF THE LARGE QUANTITY UNTIL END OF DAY. QUANTITY WAS CONFIRMED.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-13-07
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: 61725 61729			

Lay down of 2" low perm cold mix continuous on area "B" using cold mix produced on 12/12 (932 tons). Starting to lay down material 20' in from pump station #6 and proceeding North. Samples of mix were picked up every 100 tons and a sample was picked up to ship to San Antonio (R-K). Mix laid down was a mixture of mix produced on 12/12 and new mix produced today. A total of 627 tons were produced for the day.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____
 Title _____
 Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-14-07
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: _____			

~~TOP~~ CONTRACTOR REMOVING AN AREA ON AREA "C" THAT HAD LOOSE COLD MIX AREA LOCATED 200-275'S + 25-35'W FROM PUMP STATION #6. REMOVAL OF SOIL AROUND 2 ELECTRICAL PILES IS BEING CONDUCTED DUE TO AREAS PUMPING FROM THE MOISTURE BEING TOO HIGH. LOCATION FOR THESE 2 AREAS AREA 250'S + 75'W FROM PUMP STATION #6 AND 275'S + 60'W FROM PUMP STATION #6. DRY SOIL WAS INSTALLED THESE 2 AREAS AND COMPACTED. 2" OF LOW PERM COLD MIX LAID OVER AREAS WITH NO TENSAR MAT ROLLING CONTINUED ON NEW MATERIAL LAID OUT. TRUCK ON SITE SPRAYING PGB4-22 ON SITE B-C AND C. DENSITIES WERE TAKEN ON AREA "C" AROUND LUNCH ROOM AND PUMP STATION. TEST RECORDED 96.0 @ 3.2, 98.6 @ 4.1, 99.6 @ 4.3, 96.2 @ 4.0 ALL USING 135.2 @ 7.0 PROCTOR DENSITIES ALSO TAKEN ON AREA B-C, C USING 128.1 MA ALL TEST BETWEEN 96.3 - 99.9

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-15-07

PROJECT: Asarco

PROJECT NO.: 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61873</u>			

LAY DOWN OF 2" LOW PERM COLD MIX CONTINUOUS ON AREA "C". MATERIAL USED WAS PRODUCED ON 12-13. AREA LOCATED NORTH SIDE OF PUMP STATION #7. NO SAMPLES WERE PICKED UP

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-17-07
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab. No.: 61874-61878			
HUMIDITY	Low	Moderate	High				

99 TONS OF LOW PERM COLD MIX WAS PRODUCED TO FINISH COVERING AREA "C" SOUTH AND EAST OF PUMP STATION # 7. Cold Mix densities were taken using 12.8.6 MA. Test succeeded 97.5, 98.1; 97.9, 97.2. Production of POM-A material is started and ~~approximately~~ 4" of material is being laid down on AREA "A" south of Pump station # 3. Material being spread with blower to avoid tearing PG64-22 Rubber membranes. Samples of cold mix and POM-A were taken. One sample of each material is being sent to SAN ANTONIO FOR TESTING. A total of 567 TONS OF POM-A WERE ~~produced~~ PRODUCED AND SPREAD OUT TODAY

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkcl.com

DATE: 12-18-07
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61878</u>			

LAY DOWN OF ~~THE~~ PORT-A MATERIAL CONTINUES ON AREA "A" WESTSIDE OF PUMP STATION #1. TESTING OF RANDOM AREAS TO ASSURE 4" IS CONDUCTED THRU OUT AREA. ADVISED CONTRACTOR OF AN AREA 55'W + 20'N FROM PUMP STATION #1 THAT MEMORANDUM WAS TORN WITH ROBERT TIERNS. CONTRACTOR ELECTED TO WORK AROUND AREA AND HAVE EMULSION COMPANY RESPRAY AREA TOMORROW 12/19. SAMPLES OF MATERIAL PICKED UP TO TEST. NO DEPOSITIS WERE TAKEN

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-19-07

PROJECT: Asarco

PROJECT NO.: 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61879</u>			

LAY DOWN OF PCM-A MATERIAL AT AREA "A" CONTINUES ON North AND Westside OF STORM TANK # 2. A total of 315 TONS more OF PCM-A WERE PRODUCED. MATERIAL SPREAD OUT WITH Motor Grader TO AVOID TEARING MEMBRANE, THE EMULSION COMPANY ON SITE RESPRAYING AREA WHERE MEMBRANE WAS TORN. LOCATION OF TEAR IS 20-40' W + 0-20' N FROM STORM TANK #1. EMULSION COMPANY ALSO FINISHING SPREADING OF AREA "B". Samples OF Mix Picked up EVERY 100 TONS

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-20-07

PROJECT: ASARCO

PROJECT NO.: 07-051-07

CLIENT: ASARCO

CONTRACTOR: JLD

TECHNICIAN: CHARLIE

Day	S	M	T	W	<u>T</u>	F	S
WEATHER	<u>Sunny</u>	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	<u>50 70</u>	70 85	85 up		
WIND	<u>Still</u>	Moderate	High	Relates to Lab.			
HUMIDITY	<u>Low</u>	Moderate	High	No.: <u>61880</u>			

Lay down of PDM-A material continues on Area 'A' Northside of storm Tank #2 assuring that 4" is spread thru out area. ~~More~~ More PDM-A being produced today with a total of 719 tons produced. Samples of Mix being picked up every 100 tons for testing. Crew moved to Area 'B' to start lay down of PDM-A material

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 12-21-07
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61881</u>			

*SPREADING OF POM-A MATERIAL CONTINUED ON AREA "B". TESTING TO CONFIRM 4" OF MATERIAL IS SPREAD OUT. MATERIAL USED WAS PRODUCED YESTERDAY 12/20
 CLEAN UP CONTINUED ON AREA "D". NO SAMPLES WERE TAKEN OF MIX*

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-2-08

PROJECT: Asarco

PROJECT NO.: 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61882</u>			

SPREADING OF PGM-A MATERIAL IS CONTINUED ON AREA "B". MATERIAL BEING SPREAD WITH BLADE. CREW MEMBER TESTING ON RANDOM LOCATION TO ASSURE 4/5 OF UNPACKED MATERIAL IS SPREAD OUT. ROLLER ROLLING AREA TO COMPACT PGM-A MATERIAL. A TOTAL OF 900 TONS OF PGM-A MATERIAL PRODUCED TODAY

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-3-08
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	<u>T</u>	F	S
WEATHER	Sunny	Clear	<u>Overcast</u>	Rain	Snow		
TEMP (°F)	To 32	<u>32 50</u>	50 70	70 85	85 up		
WIND	<u>Still</u>	Moderate	High	Relates to Lab.			
HUMIDITY	<u>Low</u>	Moderate	High	No.: _____			

Spreading of PORT-A material continues on area "B" westside of steam pump station #3. Material being spread out with motor grader. Villegas on site spraying oil around area that PG 64 truck could not reach. Oil being used is the same oil used in PORT-A material. Advised by John Wedgworth that ASARCO ok'd using this oil. No written documentation was provided. Biggest area that was sprayed was between High line columns on southside of Pump Station #3. A total of 1289 tons of PORT-A material was produced. Samples were taken every 100 tons, and a sample was sent to San Antonio.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-4-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: ⁶¹⁸⁸⁵ 61886			

Conduct 8 densities on AREA "A" POND LIME FOR PPT-A using 131.0 mm.
 All test passed between 94.0 - 96.0. Production of PPT-A material continues and
 screening of material at AREA "B". Crew working on SW side of Ring Shaft #3
 screening & compacting PPT-A material. A total of 1973 tons of PPT-A was
 produced.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	7:15
Tech Time:	
Stand by Time:	
Departed Site:	6:00
Travel Time:	45 min

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-7-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61887</u>			

Producing and spreading of POTT-A material continued on area B-C. Asked by Arturo Burgos of ASARCO for a plan to have water diverted along fence line on area "B". A call was made to Ben NATURE and Ben ARVID on site at noon later to evaluate area and his recommendations would be passed Ben-N for approval or for new ideas. Ben to get back with me ASAP. A total of ¹⁵²⁷ tons of POTT-A material was produced.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	<u>45 min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-8-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61888</u>			

SPREADING OF PART-A MATERIAL ON AREA "C" IS STARTED USING ~~PART-A~~ MATERIAL PRODUCED YESTERDAY AND NEW MATERIAL PRODUCED TODAY. RATHER ACTIVE MATERIAL ON AREA B-C TO COMPLETE. A TOTAL OF 2002 TONS OF ~~THE~~ PART-A MATERIAL PRODUCED TODAY

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	<u>45min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-9-08

PROJECT: Asarco

PROJECT NO.: 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61889</u>			

SPREADING OF P017-A MATERIAL CONTINUED ON AREA "C". SAMPLES PICKED UP EVERY 100 TONS FOR TESTING. A TOTAL OF 631 TONS OF P017-A WAS PRODUCED. CREW SPREADING MATERIAL NORTHSIDE OF LUNCHROOM BLDG. CREW ALSO SPREADING MATERIAL AROUND LUNCHROOM BLDG.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>6:00</u>
Travel Time:	<u>45 45 min</u>

Received By _____

Title _____

Date _____



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-10-08

PROJECT: ASARCO

PROJECT NO.: 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: Charlie

Day	S	M	T	W	<u>T</u>	F	S
WEATHER	<u>Sunny</u>	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	<u>50 70</u>	70 85	85 up		
WIND	<u>Still</u>	Moderate	High	Relates to Lab.			
HUMIDITY	<u>Low</u>	Moderate	High	No.: <u>61890</u>			

SPREADING OF POM-A MATERIAL CONTINUES ON AREA "C" AROUND PUMP STATION #6. SAMPLES OF MATERIAL TAKEN UP EVERY 100 TONS ROLLER FOLLOWING BEHIND COMPACTING MATERIAL. A TOTAL OF 529 TONS OF MATERIAL WAS PRODUCED TODAY. ATTEND WEEKLY MEETINGS TO DISCUSS ISSUES WITH PROJECT

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>6:00</u>
Travel Time:	<u>45 min.</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 11/11/09
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab. No.: <u>61891</u>			
HUMIDITY	Low	Moderate	High	No.: <u>61892</u>			

SPREADING OF POM-A MATERIAL CONTINUES ON AREA "C" WESTSIDE OF PUMP STATION #7. CLEAN UP OF AREA "A" CONTINUES WITH THE REMOVAL OF SOIL STOCKPILES. A TOTAL OF ²⁰⁴ TONS POM-A MATERIAL WAS PRODUCED TODAY

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

03/16/04 bej; PVCMT\Technicians forms\Daily Report

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-14-07

PROJECT: Asarco

PROJECT NO.: 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: Charlie

Day	S	<u>M</u>	T	W	T	F	S
WEATHER	<u>Sunny</u>	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	<u>50 70</u>	70 85	85 up		
WIND	<u>Still</u>	Moderate	High	Relates to Lab.			
HUMIDITY	<u>Low</u>	Moderate	High	No.: <u>61893</u>			

CLEAN UP ON AREA "D" CONTINUES. BLADE ON SITE REMOVING LARGE BOULDERS AND MOVING SOIL. CLEAN UP ALSO CONTINUES ON AREA "A" WITH THE REMOVAL OF SOIL STOCKPILES.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>5:30</u>
Travel Time:	<u>45 MIN</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-15-08
 PROJECT: Asarco
 PROJECT NO.: 07-051-97
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>61894</u>			

CLEAN UP CONTINUES ON AREA "D". CREW MOVING SOIL BACK AND FORTH TO LEVEL AREA OUT. NO HOT MIX MATERIAL WAS LAID DOWN AS PROJECTED. NO OTHER ACTIVITY.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>5:30</u>
Travel Time:	<u>45 MIN</u>

Received By _____
 Title _____
 Date _____



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-16-08
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab. No.: <u>62148</u>			
HUMIDITY	Low	Moderate	High	No.: <u>62149</u>			

ARRIVE ON SITE AND CREW SPRAYING TAC COAT ON AREA "A".
 CLEAN UP CONTINUES ON AREA "D". LAY DOWN OF HOT MIX ASPHALT
 IS STARTED AT 12:30 PM AT AREA "A". OUTSIDE TEMP 55° AND 1ST
 TRUCK ASPHALT MATERIAL WAS AT 274°. TRUCKS ARRIVING WITH MATERIAL
 TEMP BETWEEN 274° AND 320°. SAMPLE OF MIX WAS PICKED UP FOR
 TESTING (TYPE "C"). A TOTAL OF 86.79 TONS OF HOT MIX WAS DELIVERED
 TODAY. CREW ALSO ROLLING HOT MIX

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>5:30</u>
Travel Time:	<u>45 min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-17-08

PROJECT: Asarco

PROJECT NO.: 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62150</u> <u>62151</u>			

Crawl rolling and cleaning area "D". 4 densities were taken using the 124.2 @ 5.1 proctor. Test recorded 97.9, 98.0, 97.7, 97.4. Sample of base course was picked up for proctor. Material to be used to backfill area "D" and area "D" along fence line.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>6:00</u>
Travel Time:	<u>45 min.</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-18-08

PROJECT: Asarco

PROJECT NO.: 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62152</u>			

Backfill of fence line AREA ON AREA "B" is started. Spreading of base course material continues on AREA "D". Work was stopped early due to water lines freezing with cold weather and not allowing crews to water areas down to prevent frost. Also base course material could not be processed.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>2:30</u>
Travel Time:	<u>45 min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-21-08

PROJECT: Asarco

PROJECT NO.: 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: Chu-hi

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62153</u>			

SPREADING OF BASE COURSE MATERIAL CONTINUES ON AREA "D" MATERIAL SUPPLIED BY COMEX. HOT MIX OVERLAY CONTINUES ON AREA "A" ON NORTH SIDE OF PUMP STATION #1. A FEW OF TESTS WERE DELIVERED AND SPREAD OUT AND COMPACTED. BACKFILL OF FENCE LINE AREA ON AREA "B" CONTINUES WITH BASE COURSE MATERIAL SUPPLIED BY COMEX

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:30</u>
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	<u>45 MIN</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-22-08
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charli

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32-50	50-70	70-85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62156</u> 62157 <u>62155</u>			

Hot mix lay down continues on area "A" SW of pump station #1 samples of hot mix picked up every 100 tons. A total of 112.02 tons of hot mix was delivered. Spreading of base course material continues on area "D". Backfill of base course along fence line at area "B" continues. 2 densities were taken using 132.5 @ 6.8 proctor. Test recorded 97.3 @ 8.6, and 96.0 @ 8.0 1st test was taken at 300's from pump station #3, 2nd test taken 250's from pump station #3

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	<u>45 min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-23-08

PROJECT: Asarco

PROJECT NO.: 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62154</u>			

Backfill of fence line area on Area "B" continues with base course. Due to cold weather no hot mix was laid out. Grading continues on Area "D"

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>4:30</u>
Travel Time:	<u>45 min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-24-08

PROJECT: Asarco

PROJECT NO.: 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: Charlie

Day	S	M	T	W	<u>T</u>	F	S
WEATHER	Sunny	Clear	<u>Overcast</u>	Rain	Snow		
TEMP (°F)	To 32	<u>32 50</u>	50 70	70 85	85 up		
WIND	Still	<u>Moderate</u>	High	Relates to Lab.			
HUMIDITY	<u>Low</u>	Moderate	High	No.: <u>62157</u>			

No activity on AREA "A" DUE TO COLD WEATHER. Weather too cold 43° to HAVE CONTRACTOR LAY HOT MIX. No Activity on AREA "C" No Activity on AREA "D". Backfill continues on FENCE LINE AREA on AREA "B". CREW compacting material with roller AND FLAT plate vibrator Attend Biweekly MEETING to discuss project

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>4:30</u>
Travel Time:	<u>45 min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-25-08
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Chavla

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62158</u>			

Lay down of 2" low perm material is started on Area "D". A total of 75 tons were produced due to pug mill break down. Backfill of fence line area on Area "B" continues. Hot mix lay down continues on Area "A" at west side of storm water tanks. A total of 88.10 tons of hot mix was delivered and spread out. Roller compacting area and samples of hot mix was picked up.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>5:15</u>
Travel Time:	<u>45 min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkcl.com

DATE: 1-26-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62159</u>			

Lay down of 2" low perm material continues on Area "D". Crew working on Northeast side of Area "D". Roller on site rolling material for compaction. A total of 700 tons of low perm material was produced. No activity on all other sites.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	6:30
Tech Time:	
Stand by Time:	
Departed Site:	3:00
Travel Time:	45 min

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-28-08

PROJECT: Asarco

PROJECT NO.: 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: Chapman

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62160</u>			

ARRIVE ON SITE AND WAITED FOR OIL TRUCKS TO ARRIVE TO PRODUCE LOW PERM MATERIAL FOR AREA "D". TRUCKS ARRIVED LATE AND ~~WAS~~ WERE UNLOADED. WORK WAS STOPPED DUE TO RAIN AND CREW WAS ON STANDBY. WORK WAS CANCELED AFTER LUNCH DUE TO RAIN AND GROUND BEING TO WET.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>6:30</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>3:00</u>
Travel Time:	<u>45 min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1-30-08
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62161</u> <u>62164</u>			

Work continues with the lay down of 2" hot mix on area "A" northside of storm water tank #2 and complete. Crew moved to area "B" to continue hot mix lay down. Sample of hot mix was picked up every 100 tons. A total of 444 tons of hot mix was delivered and laid out. A total of 200 tons of low perm was produced and spread out on area "D". Samples of low perm was picked up. Densities were taken on low perm material on area "D" after densities were taken P664 was sprayed on area "C" and "D"

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>6:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	<u>45 min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 1/31/08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	<u>T</u>	F	S
WEATHER	<u>Sunny</u>	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	<u>32 50</u>	50 70	70 85	85 up		
WIND	<u>Still</u>	Moderate	High	Relates to Lab.			
HUMIDITY	<u>Low</u>	Moderate	High	No.: <u>62165</u>			

CONDUCT DENSITIES ALONG FENCE LINE AT AREA "B". PROCTER USED WAS 132.5 @ 6.8 FOR FINAL LIFT BASE COURSE. VILLEGAS ON SITE ON STANDBY WAITING FOR TEMP TO RISE ABOVE 40°. NO OTHER ACTIVITY ON OFF-AREA

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>07:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>3:00</u>
Travel Time:	<u>45 min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-1-08
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: _____			

Lay Down of 2" Hot Mix continued on Area "B" 200' x 40's from pump station #3. Samples of mix picked up every 100 tons. No other activity on all other areas. A total of 287 tons were delivered and laid out and compacted.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-2-08

PROJECT: Asarco

PROJECT NO.: 07-051-07

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62185</u>			

Hot Mix lay down continues on AREA "B" N.W. side of Pump Station #3
 Pallets on site rolling Hot Mix for completion. Samples of Hot Mix Picked Up
 every 100 tons. A total of 413 tons of Hot Mix was DELIVERED

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>2:15</u>
Travel Time:	<u>45min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkcl.com

DATE: 2-4-08
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62186</u>			

*Hot Mix lay down continues on AREA B-C with 2" overlay
 A total of 395 tons of Hot Mix was delivered and sample were taken
 EVERY 100 tons. Roller on site rolling area for compaction*

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkcl.com

DATE: 2-5-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast		Rain		Snow
TEMP (°F)	To 32	32 50	50 70		70 85		85 up
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62187</u>			

*SPREAD OUT OF PGM-A MATERIAL CONTINUES ON AREA "C" AND "D"
 MATERIAL BEING SPREAD OUT WITH MOTOR GRADER TO AVOID TEARING PG-64
 MAT. SAMPLES OF MATERIAL PICKED UP EVERY 100 FEET AND A TOTAL OF
 TONS WAS PRODUCED ON-SITE*

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>8:00</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>5:15</u>
Travel Time:	<u>45 MIN</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-6-08
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62188</u>			

SPREADING OF 4" POT-A MATERIAL CONTINUED ON AREA "D" CENTER OF PID MATERIAL BEING SPREADOUT USING METAL GUARD TO AVOID TEARING PG64 MEMBRANE. SAMPLE OF POT-A MATERIAL PICKED UP EVERY 100 TONS. A TOTAL OF 1500 TONS OF POT-A WAS PRODUCED TODAY

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>5:00</u>
Travel Time:	<u>45 min</u>

Received By _____

Title _____

Date _____

03/16/04 bej; PVCMT\Technicians forms\Daily Report

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7602 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-7-08
 PROJECT: ASACCO
 PROJECT NO.: 07-051-00
 CLIENT: ASACCO
 CONTRACTOR: JLD
 TECHNICIAN: Chubb

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62250</u>			

CLEAN UP CONTINUES ON ALL LOCATIONS. SOUTHWEST PAVES ON SITE FINISHING DETAIL ITEMS

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

03/16/04 bej; PVCMT\Technicians forms\Daily Report

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-7-08
 PROJECT: Asance
 PROJECT NO.: 07-051-07
 CLIENT: Asance
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62189</u>			

PRODUCING AND SPREADING OF PGM-A MATERIAL CONTINUED ON AREA "D". MATERIAL BEING SPREAD OUT WITH MOTOR GRADER TO AVOID TEARING PG 64 MEMBRANE. A TOTAL OF 961 TONS OF PGM-A WAS PRODUCED. ROLLERS ON SITE COMPACTING MATERIAL

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>5:15</u>
Travel Time:	<u>45 MIN</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-8-08

PROJECT: Asarco

PROJECT NO.: 07-051-00

CLIENT: Asarco

CONTRACTOR: JLD

TECHNICIAN: Charlie

Day	S	M	T	W	T	<u>F</u>	S
WEATHER	<u>Sunny</u>	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	<u>60 70</u>	70 85	85 up		
WIND	<u>Still</u>	Moderate	High	Relates to Lab.			
HUMIDITY	<u>Low</u>	Moderate	High	No.: <u>62251</u>			

Southwest Brown on site doing CLEAN-UP ON ALL LOCATIONS

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	

Received By _____

Title _____

Date _____

03/16/04 bej; PVCMT\Technicians forms\Daily Report

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-8-08
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62190</u>			

Hand work on AREA is started around Diesel storage tanks and electrical House at AREA "A". Crew compacting ASPHALT with vibrating plate. A total of ~~47,000~~ tons of Hot Mix was delivered. Sample of Hot Mix was picked up every 100 tons.

Work continues on AREA "D" with the production of 380 tons of POM-A material and spreading out with motor grader. Roller on-site rolling to compact POM-A material. No samples of POM-A material was picked up

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>5:00</u>
Travel Time:	<u>45 min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-11-08
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Chndr

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62191</u>			

Hand work CONTINUES ON AREA "B" AROUND High line columns with Hot Mix material. Sample of Mix Picked up ~~at~~ AT 40 tons. Crew compacting material with vibrating plate. A total of 580 tons of Hot Mix was delivered. No other activity on other site.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>5:00</u>
Travel Time:	<u>45 min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-12-08
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

	Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow			
TEMP (°F)	To 32	32 50	50 70	70 85	85 up			
WIND	Still	Moderate	High	Relates to Lab.				
HUMIDITY	Low	Moderate	High	No.: <u>62192</u>				

Work continues on AREA "B" FENCE LINE with the HAND work of Hot Mix Material. Sample of mix was picked up at 23 tons. AREA GETTING compacted with roller AND vibrating plate. A total of 34.75 tons of Hot Mix was delivered. No other activity on other sites

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	<u>45 min</u>

Received By _____
 Title _____
 Date _____



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-15-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62195</u>			

STANDBY FOR work to continue on AREA "C". No mix WAS DELIVERED DUE TO BAD WEATHER. WEATHER TO cold AND windy with chances OF RAIN SO CONTRACTOR ELECTED TO NOT HAVE MATERIAL DELIVERED

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>2:00</u>
Travel Time:	<u>45min</u>

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-13-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62193</u>			

Work continues on Area "C" with the lay down of hot mix material (2")
 Roller on site rolling material for compaction. Samples of mix was taken
 at 50 and 120 feet. A total of 216 tons of hot mix material was delivered.
 No other activity on all other sites.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	7:15
Tech Time:	
Stand by Time:	
Departed Site:	5:15
Travel Time:	45 min

Received By _____
 Title _____
 Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-14-08
 PROJECT: ASARCO
 PROJECT NO.: AEA 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62194</u>			

Lay down of 2" Hot Mix continues on Area "C" 25' E from fence line. Crew arrived to remove a 4'x4' area and a 4'x10' area of Port-A material due to dropping some diesel fuel. Both areas were refilled and compacted. Areas to be covered with hot mix at another day. No other activity on all other site. Samples of hot mix were taken every 100 tons. A total of 226 tons of hot mix was delivered.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	7:15 AM
Tech Time:	
Stand by Time:	
Departed Site:	5:15
Travel Time:	45 min

Received By _____

Title _____

Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-18-08
 PROJECT: Asarco
 PROJECT NO.: 07-051-07
 CLIENT: Asarco
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>64196</u>			

WORK CONTINUES ON AREA "C" WITH THE LAY DOWN OF 2" HOT MIX 60% + 80'S FROM PUMP STATION "C". ROLLERS ON SITE ROLLING MATERIAL FOR COMPACTION. NO OTHER ACTIVITY ON ALL OTHER SITES. A TOTAL OF ~~322.57~~ TONS OF HOT MIX WAS DELIVERED TODAY

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:10</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>5:15</u>
Travel Time:	<u>45 min</u>

Received By _____
 Title _____
 Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-19-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62497</u>			

Work CONTINUED ON AREA "C" WITH THE LAY DOWN OF 2" HOT MIX 80'N FROM PUMP STATION "E". ROLLERS rolling material for compaction. No other activity on any other sides. A total of 144 yds of Hot Mix WAS DELIVERED AND LAY DOWN TODAY.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	7:00
Tech Time:	
Stand by Time:	
Departed Site:	5:00
Travel Time:	45 min

Received By _____

Title _____

Date _____

03/16/04 bej; PVCMT\Technicians forms\Daily Report

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-20-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62198</u>			

Work continued on AREA "C" with the lay down of 2" hot mix. Area is located 80' N & 30' W from pump station #7. A total of 144 tons of hot mix was delivered. Rollers on-site rolling hot mix for compaction. No other activity on any other sites.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:06</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>5:15</u>
Travel Time:	<u>45 min</u>

Received By _____

Title _____

Date _____

03/16/04 bej; P:\CMT\Technicians forms\Daily Report

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-21-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

	Day	S	M	T	W	<u>T</u>	F	S
WEATHER	<u>Sunny</u>	Clear	Overcast	Rain	Snow			
TEMP (°F)	To 32	32 50	<u>50-70</u>	70 85	85 up			
WIND	Still	<u>Moderate</u>	High	Relates to Lab.				
HUMIDITY	<u>Low</u>	Moderate	High	No.: <u>62199</u>				

Arrived to site and material was delayed due to PETRA PLANT BREAK DOWN. ATTEND Biweekly meeting to discuss PROGRESS OF PROJECT Trucks for cement started arriving at 1:30pm and lay down of 2" HOT MIX is started on AREA "D" NW CORNER AND PROCEEDING south. A total of 219 TONS OF HOT MIX WAS DELIVERED

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:10</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>5:00</u>
Travel Time:	<u>45min</u>

Received By _____

Title _____

Date _____

03/16/04 bej; P\CMT\Technicians forms\Daily Report

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2/26/08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62201</u>			

Lay Down of 2" Hot Mix Concrete on Area "D" at S.W. corner
 and Area "C" 80' N from pump station #7. Rollers on site rolling material
 for compaction. A total of 312.39 tons of material was delivered by
 PATRA. No other activity on all other sites

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	7:08
Tech Time:	
Stand by Time:	
Departed Site:	5:15
Travel Time:	45 min

Received By _____

Title _____

Date _____

03/16/04 bej; PVCMT\Technicians forms\Daily Report

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-27-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: SLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62202</u>			

Lay Down of 2" Hot Mix Continued on Area "C" around Pump Station #7 and Pump Station "C". Heavy work also continued around mill line columns on Area "B". Rollers rolling material for compaction and vibratory plate being used around mill line columns. A total of 189,296 tons of material was delivered. No other activity on all other sites.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	7:05
Tech Time:	
Stand by Time:	
Departed Site:	5:00
Travel Time:	45 min

Received By _____

Title _____

Date _____

03/16/04 bej; P\CMT\Technicians forms\Daily Report

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-28-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62203</u>			

Work continues with the spreading of ~~the~~ hot mix along edges of Area B. Area is small to have lay down machine lay material. Work also continues along french line on Area B next to retaining wall. A total of 102.44 tons of hot mix was delivered. No other activity on all other areas.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	7:10
Tech Time:	
Stand by Time:	
Departed Site:	5:30
Travel Time:	45 min

Received By _____

Title _____

Date _____

03/16/04 bej; P\CMT\Technicians forms\Daily Report

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 2-29-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: 3LD
 TECHNICIAN: CHARLIE

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62204</u>			

Work continues on area "C" with the border along the fence line behind the cafeteria ridge. Hot mix also being laid out behind the retaining wall at area "B-C". A total of 76,240 tons of hot mix was delivered.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	7:15
Tech Time:	
Stand by Time:	
Departed Site:	5:15
Travel Time:	45 min

Received By _____
 Title _____
 Date _____

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 3-1-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: <u>62205</u>			

WORK CONTINUES ON AREA "A" BORDER WITH HOT MIX PORTLAND. HOT MIX ALSO BEING PLACED BORDER AT AREA B-C NEXT TO STACK AND AREA "C" BEHIND CHESTNUT Bldg. NO SAMPLE OF HOT MIX WAS PICKED UP. A TOTAL OF 44.19 TONS OF HOT MIX WAS DELIVERED

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	<u>7:15</u>
Tech Time:	
Stand by Time:	
Departed Site:	<u>7:30</u>
Travel Time:	<u>45min</u>

Received By _____

Title _____

Date _____

03/16/04 bej; P:\CMT\Technicians forms\Daily Report

DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 3-3-08
 PROJECT: ASARCO
 PROJECT NO.: 07-031-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32-50	50-70	70-85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: 62206			

ARRIVE ON SITE AND TESTED AREA BEHIND RETAINING WALL AT AREA "B-C"
 AREA WAS FLOODED WITH WATER TO TEST RUN OFF AND ANY RUN OFF OUTSIDE
 OF FENCE. ADVISED CONTRACTOR OF LOW SPOTS AND WATER LEAKING OUTSIDE OF
 FENCE. ALSO CONDUCT 20 DENSITIES FOR ALL AREAS ON FINAL LIFT
 HOT MIX. ALL TEST EXCEEDED 940% COMPLETION. INSTALLATION OF BOUNDING
 CONTINUED ON AREA "D". NO SAMPLES OF MIX WAS PICKED UP. A TOTAL OF
 21,700 TONS OF HOT MIX WAS DELIVERED.

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	7:05
Tech Time:	
Stand by Time:	
Departed Site:	5:15
Travel Time:	45 MIN

Received By _____

Title _____

Date _____

03/16/04 bej; P\CM\Technicians forms\Daily Report

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.



DAILY REPORT



Raba-Kistner Consultants (SW), Inc.
 7002 Commerce
 El Paso, Texas 79915
 (915) 778-5233 • FAX (915) 779-8301
 www.rkci.com

DATE: 3-4-08
 PROJECT: ASARCO
 PROJECT NO.: 07-051-07
 CLIENT: ASARCO
 CONTRACTOR: JLD
 TECHNICIAN: Charlie

Day	S	M	T	W	T	F	S
WEATHER	Sunny	Clear	Overcast	Rain	Snow		
TEMP (°F)	To 32	32 50	50 70	70 85	85 up		
WIND	Still	Moderate	High	Relates to Lab.			
HUMIDITY	Low	Moderate	High	No.: 62207			

Installation of border around area "D" continues with the use of Hot Mix
 Core working on areas around all areas that need repair. A total of 21,910 tons
 of Hot Mix was delivered

This field memo contains information related to the referenced project and should be considered preliminary. Test results or data are subject to review prior to inclusion in our project report(s). Engineering evaluations or opinion regarding suitability of subject work or materials should not be constituted from this information. Any questions should be directed to R-K for clarification.

Arrived Site:	7:15
Tech Time:	
Stand by Time:	
Departed Site:	
Travel Time:	45 min

Received By _____

Title _____

Date _____

03/16/04 bej; P\CMT\Technicians forms\Daily Report

NOTICE: Raba-Kistner Consultants, Inc. considers the data and information contained in this report to be proprietary. This information is intended only for the use of the recipient(s) named herein. Test results presented herein relate only to those items tested. This document and any information contained herein shall not be disclosed and shall not be duplicated or used in whole or in part for any purpose other than to validate test results without written approval from Raba-Kistner Consultants, Inc.

Appendix E Project Photographs – Category II Capping

- 1 Area B 11-17-07.jpg
- 2 E Area B low permeability mix installation 12-6-07.jpg
- 3 E Disposal Silos 11-12-07.jpg
- 4 E Geogrid & Low Permeability Mix at Area A 11-21-07 (2).jpg
- 5 E Geogrid & Low Permeability Mix at Area A 11-21-07.jpg
- 6 E Low Permeability mix production (inside pug mill) 11-20-07.jpg
- 7 E Low Permeability Mix stockpiled at Area A 11-20-07.jpg
- 8 E PG-64 on Area A 12-4-07.jpg
- 9 E Subbase prep Area A 11-17-07.jpg
- 10 E Tencate Mirafi Rolls (stored on-site in Area B) 11-12-07.jpg
- 11 Geogrid & Low Permeability Mix at Area A 11-21-07.jpg
- 12 Low Permeability Mix Installation Area A 11-21-07 (2).jpg
- 13 Low Permeability Mix Installation Area A 11-21-07 (3).jpg
- 14 Low Permeability Mix Installation Area A 11-21-07 (4).jpg
- 15 Low Permeability Mix Installation Area A 11-21-07 (5).jpg
- 16 Low Permeability Mix Installation Area A 11-21-07.jpg
- 17 Low Permeability Mix Installation at Area A 11-21-07 (2).jpg
- 18 Low Permeability Mix Installation at Area A 11-21-07 (3).jpg
- 19 Low Permeability Mix Installation at Area A 11-21-07.jpg
- 20 N Area A 11-12-07.jpg
- 21 N Area A geogrid installation 11-20-07 (2).jpg
- 22 N Area A geogrid installation 11-20-07.jpg
- 23 N Area B low permeability mix installation 12-6-07 (2).jpg
- 24 N Area B low permeability mix installation 12-6-07.jpg
- 25 N Area B low permeability mix installed 12-6-07.jpg
- 26 N Area C 11-12-07.jpg
- 27 N Area C Stockpiled Filled Material 11-13-07.jpg
- 28 N Area C subbase prep 11-15-07.jpg
- 29 N Low permeability mix installation at Area A 11-21-07.jpg
- 30 N PG-64 on Area A 12-4-07.jpg
- 31 NE Area A 11-12-07.jpg
- 32 NE Area A geogrid installation 11-20-07.jpg
- 33 NE Area B low permeability mix installation 12-6-07.jpg
- 34 NE Area C 11-12-07.jpg
- 35 NE Geogrid & Low Permeability Mix at Area A 11-21-07 (2).jpg
- 36 NE Geogrid & Low Permeability Mix at Area A 11-21-07 (3).jpg
- 37 NE Geogrid & Low Permeability Mix at Area A 11-21-07.jpg
- 38 NE Geogrid mat Area A 11-21-07.jpg
- 39 NE Subbase prep Area A 11-17-07.jpg
- 40 NW Area B 11-12-07.jpg
- 41 NW Area B 11-17-07.jpg
- 42 NW Area B low permeability mix installation 12-6-07.jpg
- 43 NW JL-D crew working on pug mill 11-19-07.jpg
- 44 NW Low Permeability Mix Installation Area A 11-21-07.jpg
- 45 NW PG-64 on Area A 12-5-07.jpg
- 46 NW Subbase prep Area A 11-17-07.jpg
- 47 NW Tencate Mirafi Rolls (stored on-site) 11-12-07.jpg
- 48 PG-64 layer on Area A 12-5-07.jpg
- 49 S Area B 11-17-07.jpg
- 50 S Area B Debris, Broken Concrete 11-17-07.jpg
- 51 S Area B low permeability mix installation 12-6-07 (2).jpg
- 52 S Area B low permeability mix installation 12-6-07.jpg
- 53 S Clearing stockpiled broken asphalt from Area A 11-15-07.jpg
- 54 S Demolished Concrete in Area A 11-12-07.jpg
- 55 S Geogrid & Low Permeability Mix at Area A 11-20-07.jpg
- 56 S Low Permeability Mix Installation at Area A 11-21-07 (2).jpg
- 57 S Low Permeability Mix Installation at Area A 11-21-07 (3).jpg
- 58 S Low Permeability Mix Installation at Area A 11-21-07.jpg

58 S Low Permeability Mix Installation at Area A 11-21-07.jpg
59 S Subbase prep Area A 11-17-07 (2).jpg
60 S Subbase prep Area A 11-17-07 (3).jpg
61 S Subbase prep Area A 11-17-07 (4).jpg
62 S Subbase prep Area A 11-17-07 (5).jpg
63 S Subbase prep Area A 11-17-07.jpg
64 SE Area A subbase prep 11-15-07.jpg
65 SE Area B Debris, Broken Concrete 11-17-07 (2).jpg
66 SE Area B Debris, Broken Concrete 11-17-07.jpg
67 SE Area B low permeability mix installation 12-6-07 (2).jpg
68 SE Area B low permeability mix installation 12-6-07.jpg
69 SE Area B Sub-base 11-12-07.jpg
70 SE Geogrid & Low Permeability Mix at Area A 11-20-07.jpg
71 SE Geogrid & Low Permeability Mix at Area A 11-21-07 (2).jpg
72 SE Geogrid & Low Permeability Mix at Area A 11-21-07 (3).jpg
73 SE Geogrid & Low Permeability Mix at Area A 11-21-07.jpg
74 SE Geogrid at Area A 11-20-07.jpg
75 SE Low Permeability Mix Installation at Area A 11-21-07 (2).jpg
76 SE Low Permeability Mix Installation at Area A 11-21-07 (3).jpg
77 SE Low Permeability Mix Installation at Area A 11-21-07.jpg
78 SE Low permeability mix installation at Area A 11-21-07.jpg
79 SE Low Permeability mix production (inside pug mill) 11-20-07.jpg
80 SE Low Permeability Mix stockpiled outside pug mill 12-5-07.jpg
81 SE No work at pug mill 11-21-07 (2).jpg
82 SE No work at pug mill 11-21-07.jpg
83 Subbase prep Area A 11-17-07 (2).jpg
84 Subbase prep Area A 11-17-07.jpg
85 SW Area A geogrid installation 11-20-07.jpg
86 SW Demolition, Broken Asphalt Area B 11-14-07 (2).jpg
87 SW Demolition, Broken Asphalt Area B 11-14-07.jpg
88 SW Low Permeability Mix Installation Area A 11-21-07 (2).jpg
89 SW Low Permeability Mix Installation Area A 11-21-07.jpg
90 SW Low Permeability Mix Installation at Area A 11-21-07.jpg
91 SW PG-64 on Area A 12-5-07.jpg
92 W Area A geogrid installation 11-20-07.jpg
93 W Area B (view of west side) 11-17-07 (2).jpg
94 W Area B (view of west side) 11-17-07.jpg
95 W Area B (west side) 11-12-07.jpg
96 W Area B Debris, Broken Concrete 11-17-07.jpg
97 W Area B low permeability mix installation 12-6-07 (2).jpg
98 W Area B low permeability mix installation 12-6-07 (3).jpg
99 W Area B low permeability mix installation 12-6-07 (4).jpg
100 W Area B low permeability mix installation 12-6-07.jpg
101 W Concrete Demolition at West side of Area B 11-12-07.jpg
102 W Concrete Demolition at West side of Area B (2) 11-12-07.jpg
103 W Geogrid & Low Permeability Mix at Area A 11-21-07.jpg
104 W Loading material into pug mill (south side) 11-20-07.jpg
105 W Low Permeability Mix Installation Area A 11-21-07 (2).jpg
106 W Low Permeability Mix Installation Area A 11-21-07.jpg
107 W Low Permeability Mix Installation at Area A 11-21-07.jpg
108 W Pug mill (south side) 11-19-07.jpg
109 W Pug mill operation 11-20-07.JPG
110 W Subbase Prep Area C 11-13-07.jpg
111 W Tencate Mirafi Rolls (stored on-site in Area A) 11-12-07.jpg



3



1



4



2



8



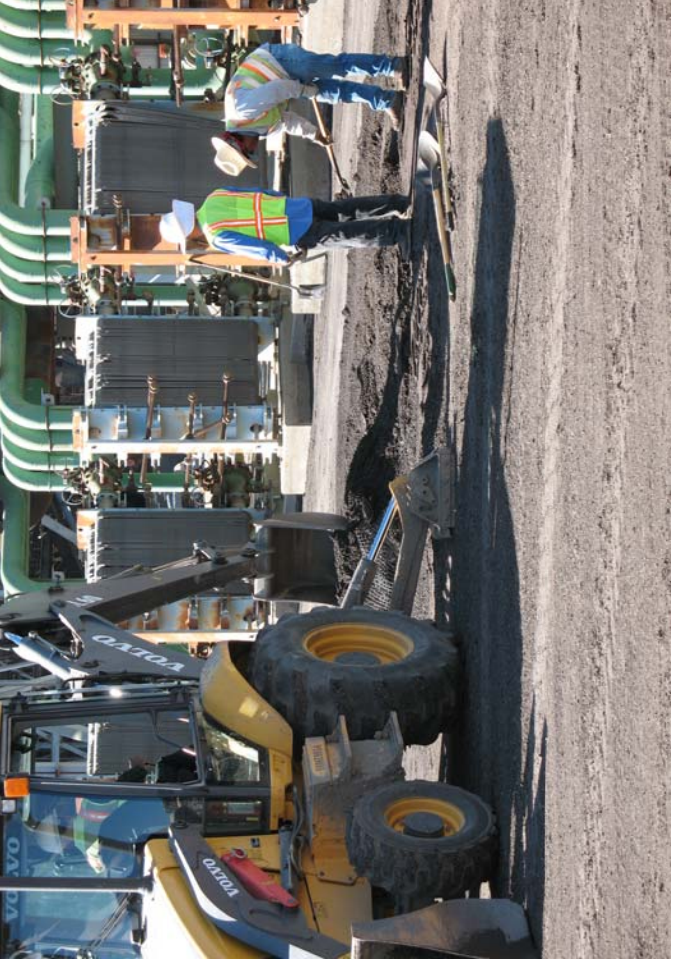
7



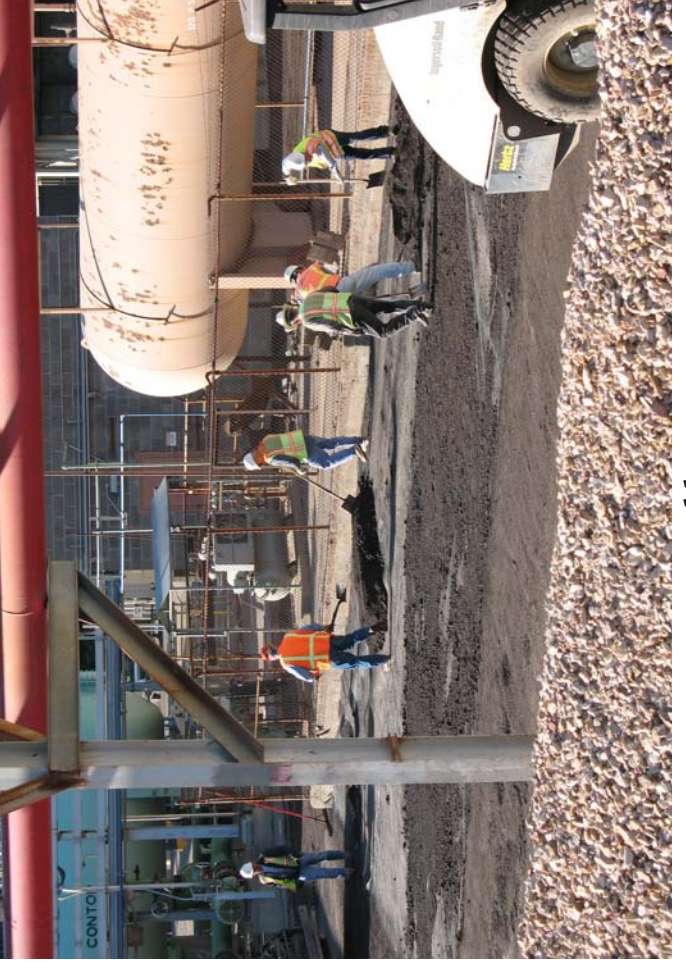
6



5



12



11



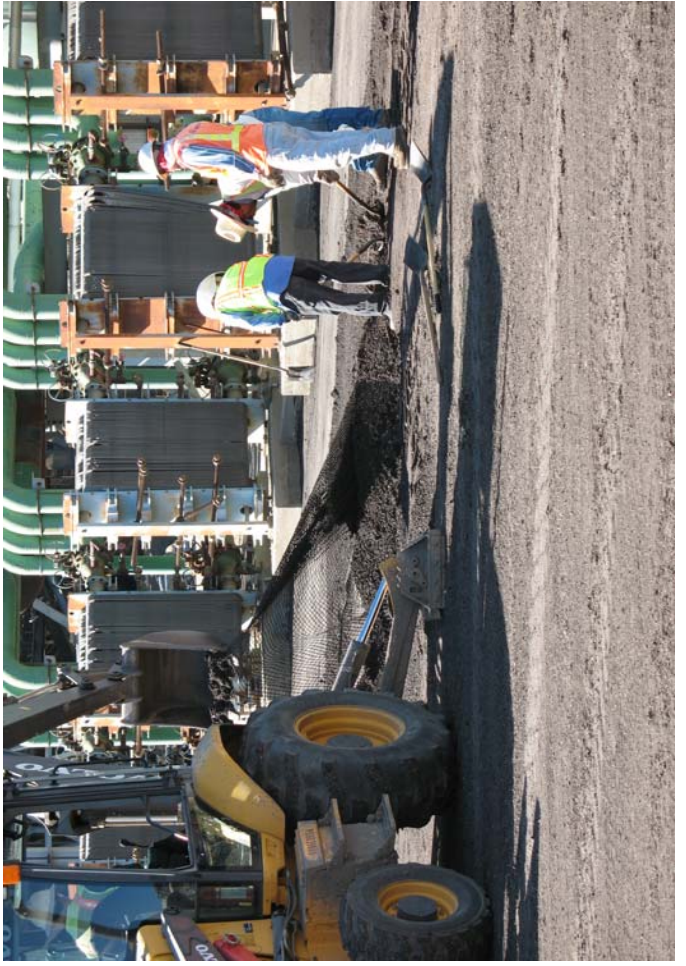
10



9



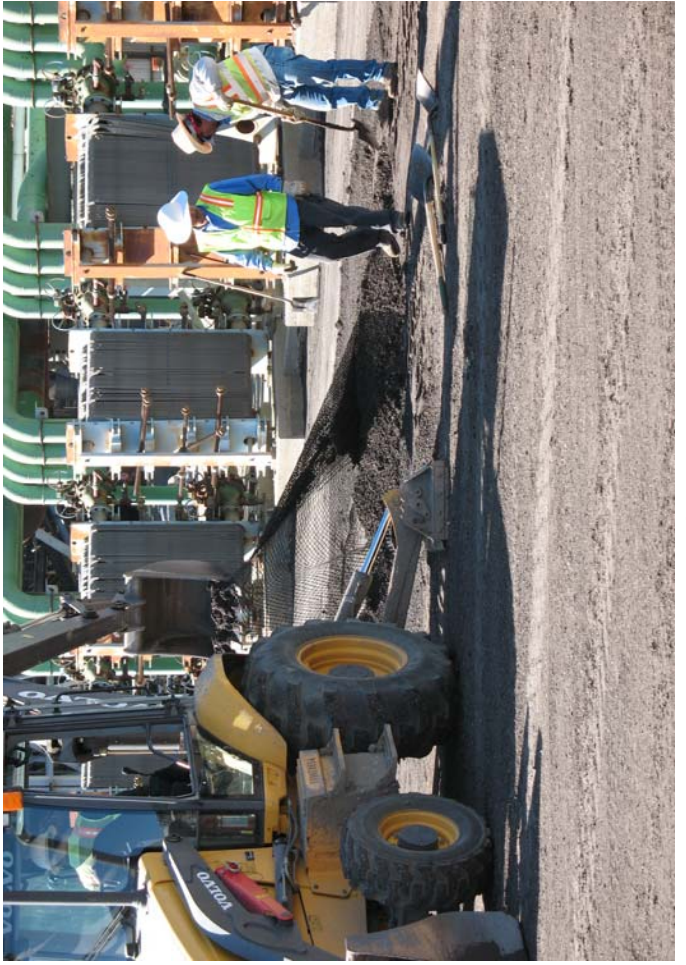
16



15



14



13



18



20



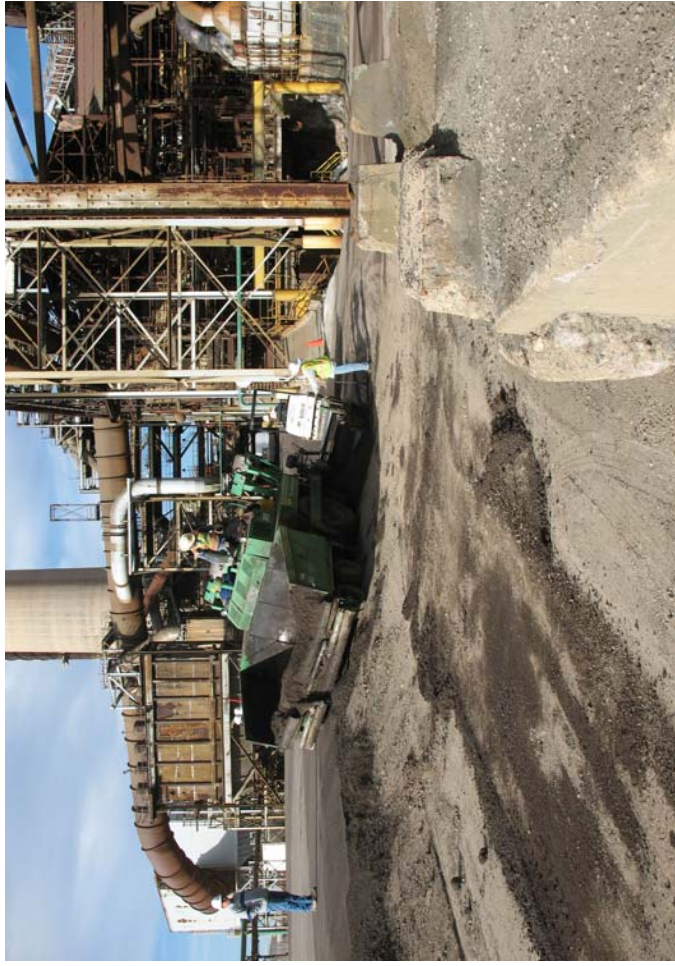
17



19



24



23



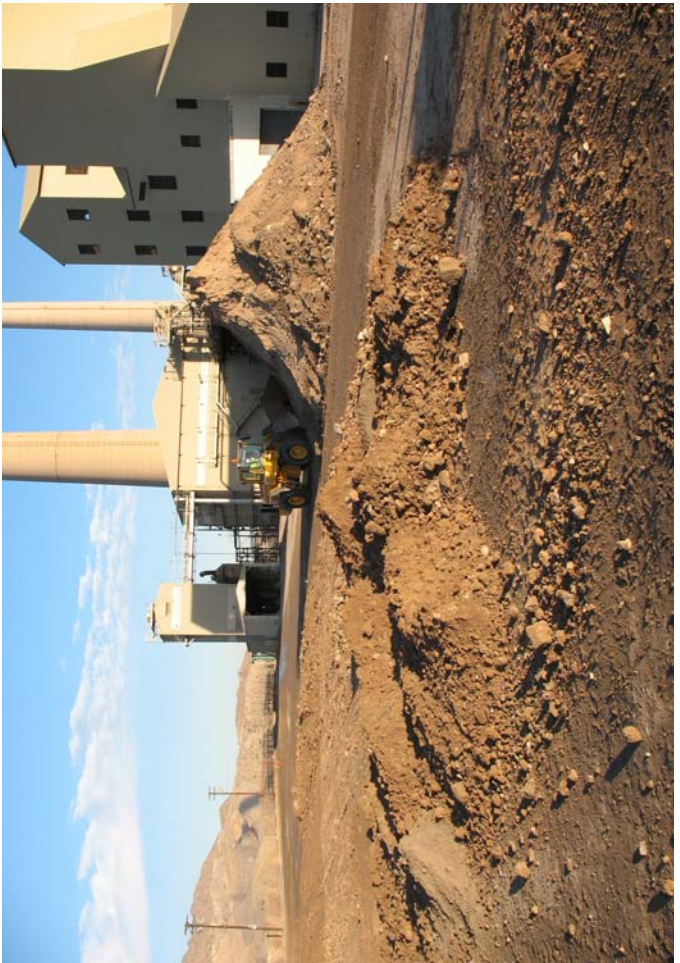
22



21



28



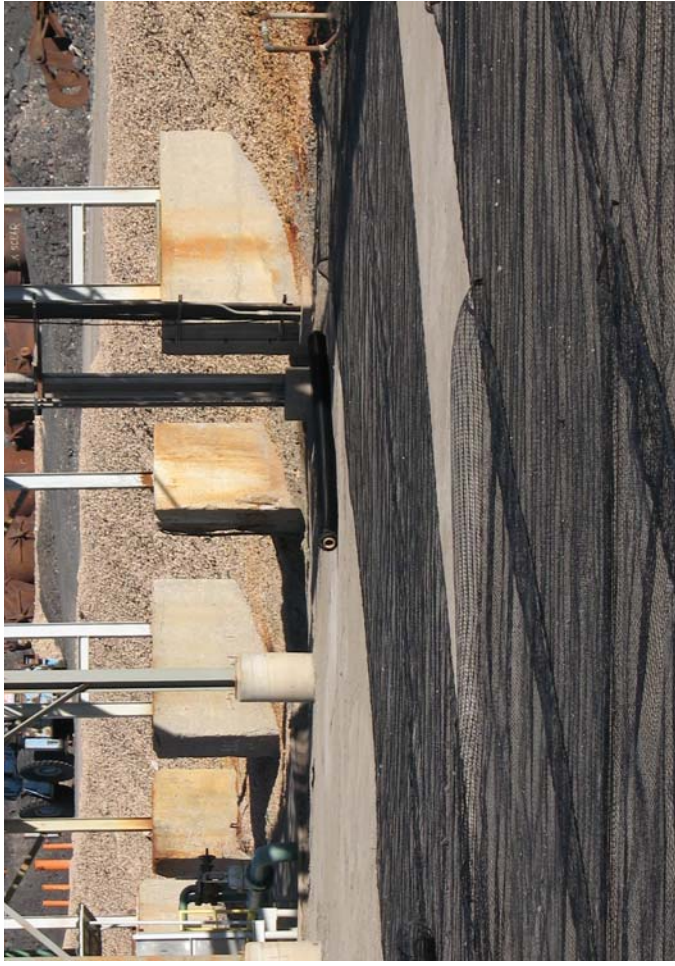
27



26



25



32



31



30



29



34



36



33



35



40



39



38



37



44



43



42



41



48



47



46



45



50



52



49



51



54



56



53



55



60



59



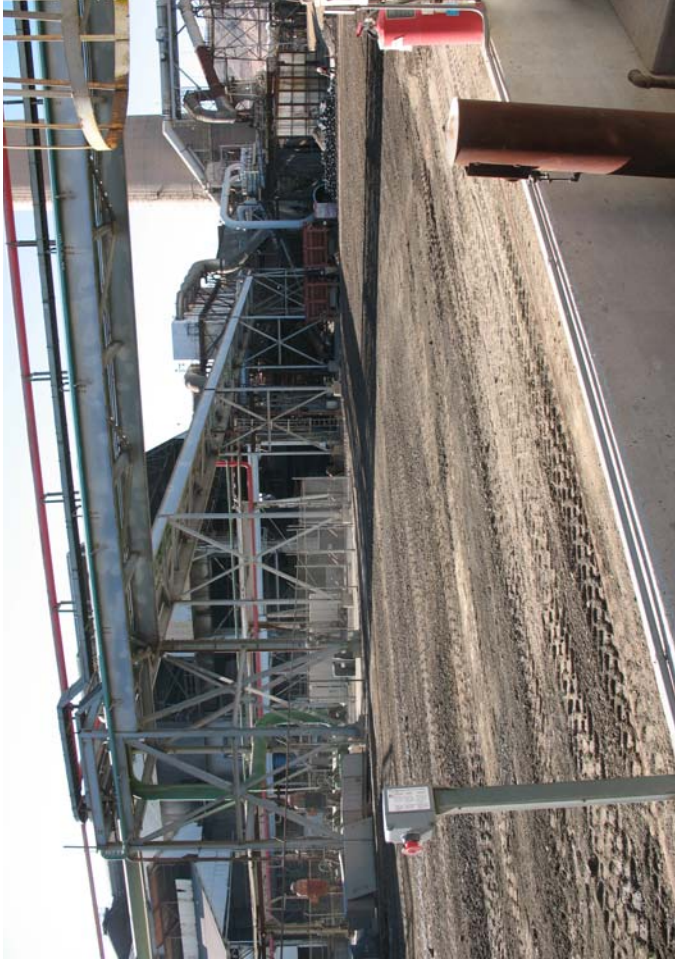
58



57



64



63



62



61



68



67



66



65



72



71



70



69



76



75



74



73



80



79



78



77



84



83



82



81



88



87



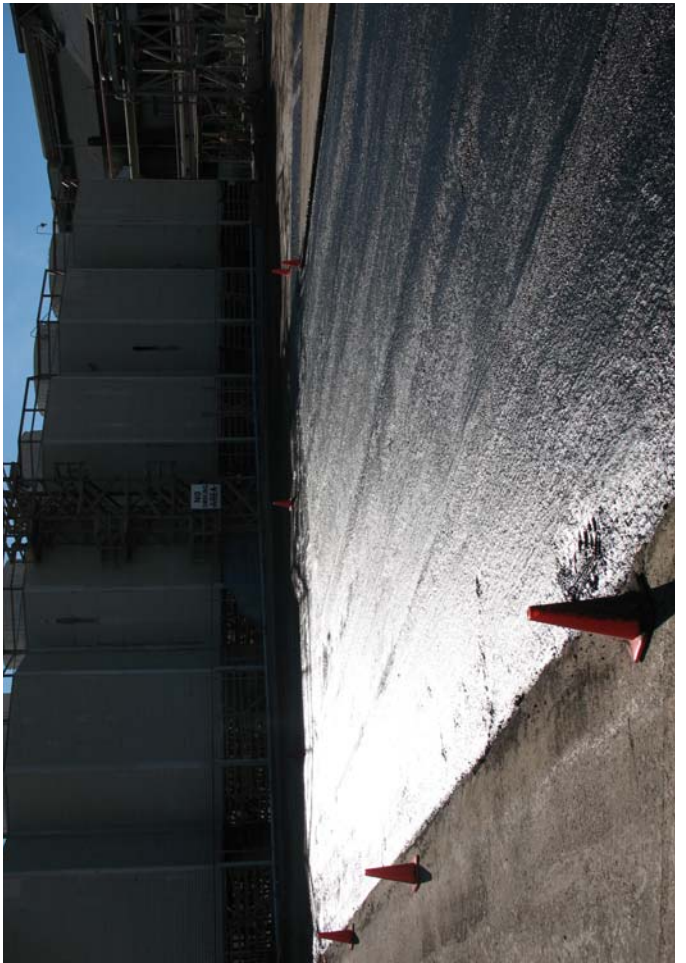
86



85



92



91



90



89



96



95



94



93



100



99



98



97



102



104



101



103



108



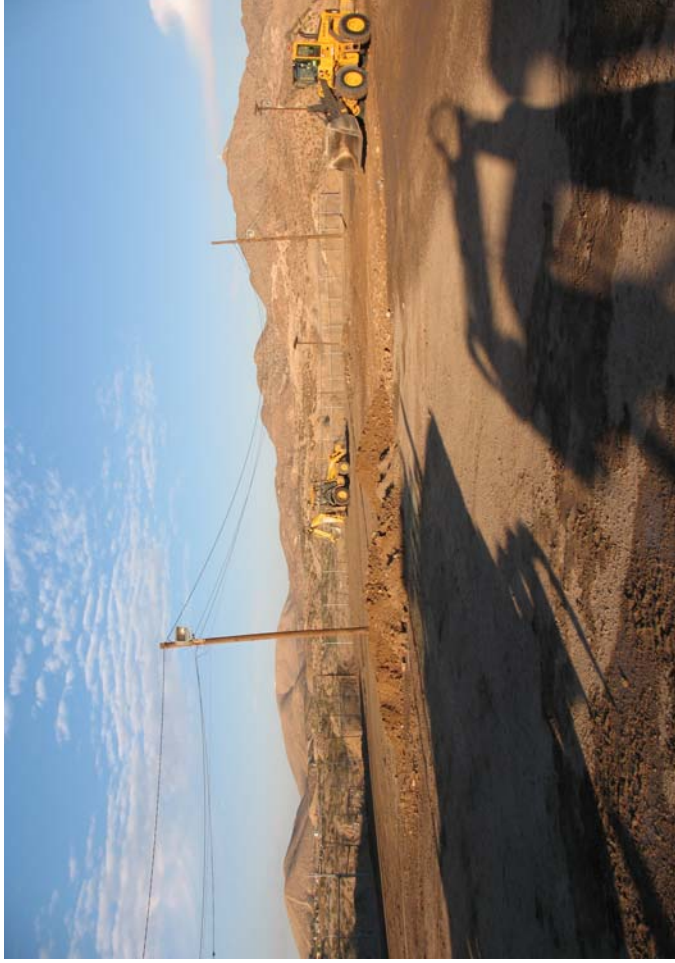
107



106



105



110

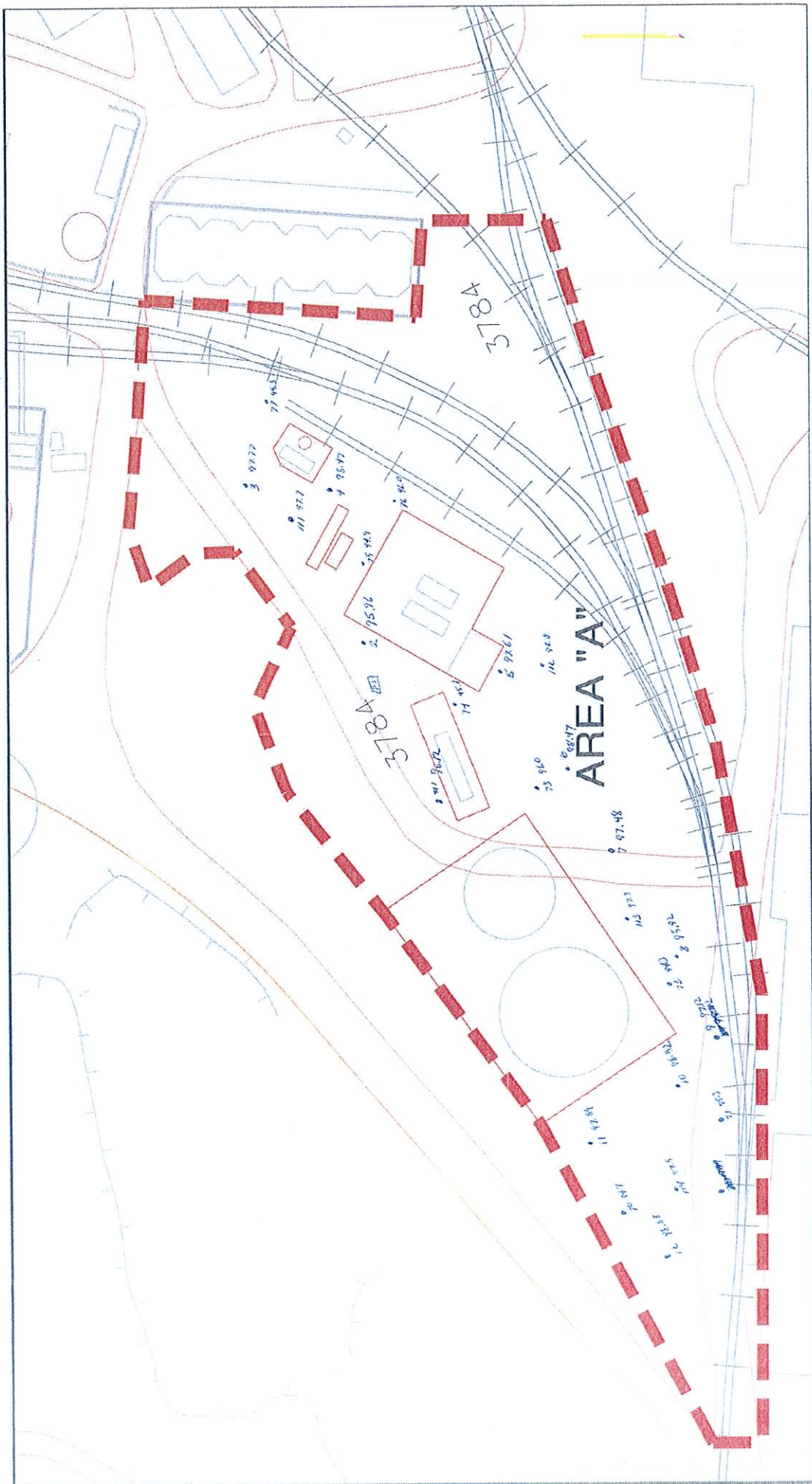


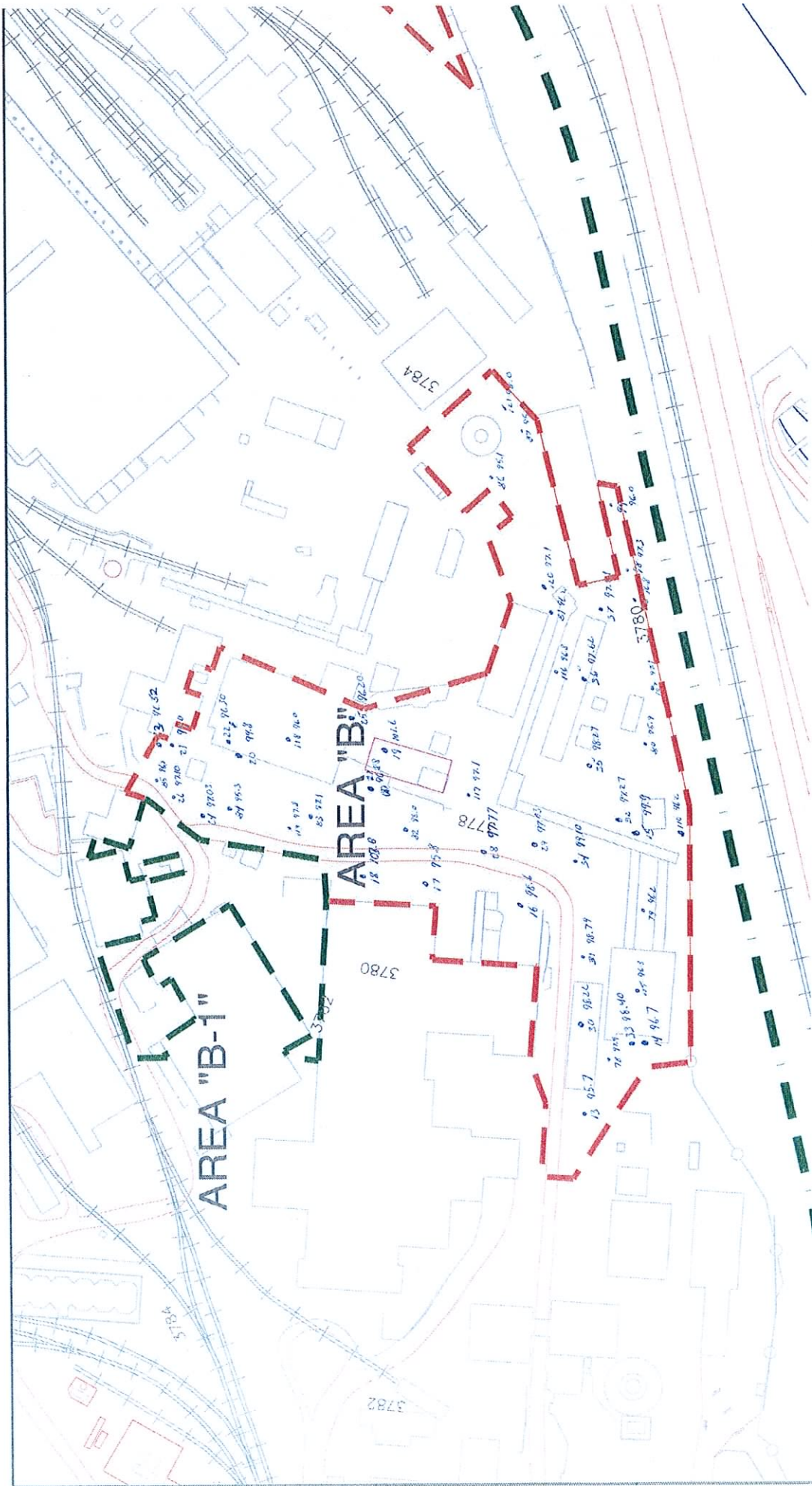
109

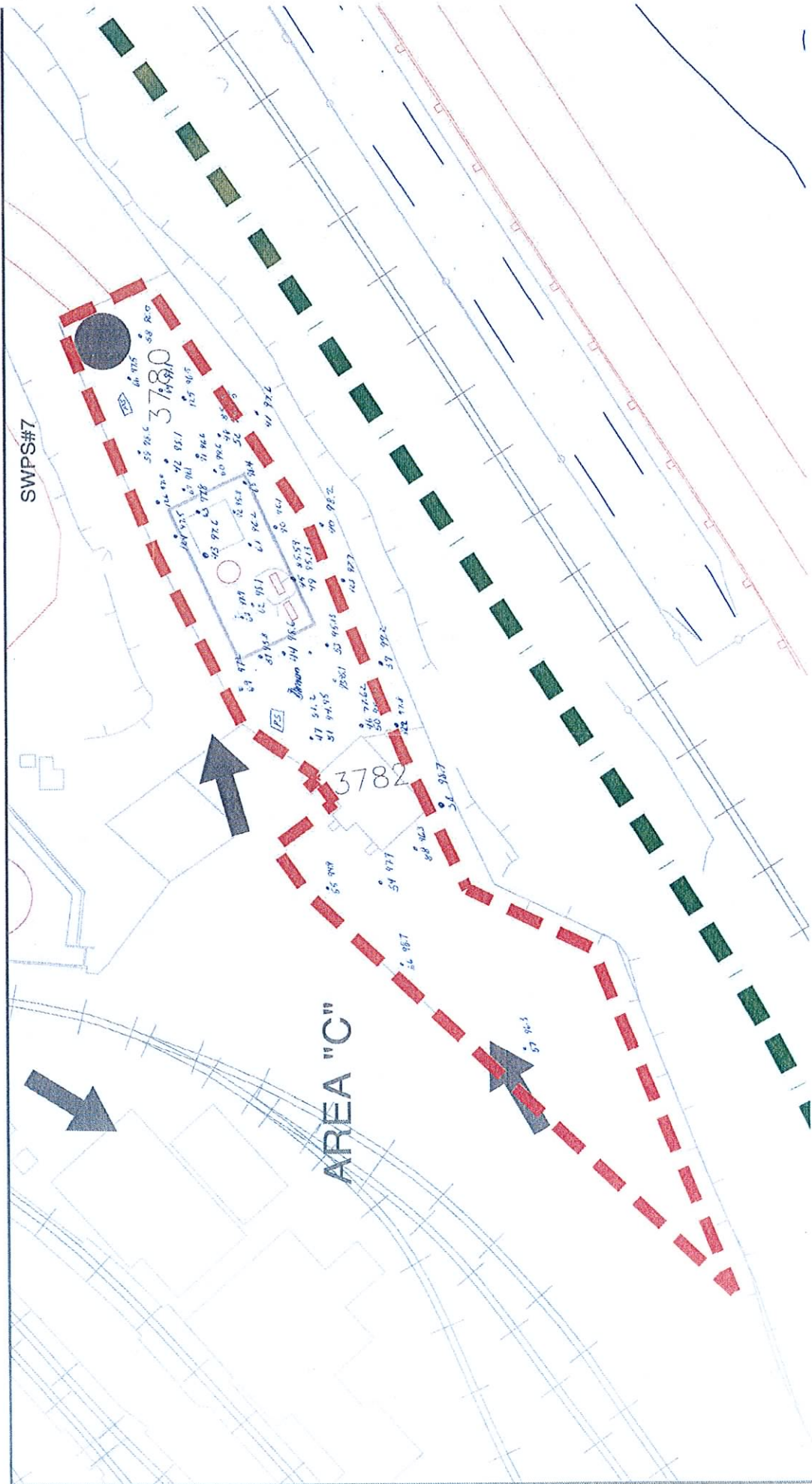


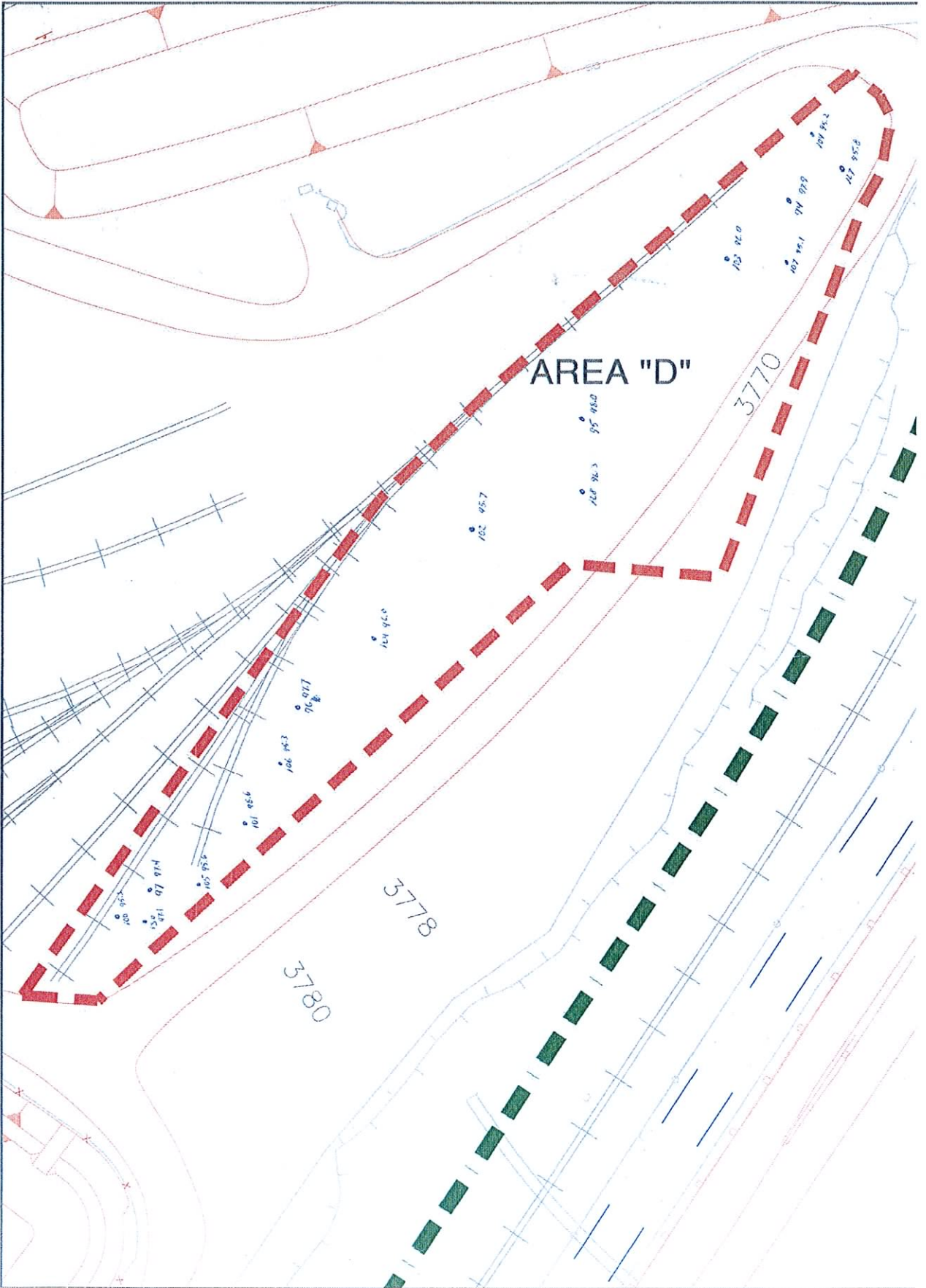
111

Appendix F As-Built Drawings – Category II Capping









Appendix G Project Drawings and Specifications – Category I
Excavation and Landfills

G.1 Cell 1 and 2 Drawings & Specifications

CONSTRUCTION TECHNICAL SPECIFICATIONS

REMEDIAL WASTE REPOSITORY DESIGN ASARCO INCORPORATED EL PASO, TEXAS

Prepared by:



January 6, 2006

ASARCO, Incorporated – Remedial Waste Repository Design

**TECHNICAL SPECIFICATIONS
TABLE OF CONTENTS**

	SECTION	NO. PAGES
GENERAL.....	01000	4
EARTHWORK.....	02200	8
GRADING.....	02210	4
BACKFILLING.....	02223	2
GEOSYNTHETIC CLAY LINER.....	02247	9
GEOCOMPOSITE DRAINAGE LAYER.....	02418	5
PROTECTIVE COVER SOIL.....	02711	3
HDPE AND LLDPE GEOMEMBRANE.....	02777	14

APPENDICIES

- A. SOIL AND LINER QUALITY CONTROL PLAN (SLQCP)
- B. FINAL COVER QUALITY CONTROL PLAN (FCQCP)
- C. SITE HEALTH AND SAFETY PLAN

CONSTRUCTION DRAWINGS

	<u>Sheet</u>
Cover.....	1
Sheet Index and Earthwork Balance.....	2
Bench Mark and Control Point Plan.....	3
Boring Locations Plan.....	4
Liner/Cover Detail.....	5
Pond 1 Plan.....	6
Ponds 5 & 6 Plan.....	7
Ponds Sections 1 & 5.....	8
Existing Category 1 Excavation Sites.....	9

ASARCO, Incorporated – Remedial Waste Repository Design

SECTION 01000 GENERAL

PART 1.0 - GENERAL

The project shall be constructed complete. Project to include all incidentals and subsidiary work and all clean up of the work area, with all costs thereof being included in the prices in the proposal.

The Contractor shall furnish all labor supervision, machinery, equipment, tools, and materials necessary to complete the work as shown on the drawings and as required in these specifications.

Owner: The Owner is the entity that is a party to this contract, contracting under the official name of ASARCO, Incorporated.

Plans for the Contractor: The Contractor will be furnished five (5) full size sets of plans and specifications for construction. Should additional sets of plans and/or specifications be desired, they may be purchased for the cost of reproduction.

Time of Completion: The construction covered by these specifications shall be completed within 120 consecutive calendar days after the date of written Notice to Proceed.

The Contractor will be required to commence work under this contract immediately after receipt of the Notice to Proceed. Such Notice to Proceed shall not be issued prior to execution of the contract by the Owner.

Protection of Existing Utilities and Structures: The Contractor shall exercise care to prevent damage to, and shall be liable for any damage to, and for maintenance and protection of such lines and structures whether shown or not on the drawings or otherwise brought to the attention of the Contractor. The Contractor shall not cut, remove, change, or disturb any existing lines, except as provided by the plans and these specifications, without the express permission of the owner of any such line. Utility adjustments or relocations will be accomplished by the owner of each utility, except for water and sewer or as otherwise shown on the drawings.

Materials and Workmanship: The intent of these specifications is that only materials and workmanship of the best quality and grade will be furnished. The fact that the specifications may fail to be sufficiently complete in some detail will not relieve the Contractor of full responsibility for providing materials of high quality and protecting them adequately until they are incorporated in the structure.

The specifications for materials, methods and workmanship set out the minimum standards of quality which the Owner believes necessary to procure satisfactory facilities. The presence or absence of the Engineer, or his representative on the construction site does not, in any manner, relieve the Contractor of full responsibility for complying with these specifications.

Progress Schedule: Prior to commencement, the Contractor shall submit a construction schedule to the Owner and/or its representative for review and approval at the preconstruction meeting.

ASARCO, Incorporated – Remedial Waste Repository Design

The Contractor shall execute all work per the progress schedule. The Owner and/or its representative will monitor the work closely and on a daily basis. The Owner will not tolerate unnecessary delays in the work progress and will take appropriate measures to insure a diligent effort and timely completion.

Removals: Existing improvements shown on the plans as being removed shall be salvaged or disposed of as directed by the Owner or its representative.

Approval of Materials: All materials shall be new and shall be designed for the function and service specified. No equipment or materials shall be used in the project except that which has been approved by the Engineer. Approval for installation, or incorporation in the project, will be made only after submittal and examination of shop and installation drawings, manufacturers' specifications, test results or other required data. Final approval and acceptance of material will be made only after such material has met all requirements set forth in the SLQCP and project specifications.

Storm Water Pollution Prevention Plan: The Contractor shall prepare a construction Storm Water Pollution Prevention Plan (SWP3) prior to construction and file a Notice of Intent (NOI) in accordance with Texas Commission of Environmental Quality (TCEQ) requirements. The SWP3 shall include details of the Contractors proposed Best Management Practices (BMPs), including designation of a duly authorized onsite representative who will maintain the BMPs and conduct inspections and supervise repairs during construction activities, and after construction until the Notice of Termination (NOT) is filed. In conjunction with implementation of the SWP3 plan, the contractor shall keep surface runoff out of the excavated areas and shall maintain channel flow around construction areas to insure runoff gets into existing storm water collection system pump inlets through the use of earthen berms and best management practices.

Permits and Coordination: The Contractor shall be responsible for obtaining all permits required by local governmental agencies, Utilities, and Railroads for this work. The Contractor shall be responsible for coordinating his work as required under such permits.

Construction and Support Facilities: Locate field storage sheds and other support facilities for easy and safe access to the work at sites approved by the Owner.

Maintain storage and fabrication sheds, temporary sanitary facilities, waste disposal systems, and project signs until substantial completion. Remove these facilities prior to substantial completion.

Sanitary Facilities: Sanitary facilities include temporary toilets, wash facilities, and drinking water facilities. Comply with governing regulations including safety and health codes for the type, number, location, operation, and maintenance of fixtures and facilities; provide not less than specified requirements. Install facilities in locations that will best serve the project's needs.

Supply and maintain toilet tissue, paper towels, paper cups, and similar disposable materials as appropriate for each facility. Provide appropriate covered waste containers for used material.

Drinking Water: Provide potable water approved by local health authorities.

ASARCO, Incorporated – Remedial Waste Repository Design

Contractor's Use of Premises: Limit use of the premises to construction activities in areas indicated; allow for Owner occupancy.

Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.

Keep driveways and entrances serving the premises clear and available to the Owner and the Owner's employees at all times. Do not use these areas for parking or storage materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.

Common Reference Standards: Reference in the Specifications to known standards such as codes, specifications, etc., promulgated by professional or technical associations, institute and societies, are intended to mean the latest edition of each such standard adopted and published as of the date of the invitation to bid on this project except where otherwise specifically indicated. Each such standard referred to shall be considered a part of the specifications to the same extent as if reproduced therein in full.

Special Conditions: The Contractor shall maintain at the site for the Owner one copy of all drawings, specifications, addenda, approved shop drawings, change orders and other modifications in good order and marked to record all changes made during construction. To the best of the Contractor's knowledge, all conditions as constructed shall be marked on the drawings. All drawings, specifications, etc., as described above shall be delivered to the Engineer upon completion of work.

Submittals: Submittals to the Engineer are required for only those items specifically mentioned in the specification sections. If Contractor submits data for items other than the above the Engineer will not be obliged to review them. Contractor shall be responsible for procuring shop drawings for his own use as required for the progress of the work.

The term "submittal" as used herein also includes, but is not limited to, fabrication, erection, layout, and setting drawings, manufacture's standard drawings, descriptive literature, catalogues, brochures, performance and test data, wiring and control diagrams, all other drawings and descriptive data pertaining to materials, equipment, piping duct and conduit systems and methods of construction as may be required to show that the materials, equipment or systems' and the position thereof conforms to the contract requirements. As used herein, the term "manufactured" applies to standard units usually mass-produced; and the term "fabricated" means specifically assembled or made out of selected materials to meet individual design requirements. Drawings shall establish the actual detail of all manufactured or fabricated items; indicate proper relation to adjoining work; amplify design detail of mechanical and electrical equipment in proper relation to physical spaces in the structure; and incorporate minor changes of design or construction to suit actual conditions

Following Contractor's review he shall submit shop drawings, samples, or brochures, etc. to the Engineer for his/her review. Submittals which do not show evidence of prior checking by the Contractor will be returned for resubmittal. Submittals shall be forwarded to the Engineer in sufficient numbers as established prior to the start of construction.

ASARCO, Incorporated – Remedial Waste Repository Design

Manufacturer's Instructions: Where an item of work is required by specification to be furnished, installed or performed in accordance with a specified product manufacturer's instructions, contractor shall procure and distribute the necessary copies of such instructions to all concerned parties.

Traffic Control: The Contractor shall furnish all necessary traffic control. The Contractor shall establish a parking area in a location approved by the Engineer and Owner.

Schedule and Working Hours: The Contractor shall submit their working hours and schedule to the Engineer prior to start of construction.

Record Drawings: At the completion of the project, the Contractor will provide the Engineer with two complete sets of prints of the construction drawing to be used to prepare "record drawings for the Owner's permanent records". If the Contractor varies from the Contract Documents, with prior approval of the Engineer for any phase of the work, he shall record, in a neat readable manner; all such variances on the prints furnished and return these prints to the Engineer before project closeout.

Staking Out Work: The work to be done will be staked out by the Contractor from line and grade control stakes to define the lines and grades of work.

The Contractor must satisfy himself before commencing work as to the meaning or correctness of all control stakes. No claim will be entertained by the Owner for or on account of any alleged inaccuracies, unless the Contractor notifies the Engineer, thereof, in writing before commencing work, thereon. The Contractor will be held responsible for the preservation of all such control stakes in their positions, and in case any of them are lost or destroyed all expense incurred by the Owner in replacing same shall be charged against the Contractor and paid for by him before the completion and final acceptance of the work.

Measurement and Payment: Unless indicated otherwise in these Technical Specifications, measurement for each item listed in the bid schedule shall be per unit shown and payment shall be per unit bid cost. Quantities shown in the bid schedule may be extended by approval of the owner to cover actual quantities constructed.

Payment for work not listed as items in the bid schedule shall be included in payment for those items.

END OF SECTION

ASARCO, Incorporated – Remedial Waste Repository Design

SECTION 02200 EARTHWORK

PART 1.0 GENERAL

1.01 SECTION INCLUDES

- A. The Contractor shall furnish all labor, materials, tools, supervision, transportation, and installation equipment necessary to perform all earthwork related work as specified herein, as shown on the Construction Drawings, and in accordance with the Soil and Liner Quality Control Plan (SLQCP).
- B. The Contractor shall immediately notify the Engineer in the event of any discrepancy between the Specifications, the Construction Drawings, and the SLQCP. In case of conflict, the more stringent requirement shall govern unless otherwise directed by the Engineer.
- C. The Contractor shall be prepared to construct the earthworks in conjunction with the construction of other components of the works.
- D. The work of this section shall include, but not necessarily be limited to: excavating, hauling, stockpiling, backfilling, compacting, and grading Category I waste and soil materials for the landfill cell, perimeter embankment, temporary drainage swales, drainage ditches, anchor trenches, access roads, pipes, disposal and stockpiling of surplus materials, and all related work such as dewatering and slope protection. Earthwork shall conform to the dimensions, lines, grades, and sections specified on the Construction Drawings. Surplus Non-Category 1 Excavation shall be hauled to a location designated by the Engineer.

1.02 DESCRIPTION

- A. No classification of excavated type or excavated materials will be made. Earthwork includes all materials regardless of type, character, composition, moisture, or condition thereof.
- B. Earthworks shall include, but not be limited to, Category I waste, slag, earth, sand, clay, gravel, hard pan, boulders not requiring special methods to remove, decomposed rock, concrete, rubbish, demolition debris and all other materials within the excavation limits of the contract documents.

1.03 RELATED SECTIONS

- A. Section 02210 - Grading
- B. Section 02223 - Backfilling
- C. Section 02247 - Geosynthetic Clay Liner (GCL)
- D. Section 02777 – HDPE and LLDPE Geomembranes.

1.04 PAYMENT AND MEASUREMENTS

- A. Payment for earthwork is included in the overall contract lump sum price.

ASARCO, Incorporated – Remedial Waste Repository Design

- B. Monthly progress payments shall be based on the unit price for each earthwork in the contract schedule of values multiplied by the quantities of approved work completed during the previous month. The prices and schedule of prices shall include all materials, equipment, labor, and all else required to implement the work specified in this section.
- C. Measurements for quantities of each category of work shall be based on surveys conducted before and after the performance of the work or other means of measurement that may be agreed upon between the Engineer and the Contractor.
- D. Unless approved and/or directed by the Owner, the payments will not exceed the design quantities.
- E. No additional payment shall be made for losses due to settlement, compaction, erosion, over-excavation, or replacement of rejected material.
- F. No additional payment shall be made for dewatering of slope protection.

1.05 DEFINITIONS

- A. The following are brief definitions of terminology associated with earthwork at this SITE.
 - 1. Topsoil. Under natural soil surface presenting the characteristics of representative soils on the site that promote growth of grass or other vegetation.
 - 2. Soil. Those materials, which underlie the ground surface and topsoil. The soil generally consists of inter-layered poorly graded sands and low-plasticity silts and clays, with each layer in the range of tens to hundreds of feet thick.
 - 3. Subgrade. Consists of prepared, compacted soil surface on which another component, soil or synthetic is placed.
 - 4. Grading. Operations required to smooth and “dress” disturbed areas to design lines, profiles, and grades.

1.06 REFERENCES

- A. Soil and Liner Quality Control Plan (SLQCP), ASARCO, Incorporated, On-Site Landfill, prepared by ARCADIS.
- B. Latest version of American Society for Testing and Materials (ASTM) standards.
 - 1. ASTM D 422. Standard method for Particle-Size Analysis of Soils.
 - 2. ASTM D 698. Standard Test Methods for Moisture-Density Relations of Soils and Soil aggregate Mixtures Using 5.5 pound Rammer and 12-inch Drop.
 - 3. ASTM D 1556. Standard Test Method Density of Soil In Place by the Sand-Cone method.
 - 4. ASTM D 1557. Standard tests for moisture density relations of soils and soil aggregate mixtures, using 10-pound rammer and 18 inch drop.
 - 5. ASTM D 2166. Standard Test Method for unconfined Compressive Strength of Cohesive Soil.

ASARCO, Incorporated – Remedial Waste Repository Design

6. ASTM D 2216. Standard Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures.
7. ASTM D 2487. Standard Test Methods for classification of soils for Engineering Purposes.
8. ASTM D 2922. Standard Test Methods for Density of Soil and Soil-Aggregate In Place by Nuclear Methods (Shallow Depth).
9. ASTM D 3017. Standard Test Method for Moisture Content of Soil and Rock In Place by Nuclear Methods (Shallow Depth).
10. ASTM D 4220. Standard Practices for preserving and transporting Soil Samples
11. ASTM D 4254. Standard Test Methods for Minimum Index Density of Soils and Calculations of Relative Density.
12. ASTM D 4318. Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.07 SUBMITTALS

- B. The Contractor shall submit to the Engineer for review the proposed methods of construction, including stripping, dewatering, excavation, filling, compaction, and backfilling for the various portions of the work. The review shall be for method only. The Contractor shall remain responsible for the adequacy and safety of the methods.
- C. For each soil type specified in Part 2 of this Section, the Contractor shall submit to the Engineer the following information and samples a minimum of 14 days prior to starting construction:
 1. The proposed material source.
 2. The results of grain-size analysis conducted on the proposed material in accordance with ASTM D 422.
 3. The results of liquid and plastic limit tests conducted on the proposed material in accordance with ASTM D 4318.
 4. A 100-lb sample of each of the proposed soils.
- D. The Contractor shall notify the Engineer in writing at least 7 days in advance of intention to perform the work of this section.
- E. If work is interrupted for reasons other than inclement weather, the Contractor shall notify the Owner a minimum of 24 hours prior to the resumption of work.

1.08 SOIL AND LINER QUALITY CONTROL PLAN

- A. All earthwork shall be performed in accordance with the requirements of this Specification and the SLQCP.
- B. All earthwork shall be monitored as outlined in the SLQCP.
- C. The Contractor shall be aware of the activities outlined in the SLQCP and account for these activities in the construction schedule.

ASARCO, Incorporated – Remedial Waste Repository Design

- D. The Contractor shall immediately notify the Engineer of any discrepancy between the specifications and the SLQCP. In case of conflict, the more stringent requirement shall govern, unless otherwise directed by the Engineer.

1.09 EXISTING CONDITIONS

- A. The approximate locations of all known underground and above ground utility line and structures are shown on the plans. Neither the Engineer nor the Owner shall be responsible for the accuracy or completeness of any such information. The Contractor shall immediately notify the Owner if other utility lines of structures, not on the plans, are encountered in the excavation. The Contractor shall be responsible for checking the exact location of all underground utilities including utilities not shown on the plans. The Contractor shall, at his/her own expense, satisfactorily repair or pay the cost of all damage to such facilities or structures, which may result from any of the Contractors operations during the period of the contract.

PART 2.0 PRODUCTS

2.01 MATERIALS

- A. Structural Fill
1. Fill required to bring excavation up to grade shall consist of relatively homogenous, natural soils that are free of debris, foreign objects, excess silt, roots, and organic matter. No materials larger than 3 inches shall be allowed.

2.02 EQUIPMENT

- A. The Contractor shall furnish, operate, and maintain such equipment as is necessary to perform the earthwork specified herein.

PART 3.0 EXECUTION

3.01 FAMILIARIZATION

- A. Prior to implementing any work described in this section, the Contractor shall become thoroughly familiar with the site, the site conditions, and all portions of the work falling within this section.
- B. Inspection:
1. Prior to implementing any of the work in this section, the Contractor shall carefully inspect the installed work of all other sections and verify that all work is completed to the point where the installation of this section may properly commence without adverse impact.
 2. If the Contractor has any concerns regarding the installed work of the other sections, he shall immediately notify the Engineer in writing within 48 hours of the site visit. Failure to notify the Engineer will be construed as Contractors' acceptance of the related work of all other sections.

ASARCO, Incorporated – Remedial Waste Repository Design

3.02 FIELD QUALITY CONTROL

- A. The minimum frequency of quality control testing shall be as outlined in the SLQCP. The Contractor shall take this testing frequency into account in planning his construction schedule. All testing shall be performed by the Contractor in accordance with the SLQCP.
- B. The Engineer or his designated representative shall select sampling locations. If necessary, the location of routine in-place moisture content and dry density tests shall be determined using a non-biased sampling plan.
- C. A special testing frequency shall be used at the discretion of the Engineer when visual observations of construction performance indicate a potential problem.
- D. All perforations resulting from testing the subgrade or embankment shall be filled to the satisfaction of the Engineer. When taking field densities, all holes dug or created for density probes must be backfilled with a mixture of bentonite-rich soil or bentonite grout, in accordance with the SLQCP.
- E. If a defective area is discovered in the earthwork, the Engineer shall immediately determine the extent and nature of the defect. If the defect is indicated by an unsatisfactory result, the Engineer shall determine the extent of the defective area by additional testing, observations, a review of records, or any other means that the Engineer deems appropriate. If the defect is related to adverse site conditions, such as overly wet soils or surface desiccation, the Engineer shall define the limits and nature of the defect.
- F. After determining the extent and nature of a defect, the Contractor shall correct the deficiency to the satisfaction of the Engineer. The cost of retesting and corrective actions shall be borne by the Contractor.
- G. Additional testing shall be performed to verify that the defect has been corrected before any additional work is performed by the Contractor in the area of the deficiency.

3.03 CATEGORY 1 WASTE EXCAVATION AND HANDLING

- A. Areas for excavation of Category 1 material and estimated Category 1 volumes are shown in the plans on the Existing Category 1 Excavation Sites plan sheet (9 of 9) in order of priority unless directed otherwise by the owner. Usable haul ways, limits of haul area, and stockpile sites are shown on this plan sheet and shall be adhered to by the Contractor at all times for transport and stockpile of Category 1 materials. ASARCO will delineate the Category 1 excavation boundaries prior to commencement of construction activities and perform the field sampling and analytical confirmation tasks as required during construction.

It is anticipated that the Contractor will excavate the Category 1 material in 1-foot increments following the removal of the initial observable materials. Sampling and analytical verification may require up to three (3) days for each successive excavation series. Excavation and backfill activities will be authorized following analytical confirmation.

ASARCO, Incorporated – Remedial Waste Repository Design

- B. The contractor shall reduce Category I waste in size, as necessary, so that no material is greater than 24 inches. Category 1 waste used for protective soil cover and intermediate cover shall be no larger than 3/8-inch. Category 1 waste shall be free from rocks or stones, brush, stumps, logs, roots, debris, and organic or other objectionable materials.
- C. The Contractor shall place the Category 1 waste in the waste repositories by methods that will not damage the underlying geosynthetics.
- D. The Contractor shall compact the Category I waste as specified in Section 02223 – Backfilling.
- E. Category 1 waste may be stockpiled at a location authorized by the Engineer/Owner.
- F. Subsequent to excavation of Category I waste, the Category 1 waste excavation areas shall be graded in accordance with the construction drawings and Section 02210-Grading.

3.04 SITE EARTHWORK

- A. The Contractor shall perform all excavation to the lines and grades indicated on the Construction Drawings required to complete the Work as shown and specified.
- B. The Contractor shall remove the excavated material to an area designated by the Engineer and Owner.
- C. Excavated materials shall not be removed from the site unless directed by the Engineer.
- D. The Contractor shall explore ahead of the required excavation to confirm the exact location of buried structures.
- E. The use of explosives shall not be permitted.
- F. Protection of persons and property: Barricade open excavations occurring as part of the work.
- G. Provide methods to minimize dust during construction (e.g., water sprinkling), as often as needed to maintain dust control and no less than once daily.
- H. The Contractor shall support and protect all structures from damage. If they are disturbed, the Contractor at his expense shall restore them immediately.
- I. Contractor shall maintain the excavation in a safe condition. Place, grade, and shape for proper drainage.

3.05 STORAGE OF EXCAVATED GENERAL FILL MATERIAL

ASARCO, Incorporated – Remedial Waste Repository Design

- A. All material which is considered as general fill or as directed by the Engineer which is removed from excavated areas as shown on the plans shall be stored in areas shown on the plans or as directed by the Engineer for use as backfill as described in Section 02223 – Backfilling.

3.06 EMBANKMENT

- A. Embankment shall be constructed to the lines and grades shown on the Construction Drawings.
- B. The embankment and subgrade fill shall meet the requirements of Part 2.01 of this section.

3.07 PUMPING AND DRAINAGE

- A. At all times during construction, the Contractor shall provide and maintain proper equipment and facilities to remove all water entering the landfill and any excavations, and keep such areas dry so as to obtain a satisfactory subgrade to allow the construction of the structural fill, and installation of the liner system.
- B. Water entering the excavation from surface runoff shall be collected in shallow ditches constructed by the Contractor around the perimeter of the landfill, drained to sumps, and pumped from the excavation to the storm-water drains in order to maintain the excavation bottom free of standing water.
- C. Drainage water shall be disposed of only in an area approved by the Engineer. Drainage water shall be disposed of in a manner, which prevents flow or seepage back into the landfill or the excavated area. On and offsite runoff shall be channeled around excavated areas by use of earthen berms and shallow ditches and diverted into existing stormwater collection system pumps. This diversion system shall be maintained at all times during construction.
- D. The Contractor shall comply with the SWP3 when installing silt fences and swales around all areas down slope of soil disturbances unless a drainage ditch exists at the boundary of the disturbed area. Other areas requiring silt fences shall not be removed until the contained areas are successfully revegetated. All work shall comply with Texas Pollution Discharge Elimination System (TPDES) standards.

3.08 GRADING

- A. General: Uniformly grade areas of the excavated locations within limits of grading under Section 02210 – Grading, including adjacent transition areas to result to lines and grades as indicated on the Construction Drawings.

3.09 UNAUTHORIZED EARTHWORK

- A. All excavation outside of the project boundaries and which is not approved by the Engineer, as well as the removal and disposal of the associated material shall be at the Contractors expense. The unauthorized excavations shall be filled,

ASARCO, Incorporated – Remedial Waste Repository Design

compacted, and covered in accordance with these Specifications at the expense of the Contractor.

3.10 FIELD QUALITY CONTROL

- A. Contractor shall provide strict quality control in accordance with the SLQCP including visual inspection of bearing surfaces.

3.11 PROTECTION

- A. Protect excavations by methods required to prevent cave-in or loose soil from falling into excavation.
- B. The Contractor shall use all means necessary to protect all prior work, including all materials and completed work of other Sections.
- C. In the event of damage, the Contractor shall immediately make all repairs and replacement necessary, to the approval of the Engineer and at no additional cost to the Owner.

END OF SECTION

ASARCO, Incorporated – Remedial Waste Repository Design

SECTION 02210 GRADING

PART 1.0 GENERAL

1.01 WORK INCLUDED

- A. Excavation of anchor trenches and removal of subgrade materials.
- B. All necessary grading and fill placement work to prepare the subgrade, including the embankment and side slopes, for the placement of geosynthetic materials is included. All necessary grading and surface preparation work the AC pavement is included. Refer to Drawings for line and grade elevations of the proposed subgrade. All grading and fill placement work required to construct the finished subgrade to within 0.1 feet of the elevations shown is included. All surfaces to receive Geosynthetic Clay Liner (GCL) material shall be hand raked as necessary to remove irregularities.
- C. Cutting, grading, filling, and rough contouring along all perimeter facilities including perimeter embankment, berms, access roads, and drainage ditches.
- D. Segregating and stockpiling excess materials as directed by Engineer.
- E. All necessary grading of intermediate cover (Category I materials less than 3/8-inch) of the final cover system to the line and grade elevations shown on the construction drawings.
- F. Cutting, grading, filling, and rough contouring of Category I waste excavation areas as specified on the construction drawings.

1.02 DEFINITIONS

- A. Maximum Density: Maximum weight in pounds per cubic foot of a specific material.
- B. Optimum Moisture: Percentage of water in a specific material at maximum density.

1.03 RELATED SECTIONS

- A. Section 02200 - Earthwork
- B. Section 02223 - Backfilling
- C. Section 02711 – Protective Cover Soil

1.04 REFERENCES

- A. Soil and Liner Quality Control Plan (SLQCP), ASARCO, Incorporated, On-Site Landfill, prepared by ARCADIS.
- B. Latest version of American Society for Testing and Materials (ASTM) standards.

ASARCO, Incorporated – Remedial Waste Repository Design

1. ASTM D 422. Standard method for Particle-Size Analysis of Soils.
2. ASTM D 698. Standard Test Methods for Moisture-Density Relations of Soils and Soil aggregate Mixtures Using 5.5 pound Rammer and 12-inch Drop.
3. ASTM D 1556. Standard Test Method Density of Soil In Place by the Sand-Cone method.
4. ASTM D 1557. Standard tests for moisture density relations of soils and soil aggregate mixtures, using 10-pound rammer and 18 inch drop.
5. ASTM D 2166. Standard Test Method for unconfined Compressive Strength of Cohesive Soil.
6. ASTM D 2216. Standard Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures.
7. ASTM D 2487. Standard Test Methods for classification of soils for Engineering Purposes.
8. ASTM D 2922. Standard Test Methods for Density of Soil and Soil-Aggregate In Place by Nuclear Methods (Shallow Depth).
9. ASTM D 3017. Standard Test Method for Moisture Content of Soil and Rock In Place by Nuclear Methods (Shallow Depth).
10. ASTM D 4220. Standard Practices for preserving and transporting Soil Samples
11. ASTM D 4254. Standard Test Methods for Minimum Index Density of Soils and Calculations of Relative Density.
12. ASTM D 4318. Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

PART 2.0 PRODUCTS

2.01 MATERIALS

- A. Soils are classified in accordance with Unified Soil Classification System.
1. Suitable materials for structural fill and use under building pads, paved roadways and shoulders, and other structures shall be GW, GP, SW, SP, SM, GM, GC or, SC, properly worked within moisture content range which will readily facilitate compaction to requirements specified, CL may be used if authorization by the Engineer.
 2. Unsuitable materials for soil fill are PT, OH, MH, CH, OL, and ML.
 3. Maximum size aggregate for soil fill materials shall be 3 in., except the subgrade surface, protective cover, and intermediate cover shall have maximum size aggregate of 3/8 inch.
 4. Off-site borrow sources must be approved by OWNER or Project Engineer.

ASARCO, Incorporated – Remedial Waste Repository Design

PART 3.0 EXECUTION

3.01 EXAMINATION

- A. Verify that site conditions are consistent with the Construction Drawings. Any discrepancies shall be reported to the Project Engineer.
- B. Verify that construction benchmarks designated on Construction Drawings and intended elevations for the Work are as indicated.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known monitoring devices.
- C. Locate, identify, and protect monitoring devices from damage.
- D. Protect plant life and other features remaining as a portion of final landscaping as designated by OWNER.
- E. Protect benchmarks, existing structures, fences, paving, and curbs from excavating equipment and vehicular traffic as required.
- F. After the earthwork for the project is completed, any hard, sharp, metallic or pointing object projecting through or appearing on the surface shall be removed to a depth of 1 foot (0.30 m) below the completed surface. The resulting excavation shall be backfilled with general fill.

3.03 EXCAVATION

- A. Excavate subgrade material from areas to be re-graded for drainage ditches, perimeter berm, access road and anchor trench. Segregate and stockpile for use as general fill.
- B. Grade in cell areas as established by Construction Drawings and perform in manner and sequence providing proper drainage.

3.04 FILL AREAS

- A. Fill areas shall be formed of suitable material placed in layers of not more than 8 inches in depth measured loose and rolled and/or vibrated with suitable equipment until compacted. Thickness of layers may be increased provided the equipment and methods used are proven by field density testing to be capable of compacting thicker layers to specific densities. Layer thickness shall be decreased if equipment and methods used are proven to be incapable of compacting layers to specific densities.

ASARCO, Incorporated – Remedial Waste Repository Design

- B. Fills shall be compacted to a density of not less than 90 percent of its maximum dry density as determined by ASTM D 1557.
- C. After the subgrade has been properly shaped and stabilized, it shall be brought to a firm, unyielding surface by rolling to the entire area with an approved power roller. All areas inaccessible to the roller shall be thoroughly compacted with hand tampers weighing not less than 50 pounds, the face of which shall not exceed 100-square inches in area.
- D. Maintain moisture content of fill materials to attain required compaction density of 90% of maximum dry density as determined by ASTM D 1557. Unless the subgrade material at the time of the rolling contains sufficient moisture to insure proper compaction, it shall be watered as directed and then compacted.
- E. Make grade changes gradual. Blend slope into level areas, maintaining proper drainage.
- F. Remove and store surplus fill materials from site as directed by Engineer.

3.05 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed by Contractor with approval from Engineer.

END OF SECTION

ASARCO, Incorporated – Remedial Waste Repository Design

SECTION 02223 BACKFILLING

PART 1.0 GENERAL

1.01 SECTION INCLUDES

- A. Fill for over excavation.
- B. Backfilling for Anchor Trench Construction.
- C. Grading
- D. Embankment Construction
- E. Category I Waste Placement

1.02 RELATED SECTIONS

- A. Section 02200 – Earthwork
- B. Section 02210 - Grading
- C. Section 02247 - Geosynthetic Clay Liner (GCL)

1.03 REFERENCES

- A. Soil and Liner Quality Control Plan (SLQCP) for ASARCO, Incorporated, On-Site Landfill, prepared by ARCADIS.
- B. ASTM D 1557. Standard tests for moisture density relations of soils and soil aggregate mixtures, using 10-pound rammer and 18 inch drop.

PART 2.0 PRODUCTS

2.01 FILL MATERIALS

- A. General Fill: Clean soil free from debris, waste, vegetation, other deleterious materials and rocks larger than 3-inches in any dimension except near the subgrade surface where maximum size aggregate shall be 3/8 inch.

PART 3.0 EXECUTION

3.01 FILL FOR OVER EXCAVATION

- A. All fill required due to over excavation shall be placed and compacted in accordance with Section 02210 - Grading of these Specifications.

3.02 BACKFILLING FOR ANCHOR TRENCH CONSTRUCTION

ASARCO, Incorporated – Remedial Waste Repository Design

- A. All backfill earth material required for the construction of anchor trench shall be obtained from on-site storage of clean general fill or off-site. All material deposited in the anchor trench shall be free from rocks or stones, brush, stumps, logs, roots, debris, and organic or other objectionable materials. Anchor trenches shall be constructed in horizontal layers not to exceed 8 inches in uncompacted thickness. Material deposited by excavating and hauling equipment shall be spread and leveled prior to compaction. Each layer shall be thoroughly compacted by rolling or other method acceptable to the Engineer to 90 percent of the maximum density at or below optimum moisture content as determined by ASTM D 1557. If the material fails to meet the density specified, compaction methods shall be altered.
- B. The anchor trenches shall be constructed to the elevations, lines, grades and cross sections as shown, specified or otherwise directed by the Engineer with such increased heights and widths as deemed necessary by the Engineer to allow for shrinkage and settlement. The anchor trench shall be maintained in a completely satisfactory manner and surfaces shall be compacted and accurately graded before the liner system is placed on them.

3.03 GRADING

- A. General: Uniformly grade areas within limits of grading under this section and Section 02210 – Grading, including adjacent transition areas. Smooth subgrade surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.

3.04 EMBANKMENT CONSTRUCTION

- A. All fill required to construct the embankment in accordance with the construction drawings shall be placed and compacted in accordance with the requirements for Fill Areas in Specification Section 02210 – Grading.

3.05 CATEGORY I WASTE PLACEMENT

- A. All Category I waste material shall be placed and compacted within the repositories in accordance with the requirements for Fill Areas in Specification Section 02210 – Grading and Specification Section 02200 – Earthwork.

END OF SECTION

ASARCO, Incorporated – Remedial Waste Repository Design

SECTION 02247 GEOSYNTHETIC CLAY LINER (GCL)

PART 1 GENERAL

1.01 SUMMARY

- A. GCL placement on top of prepared subgrade surface and below high density polyethylene (HDPE) geomembrane is to be used as a component of the composite liner system in accordance with the Soil and Liner Quality Control Plan (SLQCP).
- B. GCL placement on top of intermediate cover and below very flexible polyethylene (VFPE) geomembrane as a component of the final cover system in accordance with the Final Cover Quality Control Plan (FCQCP).

1.02 RELATED SECTIONS

- A. Section 02200 - Earthwork
- B. Section 02210 - Grading
- C. Section 02223 - Backfilling
- D. Section 02777 – HDPE and LLDPE Geomembrane Liner

1.03 REFERENCES

Use latest revision of referenced standards.

- A. ASTM D-4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles;
- B. ASTM D-5084 - Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter (Geosynthetic Research Institute Test GCL-2 may also be used per SLQCP)
- C. ASTM D-5321 - Standard Test Method for Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method
- D. ASTM D-5890 - Standard Test Method for Swell Index of Clay Mineral Component of Geosynthetic Clay Liners
- E. ASTM D-5891 - Standard Test Method for Fluid Loss of Clay Component of Geosynthetic Clay Liners
- F. ASTM D-5993 - Standard Test Method for Measuring Mass per Unit of Geosynthetic Clay Liners

ASARCO, Incorporated – Remedial Waste Repository Design

1.04 QUALITY CONTROL SUBMITTALS

- A. Pre-installation: The Contractor shall submit written certification of the items below.
1. The origin (GCL Supplier's name and location of material source) and identification of the bentonite used for production of GCL.
 2. Copies of dated quality control information issued by the bentonite supplier.
 3. Results of quality control tests done by GCL Manufacturer to verify that bentonite supplied met GCL Manufacturer's specifications.
 4. Copies of dated quality control information provided by Geotextile Manufacturer(s).
 5. Results of quality control tests done by GCL Manufacturer to verify that geotextile supplied for use in production of GCL met GCL Manufacturers specifications.
 6. Quality control certificates, signed by a responsible party employed by the GCL Manufacturer which includes properties included in Part 2.01 of this Section. Each quality control certificate shall include roll identification numbers, testing procedures, and results of quality control tests.
 7. Contractor shall submit prepared GCL panel layout to the Engineer at least seven (7) days prior to mobilization of crews, unless otherwise approved by Engineer. Once the panel layout is approved, Contractor may not change the layout without permission of the Engineer.

B. Installation

Submit the following as installation proceeds:

1. Quality control documentation recorded during GCL installation.
2. Subgrade surface acceptance certificates (in accordance with SLQCP and FCQCP) signed by CONTRACTOR, for each area that will be covered directly by GCL. Submit prior to GCL deployment. Deployment of GCL will be considered acceptance of subgrade if certificate is not submitted.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Packing and Shipping

1. Ensure that GCL is supplied in rolls wrapped in relatively impermeable protective covers to protect the material from ultraviolet light exposure, moisture, excess humidity, puncture, cutting, or any other deleterious conditions.

ASARCO, Incorporated – Remedial Waste Repository Design

2. Ensure that GCL rolls are marked or tagged with the following information:
 - a. GCL Manufacturer's name
 - b. Product identification
 - c. Roll number
 - d. Roll dimensions
 - e. Roll weight
 - f. GCL Lot Number

- B. Storage and Protection
 1. Owner will provide on-site storage area for GCL.
 2. Contractor will be on site to accept delivery of all GCL materials.
 3. Contractor will provide all trailers, equipment, etc. necessary to store and protect GCL from water, ultraviolet light exposure and other damage.
 4. Preserve integrity and readability of GCL roll labels.
 5. GCL rolls shall be kept off the ground, covered with a tarp, and kept dry.
 6. Rolls must not be stacked higher than recommended by the manufacturer to preclude thinning of bentonite at contact points.

PART 2 PRODUCTS

2.01 MATERIALS

- A. CONTRACTOR to provide GCL meeting the following specifications and capable of retaining its structure during deployment.

ASARCO, Incorporated – Remedial Waste Repository Design

GCL PROPERTIES

PROPERTY	METHOD	VALUE
Permeability	ASTM D-5084 or GRI GCL-2 (confining consolidating pressures simulating field conditions for ASTM D-5084)	$\leq 5 \times 10^{-9}$ cm/sec
Internal Friction Angle for unreinforced GCL (hydrated state)	ASTM D-5321	$\geq 6^\circ$
Internal Friction Angle for reinforced GCL used on 3:1 sideslope(s) and sump(s) as required by the Engineer (hydrated state)	ASTM D-5321	$\geq 24^\circ$
Clay Mass per Unit Area (oven dried at 105)	ASTM D-5993	≥ 0.8 lb/sq. ft.
Bentonite Moisture Content	ASTM D-5993	$\leq 25\%$
Free Swell	ASTM-5890	≥ 24 ml
Fluid Loss	ASTM D-5891	≤ 18 ml

- B. GCL provided shall be stock product consisting of natural sodium bentonite and geotextiles. Material installed on sidewalls shall be reinforced and constructed with non-woven geotextiles on both sides (such as Bentomat DN or equivalent). Material installed on the cell floor and on the final cover may be unreinforced and consist of a layer of sodium bentonite between two woven geotextiles, such as Claymax 200R, or equivalent, provided that the GCL meets the properties described in Part 2.01 A of this Section. Material shall be manufactured to meet specification of this project and as per SLQCP and FCQCP.

2.02 SOURCE QUALITY CONTROL

Ensure that GCL Manufacturer meets the conditions in this Section.

A. Test Inspection

1. GCL shall be tested by GCL Manufacturer to evaluate characteristics for quality control. At a minimum, the following tests shall be performed for quality control in accordance with test methods specified in Part 1.03 of this Section.
 - a. Clay Mass per Unit Area
 - b. Moisture Content (bentonite)
 - c. Permeability
 - d. Free Swell
 - e. Fluid Loss
 - f. Internal Shear Resistance

ASARCO, Incorporated – Remedial Waste Repository Design

- g. Grab Tensile Strength
 - h. Bentonite content
2. GCL Manufacturer shall perform quality control tests of GCL produced according to the following frequency. Samples not satisfying these specifications and GCL Manufacturer's specification shall result in the rejection of applicable rolls.

<u>Test</u>	<u>Frequency</u>
Clay Mass/Unit Area (ASTM D-5993)	per 40,000 ft ²
Bentonite Moisture Content (ASTM D-5993)	per 40, 000 ft ²
Free Swell (ASTM D-5890)	per 50 tons and every truck or rail car
Fluid Loss (ASTM D-5891)	per 50 tons and every truck or rail car
Grab Tensile Strength (ASTM D-4632)	per 200,000 ft ²
Permeability (ASTM D-5084) or GRI GCL-2)	per week for each production line (report last 20 permeability values, ending on production date of supplied GCL)
Lab Joint Permeability (Flow Box or other suitable device)	per material and lap type

3. GCL Manufacturer shall provide documentation that material meets internal shear strength parameters as described above. Additionally, GCL Manufacturer shall provide documentation of the rate that powdered bentonite is to be applied at overlap seams of the two-sided non-woven material. The rate shall be based on data which shows that the resulting seam is essentially as impermeable as the GCL itself.
4. At GCL Manufacturer's discretion and expense, additional testing of individual rolls may be performed to more closely identify non-complying rolls and to qualify individual rolls.

ASARCO, Incorporated – Remedial Waste Repository Design

PART 3 EXECUTION

3.01 EXAMINATION

A. Conformance Testing

1. CONTRACTOR and/or Construction Quality Assurance, (CQA) Monitor shall collect samples of GCL to be installed.
2. Samples shall be taken across the entire width of the roll and shall not include the first 3 ft. unless otherwise specified by the Design Engineer; samples shall be 3 ft long by the roll width. The CQA Monitor shall mark the machine direction on the samples with an arrow.
3. Samples shall be taken at a minimum of one per lot or batch number or one per 100,000 ft², whichever is least. These samples shall then be forwarded to the independent Geosynthetic Quality Assurance Laboratory (QAL) for testing to ensure conformance to the project specifications.
4. A lot shall be defined as a group of consecutively numbered rolls from the same manufacturing line.
5. At a minimum, the following conformance tests shall be conducted on the GCL as a unit:
 - a. Permeability (ASTM D-5084 or GRI GCL-2)
 - b. Mass per unit area (ASTM D-5993)
 - c. Direct shear (ASTM D-5321) per GCL/adjoining material type
6. All conformance test results shall be reviewed and accepted or rejected by the CQA Officer prior to the deployment of the GCL. The CQA Officer shall examine all results from laboratory conformance testing and shall report any non-conformance to the Project Manager and/or Design Engineer. The CQA Officer shall be responsible for checking that all test results meet or exceed the property values listed above.
7. If the GCL Manufacturer has reason to believe that failing tests may be the result of the independent Geosynthetic QAL incorrectly conducting the tests, the GCL Manufacturer may request that the sample in question be retested by the independent Geosynthetic QAL with a technical representative of the GCL Manufacturer present during the testing. Alternatively, the GCL Manufacturer may have the sample retested at two different OWNER approved Geosynthetic independent QALs. If both laboratories produce passing results, the material shall be accepted. If both laboratories do not produce passing results, then the original independent Geosynthetic QAL test results shall be accepted. The use of these procedures for dealing with failed test results is subject to the approval of the Project Manager and/or Design Engineer.
8. If a test result is in non-conformance, all material from the lot represented by the failing test should be considered out of specification and rejected.

ASARCO, Incorporated – Remedial Waste Repository Design

Alternatively, at the option of the Project Manager and/or Design Engineer, additional conformance test samples may be taken to "bracket" the portion of the lot not meeting specification (note that this procedure is valid only when all rolls in the lot are consecutively produced and numbered from one manufacturing line). To isolate the out-of-specification material, additional samples must be taken from rolls that have roll numbers immediately adjacent to the roll that was sampled and failed. If both additional tests pass, the roll that represents the initial failed test and the roll manufactured immediately after that roll (next larger roll number) shall be rejected, If one or both of the additional test fail, then the entire lot shall be rejected or the procedure repeated with two additional tests that bracket a greater number of rolls within the lot.

9. The GCL Manufacturer and/or CONTRACTOR will bear expenses for retesting GCL due to test failures.

3.02 INSTALLATION

A. Panel Nomenclature

1. A field panel is defined as a unit of GCL which is to be deployed in the field, i.e., a field panel may be a roll or a portion of roll cut in the field.
2. Identify each field panel with an identification code (number or letter-number) consistent with Contractor's layout plan. This identification code shall be agreed upon by Design Engineer, Contractor, and CQA Officer.

B. Field Panel Deployment - Handle GCL in a manner to ensure they are not damaged. Comply with the following:

1. On slopes, anchor GCL securely and deploy it down slope in a controlled manner to continually keep the GCL in a fully relaxed (but not wrinkled) state.
2. Weight GCL with sandbags or equivalent in presence of wind. Do not remove weight until replaced with cover material.
3. Install GCL with the non-woven geotextile side of the material facing upward.
4. Cut GCL with a sharp utility knife. Protect adjacent materials from potential damage due to cutting.
5. Prevent damage to underlying layers (i.e., rutting of prepared subgrade surface) during placement of GCL.
6. During deployment, do not entrap in or beneath the GCL stones, excessive dust, or moisture that could hydrate the GCL.
7. Prevent excess loss of bentonite on edges during installation.

ASARCO, Incorporated – Remedial Waste Repository Design

8. Visually examine entire GCL surface and ensure no potentially harmful foreign objects are present. Remove foreign objects encountered or replace GCL.
9. Deploy GCL in such a manner so as to protect the GCL from moisture and precipitation during and after installation. Should any damage, such as hydration, occur to the GCL during or after installation, the cost of removal, new GCL, retesting, and reinstallation shall be at CONTRACTOR'S expense. Also, should damage occur, great or small, the CONTRACTOR shall employ the necessary personnel to ensure the original project schedule is met.
10. Only that amount of GCL which can be covered with Flexible Membrane Liner (FML) during the day shall be installed.

C. Seaming Procedures

1. GCL to be installed on the sidewalls under textured FML should be supplied in roll lengths extending the full length of the slope and which do not require horizontal seams. Only if approved by TCEQ, sideslope seams may be considered by Design Engineer with a minimum of 36 in. overlap.
2. Longitudinal overlaps shall be a minimum of 6 in.
3. End-of-panel overlaps on floor areas shall be a minimum of 2 ft. No end-of-panel overlaps are permitted on the sideslopes, unless approved by the TCEQ and the Design Engineer.
4. Visually inspect seam continuity to ensure:
 - a) GCL material covers the entire subgrade floor area and sideslopes.
 - b) Panel edges cover the 6 in. lap line printed on the upper surface of each GCL panel.
5. Apply powdered bentonite to seams in accordance with GCL Manufacturer's specifications (application rate \geq 0.25 lb per linear foot of overlap) using an adjustable drop spreader.

D. Defects and Repairs

Sections which have premature hydration to the extent that no work may be accomplished on its surface shall be removed. Repair holes and tears in GCL as follows:

1. Place a piece of new material extending over the entire area of damage with a 12 in. overlap in all directions.
2. Add powdered bentonite to patches as required by GCL Manufacturer's recommendations.

ASARCO, Incorporated – Remedial Waste Repository Design

3. If flaws (e.g., cuts, rips, shifted bentonite, etc.) in excess of 50% of width of the GCL roll are encountered, the entire GCL roll width shall be replaced at no cost to OWNER.
4. In the area of a clay liner tie-in, the GCL shall extend a minimum of two feet beyond the tie-in area.

3.03 INTERFACE WITH OTHER PRODUCTS

- A. Ensure the following when deploying materials on top of the GCL:
 1. GCL and underlying materials (i.e., prepared subgrade surface) are not damaged.
 2. Minimal slippage of GCL on underlying prepared subgrade surface layers occurs.
 3. No excess tensile stress occurs in GCL.

3.04 COMPLETE MATERIALS ON-HAND BEFORE INSTALLATION BEGINS

- A. CONTRACTOR shall ensure that all required GCL materials are on-site before installation begins. This is to ensure that the installation can proceed without delays and to facilitate the required conformance testing.

END OF SECTION

ASARCO, Incorporated – Remedial Waste Repository Design

SECTION 02418 GEOCOMPOSITE DRAINAGE LAYER

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Geocomposite used as a drainage layer component of final cover system. Material will consist of HDPE geonet with 8 oz/sq yd non-woven polypropylene geotextile bonded on a single side.

1.02 SUBMITTALS

A. Product Data:

1. Origins (supplier's name and production plant) and identifications (brand name and number) of geotextile and geonet used to manufacture geocomposite.
2. Specifications for geocomposite which includes properties published by Geocomposite Manufacturer measured using test methods in specifications for geotextile and geonet.

B. Miscellaneous

1. Copies of dated quality control certificates issued by Geotextile and Geonet Manufacturer(s).
2. Written certification that minimum average roll values given in Geocomposite Manufacturer's specifications are guaranteed by Geocomposite Manufacturer.
3. Quality control certificates signed by Geocomposite Manufacturer. Quality control certificates shall include roll identification numbers, testing procedures, and results of quality control tests.
4. Subgrade surface acceptance certificates, if applicable, signed by CQA Officer and/or Design Engineer, for each area that will be covered by geocomposite. Submit prior to geocomposite deployment. Deployment of geocomposite will be considered as acceptance of subgrade if certificate is not submitted.

ASARCO, Incorporated – Remedial Waste Repository Design

1.03 DELIVERY, STORAGE AND HANDLING

A. Packing and Shipping:

1. Manufacturer shall identify rolls of geocomposite with following:
 - a) Manufacturer's name
 - b) Product identification
 - c) Lot number
 - d) Roll number
 - e) Roll dimensions
 - f) Geonet resin lot number

B. Storage and Protection:

1. Project Manager will provide on-site storage area for geocomposite rolls.
2. Contractor will be on site to accept delivery of geocomposite.
3. Contractor is responsible for providing all necessary trailers, equipment, etc. for unloading and storage to protect the geocomposite from dirt, water, ultraviolet light, exposure, and other sources of damage.
4. Preserve integrity and readability of geocomposite roll labels.

PART 2 PRODUCTS

2.01 MATERIALS

- A. The geocomposite on the landfill floor and final cover shall be single-sided geocomposite (one non-woven geotextile heat bonded to a geonet core). The geotextile shall conform to SLQCP.
- B. Geotextile-Geonet adhesion peel resistance shall not be less than 1 lb/in. in accordance with ASTM D-413 - Test Method for Rubber Property- Adhesion to Flexible Substrate or ASTM F-904 - Test Method for Comparison of Bond Strength or Ply Adhesion of Similar Laminates Made From Flexible Materials.
- C. Geotextiles/Geonets; used for manufacture of geocomposite shall be stock products. Except when specifically authorized in writing by Design Engineer, materials shall not be specifically manufactured to meet this Project.
- D. Capable of retaining its structure during handling, placement and long- term services.

ASARCO, Incorporated – Remedial Waste Repository Design

2.02 SOURCE QUALITY CONTROL

A. Tests

1. Geocomposites shall be tested by Geocomposite Manufacturer to evaluate characteristics for quality control. At a minimum, the following tests shall be performed for quality control in accordance with test methods specified.
2. Perform following tests for every 50,000 ft² (5,000 M²) of geocomposite produced.
 - a) Mass per unit area
 - b) Geotextile-Geonet peel adhesion
3. At Geocomposite Manufacturer's discretion and expense, additional testing of individual rolls may be performed to more closely identify noncomplying rolls and to qualify individual rolls.
4. Geocomposite components shall be evaluated by component manufacturers to determine characteristics for quality control.

PART 3 EXECUTION

3.01 EXAMINATIONS

A. Conformance Testing

1. If deemed necessary by the Design Engineer, the CQA Officer and/or Contractor shall collect samples, no less than one per 100,000 ft², of geocomposite to be installed for conformance testing. Testing shall include:
 - a) Mass per unit area
 - b) Geotextile-Geonet peel adhesion

3.02 INSTALLATION

A. Geocomposite Deployment:

1. Weight geocomposite with sandbags or equivalent in presence of wind. Do not remove weight until replaced with cover material.
2. Cut geocomposite with sharp geotextile cutter (hook blade). Protect adjacent materials from potential damage due to cutting of geocomposite.
3. Prevent damage to underlying layers during placement of geocomposite.
4. During deployment, care shall be taken not to entrap in or beneath geocomposite, stones, dirt, excessive dust, or moisture that could

ASARCO, Incorporated – Remedial Waste Repository Design

damage geomembrane, cause clogging of geonet, or hamper subsequent seaming.

5. If dirt or excess dust is entrapped in geonet of single-sided geocomposite (if used), it shall be washed clean prior to placement of next layer of material.
6. Single-sided geocomposite shall have the geonet placed face down against the FML. Do not weld to geomembrane unless specified on Construction Drawings.
7. Visually examine entire geocomposite surface before seaming for potentially harmful foreign objects such as needles. Remove foreign objects encountered or replace geocomposite.

B. Geonet Seams and Overlap Procedures:

1. Overlap adjacent geonet rolls a minimum of 3 to 4 in. (75 to 100 mm). Overlap adjacent geonet roll ends minimum of 6 to 8 in. (150 to 200 mm).
2. Tie geonet overlaps with colored plastic fasteners. Use white or yellow tying devices for easy inspection. Do not use metallic devices.
3. Tie every 5 ft (1.5 m) along edges on slopes, every 8 ft (2.5 m) on the floor, and every 6 in. (0.15 m) in anchor trench, and along end-to-end seams.
4. In general, no horizontal seams are allowed on side slopes.
5. In corners of side slopes of rectangular landfills, where overlaps between perpendicular geocomposite strips are required, unroll an extra layer of geocomposite along slope, on top of previously installed geocomposites, from top to bottom of slope.
6. Stagger joints when more than one layer of geonet is installed.

C. Geotextile Seaming Procedures:

1. In general, geotextile shall be sewn or heat bonded. No horizontal seams or splices are allowed on side slopes except as part of patch. Splice is defined as seam connecting ends of 2 rolls. Spot sewing is not allowed.
2. Overlap geotextile minimum of 4 in. (100 mm) prior to seaming.
3. Allow no earth cover material to be present beneath geotextile.
4. When sewing, use polymeric thread with chemical and ultraviolet light resistance properties equal to or exceeding those of geotextile.
5. Use a locking stitch.

ASARCO, Incorporated – Remedial Waste Repository Design

3.03 FIELD REPAIR PROCEDURES

- A. Defects and Repairs: Repair small defects smaller than 3 ft by 3 ft (1 m by 1 m) as follows, if geotextile is damaged.
 - 1. Remove damaged geotextile.
 - 2. Cut patch of new geotextile to provide minimum 12 in. (0.3 m) overlap.
 - 3. Thermally bond geotextile patch to existing geocomposite.
- B. If geonet is damaged.
 - 1. Remove damaged geonet.
 - 2. Cut patch of new material.
 - 3. Secure patch to original geonet by tying every 6 in. (0.15 m). Use tying devices specified.
 - 4. Place geotextile patch overlapping damaged area by minimum of 12 in. (0.3 m).
 - 5. Thermally bond geotextile to existing geocomposite.
- C. Replace geocomposite if defect is determined to be larger than 3 ft by 3 ft (1 m by 1 m).

3.04 INTERFACE WITH OTHER PRODUCTS

- A. The following shall occur when deploying soil materials located on top of geocomposite.
 - 1. Geocomposite and underlying lining materials are not damaged.
 - 2. Minimal slippage of geocomposite on underlying layers occurs.
 - 3. No excess tensile stresses occur in geocomposite.

3.05 COMPLETE MATERIALS ON-HAND BEFORE INSTALLATION BEGINS

- A. Contractor shall ensure that all required geotextile/geonet composite liner materials are on-site before installation begins. This is to ensure that the installation can proceed without delays and to facilitate conformance testing (if required).

END OF SECTION

ASARCO, Incorporated – Remedial Waste Repository Design

SECTION 02711 PROTECTIVE COVER SOIL

PART 1.0 GENERAL

1.01 SECTION INCLUDES

- A. The Contractor shall furnish all labor, materials, tools, supervision, transportation, and installation equipment necessary for the construction of the protective cover, as specified herein, as shown on the drawings, and in accordance with the Soil and Liner Quality Control Plan (SLQCP).
- B. The Contractor shall construct the protective cover in conjunction with the installation and construction of the other components of the liner system as shown on the drawings.
- C. The Contractor shall immediately notify the Engineer in the event of any discrepancy between the Specifications, the drawings, and the SLQCP. In case of conflict, the more stringent requirement shall govern unless otherwise directed by the Engineer.

1.02 RELATED SECTIONS

- A. Section 02777 – HDPE and LLDPE Geomembrane Liner.
- B. Section 02418 - Geocomposite Drainage Layer

1.03 PAYMENT AND MEASUREMENT

- A. Payment for the protective cover is included in the overall contract lump sum price.
- B. Monthly progress payments shall be based on the unit price for the protective cover in the contract schedule of values multiplied by the quantities of approved work completed during the previous month. The prices and schedule of prices shall include all materials, equipment and labor, and all else required to implement the work specified in this section.
- C. Measurements shall be based on the actual volume of approved materials installed. Unless the Owner has directed that protective cover material be installed in excess of the quantities shown on the drawings, the payment volume shall not exceed the design volume.
- D. Unless the Owner has directed that the work be performed in excess of the quantities shown on the drawings, the payments will not exceed the design quantities.
- E. No additional payment shall be made for losses due to settlement, compaction, erosion, over excavation, or replacement of rejected material.

ASARCO, Incorporated – Remedial Waste Repository Design

1.04 REFERENCES

- A. Soil and Liner Quality Control Plan (SLQCP) for ASARCO, Incorporated, On-Site Landfill, prepared by ARCADIS.
- B. Latest version of American Society for Testing and Materials (ASTM) standards.
 - 1. ASTM D 422. Standard method for Particle-Size Analysis of Soils.
 - 2. ASTM D 2434. Standard Test Method for Permeability of Granular Soils (Constant Head).
 - 3. ASTM D 4373. Standard Test Method for Calcium Carbonate Content of Soils.

1.05 SOIL AND LINER QUALITY CONTROL

- A. The installation of the protective cover shall be monitored as outlined in the SLQCP.
- B. The Contractor shall be aware of the activities outlined in the SLQCP and shall account for these activities in the construction schedule.

PART 2.0 PRODUCTS

2.01 MATERIAL FOR PROTECTIVE COVER SOIL

- A. The protective cover soil shall consist of a 2' thickness of Category 1 materials with a maximum particle size of 3/8 inch and shall be free of any metals, roots, trees, stumps, concrete, construction debris, or any other organic matter or deleterious material.

PART 3.0 EXECUTION

3.01 FAMILIARIZATION

- A. Prior to implementing any work described in this section, the Contractor shall become thoroughly familiar with the site, the site conditions, and all portions of the work falling within this section.
- B. Inspection:
 - 1. Prior to implementing any of the work in this section, the Contractor shall carefully inspect the installed work of all other sections and verify that all work is completed to the point where the installation of this section may properly commence without adverse impact.
 - 2. If the Contractor has any concerns regarding the installed work of the other Sections, he shall immediately notify the Engineer in writing within 48 hours of the site visit. Failure to notify the Engineer will be construed as Contractors' acceptance of the related work of all other Sections.

ASARCO, Incorporated – Remedial Waste Repository Design

3.02 FIELD QUALITY CONTROL

- A. Frequency:
 - 1. The minimum frequency of quality control testing is outlined below. The Contractor shall take this testing frequency into account in planning his construction schedule.
 - a. Sieve Analysis (ASTM D 422) at 1 per 5,000 cubic yards of in place material (minimum 1 per source).

3.03 INSTALLATION

- A. Protective cover shall be placed such that the top surface, while spreading, is at least 1 foot above the geosynthetic layers at all times and low ground pressure dozers will be used (i.e. track pressure less than 5 psi). A greater thickness shall be maintained to support loaded hauling trucks and trailers and for turning areas. Protective cover shall be placed in an up-slope direction for sidewalls.
- B. If construction debris will be placed within 5-feet of the underlying geosynthetics, select waste material no larger than 6-inches shall be placed for a thickness of 5-feet against the protective cover soil to protect the liner system first.

3.04 PRODUCT PROTECTION

- A. The Contractor shall use all means necessary to protect all prior work, including all materials and completed work of other Sections.
- B. In the event of damage, the Contractor shall immediately make all repairs and replacement necessary, to the approval of the Engineer and at no additional cost to the Owner.

END OF SECTION

ASARCO, Incorporated – Remedial Waste Repository Design

SECTION 02777 HIGH DENSITY POLYETHYLENE (HDPE) AND LINEAR LOW DENSITY POLYETHYLENE (LLDPE) GEOMEMBRANE LINER

PART 1.0 GENERAL

1.01 DESCRIPTION OF WORK

The Contractor shall furnish all labor, materials, supervision, and equipment to install the HDPE geomembrane and LLDPE (also referred to as very flexible polyethylene (VFPE)) geomembrane, including, but not limited to geomembrane layout, seaming, patching, and testing, and all necessary and incidental items required to complete the work, in accordance with the drawings and these specifications. The Contractor shall also furnish all labor, materials, supervision, and equipment to excavate and backfill the anchor trench(s) for the geomembrane.

1.02 DEFINITIONS

The following list of definitions is provided for reference.

- A. "Compaction" shall mean the process of increasing the density or unit weight of soil by rolling, tamping, vibrating, or other mechanical means.
- B. "Unit weight" shall mean the weight of a soil weight per unit volume, usually expressed in lb/ft³ or kN/M³.
- C. "Extrusion weld" shall mean a bond between two HDPE or LLDPE geomembrane materials which is achieved by extruding a bead of HDPE over the leading edge or the seam between the tipper and lower sheet using a hand held apparatus.
- D. "Fusion weld" shall mean a bond between two HDPE or LLDPE geomembrane materials which is achieved by fusing both geomembrane surfaces in a homogeneous bond of the two surfaces using a power driven apparatus capable of heating and compressing tile overlapped portions of the geomembrane sheets.
- E. "HDPE geomembrane" shall mean a relatively impermeable thin sheet of high density polyethylene used as a barrier liner or cover to prevent liquid or vapor migration into or from liquid or solid storage facilities.
- F. "In situ" shall mean in-place naturally.
- G. "Moisture content" shall mean the ratio of weight of water in the soil to the weight of the soil solids (dry soil), expressed in percentage; also referred to as water content.
- H. "Textured geomembrane" shall mean geomembrane with roughened, high-friction surfaces created by co extrusion, impingement, lamination or other methods approved by the Engineer.

ASARCO, Incorporated – Remedial Waste Repository Design

1.03 REFERENCES

- A. Soil and Liner Quality Control Plan (SLQCP).
- B. Final Cover Quality Control Plan (FCQCP).
- C. Latest version of the American Society for Testing and Materials (ASTM) standards:
 - 1. ASTM D 638, "Standard Test Method for Tensile Properties of Plastics."
 - 2. ASTM D 746, "Standard Test Method for Brittleness Temperature of Plastics and Elastomers; by Impact."
 - 3. ASTM D 751, "Standard Methods for Coated Fabrics."
 - 4. ASTM D 792, "Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics, by Displacement."
 - 5. ASTM D 1004, "Standard Test Method of Initial Tear Resistance of Plastic Film and Sheeting."
 - 6. ASTM D 1204, "Standard Plastics Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature."
 - 7. ASTM D 1238, "Standard-Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer."
 - 8. ASTM D 1505, "Standard Test Methods for Density of Plastics by the Density-Gradient Technique."
 - 9. ASTM D 1603, "Standard Test Method for Carbon Black in Olefin Plastics."
 - 10. ASTM D 1693, "Standard Test Method for Environmental Stress Cracking of Ethylene Plastics."
 - 11. ASTM D 3015, "Recommended Practice for Microscopical Examination of Pigment Dispersion in Plastic Compounds."
 - 12. ASTM D 4437, "Standard Test Methods for Determining the Integrity of Field Seams Used in Joining Flexible Polymeric Geomembranes."
 - 13. ASTM D 4833, "Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products."
 - 14. ASTM D 5199, "Standard Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes."

ASARCO, Incorporated – Remedial Waste Repository Design

15. ASTM D 5321, "Standard Test Method for Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method."
16. ASTM D 5397, "Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test."
- D. FTMS 101/2065, "Federal Test Method Standard for Puncture Resistance and Elongation Test."
- E. Daniel, D.E. and R.M. Koerner, (1993), *Technical Guidance Document: Quality Assurance and Quality Control for Waste Containment Facilities*, EPA/600/R-93/182.
- F. U.S.E.P.A., (1991), Technical Guidance Document: Inspection Techniques for the Fabrication of Geomembrane Field Seams, EPA/530/SW-91/05 1.
- G. NSF Joint Committee on Flexible Membrane Liners, (1993), *Standard 54, Flexible Membrane Liners*, NSF International.
- H. Geosynthetic Research Institute Test Method GM-5 (B), "Single Point Notched Constant Tensile Load (SP-NCTL) Test for Polyolefin Resin or Geomembranes."
- I. Geosynthetic Research Institute Test Method GM-6, "Pressurized Air Channel Test for Dual Seamed Geomembranes."

1.04 QUALITY ASSURANCE SUBMITTALS

- A. The Contractor shall submit all pre-installation documentation as required by the SLQCP a minimum of seven days prior to the mobilization of crews or materials to the project site, unless otherwise approved by the Engineer.

1.05 DELIVERY, STORAGE AND HANDLING

- A. The Contractor shall submit for approval by the Engineer a method for handling and storage of lining materials that will be delivered to the project site. These materials shall be stored and handled in accordance with the Manufacturer's recommendations and in accordance with the SLQCP.

PART 2.0 PRODUCTS

2.01 GEOMEMBRANE LINER

- A. Geomembrane liner shall be made of smooth or textured, high density polyethylene (HDPE), as noted on the drawings. The geomembrane used in the final cover shall consist of smooth, linear low density polyethylene (LLDPE). Required nominal liner thicknesses are also shown on the drawings.
- B. Geomembrane used shall meet, at a minimum, the standards included in Table 02777-1 or 02777-1b for HDPE or LLDPE, respectively.

ASARCO, Incorporated – Remedial Waste Repository Design

- B. An anchor trench will be required at the liner perimeter to secure the geomembrane. The Contractor shall take precautions to minimize loose soil underlying the geomembrane in the anchor trenches. The time schedule for excavation and backfilling of the anchor trench is to be approved by the Owner so that excessive desiccation of trench soils does not occur prior to backfilling.
- C. Installation of the geomembrane shall be as follows:
1. Unroll only those sections which are to be seamed together or anchored in one day. Panels should be positioned with the overlap recommended by the manufacturer, but not less than 3 in. (76 mm), after the necessary alignment and cutting. The edge of the upslope sheet shall be positioned above the edge of the downslope sheet in a shingle-like fashion. The geomembrane liner sections shall be placed in an anchor trench which is then backfilled by the Contractor with compacted soil as shown on the drawings.
 2. After panels are initially in place, remove as many wrinkles as possible. Unroll several panels and allow the liner to relax before beginning field seaming. The purpose of this is to make the edges which are to be bonded as smooth and free of wrinkles as possible.
 3. Once panels are in place and smooth, commence field seaming operations.
 4. At the end of each day or installation segment all unseamed edges shall be anchored by rope, sand bags, or other approved device. Sand bags securing the geomembrane on the side slopes should be connected by rope fastened at the top of the slope section by a temporary anchor. Staples, u-shaped rods or other penetrating anchors shall not be used to secure the geomembrane. Any damage to the liner due to wind, rain, hail, or other weather shall be the sole responsibility of the Contractor.
- D. Field seaming may be extrusion or fusion welding or a combination of these methods. Solvent welding is not acceptable. The Engineer and Owner reserve the right to reject any proposed seaming method believed to be unacceptable. Additional concepts and requirements of proper field seaming include the following:
1. All foreign matter (dirt, water oil, etc.) shall be removed from the edges to be bonded. For extrusion-type welds, the bonding surfaces must be thoroughly cleaned by mechanical abrasion or alternate methods approved by the Owner and the Engineer to remove surface oxidation and prepare the surfaces for bonding. All abrasive buffing shall be performed using No. 80 grit or finer sandpaper. The grinding shall be performed so that grind marks are generally perpendicular to the edge of sheet. No solvents shall be used to clean the geomembrane liner.
 2. As much as practical, field seaming shall start from the top of the slope down. Tack welds (if used) shall use heat only; no double sided tape, glue or other method shall be permitted.

ASARCO, Incorporated – Remedial Waste Repository Design

3. The completed liner shall not exhibit any "trampolining" at the time protective cover or other materials are being placed over the geomembrane.
4. The seams should be oriented as shown by the approved panel layout drawing, generally parallel to the line of maximum slope. In corners and odd shaped geometric locations, the number of field seams should be minimized.
5. No horizontal seams should be within 5 ft (1.5m) of the toe of the slope.
6. No seaming should be attempted above 104°F (40°C) ambient air temperature. Below 40° F (5°C) ambient air temperature, preheating of the geomembrane shall be required, unless it is demonstrated that this is not necessary (i.e., Acceptable trial test (start-up) seams which duplicate, as closely as possible, actual field conditions). Preheating may be achieved by natural and/or artificial means (shelters and heating devices). Ambient temperature is measured 6 in. (150 mm) above the geomembrane liner surface. The membrane installation Contractor shall supply instrumentation for measurement of ambient temperature.
7. A moveable protective layer of plastic may be required, as recommended by the Engineer, to be placed directly below each overlap of geomembrane that is to be seamed. This is to prevent any moisture build-up between the sheets to be welded. The protective layer must be removed after seaming is complete unless approved by the Engineer.
8. Seaming shall extend to the outside edge of panels to be placed in anchor trenches.
9. If required, a firm working surface should be provided by using a flat board, a conveyor belt, or similar hard surface directly under the seam overlap to achieve proper support. The surface must be removed after seaming is complete.
10. No excessive grinding prior to welding shall be permitted. Overground or improperly ground areas shall be replaced at the Contractor's expense.
11. Seams at panel corners of 3 or 4 sheets shall be completed in a fully leak-proof manner. Open ends of all air channels must be welded closed. A patch having a minimum dimension of 24 in. (610 mm), extrusion welded to the parent sheet or other approved techniques may be used. The Contractor shall submit a drawing of its proposed seam completion detail and obtain approval from the Engineer and the Owner prior to shipment or the geomembrane.

3.03 GEOMEMBRANE TESTING

All Geomembrane sheet and seams shall be tested and evaluated prior to acceptance. In general, testing of the sheet shall be conducted by the manufacturer.

ASARCO, Incorporated – Remedial Waste Repository Design

Testing of the seams shall be conducted by the Contractor under observation of the Engineer. The Engineer or a designated, independent geosynthetics laboratory may perform additional testing, as required by these specifications or as required in the judgment of the Engineer or Owner to verify that the geomembrane sheet and seams meet the specifications. Testing requirements are detailed in the following subsections.

A. Pre-shipping Sheet Tests

The Contractor or supplier shall be required to submit his quality control program to the Owner prior to initiating field work. As a minimum, the Contractor shall perform the tests at the frequencies given in Table 02777-2 on the geomembrane sheet prior to shipping geomembrane material to the site.

Test results shall be submitted to the Engineer and the Owner prior to shipping the geomembrane rolls unless otherwise approved by the Owner.

Environmental stress crack (ASTM D1693) test results shall be submitted to the Engineer and the Owner within 75 days of shipping. Low temperature impact (ASTM D746), dimensional stability (ASTM D1204), and single-point notched constant tensile load (GRI GM 5(b)) shall be submitted to and approved by the Engineer prior to installation, or within 14 days of shipping, whichever is sooner.

B. Trial Test Seams

The Contractor shall maintain and use equipment and personnel at the site to perform testing of test seams. Test seams shall be made each day prior to commencing field seaming. These seams shall be made on fragment pieces of geomembrane liner to verify that seaming conditions are adequate. Such test seams shall be made at the beginning of each seaming period; before seaming of different geomembranes (tie-ins and smooth to textured); at changes of equipment, equipment settings, weather, or sheet temperature; at the Engineer's discretion and at least once every four to six hours during continuous operation of each welding and any time the machine is turned off for more than 30 minutes. Also, each seamer shall make at least one test seam each day. Requirements for test seams are as follows:

1. The test seam sample shall be at least 3 ft (0.9 m) long by 1 ft. (0-3 m) wide with the seam centered lengthwise. Six adjoining specimens 1 in. (25 mm) wide each shall be die cut from the test seam sample. These specimens shall be tested in the field with a tensiometer for both shear (3 specimens) and peel (3 specimens) for single-track fusion welds or extrusion welds. For dual-track fusion welds. The Contractor shall test each track as if it was a single-track weld. Test seams shall be tested by the Contractor under observation of the Engineer, or designated representative of the Owner. The specimens should not fail in the weld. The Contractor shall supply qualified personnel and testing equipment. No strain measurements need to be obtained in the field. A passing fusion or extrusion welded test seam shall be achieved when the criteria described in Table 02777-1a are satisfied with the exclusion of any strain

ASARCO, Incorporated – Remedial Waste Repository Design

requirements. If a test seam fails, the entire operation shall be repeated. If the additional test seam fails, the seaming apparatus or seamer shall not be accepted and shall not be used for seaming until the deficiencies are corrected and two consecutive successful test seams are achieved. Test seam failure is defined as failure of any one of the specimens tested in shear or peel. For double-weld seams, both weld tracks shall meet the test seam criteria.

2. The Engineer shall observe all test seam procedures. The remainder of the successful test seam sample shall be assigned a number and marked accordingly by the Engineer, who shall also log the date, hour, ambient temperature, number of seaming unit, name of seamer, and pass or fail description. The sample itself should be retained in the Owner's archives. In addition, at least one tested specimen from each test as selected by the Engineer shall be retained by the Engineer. The Engineer shall transmit these specimens to the Owner following acceptance by the Owner of the installed geomembrane.

C. Non-destructive testing

Production seams shall be tested by the Contractor continuously using non-destructive techniques. The Contractor shall perform all pressure and vacuum testing under the observation of the Engineer. Requirements for non-destructive testing are as follows:

1. Single Weld Seams - the Contractor shall maintain and use equipment and personnel at the site to perform continuous vacuum box testing on all single weld production seams. The system shall be capable of applying a vacuum of at least 5 psi. The vacuum shall be held for a minimum of 10 seconds for each section of seam.
2. Double Weld Seams - the Contractor shall maintain and use equipment and personnel to perform air pressure testing of all double weld seams. The system shall be capable of applying a pressure of at least 30 psi (207 kpa) for not less than 5 minutes. Pressure loss tests shall be conducted in accordance with the procedures outlined in "Pressurized Air Channel Test for Dual Seamed Geomembranes, "Geosynthetic Research Institute Test Method GM-6. As outlined by the test method, following a 2 minute pressurized stabilization period pressure losses over a measurement period of 5 minutes shall not exceed the following values for different geomembrane thicknesses- 40 mil (1mm), 4.0 psi (28 kpa); 60 mil (1.5 mm), 3.0 psi (21 kpa); or 80 mil (2 mm), 2.0 psi (14 kpa).

D. Destructive Testing

Destructive testing shall be performed on an average of every 500 linear ft (150 m) of production seam. The locations shall be selected by the Engineer. Sufficient samples shall be obtained by the Contractor to provide one sample to the archive, one sample to the Engineer for laboratory testing, and one sample to be retained by the Contractor for field or laboratory testing. Testing requirements are as follows: each sample shall be large enough to test five

ASARCO, Incorporated – Remedial Waste Repository Design

specimens in shear. All specimens must fail in film tear bond (FTB) and meet the strain or separation requirements of Table 02777-1A. Samples which do not pass the shear and peel tests shall be re-sampled from locations at least 10 ft (3 m) on each side of tile original location. These two re-test samples must pass both shear and peel testing. If these two samples do not pass, then additional samples shall continue to be obtained until the questionable seam area is defined. Requirements for each destructive test are as follows:

1. The Contractor shall test samples in the field or in a laboratory. All tests shall be performed using a calibrated, motor-driven, strain-controlled tensiometer approved by the Engineer.
 - A. Peel shall be measured for one sample (that is, five specimens). Peel tests shall be evaluated for the criteria described in Tables 02777-1 and 02777-1a.
 - B. Shear shall be measured for one sample (that is, five specimens). Strain measurements are required for the shear specimens. Laboratory tests shall be evaluated for the criteria described in Table 02777-1 and 02777-1a.
2. The Engineer shall observe all production seam field test procedures. He shall perform laboratory testing for both peel and shear and evaluate test results in accordance with Tables 02777-1 and 02777-1a.
3. The Engineer shall be responsible for the archive specimen. He shall assign a number to the archive sample and mark the sample with the number. The Engineer shall also log the date, seam number, approximate location in the seam, and field test pass-or-fail description, if applicable.
4. For double-weld seams, all destructive testing shall be performed for each weld to ensure a continuous good weld.

3.04 REPAIR OF DAMAGED, SAMPLED, AND FAILED SEAM AREAS

Damaged and sample coupon areas of geomembrane shall be repaired by the Contractor by construction of a cap strip. No repairs shall be made to seams by application of an extrusion bead to a seam edge previously welded by fusion or extrusion methods. Repaired areas shall be tested for seam integrity. Damaged materials are the property of the Contractor and shall be removed from the site at the Contractor's expense. The Contractor shall retain all ownership and responsibility for the geomembrane until acceptance by the Owner. The geomembrane shall be accepted by the Owner after the installation and repair are complete, and after the Owner has received documentation for the installation from the Engineer.

3.05 POTENTIALLY DAMAGING ACTIVITIES

No support equipment shall be allowed on the geomembrane unless the equipment and protective measures are approved by the Engineer. Light-weight portable generators must be placed on protective rub sheets, and stands or supports shall be adequately padded to prevent potential damage to the rub sheet or geomembrane.

ASARCO, Incorporated – Remedial Waste Repository Design

All-terrain-vehicles (ATVs) may only be operated on the geomembrane if deemed necessary by the Engineer and approved by the Owner. If used, all ATV shall have sufficiently low bearing pressure to prevent damage to the geomembrane. Wheels of ATVs must be thoroughly cleaned to remove stones and other deleterious material prior to operation on the geomembrane. Personnel working on the geomembrane shall not smoke, wear damaging shoes, or engage in any activity which damages the geomembrane.

ASARCO, Incorporated – Remedial Waste Repository Design

**TABLE 02777-1
Required Physical Properties of HDPE Geomembrane Liner and Seams**

Property	Test Method	40-mil (1.0 mm)	60-mil (1.5 mm)	80-mil (2.0 mm)
Minimum thickness*, mil. (mm)	ASTM D751 (as modified in NSF54 Appendix A. Tapered point micrometer to be used for textured liner)	36/40 (0.91/1.00)	54/60 (1.37/1.50)	72/80 (1.83/2.00)
Min. Sheet density, g/cm ³	ASTM D792 or D1505	0.940	0.940	0.940
Min. Tensile properties (each direction)	ASTM D638 (as modified in NSF 54 Appendix A)			
Strength at yield, lb/in. (N/mm)		84 (14.7)	126 (22.1)	168 (29.4)
Elongation at yield, %**		12/10	12/12	12/10
Strength at break, lb/in. (N/mm)		152/48 (26.6/8.4)	228/75 (39.9/12.6)	304/96 (53.2/16.8)
Elongation at break, %**		560/100	560/150	560/100
Minimum tear resistance, lbs. (n)	ASTM D1004, DIE C	26 (116)	39 (173)	52 (231)
Low temperature impact, °F (°C). max.	ASTM D746	-60 (-51)	-60 (-51)	-60 (-51)
Dimensional stability, % max.	ASTM D1204 (as modified in NSF54 Appendix A)	±2.0	±2.0	±2.0
Environmental stress crack, (minimum hrs. with no failures)	ASTM D1693 (as modified in NSF54 Appendix A)	1500	1500	1500
Resin notched constant tensile load transition time, hrs., Minimum	ASTM D5397	200	200	200
Single-point notched constant tensile load time to failure, hrs., Minimum (resin or smooth sheet)	GRI GM5(B)	200	200	200
Minimum puncture resistance, lbs. (N)	FTMS 101 Method 2063	48 (213)	72 (320)	96 (427)
Carbon black content, allowable range in %	ASTM D1603	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon black dispersion, acceptable levels	ASTM D3015 (as modified in NSF 54 Appendix A)	A1, A2 or B1	A1, A2 or B1	A1, A2 or B1
Minimum peel adhesion, lb/in., (N/mm)	ASTM D4437	52 (9.1)	78 (13.7)	104 (18.2)
Minimum bonded seam strength, lb/in. (N/mm)	ASTM D4437	80 (14.0)	120 (21.0)	160 (28.0)

* First value represents lowest individual value; value in parentheses represents average across roll.

** First value represents minimum value for smooth sheet; second value represents minimum value for textured sheet.

ASARCO, Incorporated – Remedial Waste Repository Design

**TABLE 02777-1a
HDPE and LLDPE Welded Seam Requirements
(Continued From Table 02777-1)**

Type of Seam	Peel Requirements	Shear Requirements
Fusion	1) Film tearing bond failure, 2) No greater separation than 10% of the width of the track being tested subjected to pressure from the roller, and 3) Achievement of required strength	1) Film tearing bond failure, 2) Yield strain is at least 10%, 3) Break strain is at least 50%, and 4) Achievement of required strength
Extrusion	1) Film tearing bond failure, 2) No greater than 0.125-inch (3-mm) separation, and 3) Achievement of required strength	1) Film tearing bond failure, 2) Yield strain is at least 10%, 3) Break strain is at least 50%, and 4) Achievement of required strength

Film tearing bond: a failure in the ductile mode of one of the bonded sheets by tearing prior to complete separation of the bonded area.

Strain: the strain at yield and strain at break are calculated by the following formula:

$$= \frac{2\Delta L}{(L_0 - L_w)}$$

Where

- L_w: is the length of the weld (outside edge to outside edge of area under pressure),
- L₀: is the original measured grip separation, typically 4.0 in. (100 mm) plus l_w and dl is the change in grip separation at yield or break.

ASARCO, Incorporated – Remedial Waste Repository Design

**TABLE 02777-1b
Required Physical Properties of LLDPE Geomembrane (Smooth)**

Property	Test Method	40-mil (1.0 mm)
Minimum thickness*, mil. (mm)	ASTM D5199	36/40
Min. Sheet density, g/cm ³	ASTM D792 or D1505	0.92
Min. Tensile properties (min. avg.) (1) Break Stress –lb/in. Break Strain - %	ASTM D638 Type IV	160 800
Minimum tear resistance, lbs.	ASTM D1004	24
2% Modulus	ASTM D5323	2000
Puncture Resistance – lb (min. ave.)	ASTM D4833 FTMS 101 or M2065	55
Axi-Symmetric Break Resistance Strain - % (min.)	ASTM D 5617	30
Carbon Black Content - %	ASTM D 1603 (2)	2.0 – 3.0
Carbon Black Dispersion	ASTM D 5596	see note (3)
Oxidative Induction Time (OIT) (min. ave.) (4) a. Standard OIT, or b. High Pressure OIT	ASTM D 3895 ASTM D 5885	100 400
Oven Aging at 85 deg. C (5) a. Standard OIT (min. ave.) - % retained after 90 days b. High Pressure OIT (min. ave.) - % retained after 90 days	ASTM D 5721 ASTM D 3895 ASTM D 5885	35 60
UV Resistance (6) a. Standard OIT (min. ave.) b. High Pressure OIT (min. ave.) - % retained after 1600 hrs (8)	ASTM D 3895 ASTM D 5885	N.R. (7) 35

(1) Machine direction (MD) and cross machine direction (XMD) average values should be on the basis of 5 test specimens each direction. Break elongation is calculated using a gage length of 2.0 in. at 2.0 in./min.

(2) Other methods such as D 4218 (muffle furnace) or microwave methods are acceptable if an appropriate correlation to D 1603 (tube furnace) can be established.

(3) Carbon black dispersion (only spherical agglomerates) for 10 different views: all 10 in Categories 1 or 2

(4) The manufacturer has the option to select either one of the OIT methods listed to evaluate the antioxidant content in the geomembrane.

(5) It is also recommended to evaluate samples at 30 and 60 days to compare with the 90 day response.

(6) The condition of the test should be 20 hr. UV cycle at 75 deg. C followed by 4 hr. condensation at 60 deg. C.

(7) Not recommended since the high temperature of the Std.-OIT test produces an unrealistic result for some of the antioxidants in the UV exposed samples.

(8) UV resistance is based on percent retained value regardless of the original HP-OIT value.

ASARCO, Incorporated – Remedial Waste Repository Design

**TABLE 02777-2
Required Pre-Shipping Sheet Testing
Of
HDPE and LLDPE Geomembrane Liner**

Property	Test Method	Minimum Frequency
Thickness	ASTM D-751 (as modified in NSF54, using a device with accuracy specified by ASTM D-5199)	Every 100,000 ft ²
Tensile properties	ASTM D-638 (as modified in NSF54)	Every 100,000 ft ²
Sheet density	ASTM D-792 or ASTM D-1505	Every 100,000 ft ²
Carbon black content	ASTM D-1603	Every 100,000 ft ²
Carbon black dispersion	ASTM D-3015 (AS MODIFIED IN NSF54)	Every 100,000 ft ²
Tear Resistance	ASTM D-1004, DIE C	Every 100,000 ft ²
Puncture resistance	FTMS 101 (METHOD 2065)	Every 100,000 ft ²
Low temperature impact	ASTM D-1204 (AS MODIFIED IN NSF54)	Every 100,000 ft ²
Dimensional stability	ASTM D-1204 (AS MODIFIED IN NSF54)	Every 100,000 ft ²
Environmental stress crack	ASTM D-1693 (AS MODIFIED IN NSF54)	Every 100,000 ft ²
Single point notched constant tensile load test on resin or smooth sheet	GRI GM-5 (B)	Every 180,000 lb (81.6 mg) of resin*
Melt flow index (at two different normal loads)	ASTM D-1238	Every 180,000 lb (81.6 mg) of resin*
Notched constant tensile load test on resin	ASTM D-5397	Annually per resin
Coefficient of friction	ASTM D-5321 (detailed test conditions specified by the Engineer)	Once per critical interface, unless waived by the Engineer

* or at least once per railcar for railcars containing less than 180,000 lb (81.6 mg).

APPENDIX A
SOILS AND LINER QUALITY CONTROL PLAN (SLQCP)

Remedial Waste Repository Design
ASARCO INCORPORATED
EL PASO, TEXAS

Prepared by:



January 6, 2006

TABLE OF CONTENTS

SECTION	PAGE
1.0 INTRODUCTION	1
1.1 Purpose	1
1.2 Definitions	1
1.3 Full-Time Quality Control/Quality Assurance	4
2.0 GEOSYNTHETIC CLAY LINER	4
2.1 General	4
2.2 Manufacturing.....	4
2.3 Shipping, Delivery and Storage	5
2.4 Installation	5
3.5 Testing	6
3.0 GEOMEMBRANE LINER	7
3.1 General	7
3.2 Manufacturing	7
3.3 Shipping	8
3.4 Delivery	8
3.5 Storage.....	8
3.6 Installation	8
3.7 Seaming.....	9
3.8 Testing	10
3.9 Repairs and Retesting.....	13
4.0 PROTECTIVE COVER.....	13
4.1 General	13
4.2 Deployment.....	13
4.3 Testing	14
5.0 EVALUATION REPORTS	14

LIST OF TABLES

Table I	Standard Tests on Soils
Table II	Standard Tests on GCL Material
Table III	Standard Tests on HDPE Materials - Smooth
Table IV	Standard Tests on HDPE Materials - Textured

1.0 INTRODUCTION

This Soils and Liner Quality Control Plan (SLQCP) was prepared for use during the construction of the landfill liner at the Asarco, Incorporated, El Paso, Texas facility. The landfill will be used for the containment of Category 1 material and will be constructed in accordance with Industrial Solid Waste regulations and guidelines for Class I wastes and the approved Remedial Design Report Update.

1.1 Purpose

This SLQCP presents the liner quality control testing and evaluation requirements for the construction of the liner components (prepared subgrade, geosynthetic clay liner or compacted clay liner, geomembrane liner, geocomposite drainage layer, and protective cover) of the Asarco landfill. The quality control testing specified herein shall be performed by the Engineer.

1.2 Definitions

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) - One of the largest, professionally recognized voluntary standards development systems in the world.

ATTERBERG LIMITS - A series of six "limits of consistency" of fine-grained soils defined by Swedish soil scientist Albert Atterberg, two of which are frequently used today to establish a soil's physical boundaries dealing with its plasticity characteristics. These soil boundaries or limits used most frequently in geotechnical engineering are based upon the following:

Liquid Limit (LL) - The percentage of moisture in a soil, subjected to a prescribed test that defines the upper point at which the soil's consistency changes from the plastic to the liquid state.

Plastic Limit (PL) - The percentage of moisture in a soil, subjected to a prescribed test that defines the lower point at which the soil's consistency changes from the plastic to the liquid state.

Plasticity Index (PI). - The numerical difference between the LL and the PL of a fine-grained soil that denotes the soils plastic range. The larger the PI the greater a soil's plasticity range and the greater it's plasticity characteristics.

COEFFICIENT OF PERMEABILITY (a.k.a., Hydraulic Conductivity) - The amount of flow per unit of time through soil under unit hydraulic gradient at standard temperature.

COMPACTIVE EFFORT - The amount of compaction energy held constant and usually transferred into a soil sample with a compaction hammer device, used on soil samples in various laboratory test procedures to establish a soil's density at various moisture contents.

CONSTRUCTED SOILS LINERS - Soils liners constructed from reworked in situ soils, soils from a borrow source, or bentonite-amended soils.

CONSTRUCTION QUALITY ASSURANCE (CQA) - A planned system of activities that provides the owner and permitting agency assurance that the facility was constructed as specified in the design (EPA, 1993).

CONSTRUCTION QUALITY CONTROL (CQC) - A planned system of inspections that is used to directly monitor and control the quality of a construction project (EPA, 1993).

ENGINEER – Owners representative who possesses experience in geotechnical engineering and testing, or a graduate geologist who has a minimum of four years experience in engineering geology and is experienced in geotechnical testing and its interpretations. Note: All references to the Engineer, Geotechnical Quality Control/Quality Assurance Professional, Professional of Record (POR), etc., within the context of this SLQCP are interchangeable and are therefore synonymous.

FIELD PERMEABILITY TEST - A field test performed on a constructed liner or in situ soils to determine the in-place coefficient of permeability and usually performed as a Sealed Double Ring Infiltrometer Test (SDRI), or series of Boutwell field tests. This type of permeability test method is usually considered to have greater accuracy due to the area tested and the existing field conditions that may be obscured by a laboratory.

FILM TEAR BOND (FTB) - A failure in the geomembrane sheet material on either side of the seam and not within the seam itself.

FISH MOUTH - A semi-conical opening of the seam that is formed by an edge wrinkle in one sheet of the geomembrane.

FLEXIBLE MEMBRANE LINER (FML) or GEOMEMBRANE LINER. - An essentially impermeable geosynthetic composed of one or more synthetic sheets. See HDPE.

FML STRATIFIED SAMPLE - A randomly selected sample location within each 500- linear foot interval.

GCLER or GEOSYNTHETIC CLAY LINER EVALUATION REPORT – A stand alone as-built report prepared in accordance with the methods and procedures contained in the approved SLQCP that details the installation and testing of the GCL.

GEOMEMBRANE - See FLEXIBLE MEMBRANE LINER.

GLER or GEOMEMBRANE LINER EVALUATION REPORT - A stand-alone as-built report prepared in accordance with the methods and procedures contained in the approved SLQCP that details the installation and testing of the geomembrane liner.

GEOSYNTHETIC MATERIALS - Manufactured or man-made materials that include FMLs (geomembranes), geogrids, geofilters, geocomposites, geodrainage nets, and geotextiles.

GRADATION - See SIEVE ANALYSIS

GEOSYNTHETIC RESEARCH INSTITUTE (GRI) - Located at Drexel University, the GRI conducts research with geosynthetic materials and develops industry testing standards for these materials. This institute is supported by many geosynthetic manufacturers, installers, and raw materials suppliers to the industry.

HDPE (HIGH DENSITY POLYETHYLENE) - A polymer prepared by low-pressure polymerization of ethylene as the principal monomer and having the characteristics of ASTM

D1348, Type III and IV polyethylene. Such polymer resins have densities greater than or equal to 0.941 g/cc as noted in ASTM D 1248.

IN SITU SOILS - Undisturbed soils; the term routinely used in describing an in-place- soil liner.

INDEPENDENT TESTING LABORATORY - A laboratory that is independent of ownership or control by the owner or any party to the construction of the liner or the manufacturer of the liner products used.

MANUFACTURING QUALITY ASSURANCE (MQA) - A planned system of activities that provides assurance that the raw materials were constructed (manufactured) as specified.

MANUFACTURING QUALITY CONTROL (MQC) - A planned system of inspection that is used to directly monitor and control the manufacture of a material.

MOISTURE/DENSITY (M/D) RELATIONSHIP - A test in which soil samples are compacted in a known volumetric container at various moisture contents at a constant level of compactive effort and their corresponding densities are determined. The test procedures and compactive efforts used are those normally prescribed in ASTM D 698 and D 1557. These tests are frequently designated the Standard Proctor and Modified Proctor compaction tests named after M. M. Proctor, the early developer of these test procedures for the determination of density control on compacted soil fills.

PERMEABILITY - See COEFFICIENT OF PERMEABILITY

PERMEANT FLUID - Fluid used in a laboratory coefficient of permeability test and limited to tap water or 0.05 Normal solution of CaSO₄. Distilled water shall not be used in these test procedures.

QUALIFIED ENGINEERING TECHNICIAN - A representative of the Engineer who is represented to be NICET-certified in Geotechnical Engineering Technology at level 1 or higher (must be level 2 for soils within one year of the date of this document for soils testing and within 2 years of the date of this document for FML testing), an engineering technician with a minimum of four years of directly related experience, or a graduate engineer or geologist with one year of directly related experience.

REPRESENTATIVE SAMPLE - A representative sample of FML material consists of one or more specimens (commonly referred to as coupons) from the same rectangular portion of FML material, oriented along a seam, which is removed for field or laboratory testing purposes.

SIEVE ANALYSIS - A laboratory soil test consisting of placing a known weight of soil sample through a series of wire mesh sieves stacked upon each other in successively smaller mesh size and used to determine the percentage size gradation of the sample.

SOILS AND LINER EVALUATION REPORT (SLER) - A stand-alone, quality control test report prepared in accordance with the methods and procedures contained in the approved SLQCP that details the installation and testing of the soil liner.

SOILS AND LINER QUALITY CONTROL PLAN (SLQCP) - An approved plan that is prepared under the direction of the Engineer and is the basis for the construction/installation and testing of soils and/or flexible membranes materials for liners.

water-proof, tightly fitting, weatherproof wrapping in preparation for shipment. GCL rolls must be stored indoors prior to shipment to the site.

GCL rolls must be labeled with the manufacturer's name, product identification, roll and lot number, roll dimensions, roll weight, and any other information which is necessary to trace the quality assurance documentation.

Prior to shipping the GCL to the site, the third party independent laboratory conformance testing shall be completed in accordance with Section 3.4.3.

2.3 Shipping, Delivery and Storage

The waterproof wrapping around the GCL rolls must remain intact throughout entire shipping and storage process. If at any time the roll covering is damaged and the outer portions of the GCL becomes wet or partially hydrated, the damaged portion should be removed and the remainder of the roll shall be tightly recovered.

Off-loading and on-site delivery may be undertaken by use of a crane or front-end loader fitted with a sling and center rod which is pushed through the core around which the GCL is rolled, with a fork lift with a "stinger", or other equipment which does not damage the GCL rolls.

Each roll shall be stored on a platform or otherwise elevated off the ground and covered in a manner that precludes moisture intrusion while awaiting deployment. The GCL shall be protected from dirt, water, ultraviolet light exposure and other sources of damage. All GCL roll labels must remain legible. Rolls must not be stacked higher than recommended by the manufacturer to preclude thinning of the bentonite at contact points.

2.4 Installation

2.4.1 Surface Preparation

The subgrade surface shall not contain particles greater than 3/8-inch (or as recommended by the manufacturer if less than 3/8-inch). The subgrade shall be compacted so as not to settle and cause excessive strains in the GCL or other synthetic liner materials. The soil surface on which the GCL is to be placed must be rolled with a smooth wheel roller and maintained in a smooth, uniform, and compacted condition prior to GCL placement. Adequate drainage of the soil surface must be maintained until GCL installation is complete.

The GCL installation contractor and the Engineer shall accept the subgrade surface prior to GCL deployment by signing subgrade surface acceptance certificates.

2.4.2 Placement of Panels

Equipment used to deploy GCL over soil must not cause excessive rutting of the subgrade. Dragging of the GCL on the subgrade shall be avoided. Deployed GCL panels shall not contain folds or excessive slack.

Each panel shall be overlapped to the match lines on both edges of the GCL (at least 6 to 12 inches, depending on the manufacturer). If required by the manufacturer, dry granular bentonite shall be placed in the lap-joints between the panel edges to achieve adequate bonding upon exposure to a moisture source. Where bentonite enrichment in the lap-joints is

required, the minimum amount must be 1/4 –lb. (0.1 kg) dry bentonite per linear foot of lap joint or as recommended by the manufacturer to produce a joint essentially as impermeable as the GCL itself. Bentonite placed in the lap joints must be the same type used in the manufacture of the GCL.

Vehicle traffic other than low contact pressure vehicles such as smooth-tire ATVs or golf carts are not allowed on the deployed GCL. Generators, gasoline, or solvent cans, tools, or supplies must not be stored directly on the GCL. Installation personnel must not smoke or wear damaging shoes when working on the GCL. Deployed GCL must not be used as a work area unless a protective tarpaulin, rub sheet, or sacrificial sheet is placed over the GCL.

During installation, the entrapment of stones, trash, or other debris beneath or within the GCL shall be avoided to prevent damage to the GCL or overlying geomembrane.

GCLs on sideslopes should be anchored at the top of the slope and then unrolled working down so as to keep the material free of wrinkles and folds. Horizontal seams are not allowed on side slopes.

The installed GCL surface shall be inspected to ensure that no stones, cutting blades, tools, or other objects which may damage the GCL are present prior to covering.

2.4.3 Weather Conditions

Weather conditions during GCL placement and before completion of the placement of the geomembrane liner shall be closely monitored. GCL shall not be placed in the rain or at times of impending rain. If the GCL is subjected to moisture or rainfall such that the bentonite material becomes partially hydrated prior to being covered, it must be removed and replaced with new GCL material.

Deployed GCL shall be anchored by sandbags to prevent uplift by wind prior to covering. GCL shall not be placed during excessive winds.

Deployed GCL shall be covered by geomembrane on the same day as deployment to prevent hydration due to weather conditions.

2.4.4 Repairs

Torn or otherwise damaged geosynthetics facing (with no loss of bentonite from the GCL must be patched with the same type of geosynthetic. The geosynthetic patch must extend at least 12 inches beyond the damaged area and must be adhesive or heat bonded to the main GCL to avoid shifting during backfilling. If the GCL damage includes loss of bentonite, the patch must consist of full GCL extending at least 12 inches beyond the damaged area. Lapping procedures must be the same as specified for original laps of GCL panels.

2.5 Testing

Quality control testing of GCL products are generally undertaken by the supplier of the various components, the GCL manufacturer, and the third-party independent laboratory under the direction of the Engineer. The minimum QC tests required are described below and in Table II of this SLQCP. Also included in Table II are the test standards (ASTM or other) and the minimum testing frequencies for the various tests.

2.5.1 Raw Materials

The bentonite and geotextiles used in the manufacture of the GCL product must be tested by the supplier of the component or the GCL manufacturer prior to incorporation into the final GCL product. The bentonite must be tested for the free swell and fluid loss criteria as described in Section 3.2. The measured properties of the geotextiles must meet the manufacturer's criteria and the geotextiles used must be certified as having been used successfully in similar applications in the past.

2.5.2 GCL Manufacturer

The finished GCL product must be tested by the manufacturer for at least clay mass per unit area, bentonite moisture content, grab tensile strength, and permeability. All test results must meet the GCL manufacturer's criteria and the values given in Section 3.2.

In addition to the above, the GCL manufacturer must be able to demonstrate by appropriate testing (using a flow box or other suitable device) that the overlap procedure produces a lap joint essentially as impermeable as the GCL itself. The lap joint permeability must be reverified through testing if any of the component materials change (it is recommended that the lap joint permeability be periodically retested to account for any small variations in GCL materials which may occur over time). Alternatively, if lap joint permeability testing on the material used has not been done or is not valid, the lap joint testing must be done as part of the third-party conformance testing.

2.5.3 Third Party Conformance Testing

Conformance testing by the independent laboratory must include clay mass per unit area, permeability, direct shear, and lap joint permeability testing. The measured clay mass per unit area and permeability must meet the criteria given in Section 3.2.

Direct shear testing must be conducted on hydrated GCL and must include internal shear as well as shear between GCL and underlying or overlying material. The minimum strength parameters obtained in the direct shear testing must be sufficient to demonstrate adequate stability of the GCL on the constructed slopes. The direct shear testing must be sufficient to demonstrate adequate stability of the GCL on the constructed slopes. The direct shear testing must be conducted with site-specific materials for the initial liner area and need not be repeated for subsequent areas unless any of the component materials change. If any of the component materials change, direct shear testing must be repeated with the new materials.

Direct shear testing must be performed by a laboratory experienced in the performance and interpretation of this test using equipment meeting all requirements of ASTM D6243. The direct shear test plan should consider all possible sources of cover instability and it should be specifically tailored to the design under review.

3.0 GEOMEMBRANE LINER

3.1 General

The Asarco landfill liner will consist of a 60-mil High Density Polyethylene (HDPE) geomembrane overlying the GCL. The 60 mil HDPE geomembrane shall be textured on sidewall slopes and smooth on the landfill floor.

3.2 Manufacturing

HDPE liner material must be produced from virgin raw materials. Reground, reworked, or trim materials from the same lot may be acceptable but recycled or reclaimed materials must not be used in the manufacturing process. This liner material and required welding rods shall contain between 2 percent and 3 percent carbon black and may contain no more than 1 percent other additives.

3.3 Shipping

All HDPE liner material shall be shipped in rolls. Folded sections of panels (which are not a normal part of the manufacturing or packaging process for some non-HDPE FML materials) are not acceptable and shall not be used in HDPE liner construction. Creased sections of panels (which are not a normal part of the manufacturing process for some HDPE manufacturers) are not acceptable and shall not be used in the FML liner construction.

3.4 Delivery

The Engineer or his/her qualified representative must inspect the delivered materials for damage and defects. Pushing, sliding or drafting of rolls or pallets can cause damage and must be avoided.

3.5 Storage

HDPE must be protected from soft or wet ground and rocky or rough ground, and must not be stacked more than 5 rolls high to avoid crushing the cores of the rolls. If the manufacturer requires the staked roll height be less than the manufacturers recommendations shall be followed. A sacrificial cover must be used to protect the HDPE if stored on site more than six months. The rolls shall be stored in such a manner as to avoid shifting, abrasion, or other adverse movements that can damage the geomembrane liner material.

3.6 Installation

The geomembrane liner installation shall follow all of the manufacturer's recommendations. The geomembrane liner shall overlie and have intimate contact with the geosynthetic clay liner. The clay layer shall be protected from desiccation and cracking, rutting, erosion, and ponding prior to and during placement of the geomembrane liner. The condition of the clay liner must be preserved by regular watering and proof rolling; or protection by a minimum of 12 inches of temporary soil cover which must be removed prior to the placing of the geomembrane liner. If a temporary soil cover is used the clay liner must be resurveyed upon removal of the temporary soil cover prior to geomembrane placement.

3.6.1 Geomembrane Liner Deployment

The clay liner surface must be prepared in accordance with Section 2.0. The FML shall not be deployed on the clay liner until the Engineer and geomembrane installation contractor have accepted the surface for deployment by signing the clay liner surface acceptance certificate. When GCL is used the geomembrane deployment shall occur the same day that the GCL is placed.

The deployment (including equipment used in the handling of the FML) shall not damage the clay liner or GCL.

3.6.2 Weather

The geomembrane liner shall not be placed during inclement weather such as rain or high winds.

3.6.3 Equipment on Liner

No vehicular traffic shall be allowed on the geomembrane liner. Only low-ground pressure supporting equipment may be allowed to traverse the geomembrane liner. If such supporting equipment is operating on the geomembrane liner, it must be placed on a sacrificial surface or rub sheet in order to help protect the geomembrane liner. Personnel working on the geomembrane liner should not smoke, wear damaging shoes, or engage in any other activity likely to damage the geomembrane liner.

3.7 Seaming

Field seaming (and repairs) shall be performed in strict accordance with methods approved by the manufacturer, i.e. fusion or extrusion welding.

3.7.1 Placement

Only those geomembrane liner sheets that are to be placed and seamed in one day should be unrolled. Sheets should be positioned with the overlap recommended by the manufacturer, but not less than three inches. The Engineer or his representative shall visually inspect the placement and overlap of the FML to verify that the material is placed with sufficient overlap.

3.7.2 Wrinkles

Wrinkles shall be walked-out or removed as much as possible prior to field seaming.

3.7.3 Foreign Material

All foreign matter (dirt, water, oil, etc.) shall be removed from the area to be bonded.

3.7.4 Tack Welds

Tack welds shall use heat only. No double sided tape, glue or other method will be permitted when extrusion or fusion welding is used for bonding.

3.7.5 Seam Joints

Seam should be oriented parallel to the sidewall slope. Seams that join the sidewalls and bottom sections must be located in the bottom and at least five feet from the toe of the sidewall slope. In corners and odd-shaped geometric locations, the number of field seams should be minimized.

3.7.6 Temperature

No seaming should be attempted above 104 degrees Fahrenheit (40 degrees Celsius) ambient air temperature. Below 40 degrees F (5 degrees C) ambient air temperature, the FML shall be preheated.

3.7.7 Folds, Large Wrinkles, Fish Mouths

No folds, large wrinkles or fish mouths shall be allowed in the seam. Only normal factory induced creasing from the blown film process may be acceptable. Where wrinkles or folds occur, the material shall be cut and overlapped, and an extrusion weld applied. During wrinkle or fold repairs, adjacent FMLs may not necessarily be required to meet the three to four-inch minimum overlap if approved by the Engineer or his/her representative. All complete seams shall be tightly bonded and sealed.

3.7.8 End of Each Work Day

At the end of each day or installation segment, all unseamed edges shall be anchored by sand bags or other approved device. Staples, U-shaped rods, or other penetrating anchors shall not be used to secure the FML.

3.8 Testing

Table III illustrates the minimum required tests, test methods and the frequency of testing for HDPE liners.

3.8.1 Manufacturing Quality Control (MQC)

All materials related to the manufacturing of FMLs must be tested by the geomembrane liner manufacture as described below.

3.8.1.1 Resin Feed Stocks

Resin feed stocks used in the manufacturing of the FML must be tested by the manufacturer for density and melt index using the methods and frequency included in Table III.

3.8.1.2 Flexible Membrane Liner

At a minimum the manufacturer must test the FML of thickness, specific gravity, carbon black content, carbon black dispersion, tensile properties, tear and puncture resistance, and dimensional stability (shrinkage). The test methods and frequencies are included in Table III.

3.8.2 Conformance and Field Measurements

Prior to acceptance of the FML from the manufacturer, the Engineer shall verify that it meets the required specifications. At a minimum, the third party independent laboratory must test thickness, specific gravity/density, carbon black content, carbon black dispersion and tensile properties in accordance with the test methods and frequencies found in Table III.

Field thickness measurements must be taken for each panel before it is seamed. The material thickness shall be checked using a micrometer at a minimum frequency of one measurements along the leading edge of the panel. No single measurement shall be less than 10 percent below the required nominal thickness in order for the panel to be accepted.

3.8.3 Seams

The Engineer or his/her representative should observe all test seam procedures and all seam testing. All seam testing of the FML should follow all of the manufacturer's recommended testing procedures

3.8.3.1 Trial Seam Testing

Each day, prior to commencing field seaming, test seams shall be made on fragment pieces of FML to verify that seaming conditions are adequate.

3.8.3.1.1 Trial Test Seam Criteria

Each trial test seam shall be at least three feet long by one foot wide. Four (six when possible if using dual track fusion welding) adjoining one-inch wide specimens will be die cut from the test seam sample. Two specimens will be tested in the field for shear and two for peel (four when possible if testing both inner and outer welds for dual track fusion welding).

The failure criteria are the same as that for destructive seam testing described below. These test specimens must exhibit a Film Tear Bond (FTB). If one test seam fails, the trial seam will be repeated. If this trial seam also fails, then two more trial seams must be constructed and tested. This process must continue and no welding can begin for the machine or welder (if applicable) until all test seams are passing.

3.8.3.1.2 Additional Trial Test Seam Criteria

Additional trial seams shall be made for all of the following:

- a. At the beginning of each seaming period for each seaming apparatus used that day (The beginning of each seaming period is considered to be the morning, and immediately after a break);
- b. each occurrence of significantly different environmental conditions (i.e., temperature, humidity, dust, etc.);
- c. any time the machine is turned off for more than 30 minutes; and
- d. when seaming different FMLs (tie-ins and smooth to textured).

Both the welder and machine must be tested for each new trial seam when extrusion welding. Only the machine needs to be tested for each new trial seam when fusion welding since the machine is not as operator dependent. Each individual seaming shall make at least one test seam each day each seamer actually performs seaming.

3.8.3.2 Non-Destructive Testing

Continuous, non-destructive testing shall be performed on all seams by the installer. Air-pressure testing on dual-track fusion welds and vacuum-box testing for extrusion welds are the only acceptable methods for HDPE FML seams. All leaks must be isolated and repaired by following the procedures described in Section 3.9 below.

3.8.3.2.1 Air-Pressure Testing

The ends of the air channel of the dual-track fusion weld must be sealed and pressured to approximately 30 psi, if possible. The air pump must then be shut off and the air pressure observed after five minutes. A loss of less than four psi is acceptable if it is determined that the air channel is not blocked between the sealed ends. A loss of more than four psi indicates the presence of a seam leak which must then be isolated and repaired by following the procedures described under Section 4.9 below. The Engineer or his/her representative must observe and record all pressure gauge readings.

3.8.3.2 Vacuum Box Testing

A suction value of approximately three to five inches of gauge vacuum must be applied to all extrusion welded seams can be tested in this manner. Examples of extrusion welded seams that do not easily lend themselves to vacuum testing would be around boots, some sump areas, appurtenances, etc. The seam must be observed for leaks for at least 10 seconds while subjected to this vacuum. The Engineer or his/her representative must observe 100 percent of this testing.

3.8.3.3 Destructive Testing

Destructive samples shall be taken at a minimum of one stratified location for every 500 linear feet of seam testing or major fraction thereof. The total footage of individual repairs of leaks of more than 10 feet and individual repairs of more than 10 feet for failed seams must also be counted and destructively tested using the same frequency of testing described above. At a minimum a destructive test must be done for each welding machine used for seaming or repairs. A sufficient amount of the seam must be removed in order to conduct field testing, independent laboratory testing, and archiving of enough material in order to retest the seam when necessary. Field testing shall include at least two peel test specimens (four when possible for testing both tracks on dual-track fusion welded seams). Independent laboratory testing shall consist of five shear test specimens and five peel test specimens (ten when possible for both tracks of dual-track fusion welded seams). Destructive seam-testing locations shall be cap-stripped and the cap completely seamed by extrusion welding to the FML. Capped sections shall be non-destructively tested. Additional destructive test samples may be taken if deemed necessary by the Engineer or his/her representative.

3.8.3.3.1 Passing Criteria

All field-tested specimens from a destructive-test location must be passing in both shear and peel for the seam to be considered as passing. Field tested specimens, are determined as passing if the specimen tested in peel fails in FTB. And all test specimens meet the criteria listed below. The independent laboratory testing must confirm these field results.

The minimum passing criteria for independent laboratory testing are all three of the following:

- a. All specimens tested in the peel mode must fail in FTB.
- b. At least four of five specimens from each peel and shear determination must meet the minimum specified value.
- c. The average value from all five specimens from each peel and shear determination must meet the minimum specified value.

d. The above criteria apply to both tracks from each dual-track fusion welded seam before it is considered as passing.

The test methods and frequency of testing for FMLs are found in Table III. Since FML manufacturers may have differing values for their FML sheets, the specific sheet-strength values must be provided by the manufacturer in order to determine if the test results are passing.

3.8.3.3.1.1 Shear

The shear strength must be at least 95 percent of manufacturer's parent sheet strength but not less than 120 pounds per inch (ppi).

3.8.3.3.1.2 Peel

The peel strength must be at least 62 percent of manufacturer's parent sheet strength but not less than 78 ppi and exhibit FTB.

3.8.3.3.2 Failure Criteria

If less than four of the five specimens from each destructive test location pass, or if the average calculated from all five specimens is less than that listed in Subsection 3.8.3.3.1, above, or if any specimen does not exhibit and FTB failure, the seam has failed.

3.9 Repairs and Retesting

All seam leaks and destructive test locations shall be repaired for a distance of at least six inches on each side of the faulty spot or area detected. At a minimum, these repairs shall be non-destructively retested and possibly destructively tested (refer to destructive testing criteria for repaired seams as described in Subsection 3.8.3.3, above.)

4.0 PROTECTIVE COVER

4.1 General

Category 1 materials with particles less than 3/8-inch in size shall be used as the protective cover material overlying the geocomposite drainage layer. The protective cover shall be one foot thick.

4.2 Deployment

The protective cover shall be deployed in a manner that will prevent slippage or damage of the geocomposite and underlying materials and so that no excess tensile stresses occur in the geocomposite. The protective cover must be deployed only up-slope on the sidewalls so that the stress imparted to the geosynthetics is minimized. Low-ground pressure dozers (i.e. track pressure less than 5 psi) shall be used to place the protective cover and one-foot should be maintained between the dozer and the geosynthetics. Full-time observation by the Engineer or his/her representative is required during deployment of the protective cover in direct contact with the geosynthetic materials.

The required thickness of protective cover will be verified by survey methods on an established grid system with not less than one verification point per 5,000 square feet of surface.

4.3 Testing

Pre-construction and conformance testing for the protective cover soils will include maximum size gradation with a minimum conformance testing frequency of one grain size analysis (ASTM D422) per 5,000 cubic yards (or fraction thereof) of in place material.

5.0 EVALUATION REPORTS

The construction documentation will include Geosynthetic Clay Liner Evaluation Report (GCLER) and a Geomembrane Liner Evaluation Report (GLER) for submittal to the TCEQ. The evaluation reports shall be prepared by the Engineer. The GCLER shall document the construction quality assurance/control (CQA/CQC) activities for the construction of the subgrade. The GLER will document CQA/CQC activities associated with the geomembrane liner and protective cover components.

Category I material, other than the protective cover material, will not be placed into the landfill until the TCEQ's acceptance of the above referenced reports.

**Table I
Standard Tests on Soils**

Soil Test Category	Type of Test	Standard Test Method	Frequency of Testing
Quality Control Testing of Source Borrow Materials	Unified Soil Classification	ASTM D2487	Once per soil type
	Moisture/Density Relationship	ASTM D 698	
	Sieve (Gradation)	ASTM D 422 or D1140	
	Atterberg Limits	ASTM D 4318	
	Coefficient of Permeability	ASTM D 5084 or CoE EM 1110-2-1906	1/Moisture/Density Relationship
Constructed Soil Liners	Field Density	ASTM D 1556, D2167, or D2922	1/8,000 ft ² per 6-inch parallel lift; 1/100 lineal ft per 12 inches sidewall liner (horizontal lifts) (see Note A)
	Sieve (Gradation)	ASTM D 422 or D 1140	1/100,000 ft ² per 6-inch parallel lift; 1/2,000 lineal feet per 12 inches sidewall liner (horizontal lifts) (see Note A)
	Atterberg Limits	ASTM D 4318	
	Coefficient of Permeability	ASTM D 5084 or CoE EM1110-2-1906	
	Thickness	Registered Surveyor	1/5,000 ft ² (parallel lifts); 50-ft cross-sections (horizontal-lift sidewall liners) (see Note A)

Notes:

A. A minimum of one of each of the designated tests must be conducted for each unit thickness of liner as indicated, regardless of liner area or length.

Table II
Standard Tests on GCL Material

Tester	Test	Type of Test	Standard Test Method	Frequency of Testing
Supplier or GCL Manufacturer	Bentonite ^A	Free Swell	ASTM D 5890	Per 50 tons and every truck or railcar
		Fluid Loss	ASTM D5891	
	Geotextile	Mass/Unit Area	ASTM D 5261	Per 200,000 ft ²
		Grab Tensile Strength	ASTM D4632	
GCL Manufacturer	GCL Product	Clay Mass/Unit Area	ASTM D5993	Per 40,000 ft ²
		Bentonite Moisture Content	ASTM D 5993	
		Grab Tensile Strength ^B	ASTM D4632	Per 200,000 ft ²
		Permeability ^B	GRI GCL-2 or ASTM D 5084	Per week for each production line ^C
		Lap Joint Permeability	Flow box or other suitable device	Per material and lap type
Independent Laboratory (Conformance Testing)	GCL Product	Clay Mass/Unit Area	ASTM D 5993	Per 100,000 ft ²
		Permeability ^E	GRI GCL-2 or ASTM D 5084	
		Direct Shear ^F	ASTM D 6243	Per GCL/adjoining material type

Notes:

- A. Tests to be performed on bentonite before incorporation into GCL.
- B. Not applicable for geomembrane backed GCL. Manufacturer of geomembrane backed GCL must, however, certify that will meet required permeability standards based on prior testing.
- C. Report last 20 permeability values, ending on production date of supplied GCL.
- D. May also be done as conformance testing.
- E. Test at confining/consolidating pressures simulating field conditions for ASTM D 5084.
- F. Not applicable for slopes of 7H:1V or flatter. Testing must be on material in hydrated state unless GCL is to include geomembrane on both sides of GCL, and must use strain rates, confining pressures, and other parameters which simulate field conditions.

Table III – High Density Polyethylene (HDPE) Geomembrane –Smooth

Properties	ASTM Test Method	Test Value	Testing Frequency (minimum)
Thickness (min. ave.) • lowest individual of 10 values	D5199	Nom. -10%	Per roll
Density mg/l (min.)	D 1505/ D 792	0.940 g/cc	200,00 lb
Tensile Properties (1) (min. ave.) • yield strength • break strength • yield elongation • break elongation	D 6693 Type IV	126 lb/in. 228 lb/in. 12% 700%	20,000 lb
Tear Resistance (min. ave.)	D 1004	42 lb	45,000 lb
Puncture Resistance (min. ave.)	D 4833	108 lb	45,000 lb
Stress Crack Resistance (2)	D5397 (App.)	300 hr.	per GRI-GM10
Carbon Black Content (range)	D 1603 (3)	2.0-3.0%	20,000 lb
Carbon Black Dispersion	D 5596	note (4)	45,000 lb
Oxidative Induction Time (OIT) (min. ave.) (5) (a) Standard OIT — or — (b) High Pressure OIT	D 3895 D 5885	100 min. 400	200,000 lb
Oven Aging at 85°C (5), (6) (a) Standard OIT (min. ave.) - % retained after 90 days — or — (b) High Pressure OIT (min. ave.) - % retained after 90 days	D 5721 D 3895 D 5885	55% 80%	per each formulation

(1) Machine direction (MD) and cross machine direction (XMD) average values should be on the basis of 5 test specimens each direction. Yield elongation is calculated using a gage length of 1.3 inches Break elongation is calculated using a gage length of 2.0 in.

(2) The yield stress used to calculate the applied load for the SP-NCTL test should be the manufacturer's mean value via MQC testing.

(3) Other methods such as D 4218 (muffle furnace) or microwave methods are acceptable if an appropriate correlation to D 1603 (tube furnace) can be established.

(4) Carbon black dispersion (only near spherical agglomerates) for 10 different views: 9 in Categories 1 or 2 and 1 in Category 3

(5) The manufacturer has the option to select either one of the OIT methods listed to evaluate the antioxidant content in the geomembrane.

(6) It is also recommended to evaluate samples at 30 and 60 days to compare with the 90 day response.

Table IV – High Density Polyethylene (HDPE) Geomembrane – Textured

Properties	ASTM Test Method	Test Value	Testing Frequency (minimum)
Thickness mils (min. ave.) • lowest individual for 8 out of 10 values • lowest individual for any of the 10 values	D 5994	nom. (-5%) - 10% -15%	per roll
Asperity Height mils (min. ave.) (1)	GM 12	10 mil	every 2nd roll (2)
Density (min. ave.)	D 1505/D 792	0.940 g/cc	200,000 lb
Tensile Properties (min. ave.) (3) • yield strength • break strength • yield elongation • break elongation	D 6693 Type IV	126 lb/in. 90 lb/in. 12% 100%	20,000 lb
Tear Resistance (min. ave.)	D 1004	42 lb	45,000 lb
Puncture Resistance (min. ave.)	D 4833	90 lb	45,000 lb
Stress Crack Resistance (4)	D 5397 (App.)	300 hr.	per GRI GM10
Carbon Black Content (range)	D 1603 (5)	2.0-3.0 %	20,000 lb
Carbon Black Dispersion	D 5596	note (6)	45,000 lb
Oxidative Induction Time (OIT) (min. ave.) (7) (a) Standard OIT — or — (b) High Pressure OIT	D 3895 D 5885	100 min. 400 min.	200,000 lb
Oven Aging at 85°C (7), (8) (a) Standard OIT (min. ave.) - % retained after 90 days — or — (b) High Pressure OIT (min. ave.) - % retained after 90 days	D 5721 D 3895 D 5885	55% 80%	per each formulation

(1) Of 10 readings; 8 out of 10 must be ≥ 7 mils, and lowest individual reading must be ≥ 5 mils

(2) Alternate the measurement side for double sided textured sheet

(3) Machine direction (MD) and cross machine direction (XMD) average values should be on the basis of 5 test specimens each direction. Yield elongation is calculated using a gage length of 1.3 inches. Break elongation is calculated using a gage length of 2.0 inches.

(4) P-NCTL test is not appropriate for testing geomembranes with textured or irregular rough surfaces. Test should be conducted on smooth edges of textured rolls or on smooth sheets made from the same formulation as being used for the textured sheet materials. The yield stress used to calculate the applied load for the SP-NCTL test should be the manufacturer's mean value via MQC testing.

(5) Other methods such as D 4218 (muffle furnace) or microwave methods are acceptable if an appropriate correlation to D 1603 (tube furnace) can be established.

(6) Carbon black dispersion (only near spherical agglomerates) for 10 different views: 9 in Categories 1 or 2 and 1 in Category 3

(7) The manufacturer has the option to select either one of the OIT methods listed to evaluate the antioxidant content in the geomembrane.

(8) It is also recommended to evaluate samples at 30 and 60 days to compare with the 90 day response.

**APPENDIX B
FINAL COVER QUALITY CONTROL PLAN (FCQCP)**

**REMEDIAL WASTE REPOSITORY DESIGN
ASARCO INCORPORATED
EL PASO, TEXAS**

Prepared by:



January 6, 2006

TABLE OF CONTENTS

SECTION	PAGE
1.0 INTRODUCTION	1
1.1 Purpose	1
1.2 Definitions	1
1.3 Full-Time Quality Control/Quality Assurance	4
2.0 GEOSYNTHETIC CLAY LINER (GCL) FOR INFILTRATION LAYER	4
2.1 General	4
2.2 Manufacturing	4
2.3 Shipping, Delivery and Storage	4
2.4 Installation	5
2.5 Testing	6
3.0 GEOMEMBRANE LAYER	7
3.1 General	7
3.2 Manufacturing	7
3.3 Shipping	7
3.4 Delivery	8
3.5 Storage	8
3.6 Installation	8
3.7 Seaming	8
3.8 Testing	10
3.9 Repairs and Retesting	13
4.0 GEOCOMPOSITE DRAINAGE LAYER	13
4.1 General	13
4.2 Submittals	13
4.3 Shipping, Storage and Handling	14
4.4 Materials	14
4.5 Testing	14
4.6 Installation	15
5.0 SOIL EROSION LAYER	17
5.1 Soil Erosion Layer	17
6.0 CONSTRUCTION EVALUATION REPORT	17

LIST OF TABLES

Table I	Standard Tests on GCL Material
Table II	Standard Tests on LLDPE Geomembrane Materials

1.0 INTRODUCTION

This Final Cover Quality Control Plan (FCQCP) was prepared for use during the construction of the landfill final cover at the Asarco, Incorporated, El Paso, Texas facility. The landfill will be used for the containment of Category 1 materials and will be constructed in accordance with the Industrial Solid Waste regulations.

1.1 Purpose

This FCQCP presents the quality assurance/quality control testing and evaluation requirements for the construction of the landfill final cover system components (intermediate cover, geosynthetic clay liner, 40 mil very flexible polyethylene (VFPE) geomembrane, and soil erosion layer) of the Asarco landfill.

1.2 Definitions

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) - One of the largest, professionally recognized voluntary standards development systems in the world.

ATTERBERG LIMITS - A series of six "limits of consistency" of fine-grained soils defined by Swedish soil scientist Albert Atterberg, two of which are frequently used today to establish a soil's physical boundaries dealing with its plasticity characteristics. These soil boundaries or limits used most frequently in geotechnical engineering are based upon the following:

Liquid Limit (LL) - The percentage of moisture in a soil, subjected to a prescribed test that defines the upper point at which the soil's consistency changes from the plastic to the liquid state.

Plastic Limit (PL) - The percentage of moisture in a soil, subjected to a prescribed test that defines the lower point at which the soil's consistency changes from the plastic to the liquid state.

Plasticity Index (PI). - The numerical difference between the LL and the PL of a fine-grained soil that denotes the soils plastic range. The larger the PI the greater a soil's plasticity range and the greater it's plasticity characteristics.

COEFFICIENT OF PERMEABILITY (a.k.a. Hydraulic Conductivity) - The amount of flow per unit of time through soil under unit hydraulic gradient at standard temperature.

COMPACTIVE EFFORT - The amount of compaction energy held constant and usually transferred into a soil sample with a compaction hammer device, used on soil samples in various laboratory test procedures to establish a soil's density at various moisture contents.

CONSTRUCTION QUALITY ASSURANCE (CQA) - A planned system of activities that provides the owner and permitting agency assurance that the facility was constructed as specified in the design (EPA, 1993).

CONSTRUCTION QUALITY CONTROL (CQC) - A planned system of inspections that is used to directly monitor and control the quality of a construction project (EPA, 1993).

ENGINEER – Owners representative who possesses experience in geotechnical engineering and testing, or a graduate geologist who has a minimum of four years experience in engineering geology and is experienced in geotechnical testing and its interpretations. Note: All references to the Engineer, Geotechnical Quality Control/Quality Assurance Professional, Professional of Record (POR), etc., within the context of this SLQCP are interchangeable and are therefore synonymous.

FILM TEAR BOND (FTB) - A failure in the geomembrane sheet material on either side of the seam and not within the seam itself.

FINAL COVER SYSTEM EVALUATION REPORT - A stand-alone, quality control test report prepared in accordance with the methods and procedures contained in the approved FCQCP that details the installation and testing of the final cover.

FISH MOUTH - A semi-conical opening of the seam that is formed by an edge wrinkle in one sheet of the geomembrane.

FML STRATIFIED SAMPLE - A randomly selected sample location within each 500 - linear foot interval.

GEOMEMBRANE – An essentially impermeable geosynthetic composed of one or more synthetic sheets.

GEOSYNTHETIC CLAY LAYER – A factory manufactured, hydraulic barrier typically consisting of bentonite clay or other very low permeability material, supported by geotextiles and/or geomembranes which are held together by needling, stitching, or chemical adhesives.

GEOSYNTHETIC MATERIALS - Manufactured or man-made materials that include FMLs (geomembranes), geogrids, geofilters, geocomposites, geodrainage nets, and geotextiles.

GRADATION - See SIEVE ANALYSIS

GEOSYNTHETIC RESEARCH INSTITUTE (GRI) - Located at Drexel University, the GRI conducts research with geosynthetic materials and develops industry testing standards for these materials. This institute is supported by many geosynthetic manufacturers, installers, and raw materials suppliers to the industry.

HDPE (HIGH DENSITY POLYETHYLENE) - A polymer prepared by low-pressure polymerization of ethylene as the principal monomer and having the characteristics of ASTM D1348, Type III and IV polyethylene. Such polymer resins have densities greater than or equal to 0.941 g/cc as noted in ASTM D 1248.

INDEPENDENT TESTING LABORATORY - A laboratory that is independent of ownership or control by the owner or any party to the construction of the liner or the manufacturer of the liner products used.

MANUFACTURING QUALITY ASSURANCE (MQA) - A planned system of activities that provides assurance that the raw materials were constructed (manufactured) as specified.

MANUFACTURING QUALITY CONTROL (MQC) - A planned system of inspection that is used to directly monitor and control the manufacture of a material.

MOISTURE/DENSITY (M/D) RELATIONSHIP - A test in which soil samples are compacted in a known volumetric container at various moisture contents at a constant level of compactive effort and their corresponding densities are determined. The test procedures and compactive efforts used are those normally prescribed in ASTM D 698 and D 1557. These tests are frequently designated the Standard Proctor and Modified Proctor compaction tests named after M. M. Proctor, the early developer of these test procedures for the determination of density control on compacted soil fills.

PERMEABILITY - See COEFFICIENT OF PERMEABILITY

PERMEANT FLUID - Fluid used in a laboratory coefficient of permeability test and limited to tap water or 0.05 Normal solution of CaSO₄. Distilled water shall not be used in these test procedures.

QUALIFIED ENGINEERING TECHNICIAN - A representative of the Engineer who is represented to be NICET-certified in Geotechnical Engineering Technology at level 1 or higher (must be level 2 for soils within one year of the date of this document for soils testing and within 2 years of the date of this document for FML testing), an engineering technician with a minimum of four years of directly related experience, or a graduate engineer or geologist with one year of directly related experience.

REPRESENTATIVE SAMPLE - A representative sample of FML material consists of one or more specimens (commonly referred to as coupons) from the same rectangular portion of FML material, oriented along a seam, which is removed for field or laboratory testing purposes.

SIEVE ANALYSIS - A laboratory soil test consisting of placing a known weight of soil sample through a series of wire mesh sieves stacked upon each other in successively smaller mesh size and used to determine the percentage size gradation of the sample.

SOIL BORROW SOURCE - Soils in which the Liquid Limit (LL) and Plasticity Index (PI) do not vary by 10 points. A soil that varies by 10 or more points from the originally established LL or PI is considered as a separate soil source for the purpose of this FCQCP.

SOIL TEST SERIES - Tests performed to determine a soil's physical characteristics and to document its ability to satisfy the soil liner requirements. These tests include sieve analysis (gradation), Atterberg Limits, moisture/density, and coefficient of permeability.

SPECIMEN - (With respect to FML destructive testing). - A specimen is the individual test strip (sometimes called coupon) from a sample location. A sample location usually consists of many specimens.

1.3 Full-Time Quality Control/Quality Assurance

The construction and testing of all elements of the final cover must be in accordance with the FCQCP. The Engineer or his/her representative(s) should be on site for all final cover system construction and testing. The Engineer should be on site at least twice weekly during final cover construction and for all extraordinary construction events during all final cover system construction.

2.0 GEOSYNTHETIC CLAY LINER (GCL) FOR INFILTRATION LAYER

2.1 General

This section includes the requirements for selection, installation, testing and protection of the geosynthetic clay liner (GCL) of the final cover system. The unreinforced GCL will consist of a natural sodium bentonite layer encapsulated between two non-woven geotextiles.

2.2 Manufacturing

The bentonite used in the GCL shall have a free swell (ASTM D 5890) of at least 24 ml and a fluid loss (ASTM D 5891) no greater than 18 ml. The finished GCL shall contain a minimum of 0.75 lbs/ft² dry bentonite (oven dried basis) and have a permeability no greater than 5×10^{-9} cm/sec. The manufacturers quality assurance testing shall be performed in accordance with Section 2.5 and the results shall be submitted to the Engineer for review and approval prior to delivery of the GCL to the site. Quality control certificates signed by the GCL manufacturer's representative shall be submitted for each roll delivered to the site. Each quality control certificate shall include roll identification numbers and results of all quality control tests.

The manufacturer shall submit written certification that the GCL has been continuously inspected for the presence of broken needles using metal detectors and was found to be needle free.

GCL rolls must be wrapped around cores which are structurally sound, such that excessive bending or buckling during handling does not occur. Finished rolls must be covered with a water-proof, tightly fitting, weatherproof wrapping in preparation for shipment. GCL rolls must be stored indoors prior to shipment to the site.

GCL rolls must be labeled with the manufacturer's name, product identification, roll and lot number, roll dimensions, roll weight, and any other information which is necessary to trace the quality assurance documentation.

Prior to shipping the GCL to the site, the third party independent laboratory conformance testing shall be completed in accordance with Section 2.4.3.

2.3 Shipping, Delivery and Storage

The waterproof wrapping around the GCL rolls must remain intact throughout entire shipping and storage process. If at any time the roll covering is damaged and the outer portions of the GCL becomes wet or partially hydrated, the damaged portion should be removed and the remainder of the roll shall be tightly recovered.

Off-loading and on-site delivery may be undertaken by use of a crane or front-end loader fitted with a sling and center rod which is pushed through the core around which the GCL is rolled, with a fork lift with a “stinger”, or other equipment which does not damage the GCL rolls.

Each roll shall be stored on a platform or otherwise elevated off the ground and covered in a manner that precludes moisture intrusion while awaiting deployment. The GCL shall be protected from dirt, water, ultraviolet light exposure and other sources of damage. All GCL roll labels must remain legible. Rolls must not be stacked higher than recommended by the manufacturer to preclude thinning of the bentonite at contact points.

2.4 Installation

2.4.1 Intermediate Cover (Subgrade Surface Preparation)

The final one-foot of Category I material shall contain not contain particles greater than 3/8-inch. This shall serve as the intermediate cover, over which the GCL will be installed. The intermediate cover must be rolled with a smooth wheel roller and maintained in a smooth, uniform, and compacted condition prior to GCL placement. Adequate drainage of the intermediate cover surface must be maintained until GCL installation is complete.

The GCL installation contractor and the Engineer shall accept the intermediate cover surface prior to GCL deployment by signing the applicable subgrade surface acceptance certificates.

2.4.2 Placement of Panels

Equipment used to deploy GCL over soil must not cause excessive rutting of the subgrade. Dragging of the GCL on the subgrade shall be avoided. Deployed GCL panels shall not contain folds or excessive slack.

Each panel shall be overlapped to the match lines on both edges of the GCL (at least 6 to 12 inches, depending on the manufacturer). If required by the manufacturer, dry granular bentonite shall be placed in the lap-joints between the panel edges to achieve adequate bonding upon exposure to a moisture source. Where bentonite enrichment in the lap-joints is required, the minimum amount must be 1/4 –lb. (0.1 kg) dry bentonite per linear foot of lap joint or as recommended by the manufacturer to produce a joint essentially as impermeable as the GCL itself. Bentonite placed in the lap joints must be the same type used in the manufacture of the GCL.

Vehicle traffic other than low contact pressure vehicles such as smooth-tire ATVs or golf carts are not allowed on the deployed GCL. Generators, gasoline, or solvent cans, tools, or supplies must not be stored directly on the GCL. Installation personnel must not smoke or wear damaging shoes when working on the GCL. Deployed GCL must not be used as a work area unless a protective tarpaulin, rub sheet, or sacrificial sheet is placed over the GCL.

During installation, the entrapment of stones, trash, or other debris beneath or within the GCL shall be avoided to prevent damage to the GCL or overlying geomembrane.

The installed GCL surface shall be inspected to ensure that no stones, cutting blades, tools, or other objects which may damage the GCL are present prior to covering.

2.4.3 Weather Conditions

Weather conditions during GCL placement and before completion of the placement of the geomembrane liner shall be closely monitored. GCL shall not be placed in the rain or at times of impending rain. If the GCL is subjected to moisture or rainfall such that the bentonite material becomes partially hydrated prior to being covered, it must be removed and replaced with new GCL material.

Deployed GCL shall be anchored by sandbags to prevent uplift by wind prior to covering. GCL shall not be placed during excessive winds.

Deployed GCL shall be covered by geomembrane on the same day as deployment to prevent hydration due to weather conditions.

2.4.4 Repairs

Torn or otherwise damaged geosynthetics facing (with no loss of bentonite from the GCL) must be patched with the same type of geosynthetic. The geosynthetic patch must extend at least 12 inches beyond the damaged area and must be adhesive or heat bonded to the main GCL to avoid shifting during backfilling. If the GCL damage includes loss of bentonite, the patch must consist of full GCL extending at least 12 inches beyond the damaged area. Lapping procedures must be the same as specified for original laps of GCL panels.

2.5 Testing

Quality control testing of GCL products is generally undertaken by the supplier of the various components, the GCL manufacturer, and the third-party independent laboratory under the direction of the Engineer. The minimum QC tests required are described below and in Table I of this FCQCP. Also included in Table I are the test standards (ASTM or other) and the minimum testing frequencies for the various tests.

2.5.1 Raw Materials

The bentonite and geotextiles used in the manufacture of the GCL product must be tested by the supplier of the component or the GCL manufacturer prior to incorporation into the final GCL product. The bentonite must be tested for the free swell and fluid loss criteria as described in Section 2.2. The measured properties of the geotextiles must meet the manufacturer's criteria and the geotextiles used must be certified as having been used successfully in similar applications in the past.

2.5.2 GCL Manufacturer

The finished GCL product must be tested by the manufacturer for at least bentonite mass per unit area, bentonite moisture content, grab tensile strength, and permeability. All test results must meet the GCL manufacturer's criteria and the values given in Section 2.2.

In addition to the above, the GCL manufacturer must be able to demonstrate by appropriate testing (using a flow box or other suitable device) that the overlap procedure produces a lap joint essentially as impermeable as the GCL itself. The lap joint permeability must be reverified through testing if any of the component materials change (it is recommended that the lap joint permeability be periodically retested to account for any small variations in GCL materials which may occur over time). Alternatively, if lap joint permeability testing on the material used has not been done or is not valid, the lap joint testing must be done as part of the third-party conformance testing.

2.5.3 Third Party Conformance Testing

Conformance testing by the independent laboratory must include bentonite mass per unit area, permeability, direct shear, and lap joint permeability testing. The measured bentonite mass per unit area and permeability must meet the criteria given in Section 2.2.

Direct shear testing must be conducted on hydrated GCL and must include internal shear as well as shear between GCL and underlying or overlying material. The minimum strength parameters obtained in the direct shear testing must be sufficient to demonstrate adequate stability of the GCL on the constructed final cover slopes. The direct shear testing must be sufficient to demonstrate adequate stability of the GCL on the constructed final cover slopes. The direct shear testing must be conducted with site-specific materials used for the construction of the final cover and need not be repeated unless the final cover component materials change. If any of the final cover component materials change, direct shear testing must be repeated with the new materials.

Direct shear testing must be performed by a laboratory experienced in the performance and interpretation of this test using equipment meeting all requirements of ASTM D 6243. The direct shear test plan should consider all possible sources of cover instability and it should be specifically tailored to the design under review.

3.0 GEOMEMBRANE LAYER

3.1 General

The final cover system will consist of a smooth 40-mil Very Flexible Polyethylene (VFPE) geomembrane overlying the GCL. The VFPE geomembrane may also be referred to as linear low-density polyethylene (LLDPE) geomembrane.

3.2 Manufacturing

The geomembrane infiltration layer must be produced from virgin raw materials. Reground, reworked, or trim materials from the same lot may be acceptable but recycled or reclaimed materials must not be used in the manufacturing process. VFPE material and required welding rods shall contain between 2 percent and 3 percent carbon black and may contain no more than 1 percent other additives.

3.3 Shipping

All VFPE geomembrane shall be shipped in rolls. Folded or creased sections of panels are not acceptable and shall not be used unless they are a normal part of the manufacturing process.

3.4 Delivery

The Engineer or his/her qualified representative must inspect the delivered materials for damage and defects. Pushing, sliding or drafting of rolls or pallets can cause damage and must be avoided.

3.5 Storage

Geomembrane material must be protected from soft or wet ground and rocky or rough ground. VFPE geomembrane must not be stacked more than 5 rolls high (or as recommended by the manufacturer) to avoid crushing the cores of the rolls. A sacrificial cover must be used to protect the geomembrane if stored on site more than six months. The rolls and pallets shall be stored in such a manner as to avoid shifting, abrasion, or other adverse movements that can damage the geomembrane final cover material.

3.6 Installation

Geomembrane installation should follow all of the manufacturer's recommendations. All geomembrane material must overlie and be installed in intimate contact with the geosynthetic clay liner.

3.6.1 Geomembrane Deployment

The deployment, including equipment used in handling of the geomembrane, should not damage the underlying GCL. Construction equipment must not ride directly on the underlying GCL.

3.6.2 Weather

Geomembrane deployment will not be allowed during inclement weather such as rain, high winds or freezing temperatures.

3.6.3 Equipment on Geomembrane

No vehicular traffic shall be allowed on the geomembrane prior to the placement of the overlying geocomposite and erosion layer. Only low-ground pressure supporting equipment (i.e. golf carts, ATVs or other small rubber tired equipment with a ground pressure less than 5 psi and a total with less than 750 pounds) may be allowed to traverse the geomembrane. If supporting equipment is operating on the geomembrane, it must be placed on a sacrificial surface or rub sheet in order to help protect the geomembrane. Personnel working on the geomembrane final cover shall not smoke, wear damaging shoes, or engage in any other activity likely to damage the geomembrane.

3.7 Seaming

Field seaming (and repairs) shall be performed in strict accordance with methods approved by the manufacturer, i.e. fusion or extrusion welding.

3.7.1 Placement

Only those geomembrane sheets that are to be placed and seamed in one day should be unrolled. Sheets should be positioned with the overlap recommended by the manufacturer, but not less than three inches. The Engineer or his/her representative shall visually inspect the placement and overlap of the geomembrane to verify that the material is placed with sufficient overlap.

3.7.2 Wrinkles

Wrinkles shall be walked-out or removed as much as possible prior to field seaming.

3.7.3 Foreign Material

All foreign matter (dirt, water, oil, etc.) shall be removed from the area to be bonded.

3.7.4 Tack Welds

Tack welds (if used) shall use heat only. No double sided tape, glue or other method will be permitted when extrusion or fusion welding is used for bonding.

3.7.5 Seam Joints

Seams on side slopes steeper than 6H:1V should be oriented parallel to the sideslip direction. Seams that join the side slopes and top or bottom sections must be located at least five feet from the slope that is steeper than 6H:1V. In corners and odd-shaped geometric locations, the number of field seams shall be minimized.

3.7.6 Temperature

No seaming should be attempted above 104 degrees Fahrenheit (40 degrees Celsius) ambient air temperature. Below 40 degrees F (5 degrees C) ambient air temperature, the geomembrane requires preheating.

3.7.7 Folds, Large Wrinkles, Fish Mouths

No folds, large wrinkles or fish mouths shall be allowed in the seam. Only normal factory induced creasing from the blown film process may be acceptable. Where wrinkles or folds occur, the material shall be cut and overlapped, and an extrusion weld applied. During wrinkle or fold repairs, adjacent geomembrane may not necessarily be required to meet the three to four-inch minimum overlap if approved by the Engineer or his/her representative. All complete seams shall be tightly bonded and sealed.

3.7.8 End of Each Work Day

At the end of each day or installation segment, all unseamed edges shall be anchored by sand bags or other approved device. Staples, U-shaped rods, or other penetrating anchors shall not be used to secure the geomembrane.

3.8 Testing

All geomembrane material properties must meet the manufacturer's standards and the minimum values set forth in the Geosynthetic Research Institute (GRI) standard. Table II illustrates the minimum required tests, test methods and the frequency of testing for LLDPE geomembrane. The types of testing equipment used and their procedures for testing are described by the manufacturers of geomembranes and should be utilized. Test specifications may vary between manufacturers. Therefore, the specifications described herein will be met as a minimum requirement.

3.8.1 Manufacturing Quality Control (MQC)

All materials related to the manufacturing of geomembranes must be tested by the geomembrane manufacturer to determine their quality and suitability for use. The required manufacturer's tests, methods, and frequency of testing are found in Table II.

3.8.1.1 Resin Feed Stocks

Resin feed stocks used in the manufacturing of the geomembrane must be tested by the manufacturer for density and melt index using the methods and frequency included in Table II.

3.8.1.2 Geomembrane Manufacturer Testing

At a minimum the manufacturer must test the geomembrane for thickness, specific gravity, carbon black content, carbon black dispersion, tensile properties, tear and puncture resistance, and dimensional stability (shrinkage). The test methods and frequencies are included in Table II.

3.8.2 Conformance and Field Thickness Measurements

Prior to acceptance of the geomembrane from the manufacturer, the Engineer shall verify that it meets the required specifications. At a minimum, the third party independent laboratory must test thickness, specific gravity/density, carbon black content, carbon black dispersion and tensile properties in accordance with the test methods and frequencies found in Table II.

Field thickness measurements must be taken for each panel before it is seamed. The material thickness shall be checked using a micrometer at a minimum frequency of one measurement per five feet along the leading edge of the panel, with at least 5 measurements along the leading edge of the panel. No single measurement shall be less than 10 percent below the required nominal thickness in order for the panel to be accepted.

3.8.3 Seams

The Engineer or his/her representative will observe all test seam procedures and all seam testing. All seam testing of the geomembrane shall follow all of the manufacturer's recommended testing procedures

3.8.3.1 Trial Seam Testing

Each day, prior to commencing field seaming, test seams shall be made on fragment pieces of geomembrane to verify that seaming conditions are adequate.

3.8.3.1.1 Trial Test Seam Criteria

Each trial test seam shall be at least three feet long by one foot wide. Four (six when possible if using dual track fusion welding) adjoining one-inch wide specimens will be die cut from the test seam sample. Two specimens will be tested in the field for shear and two for peel (four when possible if testing both inner and outer welds for dual track fusion welding). The geomembrane installer must provide the Engineer with a copy of the updated calibration certificate traceable to National Bureau of Standards (NBS) for the extensometer testing apparatus (tensiometer) used for peel and shear tests.

The failure criteria are the same as that for destructive seam testing described below. These test specimens must exhibit a Film Tear Bond (FTB). If one test seam fails, the trial seam will be repeated. If this trial seam also fails, then two more trial seams must be constructed and tested. This process must continue and no welding can begin for the machine or welder (if applicable) until all test seams are passing.

3.8.3.1.2 Additional Trial Test Seam Criteria

Additional trial seams shall be made for all of the following:

- a. At the beginning of each seaming period for each seaming apparatus used that day (The beginning of each seaming period is considered to be the morning, and immediately after a break);
- b. each occurrence of significantly different environmental conditions (i.e., temperature, humidity, dust, etc.);
- c. any time the machine is turned off for more than 30 minutes; and
- d. when seaming different FMLs (tie-ins and smooth to textured).

Both the welder and machine must be tested for each new trial seam when extrusion welding. Only the machine needs to be tested for each new trial seam when fusion welding since the machine is not as operator dependent. Each individual seaming shall make at least one test seam each day each seamer actually performs seaming.

3.8.3.2 Non-Destructive Testing

Continuous, non-destructive testing shall be performed on all seams by the installer. Air-pressure testing on dual-track fusion welds and vacuum-box testing for extrusion welds are the only acceptable methods for VFPE seams. All factory seams in addition to field seams must be non-destructively tested. All leaks must be isolated and repaired by following the procedures described in Section 3.9 below.

3.8.3.2.1 Air-Pressure Testing

The ends of the air channel of the dual-track fusion weld must be sealed and pressurized to approximately 30 psi, if possible. The air pump must then be shut off and the air pressure

observed after five minutes. A loss of less than four psi is acceptable if it is determined that the air channel is not blocked between the sealed ends. A loss of equal to or greater than four psi indicates the presence of a seam leak which must then be isolated and repaired by following the procedures described under Section 3.9 below. The Engineer or his/her representative must observe and record all pressure gauge readings.

3.8.3.2 Vacuum Box Testing

A suction value of approximately three to five inches of gauge vacuum must be applied to all extrusion welded seams that can be tested in this manner. Examples of extrusion welded seams that do not easily lend themselves to vacuum testing would be around boots, some sump areas, appurtenances, etc. The seam must be observed for leaks for at least 10 seconds while subjected to this vacuum. The Engineer or his/her representative must observe 100 percent of this testing.

3.8.3.3 Destructive Testing

Destructive samples shall be taken at a minimum of one stratified location for every 500 linear feet of seam testing or major fraction thereof. The total footage of individual repairs of leaks equaling more than 10 feet and individual repairs of more than 10 feet for failed seams must also be counted and destructively tested using the same frequency of testing described above.

At a minimum a destructive test must be done for each welding machine used for seaming or repairs. A sufficient amount of the seam must be removed in order to conduct field testing, independent laboratory testing, and archiving of enough material in order to retest the seam when necessary. Field testing shall include at least two peel test specimens (four when possible for testing both tracks on dual-track fusion welded seams). Independent laboratory testing shall consist of five shear test specimens and five peel test specimens (ten when possible for both tracks of dual-track fusion welded seams). Destructive seam-testing locations shall be cap-stripped and the cap completely seamed by extrusion welding to the geomembrane. Capped sections shall be non-destructively tested. Additional destructive test samples may be taken if deemed necessary by the Engineer or his/her representative.

3.8.3.3.1 Passing Criteria

All field-tested specimens from a destructive-test location must pass both shear and peel tests for the seam to be considered as passing. Field tested specimens, are determined as passing if the specimen tested in peel fails in FTB and all test specimens meet the criteria listed below. The independent laboratory testing must confirm these field results.

The minimum passing criteria for independent laboratory testing include all three of the following:

- a. At least 4 of the 5 specimens tested in the peel mode must fail in FTB.
- b. At least four of five specimens from each peel and shear determination must meet the minimum specified value.
- c. The average value from all five specimens from each peel and shear determination must meet the minimum specified value.

The above criteria must be met by both tracks from each dual-track fusion welded seam before it is considered as passing.

The test methods and frequency of testing for geomembrane are found in Table II. Since geomembrane manufacturers may have differing values for their FML sheets, the specific sheet-strength values must be provided by the manufacturer in order to determine if the test results are passing.

3.8.3.3.1.1 Shear

The shear strength must be at least 95 percent of manufacturer's parent sheet strength but not less than 120 pounds per inch (ppi). The shear strength must meet the manufacturer's specification and GRI Standards as applicable.

3.8.3.3.1.2 Peel

The peel strength must be at least 62 percent of manufacturer's parent sheet strength but not less than 78 ppi and exhibit FTB. The peel strength must meet the manufacturer's specification and GRI Standards as applicable.

3.8.3.3.2 Failure Criteria

If less than four of the five specimens from each destructive test location pass, or if the average calculated from all five specimens is less than that listed in Subsection 3.8.3.3.1, above, or if more than one specimen does not exhibit FTB failure, the seam has failed.

3.9 Repairs and Retesting

All seam leaks and destructive test locations shall be repaired for a distance of at least six inches on each side of the faulty spot or area detected. At a minimum, these repairs shall be non-destructively retested and possibly destructively tested (refer to destructive testing criteria for repaired seams as described in Subsection 3.8.3.3., above.)

4.0 GEOCOMPOSITE DRAINAGE LAYER

4.1 General

A geocomposite drainage layer will be placed over the final cover geomembrane. The geocomposite drainage layer will consist of a single-sided geocomposite, which consists of an 8-oz/sq. yd. non-woven geotextile heat bonded to a geonet core.

4.2 Submittals

Prior to shipping the geocomposite material to the site, the Manufacturer shall submit the following to the Engineer for review.

- a. Origins (supplier's name and production plant) and identifications (brand name and number) of geotextile and geonet used to manufacture geocomposite.

- b. Specifications for geocomposite which includes properties published by geocomposite manufacturer measured using the test methods specified for the geotextile and geonet.
- c. Copies of dated quality control certificates issued by Geotextile and Geonet Manufacturer(s).
- d. Written certification that minimum average roll values give in Geocomposite Manufacturer's specifications are guaranteed by Geocomposite Manufacturer.
- e. Quality control certificates signed by Geocomposite Manufacturer. Quality control certificates shall include roll identification numbers, testing procedures, and results of quality control tests.

4.3 Shipping, Storage and Handling

The geocomposite rolls shall include the following identification:

- a. Manufacturer's name,
- b. Product identification,
- c. Lot number,
- d. Roll number,
- e. Roll dimensions, and
- f. Geonet resin lot number.

The geocomposite shall be protected from dirt, water, ultraviolet light exposure and other sources of damage. All geocomposite roll labels must remain legible. Rolls must not be stacked higher than recommended by the manufacturer to preclude thinning of the bentonite at contact points.

4.4 Materials

The geocomposite will consist of single-sided 8 oz/yd² non-woven geotextile heat bonded to one side of a geonet core.

Geotextile-geonet adhesion peel resistance shall not be less than 1 lb/in. in accordance with ASTM D-413 – Test Method for Rubber Property – Adhesion to Flexible Substrate or ASTM F-904 – Test Method for Comparison of Bond Strength or Ply Adhesion of Similar Laminates Made From Flexible Materials.

The geocomposite shall be capable of retaining its structure during handling, placement and long-term services.

4.5 Testing

The geocomposite manufacturer shall at a minimum perform the following quality control testing on the geocomposite. The tests shall be performed for every 50,000 ft² of geocomposite produced.

- a. Mass per unit area, and
- b. Geotextile-Geonet peel adhesion.

The third party independent laboratory shall collect samples and perform conformance testing at a rate of no less than one sample per 100,000 ft² of geocomposite to be installed. At a minimum the following conformance tests should be performed by the third party independent laboratory.

- a. Mass per unit area, and
- b. Geotextile-Geonet peel adhesion.

4.6 Installation

4.6.1 Deployment

The following procedures shall be followed during the deployment of the geocomposite.

- a. On slopes, anchor geocomposite securely and deploy geocomposite down slope in controlled manner to continually keep geocomposite in a fully relaxed (but not wrinkled) state.
- b. Weight geocomposite with sandbags or equivalent in presence of wind. Do not remove weight until replaced with cover material.
- c. Cut geocomposite with sharp geotextile cutter (hook blade). Protect adjacent materials from potential damaged due to cutting of geocomposite.
- d. Prevent damage to underlying layers during placement of geocomposite.
- e. During deployment, care shall be taken not to entrap in or beneath geocomposite, stones, dirt, excessive dust, or moisture that could damage geomembrane, cause clogging of geonet, or hamper subsequent seaming.
- f. If dirt or excess dust is entrapped in geonet of single-sided geocomposite, it shall be washed clean prior to placement of next layer of material.
- g. Single sided geocomposite shall not be welded to geomembrane.
- h. Visually examine entire geocomposite surface before seaming for potentially harmful foreign objects such as needles. Remove foreign objects encountered or replace geocomposite.

4.6.2 Geonet Seams and Overlap Procedures

The following procedures shall be used for geonet seaming and overlap.

- a. Overlap adjacent geonet rolls a minimum of 3 to 4 in. Overlap adjacent geonet roll ends a minimum of 6 to 8 in.

- b. Tie geonet overlaps with colored plastic fasteners. Use white or yellow tying devices for easy inspection. Do not use metallic devices.
- c. Tie every 5 ft. along edges on final cover slopes, and every 6 in. in anchor trench, and along end-to-end seams.
- d. In general, no horizontal seams are allowed on side slopes steeper than 6H:1V.
- e. In corners of side slopes of rectangular landfills, where overlaps between perpendicular geocomposite strips are required, unroll an extra layer of geocomposite along slope, on top or previously installed geocomposites, from top to bottom of slope.
- f. Stagger joints when more than one layer of geonet is installed.

4.6.3 Geotextile Seaming Procedures

The following procedures shall be followed for geotextile seaming.

- a. In general, geotextile shall be sewn or heat bonded. No horizontal seams or splices are allowed on side slopes steeper than 6H:1V except as part of patch. Splice is defined as seam connecting ends of 2 rolls. Spot sewing is not allowed.
- b. Overlap geotextile minimum of 4 in. prior to seaming.
- c. Allow no earth cover material to be present beneath geotextile.
- d. When sewing, use polymeric thread with chemical and ultraviolet light resistance properties equal to or exceeding those of geotextile.
- e. Use a locking stitch.

4.6.4 Field Repair Procedures

Small defects (smaller than 3 ft. by 3 ft.) shall be repaired as follows, if the geotextile is damaged.

- a. Remove damaged geotextile.
- b. Cut patch of new geotextile to provided minimum 12 in. overlap.
- c. Thermally bond geotextile patch to existing geocomposite.

If the geonet is damaged the repair shall be made as follows:

- a. Remove damaged geonet.
- b. Cut patch of new material.
- c. Secure patch to original geonet by tying every 6 in. Use tying devices specified by manufacturer.
- d. Place geotextile patch overlapping damaged area by minimum of 12 in.
- e. Thermally bond geotextile to existing geocomposite.

If the defect is larger than 3 ft by 3 ft. the geocomposite shall be replaced.

5.0 SOIL EROSION LAYER

A one-foot soil erosion layer overlying the final cover geocomposite drainage layer will consist of native soils compacted and graded. Acceptable soil materials shall have no materials greater than 3/8-inch and be free of metals, roots, trees, stumps, concrete, construction debris, or any other organic or deleterious material.

5.1 Soil Erosion Layer

The soil erosion layer shall be placed as soon as possible after installation of the geocomposite layer. The soil erosion layer shall be deployed in a manner that will prevent slippage or damage of the geocomposite and underlying geosynthetic materials and so that no excess tensile stresses occur in the geocomposite. Low-ground pressure dozers (i.e. track pressure less than 5 psi) may be used to place the soil erosion layer. Six inches of soil shall be maintained between the dozer and the geosynthetics. The soil erosion layer should only receive the minimal compaction required for compaction. The Engineer or his/her representative shall observe the placement of the soil erosion layer.

6.0 CONSTRUCTION EVALUATION REPORT

The construction documentation will include a Final Cover System Evaluation Report (FCSER) for submittal to TCEQ. The FCSER shall be prepared by the Engineer and will document the construction quality assurance/ construction quality control (CQA/CQC) activities conducted during the construction of the final cover system.

Table I
Standard Tests on GCL Material

Tester	Test	Type of Test	Standard Test Method	Frequency of Testing
Supplier or GCL Manufacturer	Bentonite ^A	Free Swell	ASTM D 5890	Per 50 tons and every truck or railcar
		Fluid Loss	ASTM D5891	
	Geotextile	Mass/Unit Area	ASTM D 5261	Per 200,000 ft ²
		Grab Tensile Strength	ASTM D4632	
GCL Manufacturer	GCL Product	Clay Mass/Unit Area	ASTM D5993	Per 40,000 ft ²
		Bentonite Moisture Content	ASTM D 5993	
		Grab Tensile Strength ^B	ASTM D4632	Per 200,000 ft ²
		Permeability ^B	GRI GCL-2 or ASTM D 5084	Per week for each production line ^C
		Lap Joint Permeability	Flow box or other suitable device	Per material and lap type
Independent Laboratory (Conformance Testing)	GCL Product	Clay Mass/Unit Area	ASTM D 5993	Per 100,000 ft ²
		Permeability ^E	GRI GCL-2 or ASTM D 5084	
		Direct Shear ^F	ASTM D 6243	Per GCL/adjoining material type

Notes:

- A. Tests to be performed on bentonite before incorporation into GCL.
- B. Not applicable for geomembrane backed GCL. Manufacturer of geomembrane backed GCL must, however, certify that will meet required permeability standards based on prior testing.
- C. Report last 20 permeability values, ending on production date of supplied GCL.
- D. May also be done as conformance testing.
- E. Test at confining/consolidating pressures simulating field conditions for ASTM D 5084.
- F. Not applicable for slopes of 7H:1V or flatter. Testing must be on material in hydrated state unless GCL is to include geomembrane on both sides of GCL, and must use strain rates, confining pressures, and other parameters which simulate field conditions.

Table II

Standard Tests on LLDPE Geomembrane Material

Test	Type of Test	Standard Test Method	Frequency of Testing
Resin	Specific Gravity/Density	ASTM D 1505	Per 100,000 ft ² and every resin lot
	Melt Flow Index	ASTM D 1238	Per 100,000 ft ² and every resin lot
Manufacturer's Quality Control	Testing per FRI Test Method GM 17 for LLDPE ^A		
Conformance Testing by 3 rd Party Independent Laboratory	Thickness ^B	ASTM D 5199 (smooth) or D 1593 ^A (textured)	Per 100,000 ft ² and every resin lot
	Specific Gravity/Density	ASTM D 1505/D792	Per 100,000 ft ² and every resin lot
	Carbon Black Content	ASTM D 1603	Per 100,000 ft ² and every resin lot
	Carbon Black Dispersion	ASTM D /55963015 ^B	Per 100,000 ft ² and every resin lot
	Tensile Properties	ASTM D 638 ^C	Per 100,000 ft ² and every resin lot
Destructive Seam Field Testing	Shear and Peel	ASTM D 4437	Varies for field, lab, and archive
Non-Destructive Seam Field Testing	Air Pressure	GRI GM6	All dual-track fusion weld seams
	Vacuum	ASTM D 4437	All non-air pressure tested seams when possible

Notes:

A. UV Resistance testing not required for LLDPE which is to be immediately covered.

B. Field thickness measurements for each panel must be conducted. Use ASTM D 374 and perform one series of measurements along the leading edge of each panel, with individual measurements no greater than five feet apart. No single measurement shall be less than 10% below the required nominal thickness in order for the panel to be acceptable.

C. Break elongation calculated using 2-inch initial gauge length.

**APPENDIX C
SITE HEALTH AND SAFETY PLAN**

**REMEDIAL WASTE REPOSITORY DESIGN
ASARCO INCORPORATED
EL PASO, TEXAS**

Prepared by:



January 6, 2006

TABLE OF CONTENTS

SECTION	PAGE
1.0 INTRODUCTION.....	1
2.0 SITE LOCATION AND BACKGROUND	2
2.1 SITE Location.....	2
2.2 Background	2
3.0 SAFETY ORGANIZATION AND ADMINISTRATION	3
3.1 Safety Organization.....	3
3.2 Administration.....	3
4.0 TRAINING	4
4.1 General Training.....	4
4.2 Site-Specific Training.....	4
5.0 MEDICAL SURVEILLANCE	5
6.0 HAZARD ASSESSMENT	6
6.1 Known or Suspected Health Hazards	6
6.1.1 Arsenic.....	6
6.1.2 Cadmium Dust.....	7
6.1.3 Lead.....	7
6.1.4 Zinc.....	7
7.0 SITE HEALTH AND SAFETY PROCEDURES	7
7.1 Traffic Control.....	8
7.2 Projected Levels of Personal Protective Equipment (PPE).....	8
7.3 Personal Hygiene	9
7.4 Decontamination	9
7.4.1 Personnel Decontamination Procedures	10
7.4.2 Portable Equipment Decontamination.....	11
7.4.3 Heavy Equipment Decontamination	12
7.5 Air Monitoring Plan	12
7.5.1 Overview.....	13
7.5.2 Real Time Monitoring.....	13
7.5.3 Sampling Frequency and Action Levels	14
7.5.4 Calibration of Sampling Instruments	15
7.6 Emergency Warning System.....	15
7.7 Heat Stress	15
7.8 Standard Operating Procedures.....	16

LIST OF ATTACHMENTS

Attachment 1	Contingency Plan
Attachment 2	Hazard Analyses
Attachment 3	Real Time Air Sampling Frequency / Real Time Air Monitoring Program

1.0 INTRODUCTION

This document details the Health and Safety Plan (HASP) to be utilized by ASARCO and subcontracted personnel during construction of the proposed on-site repository at the ASARCO Copper Smelting Facility, located in El Paso, Texas (hereafter referred to as SITE). It is anticipated that a more comprehensive HASP will be developed and implemented by the repository construction contractor at the onset of the project. If requested by ASARCO, R-K will provide technical review of subsequent HASP submittals provided by the construction contractor and/or other site personnel involved with construction of the proposed repository.

This HASP presents in detail the safety procedures and equipment to be used during the implementation of work plans and construction specifications developed by R-K to assist ASARCO with repository construction requirements. Work plans were developed in accordance with applicable sections of the *Remedial Design Report (RDR, Dated November 2001)* that is on file with the Texas Commission on Environmental Quality (TCEQ). The RDR was previously approved by TCEQ and specifically addresses the following proposed construction activities:

1. excavation of Category I materials existing at the proposed repository site and temporary placement at an adjacent location;
2. repository cell excavation and construction of clay liner and embankment;
3. construction of engineered cell liner system (i.e., HDPE liner, geomembrane liner, and protective cover layer);
4. loading and placement of Category I stockpiles into repository cell;
5. excavation, loading, and placement of buried Category I materials into repository cell; and
6. construction of final cover system (i.e., geosynthetic clay cover, HDPE liner, geocomposite drainage layer, and soil erosion layer).

It is the objective of the HASP to provide safe working conditions for R-K and subcontracted personnel at the SITE. The safety organization and procedures have been established to address the health risks potentially incurred at the SITE. Personnel protection measures have been selected to respond to these risks.

The HASP has been organized in discrete sections according to specific safety and health concerns. The concepts contained in this plan will be incorporated into the site operations. R-K

and subcontracted personnel will receive site-specific training to supplement any previous training experience as necessary during the course of construction activities.

2.0 SITE LOCATION AND BACKGROUND

2.1 SITE Location

As presented on the attached Site Location Map (*Plate 1*), the proposed repository SITE is located at 2301 W. Paisano Drive, El Paso, Texas and comprises approximately 5.73 acres. The SITE is situated within the boundaries of the approximately 163-acre ASARCO Copper Smelting Facility. Land use in the vicinity of the proposed repository is predominantly industrial although surrounding properties are largely undeveloped. Geographic coordinates for the proposed repository are approximately 31° 47.20' North Latitude by 106° 31.49' West Longitude.

2.2 Background

In 1996, ASARCO entered into an Agreed Order with TCEQ to implement specific corrective action at the Copper Smelting Facility located in El Paso, Texas. The Agreed Order (Docket No. 96-0212-MLM-E) is on file with the TCEQ Central Office in Austin, Texas.

The 1996 Agreed Order designated specific areas on the ASARCO Copper Smelting Facility as areas of concern based on historical and current operations and on the results of the 1994 and 1995 site assessment activities. A total of eighteen (18) specific areas of concern (AOCs) were identified and assessed in the previous RDR submittal. The Agreed Order further stipulated that closed plant areas would be considered separately from the Remedial Investigation. Plant sites that have been closed at the referenced facility include: the lead plant, the cadmium plant, the zinc plant, the antimony plant and former copper plant operations including the wedge roaster, reverberatory furnace, and brick flues. Most of the closed plants and related facilities have been demolished as of the date of this report.

Throughout approximately 110 years of operation, the various plant sites produced lead, copper, cadmium, zinc, and antimony. Throughout the lifecycle of the operation, lead, cadmium, zinc, and antimony smelting operations were curtailed and associated facilities are currently in various stages of demolition. During the time of operation, plant facilities processed copper concentrates and other copper and precious metal bearing materials into 99% pure copper, sulfuric acid, and various by-products. Operations were divided into six primary categories:

- Unloading and bedding
- Copper smelting
- Copper converting
- Anode casting
- Sulfuric acid production
- Water treatment

Copper production ceased in February 1999. Prior to cessation, the Facility produced about 140,000 tons of copper per year. Category I materials are a product of historical smelting operations and generally contain high concentrations of heavy metals. Category I materials exhibit the greatest concentrations of arsenic and other metals, which can have a negative effect on groundwater quality. As discussed in the RDR and addressed by this HASP, remediation of Category I materials will include excavation and disposal in a lined on-site disposal cell or repository. The repository will conform to Technical Guidelines #2 and #3 for construction of Class 1 landfills promulgated by TCEQ.

3.0 SAFETY ORGANIZATION AND ADMINISTRATION

3.1 Safety Organization

The design and implementation of the HASP is accomplished through an integrated team effort. The following R-K personnel will occupy and discharge the responsibilities of the positions indicated:

- A. John D. Cordova, P.E. - Project Manager
- B. Valerie A. Joosten, P.E., - Field Activities Supervisor/Site Safety Officer
- C. Patrick Welsh, P.G., - Alternate Field Activities Supervisor/Site Safety Officer
- D. Dennis L. Patton - Health and Safety Advisor

3.2 Administration

The Site Safety Officer will be responsible for executing program requirements on SITE. A written, site-specific contingency/safety plan has been prepared and is attached as **Attachment 1**. Although the contingency/safety plan is detailed and addresses known circumstances, conditions at the SITE may change. Therefore, the HASP will be reviewed frequently and revised as necessary. The Site Safety Officer's responsibility will include:

associated with specific SITE activities. Training will include discussions pertaining to site layout, hazards, and emergency services at the SITE and will encompass all provisions contained within this HASP. An initial safety briefing will be conducted at the commencement of field activities and supplemental safety briefings will be provided to all project personnel by the Site Safety Officer or his designated representative on a weekly basis or as-needed basis to further assist project personnel in conducting their activities safely.

The Site Safety Officer will provide updated safety briefings to all SITE visitors prior to their entering the construction zone(s). In general, it is anticipated that visitors will not be allowed onto the proposed repository SITE unless deemed absolutely necessary by ASARCO and/or the TCEQ.

5.0 MEDICAL SURVEILLANCE

In accordance with requirements stipulated in 29 CFR 1910.120, a medical screening program will be implemented for all SITE personnel subject to exposure to hazardous materials. The medical screening program will be comprised of the following criteria including medical examinations prior to and, if warranted, following completion of field operations. No worker will be allowed to commence work until a fitness for duty certificate from the examining physician is received.

The tests provided in the medical surveillance program include:

- A. Prior to beginning field operations:
 - 1. Health Profile
 - a. Complete blood count
 - b. Complete urinalysis
 - c. Total protein
 - d. Albumin
 - e. Alkaline phosphatase
 - f. BUN
 - g. Lead
 - h. Zinc
 - 2. Medical History
 - 3. Evaluation of employee capability to use respiratory protection equipment (i.e., pulmonary function test).
- B. Following completion of field operations, if results of any personnel or area air samples exceed the Permissible Exposure Levels for an 8-hour shift, Action Levels, or Short Term Exposure Level for any of the suspected contaminants, follow-up examinations, consisting of those parameters specified above, will be required of all exposed workers.

A medical examination will be given to any worker who experiences any illness during the project or who suffers an injury. This examination will occur as soon as possible after the illness or injury. In no case will the worker be allowed to continue work at the repository, or to commence work at any other project, prior to satisfactory completion of this medical examination.

Copies of the results of medical examinations will be maintained by the Employer. According to OSHA regulations, medical records are to be kept for at least the duration of employment plus 30 years. Exposure records and data analyses based on these are to be kept for 30 years. Background data for exposure records such as laboratory reports and work sheets need be kept only one year. Records of employees who work for less than one year need not be retained after employment, but the employer must provide these records to the employee upon termination of employment. First aid records of one-time treatment need not be retained for any specific period.

6.0 HAZARD ASSESSMENT

6.1 Known or Suspected Health Hazards

This section discusses each hazard and predicts the potential of exposure to each. The primary potential hazards of concern are heavy metals. Secondary hazards may include a remote potential for exposure to petroleum hydrocarbons associated with heavy equipment operations.

Each of the potential contaminants of concern (lead, chromium, arsenic, and zinc) can pose a significant threat to human health and safety. The properties of these contaminants as well as their potential impact on the health of human and animal life are discussed below. This information was obtained from the National Institute for Occupational Safety and Health (NIOSH) and is reprinted here in accordance with their policies for dissemination of information.

The impact of the contaminants of concern on breathing air quality will be assessed by comparing the ambient concentrations of the airborne contaminants with the applicable OSHA and/or NIOSH ambient air quality standards. Permissible Exposure Limits (PEL) or Threshold Limit Values (TLV), Action Levels, and/or Short Term Exposure Limits (STEL) for each contaminant will be used as a guide for the determination of suitable air quality during the performance of site activities.

6.1.1 Arsenic

Arsenic is a silver-grey or tin-white, brittle, odorless, noncombustible solid in bulk form, but a slight explosion hazard in the form of dust when exposed to flame. Exposure routes include inhalation, skin absorption, skin and/or eye contact ingestion. Personal protection and hygiene includes the wearing of appropriate respirator to eliminate dust exposure, preventing skin and eye contact, removing wet or contaminated clothing, and changing of work attire daily. The OSHA permissible exposure limit for an 8-hour time weighted average is 0.010 mg/m³.

6.1.2 Cadmium Dust

Cadmium is a silver-white, blue-tinged lustrous, odorless solid. Exposure routes are primarily by inhalation and ingestion. Personal protection and hygiene includes washing skin daily and changing work attire. Potential exposure to cadmium dust should include the use of an appropriate respirator. The OSHA permissible exposure limit for an 8-hour time weighted average is 0.005 mg/m³.

6.1.3 Lead

Lead is a heavy, ductile, soft gray solid. Primary exposure routes include inhalation, ingestion, skin and/or eye contact. To minimize exposure to lead, special attention should be given to workers' personal hygiene. The employer must provide and ensure that workers use washing facilities. Clean change areas, and separate non-contaminated eating areas must also be provided. Cars should be parked where they will not be contaminated with lead. These measures will reduce the workers' period of exposure to lead and the ingestion of lead; ensure that the duration of lead exposure does not extend beyond the workshift. The current OSHA permissible exposure limit for an 8-hour time weighted average is 0.050 mg/m³.

6.1.4 Zinc

Zinc is a white, odorless solid. Primary exposure routes are inhalation of zinc dust. There are currently no NIOSH recommendations for personal protection and hygiene. The OSHA permissible exposure limit is 15 mg/mg³ (total dust) and 5 mg/m³ (respirable dust).

7.0 SITE HEALTH AND SAFETY PROCEDURES

7.1 Traffic Control

In order to avoid potential traffic hazards and assure the protection of equipment vendors and other contracted personnel responsible for delivering supplies to the subject SITE during the performance of referenced activities, the following traffic control procedures will be observed at all times.

- Upon arrival, delivery personnel will be halted at the SITE entrance by ASARCO security personnel and instructed with regard to applicable site health and safety restrictions.
- Truck drivers and other delivery personnel will be directed to approved equipment/materials staging areas located away from active construction areas. Drivers will only be allowed to exit their vehicles within approved staging areas.
- The Site Safety Officer will oversee the unloading of equipment and/or materials and upon completion of deliveries, instruct drivers as to how to safely exit the SITE.
- The ASARCO security personnel will maintain a detailed log of all personnel entering and leaving the proposed repository SITE. The log will include arrival and departure times for equipment vendors and other contracted personnel.

7.2 Projected Levels of Personal Protective Equipment (PPE)

Appropriate PPE must be worn by field personnel during all construction operations including the excavation, loading, hauling, and stockpiling/placement of Category I materials and other soils or materials stockpiles suspected of environmental impacts. In the event additional drilling and/or soil and ground water sampling activities are deemed warranted as construction activities proceed, procedures outlined in this HASP pertaining to PPE and will be followed.

A decontamination station will be established to minimize the potential spread of contaminated materials and to provide a readily available station to maintain good personal hygiene.

SITE personnel will wear TYVEK (or equivalent) protection over normal work clothing. At the discretion of the Site Safety Officer, gloves, boots, and eye protection (face shields and/or goggles will be required if significant amounts of dust are present in work areas due to windy conditions. Long sleeved shirts and full length trousers will be required as "normal work clothing". Including protective TYVEK (or equivalent) coveralls, required construction attire will be defined as modified Level "C" for this project.

Respiratory protection for airborne metals (if indicated by air sampling) will be half-face air-purifying respirators with appropriate cartridges.

Below is a summary of protection requirements by activity:

<u>ACTIVITY</u>	<u>PROJECTED LEVEL OF PPE</u>
Drilling /excavating Category I Materials	Modified Level C
Category I Materials Loading/Placement	Modified Level C
Repository Cell Excavation	Modified Level C
Repository Cell Construction	Modified Level D*
Construction of Final Cover	Modified Level D*
General Site	Modified Level D*

* Normal work clothing (no TYVEK [or equivalent] coveralls).

These requirements will be re-evaluated based upon the presence of metals encountered the results of air sampling.

7.3 Personal Hygiene

No food or beverages will be permitted in the work area, including items such as candy, gum, snuff, and chewing tobacco.

No preparation of food or dispensing of food will be permitted except in designated areas.

Employees leaving the work site, or who handle contaminated soil, liquids and other articles must wash their hands with soap/detergent and water before leaving the site. The Site Safety Officer will perform inspections and document violations. Violations will be managed in accordance with ASARCO procedures.

7.4 Decontamination

The decontamination program will be administered at the discretion of the Site Safety Officer. All personnel will be instructed in the proper decontamination procedures for specific SITE operations. Under no circumstances will personnel or equipment exposed to solid or liquid wastes be allowed to leave the SITE prior to decontamination.

Generalized decontamination procedures are as follows. The procedures may be modified in response to the level of contamination identified on the SITE.

7.4.1 Personnel Decontamination Procedures

In order to ensure adequate personnel decontamination, a standard layout with definitive decontamination procedures was developed. As construction activities proceed, the Site Safety Officer will determine the proper decontamination procedures for use during that particular operation. When employees or equipment leave the work area, they will exit through the respective decontamination unit. The following "stages" represent the individual steps necessary to decontaminate personnel and equipment, respectively, prior to exiting the work area.

Station "A"

- Store all contaminated field equipment on plastic sheets for reuse in the "hot" (i.e, work areas of disturbed Category I materials) zone. If equipment must be used outside the "hot" zone, the Site Safety Officer will oversee the decontamination of this equipment, as necessary.
- All personnel will scrape their protective shoes/covers near the work area to remove contaminated soil from shoes.

Station "B"

- All personnel will remove the disposable outer clothing, gloves, boot covers and deposit them in containers provided just outside the work area. RESPIRATORS, IF REQUIRED, REMAIN ON.
- A water/detergent solution will be available to wash personnel contaminated with materials other than dirt (i.e., fuel, water, etc.).
- All personnel will wash hands to remove any contamination resulting from handling the outer protective clothing.

Station "C"

- Personnel will remove respirators, if required, and place them in the area provided for decontamination and maintenance.

- Respirators, when used, will be decontaminated daily. From the drop-off area, the masks will be disassembled, the cartridges set aside, and the face mask placed in a cleaning solution. After the masks have been soaked, they will be removed and rinsed with clean water. The old cartridges may be reused if the resistance to breathing has not increased, or they will be discarded into a sealable disposal container. At the next entry, the masks will be reassembled and personnel will inspect their own masks and perform positive and negative pressure tests. Each person shall have an individually assigned mask.
- If re-entry into the SITE is expected in a short time, the cleaning of the inside of the mask may be accomplished with soft cloths and rubbing alcohol.

Station "D"

- Don clean clothing, if required.

NOTE: Disposable items (TYVEK [or equivalent] outer garments, boot covers, etc.), when required, will be used once and discarded. These contaminated items will be placed into polyethylene bags, sealed with a "gooseneck" twist, and sealed shut with tape. The bags will remain on the SITE and disposed of in an appropriate manner with other contaminated material or normal municipal solid waste streams.

7.4.2 Portable Equipment Decontamination

Station "A"

- Store all field equipment, if contaminated, on plastic sheets for reuse in the "hot" zone. If the equipment is to be used outside the "hot" zone, it will proceed through sequential decontamination stations as described below.

Station "B"

- Still inside the "hot" zone, excess materials will be brushed from the equipment.

Station "C"

- The equipment for decontamination will be moved to a container (e.g., small plastic wading pool, shallow livestock water tank, 5-gal bucket) in the decontamination zone and washed with a mixture of detergent and water. The resultant water will be captured in a sealable drum and held for disposal.

Station "D"

- The equipment will be wiped dry with disposable cloths prior to leaving the decontamination pad for the general area.
- Cloths used to wipe the equipment will be placed in plastic bags, sealed, and disposed.

Station "E"

- After decontamination, the equipment will be moved to the "clean" side and relocated to the appropriate storage location for reuse or return to their permanent location.

7.4.3 Heavy Equipment Decontamination

Station "A"

- When not in use, park heavy equipment (e.g., tracked excavator, loader, etc.) on the asphalt parking pad or prepared surface for reuse in the "hot" zone. If the equipment is to be used outside the "hot" zone, it will proceed through sequential decontamination stations as described below.

Station "B"

- Still inside the "hot" zone, the excess materials will be brushed from portions of the equipment that contacted subject materials onto plastic sheeting.

Station "C"

- An equipment decontamination pad will be constructed outside of the "hot" zone utilizing plastic sheeting. Edges of the pad will be bermed in order to capture runoff from decontamination activities. Portions of heavy equipment that contacted affected materials will be washed in the decontamination pad with a mixture of detergent and water. The water will be captured during decontamination activities and subsequently transferred to a tank, 55-gal drums, or other suitable containers and held for disposal.

Station "D"

- The equipment will be allowed to air dry or compressed air dried prior to leaving the decontamination pad.

7.5 Air Monitoring Plan

7.5.1 Overview

Activities by SITE personnel may result in release of uncontrolled organic and/or inorganic environmental pollutants through vapors, liquids, drill cuttings or fugitive dust. The most likely activities to generate these at the proposed repository SITE will be materials handling activities including excavation, loading, hauling, and materials stockpiling/placement.

The continuous air monitoring program is designed to provide comprehensive data to determine the exposure of on-site personnel to airborne metals constituents. The information to be provided by this program includes time-weighted averages as well as instantaneous values for select contaminants. Three primary components comprise the air monitoring program.

- a. **Area Monitoring:** If deemed necessary by Site Safety Officer given prevailing weather conditions, the collection of data beyond the periphery of site operations or at ASARCO property boundaries to determine off-site migration of constituents.
- b. **Personnel Monitoring:** The collection of data within the breathing zone of SITE workers to determine the exposure levels.
- c. **Real Time Monitors:** Direct reading instruments will be utilized in order to provide immediate evaluation of pollutant concentrations and allow for adjustments in personnel protection or control practices.

7.5.2 Real Time Monitoring

The equipment used for monitoring will be selected (and calibrated, if appropriate) to provide accurate data. Detection limits will be set in accordance with the current Permissible Exposure Limits (PELs) as defined under 29 CFR 1910.1000 or the current NIOSH listing. Real-time monitoring will be conducted using heavy metals (XRF-type) reading instruments. These instruments and actions are described below.

Direct reading instruments should be equipped with an audible alarm which will warn the operator if a preset concentration limit has been exceeded. If preset limits are exceeded, the Site Safety Officer will be notified and that activity will be suspended and personnel evacuated until the situation is evaluated and corrections are made.

7.5.2.1 Heavy Metals Sampling Device (XRF Reading Type)

The detector will be used continuously to sample construction breathing zones (avoiding moving machinery, etc.) in order to ensure that concentrations are not above specific levels considered protective of human health and safety. If these levels are met or exceeded, operations will cease, personnel will be evacuated, until the situation can be appropriately assessed by the Field Activities Supervisor with the input of the Project Manager and/or Health and Safety Advisor, if necessary. As described previously, OSHA permissible exposure limits for an 8-hour time weighted average for constituents of concern are as follows: Arsenic = 0.010 mg/m³; Cadmium = 0.005 mg/m³; Lead = 0.050 mg/m³; and Zinc = 5.0 mg/m³.

7.5.2.2 Combustible Gas/ Oxygen Meter (CGI)

At the discretion of the Site Safety Officer, a CGI may be used periodically to monitor the construction breathing zone to assure that the atmosphere is not explosive and that oxygen levels are protective of human health and safety. The action level for limitation of work due to potentially explosive conditions will be $\geq 10\%$ of the Lower Explosive Level (LEL). Additionally, if the ambient oxygen concentration within the breathing zone for site workers falls below 19.5%, operations will cease until the situation can be appropriately assessed by the Field Activities Supervisor with the input of the Project Manager and/or Health and Safety Advisor, if necessary. No data to date indicates the presence of potentially explosive conditions at the ASARCO facility. However, the SITE has operated for over 110 years, so the decision was made to test on the conservative side.

7.5.2.3 Photoionization Detector (PID)

At the discretion of the Site Safety Officer, this device will also be used to monitor vapor concentrations during excavation of the disposal cell (repository) and any other time deemed appropriate by the Site Safety Officer. The action level for limiting work and/or requiring additional respiratory protection (e.g., air-purifying respirators with organic vapor cartridges) will be 200 ppm.

7.5.3 **Sampling Frequency and Action Levels**

Attachment 3 illustrates the sampling frequency and action levels for each of the real-time monitoring instruments.

If potential exposure is indicated by real-time monitoring, SITE personnel will be required to wear appropriate respiratory protective equipment in addition to Modified Level C PPE.

7.5.4 Calibration of Sampling Instruments

All air sampling apparatus will be calibrated in accordance with the manufacturer's recommendations.

7.6 Emergency Warning System

As described previously, potentially dangerous conditions may exist due to a release of environmental pollutants through vapors, liquids, drill cuttings or fugitive dust. Additionally, inherently dangerous conditions may result due to the utilization of heavy machinery for excavation, loading, and hauling operations. An emergency warning system will be implemented in order to further provide for the safety of field personnel.

Field personnel will be issued 2-way radios in the event that verbal communication is not possible during specific construction activities. Equipment operators and other field personnel will remain in constant communication with the Site Safety Officer throughout the course of project activities. In the event that a potentially dangerous condition pertaining to heavy equipment operation or other site activities is observed, the Site Safety Officer will immediately signal field personnel to cease operations and immediately provide explicit verbal instructions pertaining to the nature of potential danger and required evacuation steps.

Field personnel will be instructed as part of initial SITE safety training that in the event of a potentially dangerous condition, field work should immediately cease, and personnel should evacuate the immediate vicinity or "hot" zone to the assigned marshalling and head count areas. Similarly, if results of continuous air monitoring indicate that the exposure of on-site personnel to airborne metals is beyond acceptable levels, the Site Safety Officer will terminate field activities.

7.7 Heat Stress

The climate at the project site and the potential for wearing protective clothing could lead to climatic (hot in summer, cold in winter) stress. Work periods and rest breaks will be adjusted according to the determination of the Site Safety Officer. Water and/or an electrolyte drink should be freely available on the clean side of the decontamination unit.

A detailed Climatic Stress Prevention Plan is provided as **Attachment 4** to this HASP.

7.8 Standard Operating Procedures

1. In an unknown situation, always assume the worst conditions and plan responses accordingly.
2. Use the buddy system. Establish and maintain communication. In addition to radio communication, establish a requirement for "line of sight" operations between "buddies" and pre-develop a set of hand signals.
3. Use disposable PPE when possible.
4. The consumption of alcoholic beverages should be avoided during non-work hours, especially when required to wear level "C" protective equipment.
5. Plan work breaks at appropriate intervals to prevent stress-related accidents and fatigue.
6. Conflicting situations that may arise concerning safety requirements and working conditions must be resolved rapidly by the Site Safety Officer or designated representative.
7. Due to the variability of hazards on this type of work site, all personnel must work under the constraints of heightened awareness, especially in the presence of moving machinery or heavy equipment which may not be able to change directions rapidly. Be aware of the physical limitations the wearing of the protective clothing places on each individual.
8. Smoking, eating, or drinking will not be permitted after entering work areas or a "contaminated" zone.
9. Minimize contact with contaminated materials. Do not place equipment on the ground.
10. Personnel wearing contact lenses must wear splash-resistant eye protection at all times while in the "hot" zone.
11. Individuals will be clean shaven prior to putting on respirators and entering the site.
12. Working under the influence of intoxicants, narcotics, alcohol, or a controlled substance is prohibited.

CONTINGENCY PLAN

EMERGENCY PROCEDURES

The emergency plan is designed to promote the health and safety of site personnel and prevent the spread of contaminants to adjacent areas. The emergency plan includes provisions for rescue and first aid service at the site. Local emergency service providers will be notified prior to the mobilization of field personnel in order to make potential responders aware of site activities.

RESPONSIBILITIES

The Project Manager shall designate individuals who are responsible for the development of emergency procedures and employee safety.

The Project Manager has designated the Site Safety Officer as the individual responsible for on-site coordination of emergency response. This person will be responsible for assessing the degree of the emergency; determining the level of response required; and allocating the resources to conduct other emergency operations.

CONTINGENCY PLANS

Contingency Plans for a variety of situations are presented below. The plans are designed around situations which could occur. Any injury requiring a physician's attention will be reported.

1. Physical Injury to Employees

- (a) For minor injuries to employees, such as minor abrasions, bruises, cuts, etc., routine first aid procedures will be administered.
- (b) For major injuries, rescuers will obtain information concerning the nature of the injury from the victim and/or "buddies" (**always use a "buddy" system**).

The nearest emergency response agency will be notified, Telephone Number 911, given as much information as available, and asked to respond to the site. The next call will be to ASARCO security to implement their emergency procedures. The next call will be to the Project Manager to implement administrative procedures (i.e. family notification, medical insurance, etc.).

The rescuers will check for vital signs - breathing, heartbeat rate, respiratory rate.

In the event of cessation of breathing and/or cessation of heartbeat, appropriately trained personnel will administer cardiopulmonary resuscitation.

In the event of bleeding, broken bones, shock, burns, heat related symptoms, etc., the rescuers will use first aid training measures for immediate treatment.

2. Chemical Injury to Employees

- (a) Call nearest response agency. Telephone Number 911.
- (b) Notify Poison Control Center. Telephone Number 1-800-441-0040.
- (c) Notify ASARCO Security
- (d) Rescuers check vital signs.
- (e) Remove affected worker to fresh air.
- (f) If clothing is contaminated and injuries permit, remove clothing and rinse skin with copious amounts of water.
- (g) If eyes are contaminated, irrigate immediately with copious amounts of water for 15 minutes.
- (h) Transport patient to nearest hospital. Nearest hospital is the **Providence Memorial Hospital located at 2001 N. Oregon St., El Paso, Texas**; Phone No. **(915) 577-6551**. Call ahead to inform the facility of the pending arrival of the patient, the nature of the injury, and the expected arrival time. A map and written directions to this facility is provided as an attachment to this contingency plan.
- (i) Notify Project Manager.

3. Localized Fire

- (a) Call local fire department. The nearest responding fire department is **Fire Station #8**. For emergency response, the telephone number is **911**. For non-emergencies, the telephone number is **(915) 832-4432**.
- (b) Notify ASARCO Security.
- (c) Move all personnel to upwind position from fire
- (d) Determine if it is advisable to fight the fire with immediately available equipment
- (e) Advise and direct the fire department, if indicated.

4. Spill of Potentially Dangerous Material

- (a) **Move all personnel to a safe location.**
- (b) Notify ASARCO Security
- (c) Notify Project Manager and appropriate officials.
- (d) Determine if entry into the spill area is deemed necessary and warranted. If so, determine the appropriate level of protective clothing for responders. If the substance is unknown, use level "A" protection.
- (e) Attempt to determine the nature of the material spilled by source of contained, labels, markings, etc.
- (f) If possible, contain the leaking material to prevent spread by using earth dikes, channels, adsorbents, etc.
- (g) If appropriate, suppress vapors with water mist or foam. Collect runoff for evaluation for later disposal.
- (h) If appropriate, cover the material with soil until the most appropriate remedial action can safely occur.
- (i) When the situation is under control, provide all data to the Project Manager for evaluation and further actions.

Equipment Listing

The following equipment will be maintained in a continuous state of readiness to respond to spills or injuries:

- | | |
|------------------------------|-----------------------------|
| First Aid Kits | Emergency Eyewash |
| Stretchers | Telephone |
| Air Monitoring Equipment | 2-way Radios |
| Combustible Gas/Oxygen Meter | Impervious Boots |
| TYVEK Suits | Impervious Gloves |
| Sirens/Horns | Hard Hats |
| Fire Extinguisher | Safety Glasses/face shields |

Water Tanks

Shovels, brooms, water pumps, chemically neutral absorbent materials

Inventory and condition assessment will be performed daily and logged by the Site Safety Officer.

Notification Procedures

In the event of an uncontrolled incident (spill, fire, explosion, etc.) at the SITE, notification of all required regulatory agencies and emergency response entities must be accomplished in a coordinated manner. It is imperative that appropriate project personnel be contacted immediately. The primary on-site person to notify is the Site Safety Officer. Note: VERY IMPORTANT – This person should be a trained OSHA incident commander.

The U.S. Coast Guard National Response Center maintains a 24-hour toll free number to facilitate the reporting of oil and hazardous material spills and to satisfy federal requirements for reporting. The phone number is 1-800-424-8802.

Additional points of contact are:

	<u>Emergency</u>	<u>Non-Emergency</u>
Ambulance Service	911	(915) 832-4432
Police Department	911	(915) 832-4400
Fire Department	911	(915) 832-4432
Providence Hospital	911	(915) 577-6011
Sierra Medical	911	(915) 747-4000

Investigation and Reporting

In the event of an accident or other incident such as an explosion, a theft of hazardous material, or any other event which could conceivably cause public concern or involvement, the Site Safety Officer must notify the appropriate officials. The notification will include the following items:

- a. Name and title of reporting person.
- b. Brief summary of the accident/incident, to include the type of operation, materials involved, as well as the most recent status of any injured parties.
- c. Data of any existing chemical hazard or contamination, e.g. release of cloud, contaminated dust, liquid.
- d. Date and time of the accident/incident.
- e. Location of the accident/incident.
- f. Cause of the accident/incident, if known.
- g. Name, organization, telephone number, and location of the contractor.
- h. Estimated property damage, if applicable.
- i. Nature of damage, effect on contract schedule.
- j. Action taken to date to ensure safety and security.
- k. Other damage or injuries sustained (public or private)

HAZARD ANALYSIS

ACTIVITY Repository Construction / Materials Handling
REVIEWED BY/DATE

ANALYSIS DATE 01-29-04

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Daily inspection of equipment	Fuel/lubricant leaks, sharp objects/edges, falling objects	Appropriate clothing, footwear, gloves, and hard hat
Excavator/Loader Setup	Utilities damage - electric/gas/water; injury to personnel	Maintain clearance from power lines per 29 CFR 1926.550 (a)(15). Utilize back-up alarms/signaling personnel; have utilities located as required
Excavation of In-Situ Soils	Metals contaminated soils/metal slag//trash/fluids	"C" protective clothing and equipment. Air-purifying respirator based on air monitoring results or if directed by Site Safety Officer
Loading and Hauling of Category I Materials	Metals contaminated soils/metal slag//trash/fluids	"C" protective clothing and equipment. Air-purifying respirator based on air monitoring results or if directed by Site Safety Officer
Decontamination	Contaminated soils/trash/fluids	"C" protective clothing and equipment
Excavator/Loader tear down	As in set-up	As in setup
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Excavator/Loader	Prior to use each day	Utilize only experienced equipment operators and crew
		40-Hr. HAZWOPER per 29CFR 1910.120

HAZARD ANALYSIS

ACTIVITY Repository Construction

ANALYSIS DATE 01-29-04

REVIEWED BY/DATE _____

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Daily inspection of equipment	Fuel/lubricant leaks, sharp objects/edges, falling objects	Appropriate clothing, footwear, gloves, and hard hat
Heavy Equipment Setup	Utilities damage - electric/gas/water; injury to personnel	Maintain clearance from power lines per 29 CFR 1926.550 (a)(15). Utilize back-up alarms/signalling personnel; have utilities located as required
Installation of repository liner system & final cover	Power transmission, rotating equipment	Provide adequate clearance. Do not work on equipment in motion. "D" protective clothing and equipment
Excavator/Loader tear down	As in set-up	As in set-up
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Excavator/Loader	Prior to use each day	Utilize only experienced equipment operators and crew

HAZARD ANALYSIS

ACTIVITY: Heavy Lifting

ANALYSIS DATE: 01-29-04

REVIEWED BY/DATE:

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Lifting	Muscle strain/sprain	1) Utilize proper lifting technique - use the legs, not the back. 2) Utilize mechanical aids if object too heavy to lift safely. 3) Use additional personnel.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Appropriate to lifting task		Refresher provided by Site Safety Officer prior to project commencement.

HAZARD ANALYSIS

ACTIVITY: Heat Stress

ANALYSIS DATE: 01-29-04

REVIEWED BY/DATE: _____

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Physical activity	Heat exhaustion/heat stroke	1) Wear appropriate clothing, where possible. 2) Take frequent breaks. 3) Drink cool water frequently - pre-hydrate yourself prior to activity commencement. 4) Alert your supervisor if you experience symptoms.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Appropriate clothing - where possible		Heat stress
Cool supply - drinking water		

HAZARD ANALYSIS

ACTIVITY: Holes and uneven walking surfaces

ANALYSIS DATE: 01-29-04

REVIEWED BY/DATE: _____

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Walking or movement	Falls/slips	1) Good visual inspection of path in front of employee. 2) Test footing.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	
Appropriate footwear	Daily - for use by Site Safety Officer	

HAZARD ANALYSIS

ACTIVITY: Decontamination

ANALYSIS DATE: 01-29-04

REVIEWED BY/DATE: _____

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
1) Outfit decon site	Material handling.	Use safe lifting technique; mechanical assistance where warranted.
2) Wash; triple rinse equip & clothing, boots, etc	Splash hazard Heat stress	Appropriate PPE. Ingestion of adequate fluids and appropriate rest periods Use transfer pump for waste liquids to transport containers.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
wading pools.		40 Hrs HazMat
Detergent; clean water for wash and rinse.		
Brushes.		
Face shield, apron, etc.		
Waste water containers.		
Pump.		
Steam cleaner.		

REAL TIME AIR SAMPLING FREQUENCY

LOCATION	INSTRUMENT	FREQUENCY
Materials Handling	(1) Explosimeter/ Oxygen meter (2) Heavy metals analyzer (3) PID	(1) At the start of each shift and at regular intervals during drilling/sampling activities. (2) As in (1) above.
Liquid sampling	(1) Explosimeter/ Oxygen meter (2) PID	Same as above.
Borings Sampling	PID and/or Explosimeter/Oxygen meter	Continuous.
Decontamination Area	PID and/or explosimeter	As required.

REAL TIME AIR MONITORING PROGRAM

INSTRUMENT	ACTION LEVEL	RESPONSE
Combustible Gas Indicator	10% of LEL	Do not enter, ventilate area
Oxygen Meter	<19.5% in breathing zone	Do not enter, ventilate area
Heavy Metals Analyzer <i>*OSHA permissible exposure limits for an 8-hour time weighted average for constituents of concern are as follows:</i>	Arsenic = 0.010 mg/m ³ Cadmium = 0.005 mg/m ³ Lead = 0.050 mg/m ³ Zinc = 5.0 mg/m ³ .	Wear Air-purifying respirator as directed by Site Safety Officer. Do not enter, ventilate area.
PID	200 ppm	Ventilate area, don 1/2 face respirator with organic vapor cartridge

HEAT STRESS PREVENTION PLAN

INTRODUCTION

Due to the increase in ambient air temperatures and the effects of protective outer wear decreasing body ventilation, there exists an increase in the potential for injury, specifically, heat casualties. Site personnel will be instructed in the identification of a heat stress victim, the first-aid treatment procedures for the victim and the procedures for the victim and the prevention of heat stress casualties.

IDENTIFICATION AND TREATMENT

1. Heat Exhaustion

Symptoms

Heat exhaustion usually begins with muscular weakness, dizziness, nausea, and a staggering gait. Vomiting is frequent. The bowels may move involuntarily. The victim is very pale, the skin is clammy, and victim may perspire profusely. The pulse is weak and fast, and breathing shallow. The victim may faint unless allowed to lie down. This may pass, but sometimes it remains and death may occur.

First Aid

Immediately remove the victim to the Decontamination Area in a shady or cool area with good air circulation. Remove all protective outer wear. Call a physician. Treat the victim for shock (Lie victim down, elevate feet 6 to 12 inches and keep warm but loosen clothing). Allow victim to sip a salt water solution (1 teaspoon salt to 1 teaspoon water), if conscious. Transport victim to medical facility as soon as possible.

2. Heat Stroke

Symptoms

Body temperatures are between 107 to 110 degrees. First there is often pain in the head, dizziness, nausea, oppression, and the skin is dry, red, and hot. Unconsciousness follows quickly and death is imminent if exposure continues. The attack will usually occur suddenly.

First Aid

Immediately evacuate the victim to a cool and shady area in the Decontamination Area. Remove all protective outer wear and all personal clothing. Lay victim on back with the head and shoulders slightly elevated. It is imperative that the body temperature be lowered immediately by applying cold wet towels, ice bags, etc. to the head. Sponge off the bare skin with cool water or rubbing alcohol, if available, or even place victim in a tub of cool water. The main objective is to cool, but not chill the victim. Give no stimulants. Transport the victim to a medical facility as soon as possible.

PREVENTION OF HEAT STRESS

One of the main causes of heat casualties is the depletion of body fluids. On the site there will be plenty of fluids available. Personnel should replace water and salts lost from sweating. Salts can be replaced by either a 0.1 percent salt solution, more heavily salted foods, or commercial mixes such as Gatorade. Intake of commercial mixes should be mixed with equal volumes of water as anecdotal evidence shows a link to kidney stones possibly stemming from high intake levels.

A work schedule should be established so that the majority of the work day will be during the morning hours before ambient air temperature reaches its highest level. A work/rest schedule will be implemented for personnel required to wear level C (or modified D, depending on modifications) protection. This guideline is as follows:

Ambient Temperatures	Maximum Wearing Time
Above 90 degrees	1 hour
80 to 90 degrees	2 hours
70 to 80 degrees	3 hours
60 to 70 degrees	4 hours

Each work period must be followed by a 30 minute rest period. Times must be modified dependant on workload, worker fitness, and other factors affecting the ability of the body to normalize.

A sufficient period will be allowed for personnel to "cool down".

Acclimatized individuals will be able to extend wearing times. However, care should be exercised to insure individuals do not become overly exposed.

HEAT STRESS MONITORING

For monitoring the body's recuperative ability to excess heat, one or more of the following techniques will be used as a screening mechanism. Monitoring of personnel wearing protective

clothing should commence when the ambient air temperature is 70 degrees Fahrenheit or above. Frequency of monitoring should increase as the ambient air temperature increases or if slow recovery rates are indicated. When temperatures exceed 80 degrees Fahrenheit, workers will be monitored for heat stress after every work period.

The heart rate will be measured by the radial pulse for 30 seconds as early as possible in the resting period. The heart rate at the beginning of the rest period should not exceed 110 beats per minute. If the heart rate is higher, the next work period will be shortened by ten minutes, while the length of the rest period will stay the same. If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle will be shortened by thirty-three percent.

The body temperature may be measured orally with a clinical thermometer as early as possible in the resting period. Obtaining body temperatures will be determined locally at with the concurrence of the Site Safety Officer and oversight by the assigned Health and Safety Advisor. The oral temperature should not exceed 100 degrees Fahrenheit. If it does, the next work period will be shortened by 10 minutes or thirty-three percent, while the length of the rest period stays the same. The oral temperature should be measured again at the end of the rest period to insure that it has dropped below 100 degrees Fahrenheit.

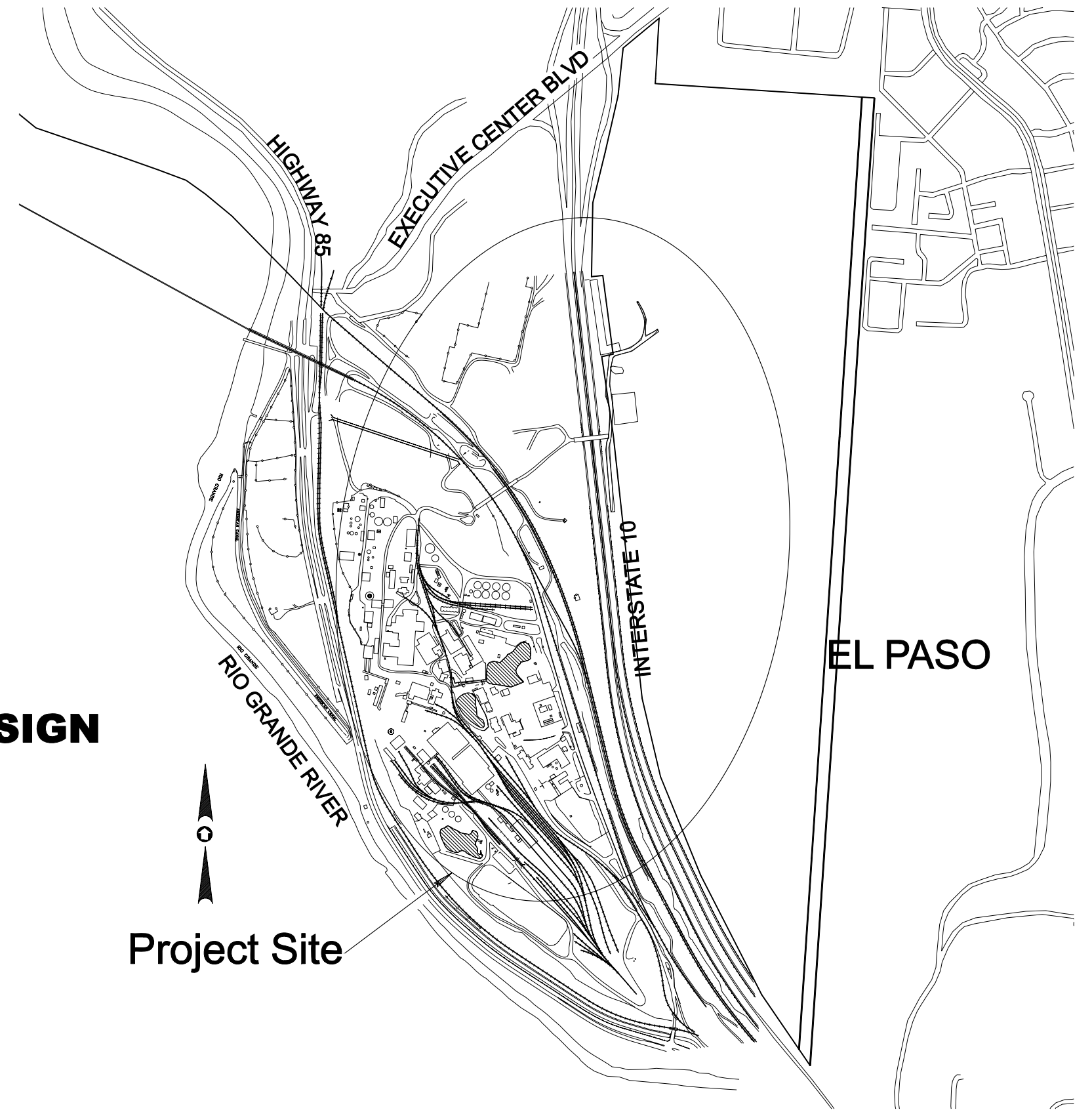
STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
TEXAS	AZ0010860002	1	8	

ARCADIS
8222 South 48th Street, Suite 140
Phoenix, AZ 85044-5353
Tel: 602/438-0883
Fax: 602/438-0102

CONSULTING ENGINEER			
DES: RGG	DR: JBC	CK: RGG	DATE: 09/2005

2005

**ASARCO COPPER SMELTER
EL PASO, TEXAS
REMEDIAL WASTE REPOSITORY DESIGN**



Project Site

SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	Cover Sheet
2	Sheet Index & Earthwork Balance
3	Bench Mark & Control Point Plan
4	Boring Locations Plan
5	Liner/Cover Detail
6	Pond 1 Plan
7	Pond 5 & 6 Plan
8	Pond Sections 1 & 5
9	Existing Category 1 Excavation Sites


EARTHWORK

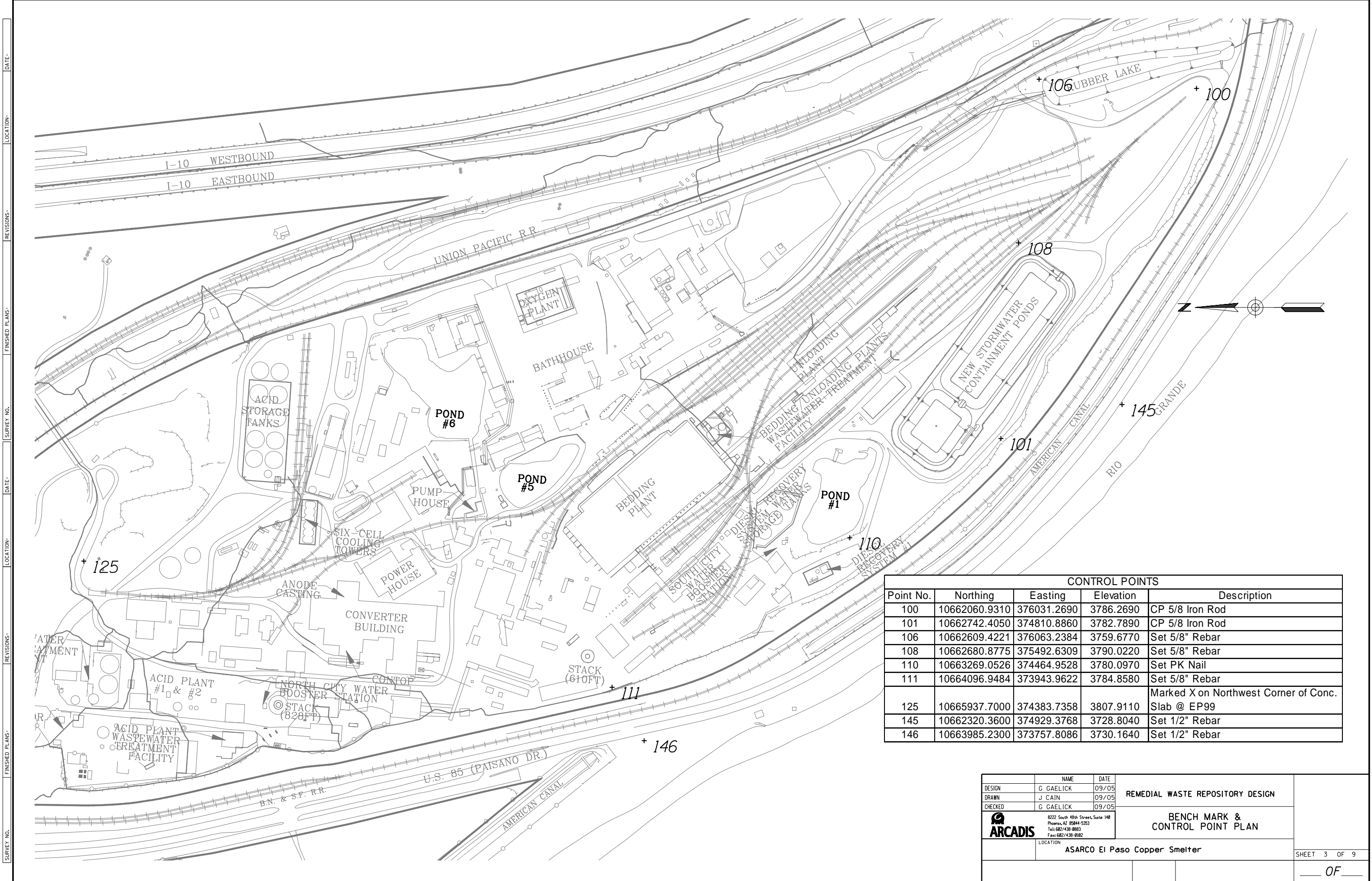
Earthwork Balance (CY)

	Pond 1	Pond 5	Totals
Construction Excavation	49,914	8,916	55,830
Category 1 Waste Excavation from Ponds 1 & 5			<u>(14,076)</u>
Net Available Embankment			41,754
Construction Embankment	656	503	(1,159)
17" Soil Erosion Layer	6,504	2,306	<u>(8,810)</u>
Surplus Non Category 1 Excavation			31,785

Category 1 Material Balance (CY)

Total Category 1 Storage Volume	66,465	15,080	81,545
Category 1 Waste Excavation from Ponds 1, 5, & 6			<u>(26,400)</u>
Net Additional Storage Available in Ponds 1 & 5			55,145

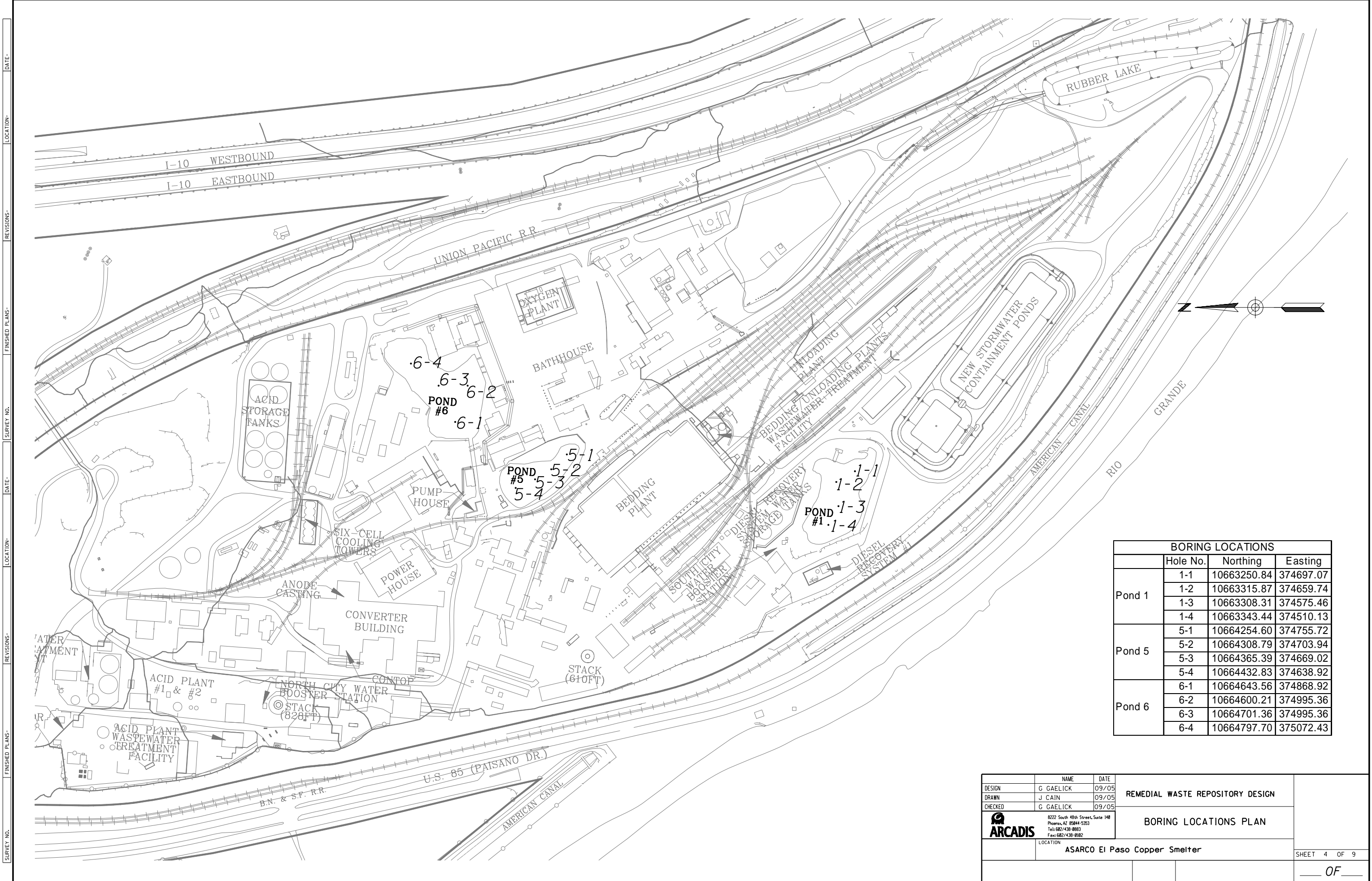
DESIGN	G GAELICK	09/05	REMEDIAL WASTE REPOSITORY DESIGN
DRAWN	J CAIN	09/05	
CHECKED	G GAELICK	09/05	
		8222 South 48th Street, Suite 140 Phoenix, AZ 85044-5353 Tel: 602/438-8883 Fax: 602/438-8182	
LOCATION			ASARCO El Paso Copper Smelter
			SHEET 2 OF 9
			___ OF ___



CONTROL POINTS				
Point No.	Northing	Easting	Elevation	Description
100	10662060.9310	376031.2690	3786.2690	CP 5/8 Iron Rod
101	10662742.4050	374810.8860	3782.7890	CP 5/8 Iron Rod
106	10662609.4221	376063.2384	3759.6770	Set 5/8" Rebar
108	10662680.8775	375492.6309	3790.0220	Set 5/8" Rebar
110	10663269.0526	374464.9528	3780.0970	Set PK Nail
111	10664096.9484	373943.9622	3784.8580	Set 5/8" Rebar
125	10665937.7000	374383.7358	3807.9110	Marked X on Northwest Corner of Conc. Slab @ EP99
145	10662320.3600	374929.3768	3728.8040	Set 1/2" Rebar
146	10663985.2300	373757.8086	3730.1640	Set 1/2" Rebar

DESIGN	G GAELICK	09/05	REMEDIAL WASTE REPOSITORY DESIGN
DRAWN	J CAIN	09/05	
CHECKED	G GAELICK	09/05	
8222 South 48th Street, Suite 148 Phoenix, AZ 85044-5353 Tel: 602/438-8883 Fax: 602/438-8182			BENCH MARK & CONTROL POINT PLAN
LOCATION			ASARCO El Paso Copper Smelter
			SHEET 3 OF 9
			OF

SURVEY NO. _____ DATE _____ REVISIONS- _____ FINISHED PLANS- _____ LOCATION- _____ DATE _____ REVISIONS- _____ FINISHED PLANS- _____ LOCATION- _____ DATE _____

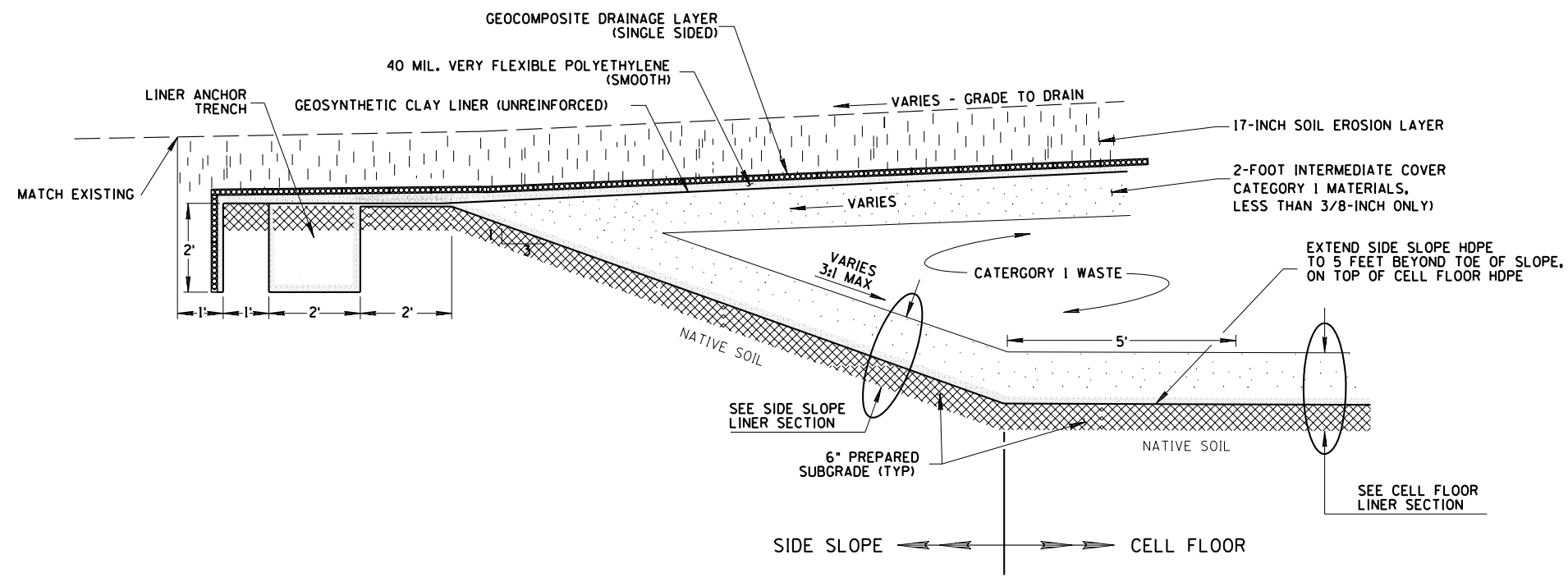


BORING LOCATIONS			
	Hole No.	Northing	Easting
Pond 1	1-1	10663250.84	374697.07
	1-2	10663315.87	374659.74
	1-3	10663308.31	374575.46
	1-4	10663343.44	374510.13
Pond 5	5-1	10664254.60	374755.72
	5-2	10664308.79	374703.94
	5-3	10664365.39	374669.02
	5-4	10664432.83	374638.92
Pond 6	6-1	10664643.56	374868.92
	6-2	10664600.21	374995.36
	6-3	10664701.36	374995.36
	6-4	10664797.70	375072.43

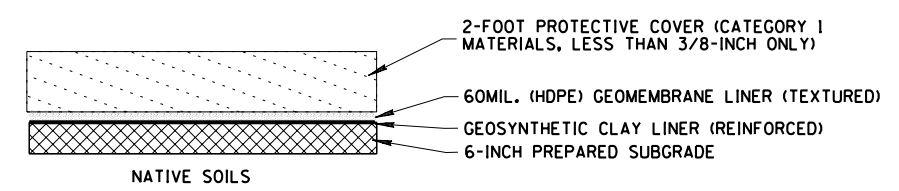
DESIGN	G GAELICK	09/05	REMEDIAL WASTE REPOSITORY DESIGN
DRAWN	J CAIN	09/05	
CHECKED	G GAELICK	09/05	
8222 South 48th Street, Suite 148 Phoenix, AZ 85044-5353 Tel: 602/438-8883 Fax: 602/438-8182			BORING LOCATIONS PLAN
LOCATION ASARCO El Paso Copper Smelter			SHEET 4 OF 9
			OF

SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE FINISHED PLANS SURVEY NO. DATE REVISIONS LOCATION DATE

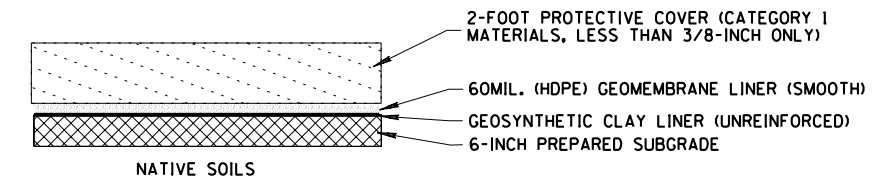
DATE - LOCATION - REVISIONS - FINISHED PLANS - SURVEY NO. DATE - LOCATION - REVISIONS - FINISHED PLANS - SURVEY NO.




TYPICAL FINAL COVER AND LINER DETAIL
NTS



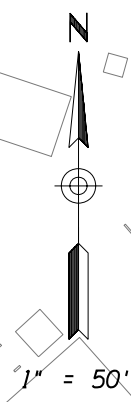
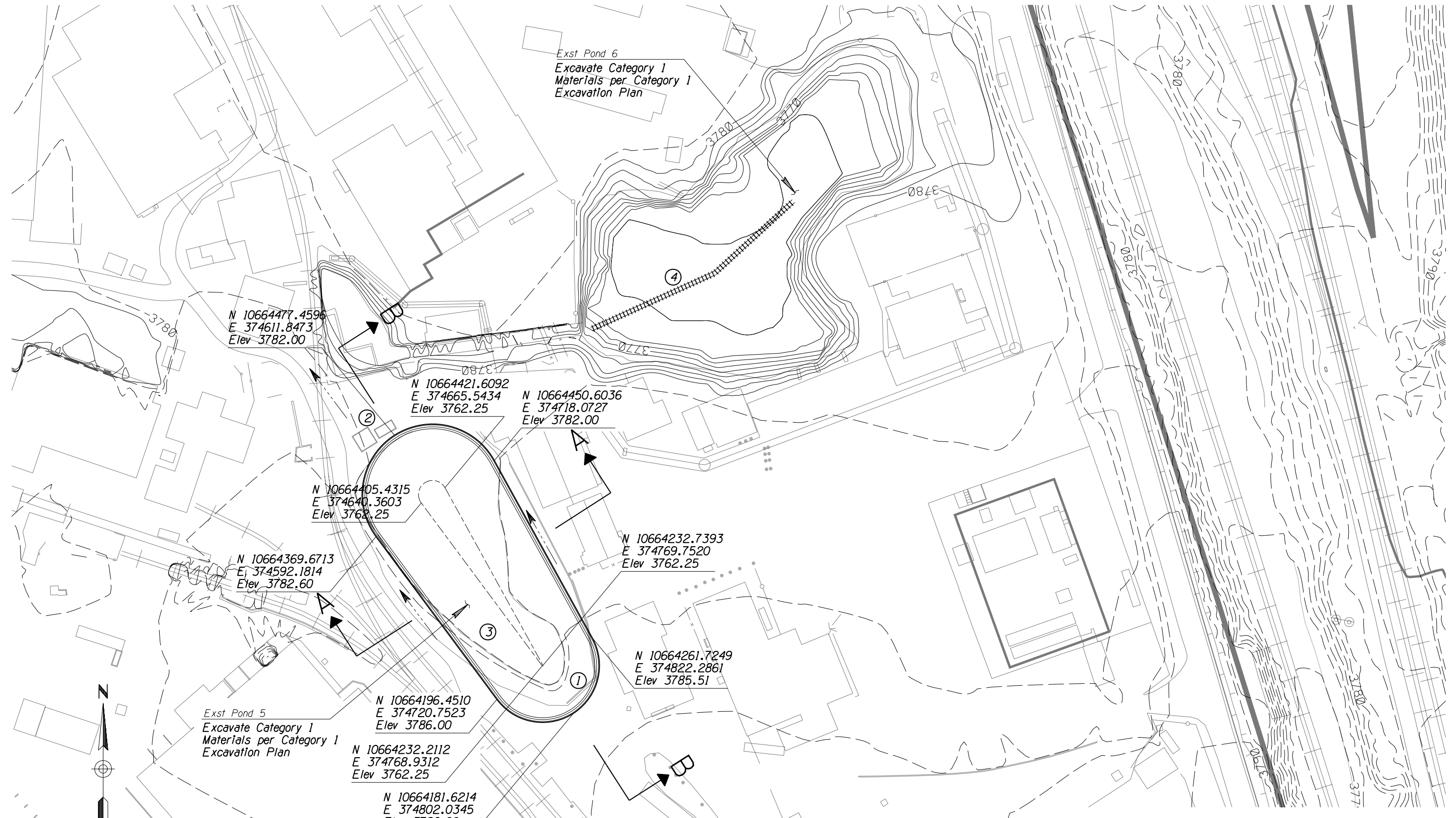
TYPICAL LINER SECTION (SIDE SLOPE)
NTS



TYPICAL LINER SECTION (CELL FLOOR)
NTS

DESIGN	G GAELICK	09/05	REMEDIAL WASTE REPOSITORY DESIGN
DRAWN	J CAIN	09/05	
CHECKED	G GAELICK	09/05	
 8222 South 48th Street, Suite 148 Phoenix, AZ 85044-5353 Tel: 602/438-8883 Fax: 602/438-8182			LINER/COVER DETAIL PONDS 1 & 5
LOCATION			ASARCO El Paso Copper Smelter
			SHEET 5 OF 9
			OF

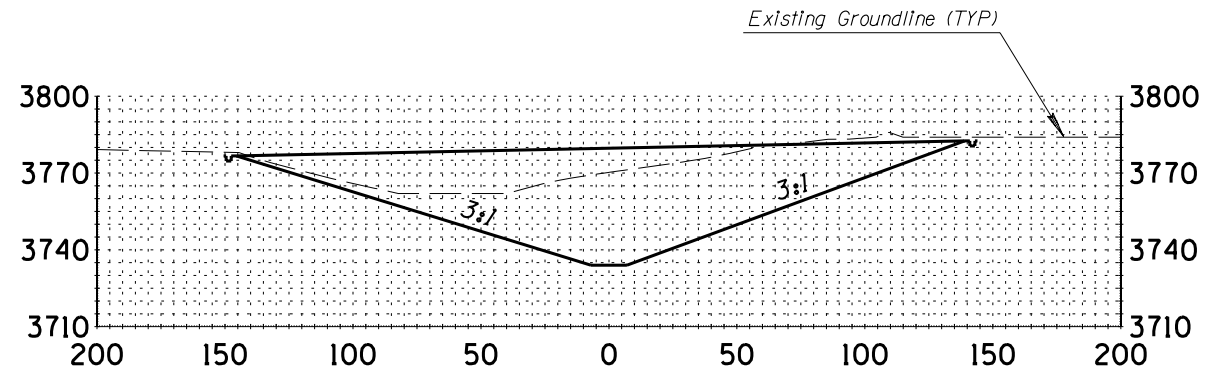
SURVEY NO. FINISHED PLANS REVISIONS DATE LOCATION REVISIONS DATE FINISHED PLANS SURVEY NO. REVISIONS DATE LOCATION REVISIONS DATE FINISHED PLANS SURVEY NO.



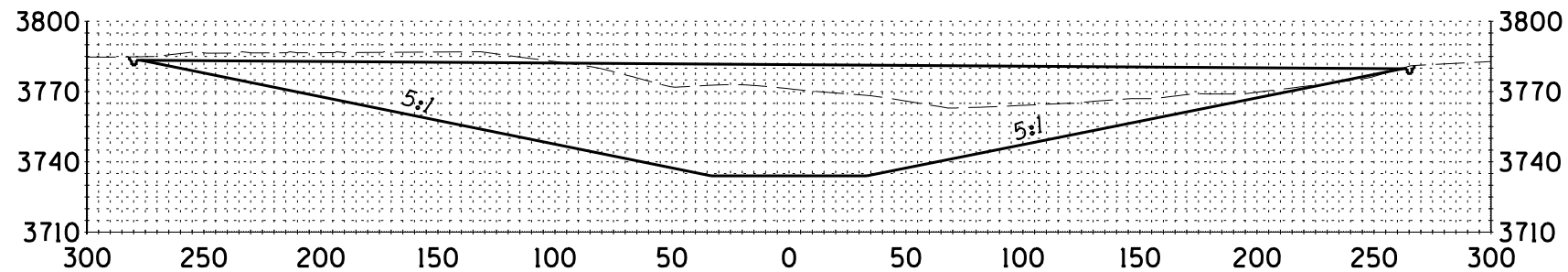
- ① Existing Concrete Block Wall - To Be Removed
- ② Existing Cooling Tower and Pipe - To Be Removed as Directed by Owner
- ③ Existing Filter Dam - To Be Removed
- ④ Existing Wood Gantry & Pipe - To Be Removed
Salvage Wood and Pipe as Directed by Owner

DESIGN	G GAELICK	09/05	REMEDIAL WASTE REPOSITORY DESIGN
DRAWN	J CAIN	09/05	
CHECKED	G GAELICK	09/05	
8222 South 48th Street, Suite 148 Phoenix, AZ 85044-5353 Tel: 602/438-8883 Fax: 602/438-8182			POND 5 & 6 PLAN
LOCATION			ASARCO El Paso Copper Smelter
			SHEET 7 OF 9
			OF

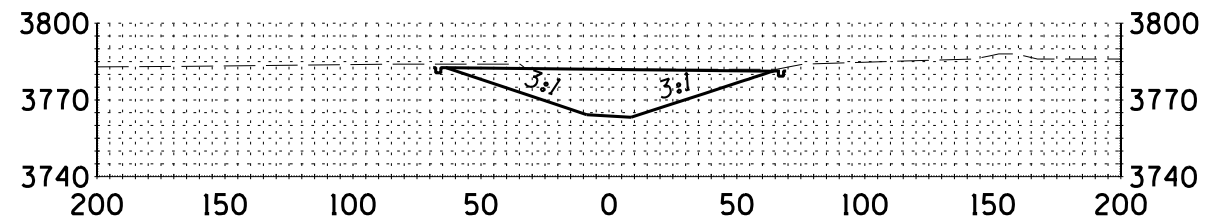
SURVEY NO. FINISHED PLANS REVISIONS DATE LOCATION DATE REVISIONS FINISHED PLANS SURVEY NO. DATE REVISIONS LOCATION DATE



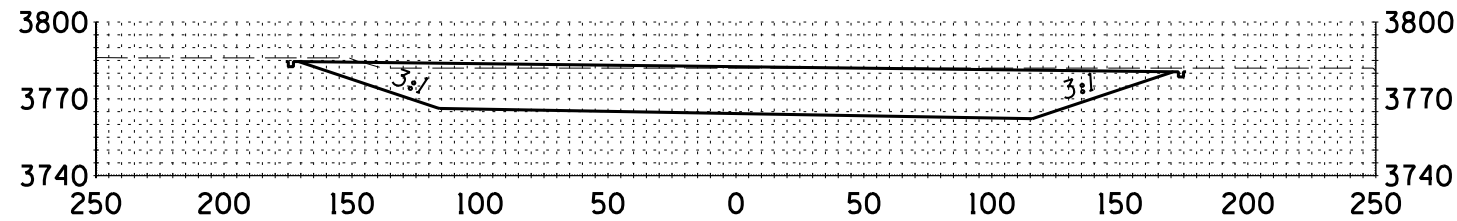
SECTION A-A
Pond 1



SECTION B-B
Pond 1

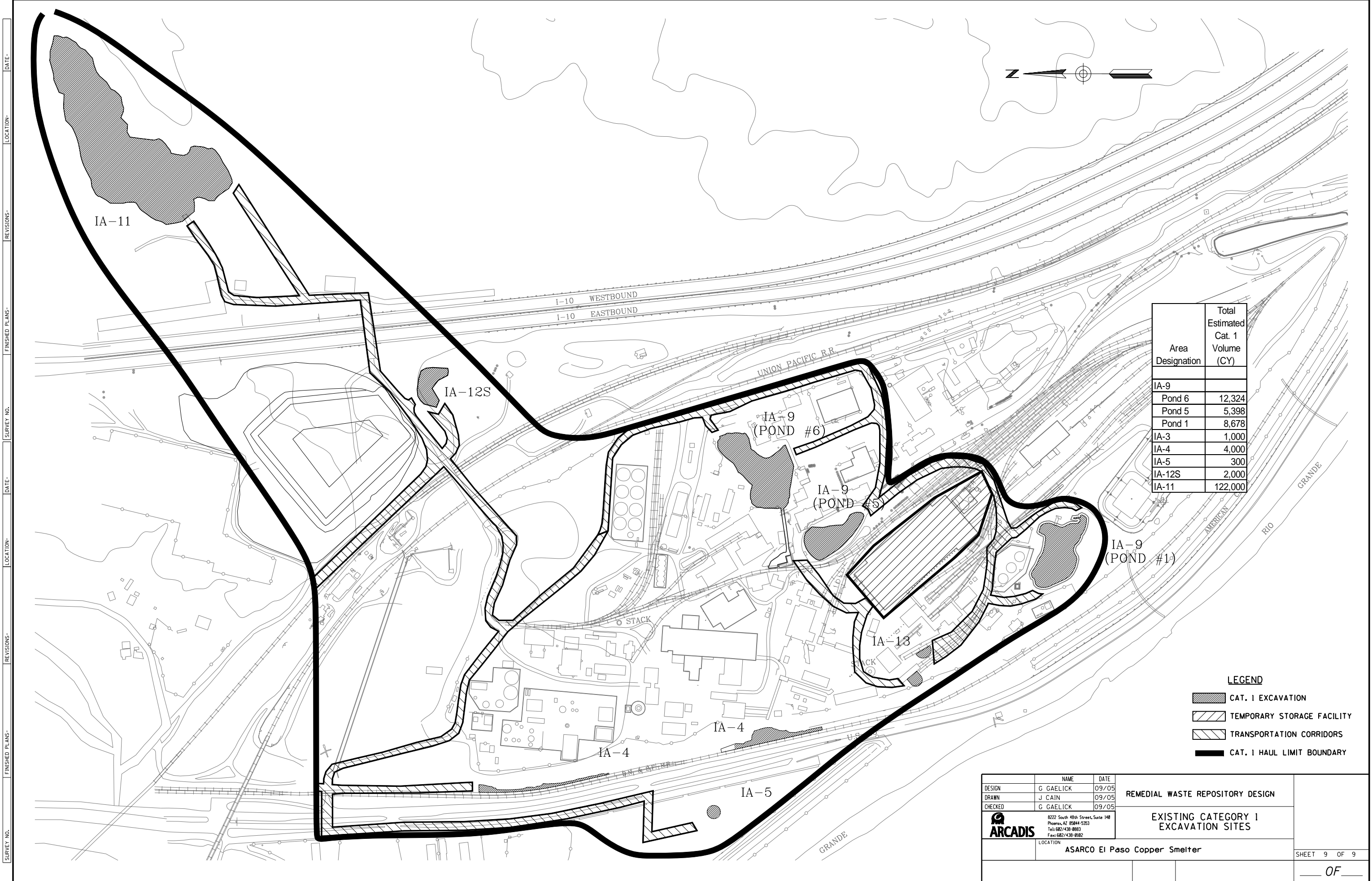


SECTION A-A
Pond 5

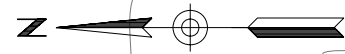


SECTION B-B
Pond 5

DESIGN	G GAELICK	09/05	REMEDIAL WASTE REPOSITORY DESIGN
DRAWN	J CAIN	09/05	
CHECKED	G GAELICK	09/05	
8222 South 48th Street, Suite 148 Phoenix, AZ 85044-5353 Tel: 602/438-8883 Fax: 602/438-8182			POND SECTIONS 1 & 5
LOCATION			ASARCO El Paso Copper Smelter
			SHEET 8 OF 9
			___ OF ___



SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE



Area Designation	Total Estimated Cat. 1 Volume (CY)
IA-9	
Pond 6	12,324
Pond 5	5,398
Pond 1	8,678
IA-3	1,000
IA-4	4,000
IA-5	300
IA-12S	2,000
IA-11	122,000

LEGEND

	CAT. 1 EXCAVATION
	TEMPORARY STORAGE FACILITY
	TRANSPORTATION CORRIDORS
	CAT. 1 HAUL LIMIT BOUNDARY

DESIGN	G GAELICK	09/05	REMEDIAL WASTE REPOSITORY DESIGN
DRAWN	J CAIN	09/05	
CHECKED	G GAELICK	09/05	
8222 South 48th Street, Suite 148 Phoenix, AZ 85044-5353 Tel: 602/438-8883 Fax: 602/438-8182			EXISTING CATEGORY 1 EXCAVATION SITES
LOCATION			ASARCO El Paso Copper Smelter
			SHEET 9 OF 9
			OF

Appendix G Project Drawings and Specifications – Category I
Excavation and Landfills

G.2 Cell 3 Drawings

ASARCO, INC EL PASO FACILITY

EL PASO

TEXAS

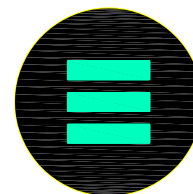
POND 6 CONCEPTUAL DESIGN—REV 1

PREPARED FOR:



8222 SOUTH 48TH STREET
PHOENIX, ARIZONA 85044

PREPARED BY:

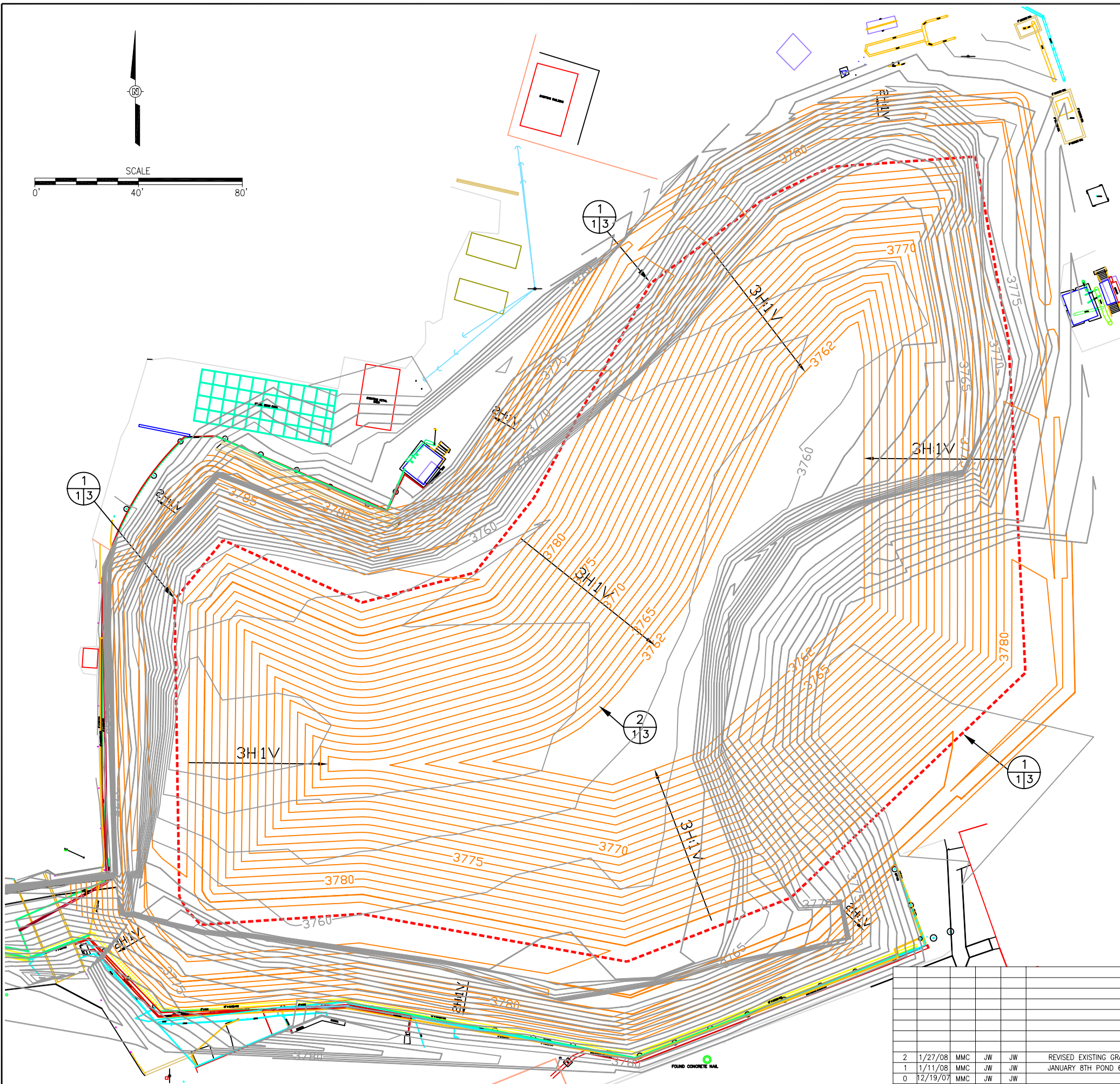
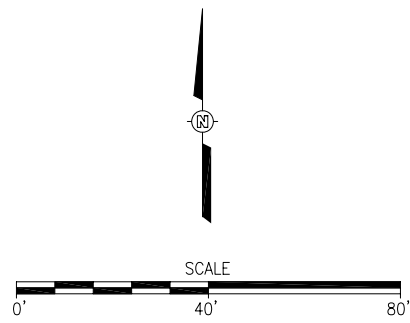


ENTACT

JANUARY 2008

DESIGN DRAWINGS:

COVER SHEET
DRAWING #1 - POND 6 SUBGRADE GRADING VOLUME ANALYSIS
DRAWING #2 - POND 6 INTERMEDIATE LAYER VOLUME ANALYSIS
DRAWING #3 - CONSTRUCTION DETAILS
DRAWING #4 - POND 6 25-YEAR STORMWATER ANALYSIS



LEGEND:

- EXISTING GRADE CONTOUR ~1765~
- PROPOSED SUBGRADE CONTOUR ~50~
- BOTTOM LINER LIMIT (70,550 SQFT-NEAT) - - - - -

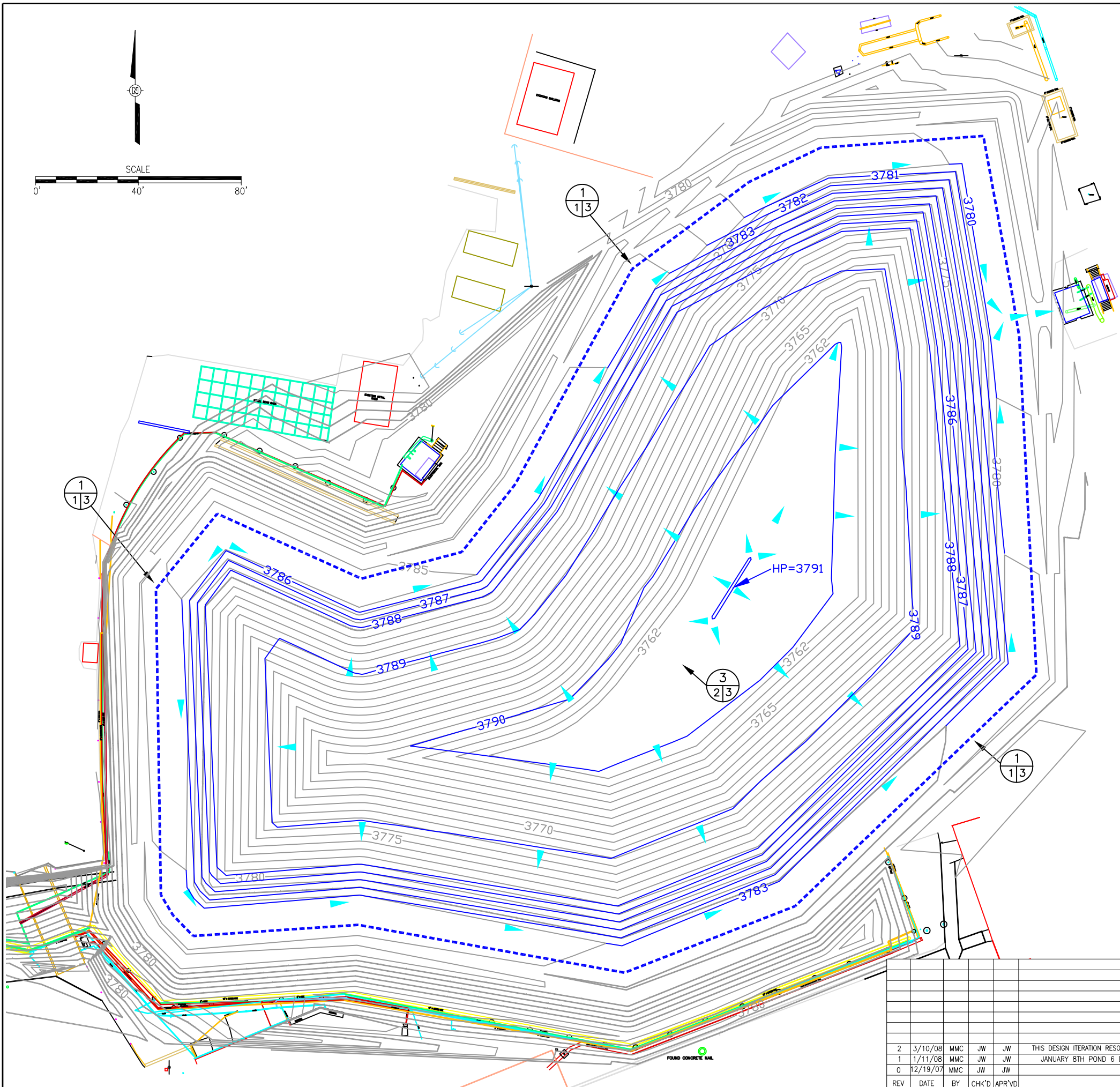
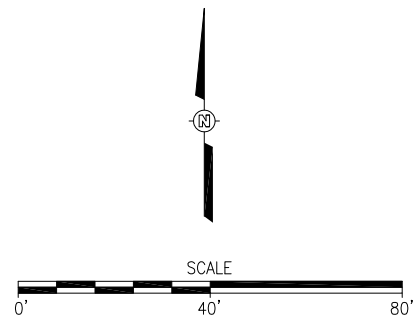
VOLUME REPORT:

STRATUM	CUT (C.Y.)	FILL (C.Y.)	NET (C.Y.)
PRELIMINARY POND EXCAVATION VOLUME (ASSUMES 6" CUT FOR POND SIDE SLOPES & 1" CUT ACROSS POND BOTTOM)	2,530	0	2,530
TOTAL VOLUME REQUIRED TO ACHIEVE PROPOSED SUBGRADE ELEVATIONS ONCE PRELIMINARY POND EXCAVATION IS COMPLETE	3,977	39,332	35,355
INITIAL 2 FT PRO COVER LAYER	0	4,663	4,663

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION
2	1/27/08	MMC	JW	JW	REVISED EXISTING GRADE CONTOURS UTILIZED FOR SUBGRADE DESIGN VOLUMES
1	1/11/08	MMC	JW	JW	JANUARY 8TH POND 6 DESIGN COMMENTS FROM ASARCO FACTORED INTO REV 1
0	12/19/07	MMC	JW	JW	ISSUED FOR REVIEW

699 South Friendswood Dr., Suite 101
Friendswood, Texas 77546
P: 281-996-9892

DRAWING NAME		DRAWING 1		
PROJECT NAME & LOCATION		POND 6 SUBGRADE GRADING VOLUME ANALYSIS ASARCO, INC EL PASO FACILITY EL PASO, TEXAS		
DESIGNED BY	M. CARLSON	CHECKED BY	J. WESCOTT	REVISION
DRAWN BY	M. CARLSON	APPROVED BY	J. WESCOTT	1
DATE	12-19-07	DATE	12-19-07	SHEET NO.
PROJECT NO.	D7024	DRAWING NO.	C-D7024-001	1 OF 4



LEGEND:

- EXISTING/SUBGRADE GRADE CONTOUR ~1765~
- PROPOSED INTERMEDIATE LAYER CONTOUR ~50~
- FINAL LINER LIMIT (77,037 SQFT-NEAT) - - - - -
- STORMWATER DRAINAGE DIRECTION ▶

VOLUME REPORT:

STRATUM	CUT (C.Y.)	FILL (C.Y.)	NET (C.Y.)
TOTAL VOLUME REQUIRED TO ACHIEVE PROPOSED INTERMEDIATE LAYER ELEVATIONS	0	36,202	36,202*
2 FT INTERMEDIATE LAYER	0	4,525	4,525
* INCLUDES THE VOLUMES FOR BOTH THE PRO COVER & INTERMEDIATE LAYERS (BOTTOM LAYER=4,663 CYDS; TOP LAYER=4,540 CYDS)			

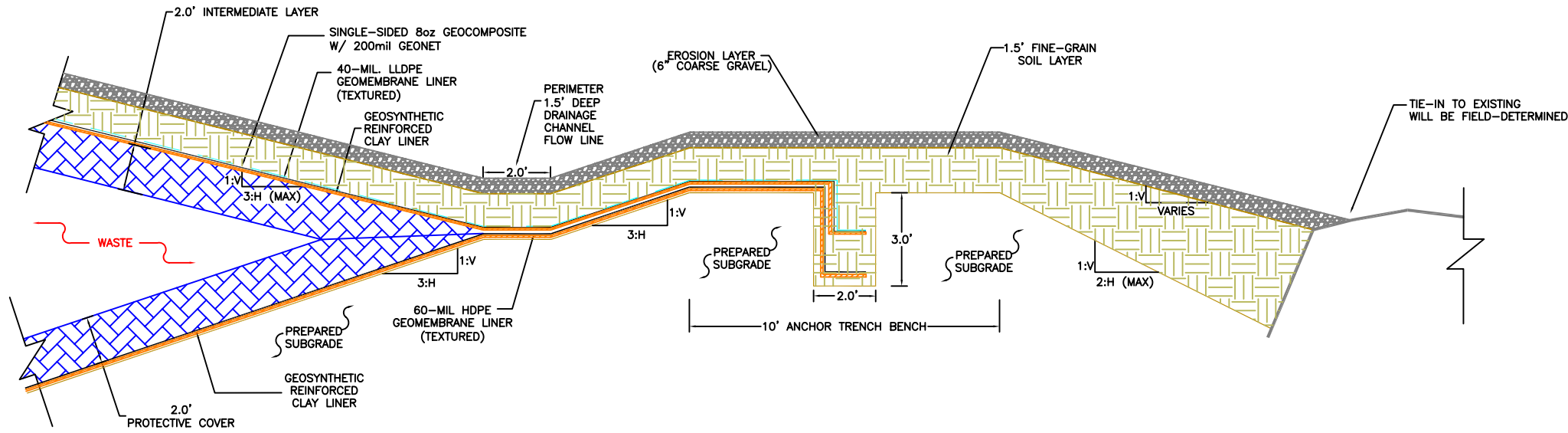
REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION
2	3/10/08	MMC	JW	JW	THIS DESIGN ITERATION RESOLVES THE ISSUES SURROUNDING THE 68,000 VOLT POWER LINE
1	1/11/08	MMC	JW	JW	JANUARY 8TH POND 6 DESIGN COMMENTS FROM ASARCO FACTORED INTO REV 1
0	12/19/07	MMC	JW	JW	ISSUED FOR REVIEW

699 South Friendswood Dr., Suite 101
Friendswood, Texas 77546
P: 281-996-9892

DRAWING NAME		DRAWING 2		
PROJECT NAME & LOCATION		POND 6 INTERMEDIATE LAYER VOLUME ANALYSIS ASARCO, INC EL PASO FACILITY EL PASO, TEXAS		
PREPARED BY	M. CARLSON	CHECKED BY	J. WESCOTT	REVISION
DRAWN BY	M. CARLSON	APPROVED BY	J. WESCOTT	2
DATE	12-19-07	DATE	12-19-07	SHEET NO.
PROJECT NO.	D7024	DRAWING NO.	C-D7024-002	2 OF 4

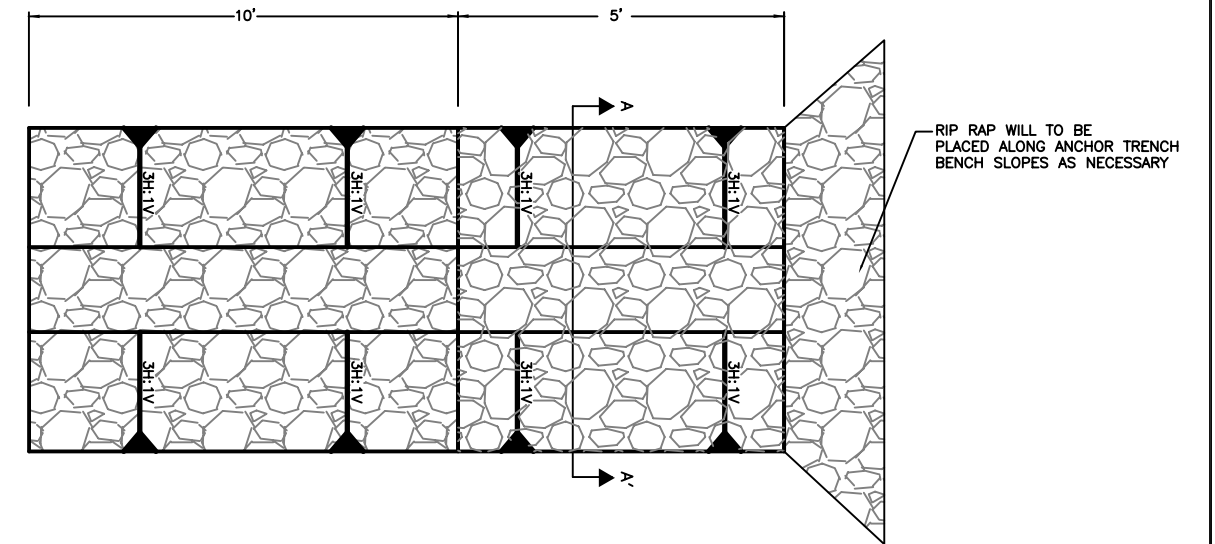
1
1 3

ANCHOR TRENCH DETAIL (NTS)



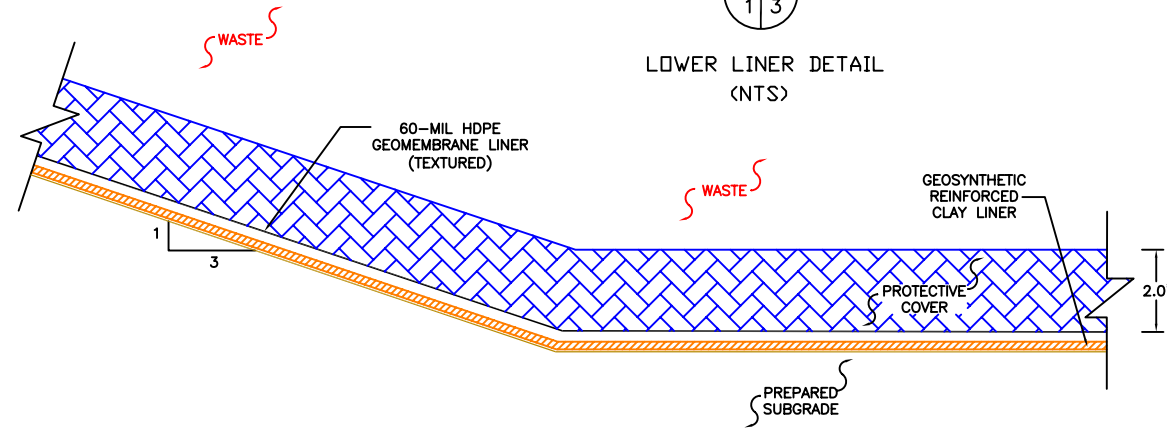
4
4 3

OUTFALL DETAIL (NTS)



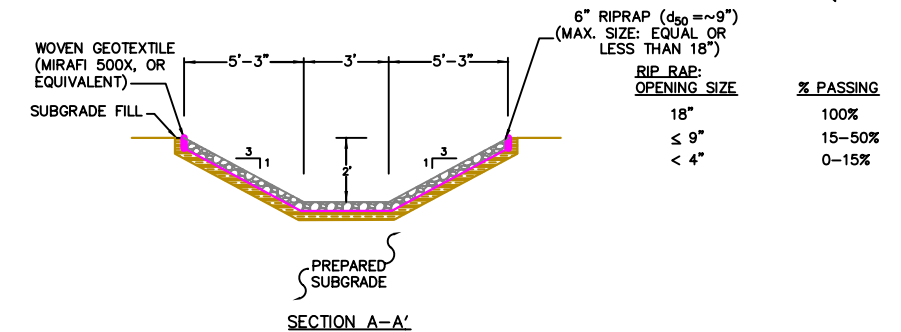
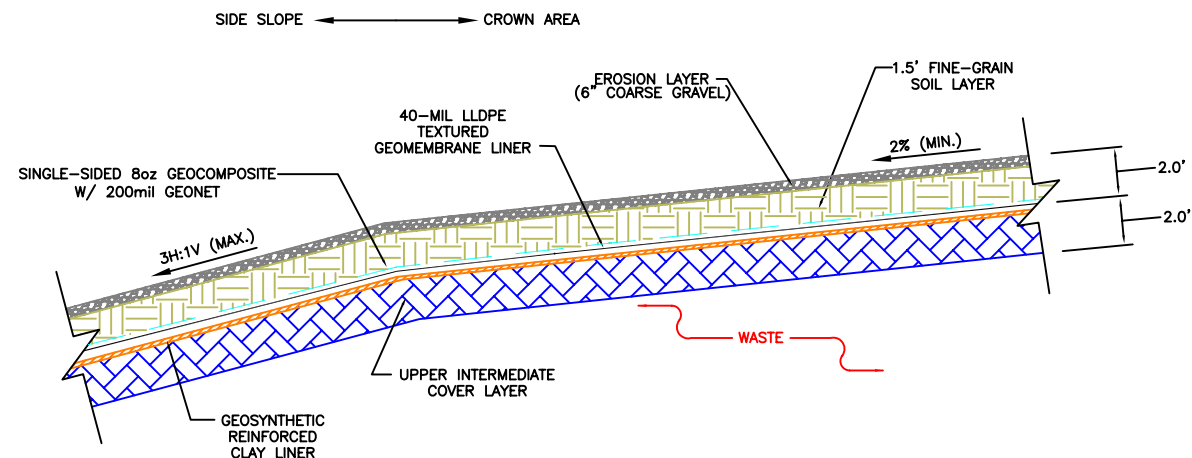
2
1 3

LOWER LINER DETAIL (NTS)



3
2 3

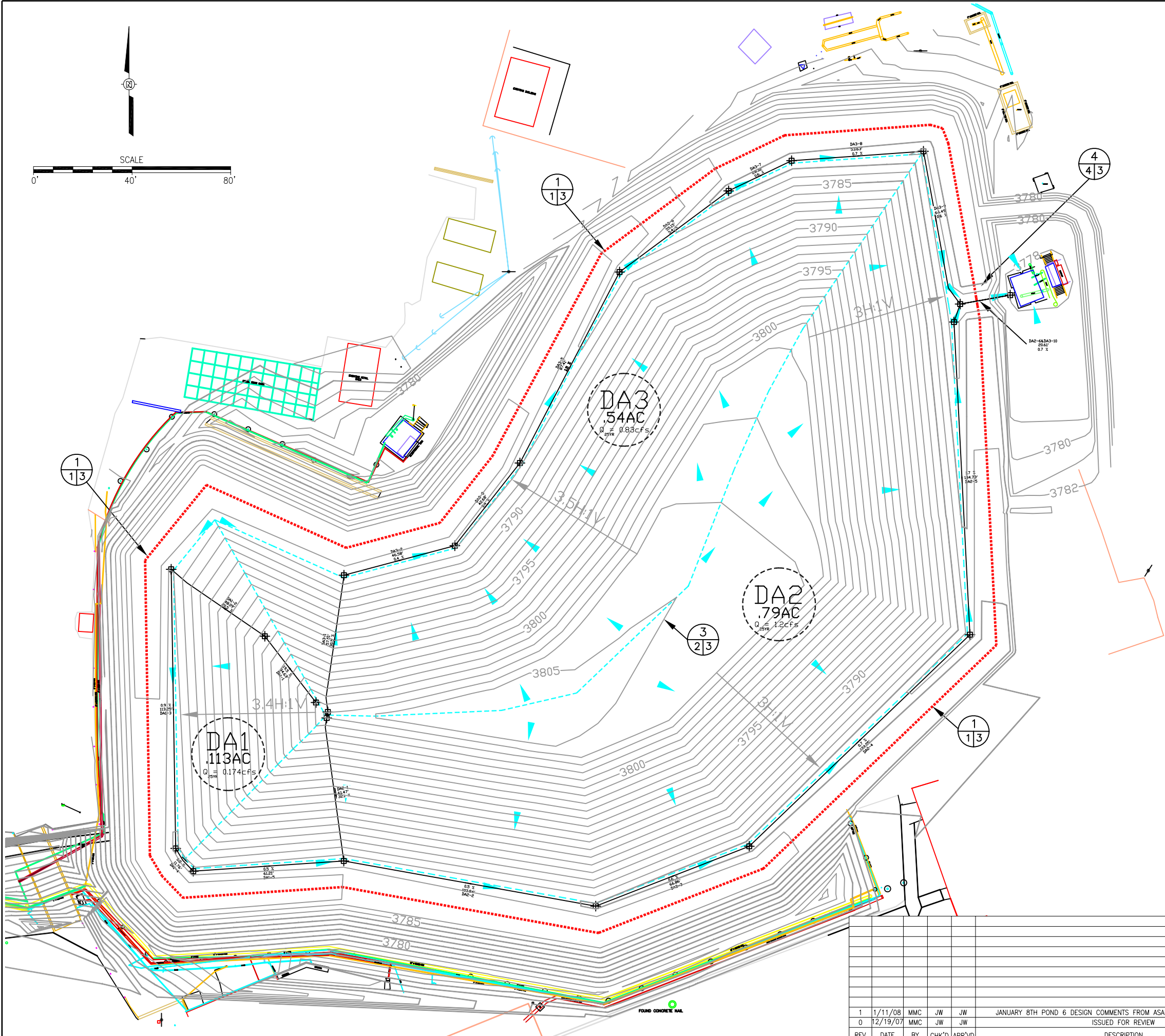
UPPER LINER/SOIL COVER LAYER DETAIL (NTS)



699 South Friendswood Dr., Suite 101
Friendswood, Texas 77546
P: 281-996-9892

DRAWING NAME		DRAWING 3		
PROJECT NAME & LOCATION		CONSTRUCTION DETAILS ASARCO, INC EL PASO FACILITY EL PASO, TEXAS		
DESIGNED BY	M. CARLSON	CHECKED BY	J. WESCOTT	REVISION
DRAWN BY	M. CARLSON	APPROVED BY	J. WESCOTT	1
DATE	12-19-07	DATE	12-19-07	SHEET NO.
PROJECT NO.	D7024	DRAWING NO.	C-D7024-001	3 OF 4


REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION
1	1/11/08	MMC	JW	JW	JANUARY 8TH POND 6 DESIGN COMMENTS FROM ASARCO FACTORED INTO REV 1
0	12/19/07	MMC	JW	JW	ISSUED FOR REVIEW



- LEGEND:**
- EXISTING/FINAL GRADE CONTOUR ~1765~
 - FINAL LINER LIMIT - - - - -
 - DRAINAGE AREA BOUNDARY - - - - -
 - TIME OF CONCENTRATION LINES +-----+
 - STORMWATER DRAINAGE DIRECTION ▶

NOTES:

- RATIONAL METHOD UTILIZED FOR STORMWATER ANALYSIS.

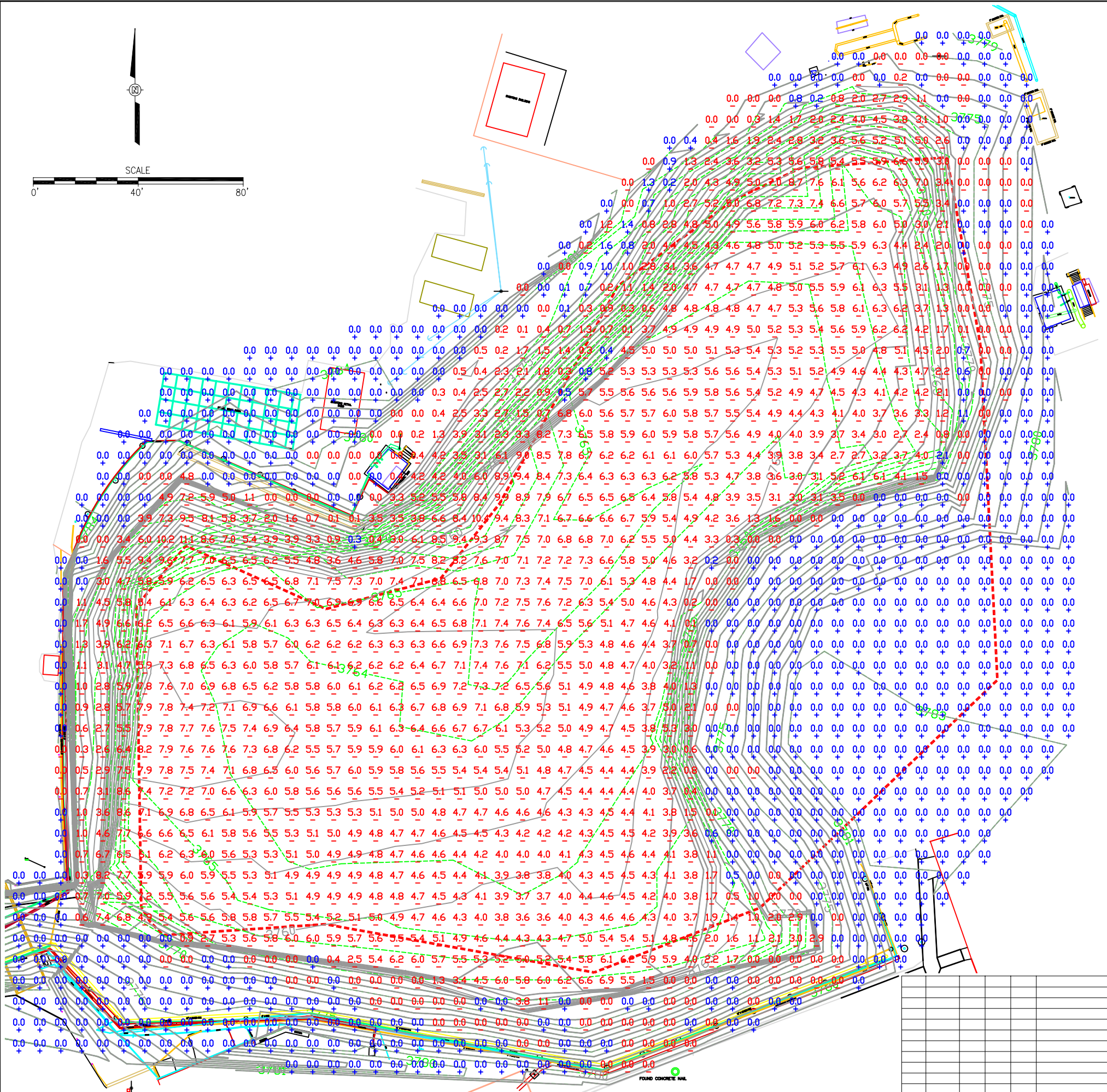
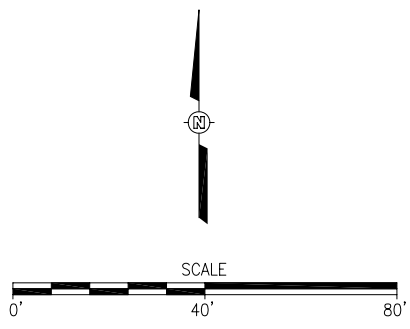


ENTACT

699 South Friendswood Dr., Suite 101
 Friendswood, Texas 77546
 P: 281-996-9892

DRAWING NAME		DRAWING 4			
PROJECT NAME & LOCATION		POND 6 25 YEAR STORMWATER ANALYSIS ASARCO, INC EL PASO FACILITY EL PASO, TEXAS			
DESIGNED BY	M. CARLSON	CHECKED BY	J. WESCOTT	REVISION	
DRAWN BY	M. CARLSON	APPROVED BY	J. WESCOTT	1	
DATE	12-19-07	DATE	12-19-07	SHEET NO.	
PROJECT NO.	D7024	DRAWING NO.	C-D7024-004	4 OF 4	

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION
1	1/11/08	MMC	JW	JW	JANUARY 8TH POND 6 DESIGN COMMENTS FROM ASARCO FACTORED INTO REV 1
0	12/19/07	MMC	JW	JW	ISSUED FOR REVIEW



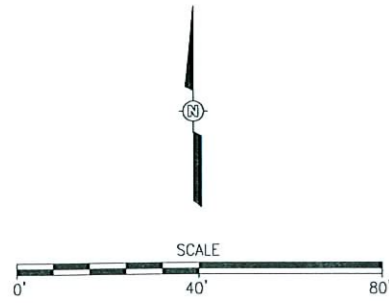
LEGEND:

- OLD EXISTING GRADE CONTOUR --- 1765
- NEW EXISTING GRADE CONTOUR --- 1765
- BOTTOM LINER LIMIT (70,550 SQFT-NEAT) ---
- DIFFERENCE IN ELEVATION FROM OLD EXISTING GRADE ELEVATIONS TO NEW EXISTING GRADING ELEVATIONS
- (NEGATIVE = CUT) -
- (POSITIVE = FILL) +

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION

699 South Friendswood Dr., Suite 101
Friendswood, Texas 77546
P: 281-996-9892

DRAWING NAME		DRAWING 5		
PROJECT NAME & LOCATION		POND 6 EXISTING GRADE VOLUME ANALYSIS ASARCO, INC EL PASO FACILITY EL PASO, TEXAS		
DESIGNED BY	M. CARLSON	CHECKED BY	J. WESCOTT	REVISION
DRAWN BY	M. CARLSON	APPROVED BY	J. WESCOTT	1
DATE	12-19-07	DATE	12-19-07	SHEET NO.
PROJECT NO.	D7024	DRAWING NO.	C-D7024-001	5 OF 5



LEGEND:

- EXISTING GRADE CONTOUR — 1765 —
- SUBGRADE AS-BUILT CONTOUR — 80 —
- AS-BUILT ANCHOR TRENCH CENTERLINE (68,706 SQ.FT.) — —
- 2FT PROCOVER PLACEMENT LIMIT — —

VOLUME REPORT:

STRATUM	CUT (C.Y.)	FILL (C.Y.)	NET (C.Y.)
2FT PRO-COVER AS-BUILT VOLUME	0	4,642	4,642

NOTES:

AS-BUILT SUBGRADE SURVEY DATA PROVIDED TO ENTACT FROM SURVEYING SUBCONTRACTOR.

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION
0	5/1/08	MMC	JW	JW	ISSUED AS INVOICE BACKUP

ENTACT

699 South Friendswood Dr., Suite 101
Friendswood, Texas 77546
P: 281-996-9892

DRAWING NAME		DRAWING 1	
PROJECT NAME & LOCATION		POND 6 AS-BUILT BOTTOM LINER & 2FT PROCOVER VOLUME ANALYSIS ASARCO, INC EL PASO FACILITY EL PASO, TEXAS	
PREPARED BY	M. CARLSON	CHECKED BY	J. WESCOTT
DRAWN BY	M. CARLSON	APPROVED BY	J. WESCOTT
DATE	5-1-08	DATE	5-1-08
PROJECT NO.	D7024	DRAWING NO.	C-D7024-008
		REVISION	0
		SHEET NO.	1 OF 1